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Cover design by Tom Hiatt, Western Pacific Regional Office, WHO. The front cover illustrates the contribution of different sources of funding to TB care and control in low-income countries, highlighting the importance of international donor funding (coloured blocks) compared with domestic contributions (grey band) as well as the role of the Global Fund (red line) that is the leading source of international donor funding globally; see Figure 5.5. The back cover illustrates the impressive reduction in TB prevalence in Cambodia, a low-income and high-burden country, between 2002 (when a baseline national TB prevalence survey was implemented) and 2011 (when a repeat national TB prevalence survey was implemented); see Box 2.7 in Chapter 2.

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Abbreviations

AFB	acid-fast bacilli
AFR	WHO African Region
AIDS	acquired immunodeficiency syndrome
AMR	WHO Region of the Americas
ARI	annual risk of infection
ART	antiretroviral therapy
BCG	Bacille-Calmette-Guérin
BRICS	Brazil, Russian Federation, India, China, South Africa
CDR	case detection rate
CPT	co-trimoxazole preventive therapy
CBC	community-based TB care
DOT	directly observed treatment
DOTS	the basic package that underpins the Stop TB Strategy
DR-TB	drug-resistant tuberculosis
DRS	drug resistance surveillance or survey
DST	drug susceptibility testing
ECDC	European Centre for Disease Prevention and Control
EMR	WHO Eastern Mediterranean Region
EQA	External quality assurance
ERR	Electronic recording and reporting
EU	European Union
EUR	WHO European Region
FIND	Foundation for Innovative New Diagnostics
GDP	gross domestic product
GLI	Global Laboratory Initiative
Global Fund	The Global Fund to fight AIDS, Tuberculosis and Malaria
Global Plan	Global Plan to Stop TB, 2011–2015
GNI	gross national income
HBC	high-burden country of which there are 22 that account for approximately 80% of all new TB cases arising each year
HIV	human immunodeficiency virus
ICD-10	International Classification of Diseases (tenth revision)
IGRA	interferon-gamma release assay
IPT	isoniazid preventive therapy
IRR	incidence rate ratio
LED	Light-emitting diode
LPA	Line-probe assay
MDG	Millennium Development Goal
MDR-TB	multidrug-resistant tuberculosis (resistance to, at least, isoniazid and rifampicin)
NGO	nongovernmental organization
NTP	national tuberculosis control programme or equivalent
PEPFAR	US President's Emergency Plan for AIDS Relief
POC	point-of-care
PPM	Public–Private Mix
SEAR	WHO South-East Asia Region
SRL	supranational reference laboratory
TB	tuberculosis
TB-TEAM	Tuberculosis Technical Assistance Mechanism
TST	tuberculin skin test
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNITAID	international facility for the purchase of diagnostics and drugs for diagnosis and treatment of HIV/AIDS, malaria and TB
USAID	United States Agency for International Development
VR	Vital registration
WHA	World Health Assembly
WHO	World Health Organization
WPR	WHO Western Pacific Region
XDR-TB	Extensively drug-resistant TB, defined as MDR-TB plus resistance to a fluoroquinolone and at least one of three injectable second-line drugs (amikacin, kanamycin or capreomycin)
ZN	Ziehl Neelsen

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Executive Summary

The World Health Organization (WHO) *Global Tuberculosis Report 2012* provides the latest information and analysis about the tuberculosis (TB) epidemic and progress in TB care and control at global, regional and country levels. It is based primarily on data reported by WHO's Member States in annual rounds of global TB data collection. In 2012, 182 Member States and a total of 204 countries and territories that collectively have more than 99% of the world's TB cases reported data.

Key findings

- **Progress towards global targets for reductions in TB cases and deaths continues**. The Millennium Development Goal (MDG) target to halt and reverse the TB epidemic by 2015 has already been achieved. New cases of TB have been falling for several years and fell at a rate of 2.2% between 2010 and 2011. The TB mortality rate has decreased 41% since 1990 and the world is on track to achieve the global target of a 50% reduction by 2015. Mortality and incidence rates are also falling in all of WHO's six regions and in most of the 22 high-burden countries that account for over 80% of the world's TB cases. At country level, Cambodia demonstrates what can be achieved in a low-income and high-burden country: new data show a 45% decrease in TB prevalence since 2002.
- **However, the global burden of TB remains enormous**. In 2011, there were an estimated 8.7 million new cases of TB (13% co-infected with HIV) and 1.4 million people died from TB, including almost one million deaths among HIV-negative individuals and 430 000 among people who were HIV-positive. TB is one of the top killers of women, with 300 000 deaths among HIV-negative women and 200 000 deaths among HIV-positive women in 2011. Global progress also conceals regional variations: the African and European regions are not on track to halve 1990 levels of mortality by 2015.
- **Access to TB care has expanded substantially** since the mid-1990s, when WHO launched a new global TB strategy and began systematically monitoring progress. Between 1995 and 2011, 51 million people were successfully treated for TB in countries that had adopted the WHO strategy, saving 20 million lives.
- **Progress in responding to multidrug-resistant TB (MDR-TB) remains slow**. While the number of cases of MDR-TB notified in the 27 high MDR-TB burden countries is increasing and reached almost 60 000 worldwide in 2011, this is only one in five (19%) of the notified TB patients estimated to have MDR-TB. In the two countries with the largest number of cases, India and China, the figure is less than one in ten; scale-up is expected in these countries in the next three years.
- **There has been further progress in implementing collaborative TB/HIV activities** (first recommended by WHO in 2004). These saved an estimated 1.3 million lives between 2005 and the end of 2011. In 2011, 69% of TB patients were tested for HIV in the African Region, up from 3% in 2004. Globally, 48% of the TB patients known to be living with HIV in 2011 were started on antiretroviral therapy (ART); coverage needs to double to meet WHO's recommendation that all TB patients living with HIV are promptly started on ART. Kenya and Rwanda are top performers in HIV testing and provision of ART.
- **Innovations in diagnostics are being implemented**. The roll-out of Xpert MTB/RIF, a rapid molecular test that can diagnose TB and rifampicin resistance within 100 minutes, has been impressive. Between its endorsement by WHO in December 2010 and the end of June 2012, 1.1 million tests had been purchased by 67 low- and middle-income countries; South Africa (37% of purchased tests) is the leading adopter. A 41% price reduction (from US$ 16.86 to US$ 9.98) in August 2012 should accelerate uptake.
- **The development of new drugs and new vaccines is also progressing**. New or re-purposed TB drugs and novel TB regimens to treat drug-sensitive or drug-resistant TB are advancing in clinical trials and regulatory review. Eleven vaccines to prevent TB are moving through development stages.
- **There are critical funding gaps for TB care and control**. Between 2013 and 2015 up to US$ 8 billion per year is needed in low- and middle-income countries, with a funding gap of up to US$ 3 billion per year. International donor funding is especially critical to sustain recent gains and make further progress in 35 low-income countries (25 in Africa), where donors provide more than 60% of current funding.
- **There are also critical funding gaps for research and development**. US$ 2 billion per year is needed; the funding gap was US$ 1.4 billion in 2010.

Additional highlights by topic

Burden of disease

Geographically, the burden of TB is highest in Asia and Africa. India and China together account for almost 40% of the world's TB cases. About 60% of cases are in the South-East Asia and Western Pacific regions. The African Region has 24% of the world's cases, and the highest rates of cases and deaths per capita.

Worldwide, 3.7% of new cases and 20% of previously treated cases were estimated to have MDR-TB.

India, China, the Russian Federation and South Africa have almost 60% of the world's cases of MDR-TB. The highest proportions of TB patients with MDR-TB are in eastern Europe and central Asia.

Almost 80% of TB cases among people living with HIV reside in Africa.

Estimating the burden of TB in children (aged less than 15) is difficult; estimates are included in the report for the first time. There were an estimated 0.5 million cases and 64 000 deaths among children in 2011.

Case notifications and treatment success

In 2011, 5.8 million newly diagnosed cases were notified to national TB control programmes (NTPs) and reported to WHO, up from 3.4 million in 1995 but still only two-thirds of the estimated total of 8.7 million people who fell ill with TB in 2011.

Notifications of TB cases have stagnated in recent years. New policy measures, including mandatory case notification by all care providers via an electronic web-based system in India, could have a global impact on the number of TB cases notified in future years. Intensified efforts by NTPs to engage the full range of care providers using public-private mix (PPM) initiatives are also important; in most of the 21 countries that provided data, 10–40% of notifications were from non-NTP care providers.

Globally, treatment success rates have been maintained at high levels for several years. In 2010 (the latest year for which treatment outcome data are available), the treatment success rate among all newly-diagnosed cases was 85% and 87% among patients with smear-positive pulmonary TB (the most infectious cases).

Responding to drug-resistant TB

Measurement of drug resistance has improved considerably. Data are available for 135 countries worldwide (70% of WHO's 194 Member States) and by the end of 2012 will be available from all 36 countries with a high burden of TB or MDR-TB.

Extensively drug-resistant TB, or XDR-TB, has been reported by 84 countries; the average proportion of MDR-TB cases with XDR-TB is 9.0%.

The target treatment success rate of 75% or higher for patients with MDR-TB was reached by only 30 of 107 countries that reported treatment outcomes.

Scaling up TB-HIV collaboration

Globally, 40% of TB patients had a documented HIV test result and 79% of those living with HIV were provided with co-trimoxazole preventive therapy in 2011.

Interventions to detect TB promptly and to prevent TB among people living with HIV, that are usually the responsibility of HIV programmes and general primary health-care services, include regular screening for TB and isoniazid preventive therapy (IPT) for those without active TB. The number of people in HIV care who were screened for TB increased 39% (2.3 million to 3.2 million) between 2010 and 2011. Nearly half a million people without active TB were provided with IPT, more than double the number started in 2010 and mostly the result of progress in South Africa.

Research and development to accelerate progress

Research to develop a point-of-care diagnostic test for TB and MDR-TB continues, and other diagnostic tests are in the pipeline.

Today, standard treatment for TB patients lasts six months and the regimen for most patients with drug-resistant TB takes 20 months. Treatment for MDR-TB is costly and can have serious side-effects. Of the 11 anti-TB drugs in clinical trials, two new drugs are being evaluated to boost the effectiveness of MDR-TB regimens. A novel regimen that could be used to treat both drug-sensitive TB and MDR-TB and shorten treatment duration has shown encouraging results in clinical trials.

There is no effective vaccine to prevent TB in adults. Progress in the past decade means that it is possible that at least one new vaccine could be licensed by 2020.

Financing for TB care and control

About US$ 1 billion per year of international donor funding is needed for TB care and control (excluding TB/HIV interventions) in low and middle-income countries from 2013 to 2015, double existing levels. Up to an additional US$ 1 billion per year is needed for TB/HIV interventions, mostly for ART for HIV-positive TB patients.

National contributions provide the bulk of financing for TB care and control in Brazil, the Russian Federation, India, China and South Africa (BRICS). However, they remain insufficient for scaling up the diagnosis and treatment of MDR-TB; BRICS account for about 60% of the world's estimated cases of MDR-TB.

The Global Fund provides almost 90% of international donor funding for TB.

CHAPTER 1

Introduction

BOX 1.1

Basic facts about tuberculosis (TB)

TB is an infectious disease caused by the bacillus *Mycobacterium tuberculosis*. It typically affects the lungs (pulmonary TB) but can affect other sites as well (extrapulmonary TB). The disease is spread in the air when people who are sick with pulmonary TB expel bacteria, for example by coughing. In general, a relatively small proportion of people infected with *Mycobacterium tuberculosis* will develop TB disease; however, the probability of developing TB is much higher among people infected with the human immunodeficiency virus (HIV). TB is also more common among men than women, and affects mostly adults in the economically productive age groups.

Without treatment, mortality rates are high. In studies of the natural history of the disease among sputum smear-positive and HIV-negative cases of pulmonary TB, around 70% died within 10 years; among culture-positive (but smear-negative) cases, 20% died within 10 years.[1]

The most common method for diagnosing TB worldwide is sputum smear microscopy (developed more than 100 years ago), in which bacteria are observed in sputum samples examined under a microscope. Following recent developments in TB diagnostics, the use of rapid molecular tests for the diagnosis of TB and drug-resistant TB is increasing, as highlighted in **Chapter 6** of this report. In countries with more developed laboratory capacity, cases of TB are also diagnosed via culture methods (the current reference standard).

Treatment for new cases of drug-susceptible TB consists of a 6-month regimen of four first-line drugs: isoniazid, rifampicin, ethambutol and pyrazinamide. Treatment for multidrug-resistant TB (MDR-TB), defined as resistance to isoniazid and rifampicin (the two most powerful anti-TB drugs) is longer, and requires more expensive and toxic drugs. For most patients with MDR-TB, the current regimens recommended by WHO last 20 months.

[1] Tiemersma EW et al. Natural history of tuberculosis: duration and fatality of untreated pulmonary tuberculosis in HIV-negative patients: A systematic review. *PLoS ONE* 2011 6(4): e17601.

Tuberculosis (TB) remains a major global health problem. It causes ill-health among millions of people each year and ranks as the second leading cause of death from an infectious disease worldwide, after the human immunodeficiency virus (HIV). The latest estimates included in this report are that there were almost 9 million new cases in 2011 and 1.4 million TB deaths (990 000 among HIV-negative people and 430 000 HIV-associated TB deaths). This is despite the availability of treatment that will cure most cases of TB. Short-course regimens of first-line drugs that can cure around 90% of cases have been available since the 1980s.

The World Health Organization (WHO) declared TB a global public health emergency in 1993. Starting in the mid-1990s, efforts to improve TB care and control intensified at national and international levels. WHO developed the DOTS strategy, a five-component package comprising political commitment, diagnosis using sputum smear microscopy, a regular supply of first-line anti-TB drugs, short-course chemotherapy and a standard system for recording and reporting the number of cases detected by national TB control programmes (NTPs) and the outcomes of treatment. Within a decade, almost all countries had adopted the strategy and there was considerable progress towards global targets established for 2005: the detection of 70% of the estimated number of smear-positive pulmonary cases (the most infectious cases) and the successful treatment of 85% of these cases. In 2005, the numbers of cases reported by NTPs grew to over 5 million and treatment success rates reached 85%.

WHO's currently-recommended approach to TB care and control is the Stop TB Strategy, launched in 2006 (**Box 1.2**). This strategy was linked to new global targets for reductions in TB cases and deaths that were set for 2015 (**Box 1.3**) as part of the Millennium Development Goals (MDGs) and by the Stop TB Partnership. The targets are that TB incidence should be falling by 2015 (MDG Target 6.c) and that prevalence and death rates should be halved compared with their levels in 1990.

The scale at which interventions included in the Stop TB Strategy need to be implemented to achieve the 2015 targets for reductions in disease burden has been described in Global Plans developed by the Stop TB Partnership. The latest plan covers the period 2011–2015 and

BOX 1.2

The Stop TB Strategy at a glance

THE STOP TB STRATEGY

VISION	A TB-free world
GOAL	To dramatically reduce the global burden of TB by 2015 in line with the Millennium Development Goals (MDGs) and the Stop TB Partnership targets
OBJECTIVES	■ Achieve universal access to high-quality care for all people with TB
	■ Reduce the human suffering and socioeconomic burden associated with TB
	■ Protect vulnerable populations from TB, TB/HIV and drug-resistant TB
	■ Support development of new tools and enable their timely and effective use
	■ Protect and promote human rights in TB prevention, care and control
TARGETS	■ MDG 6, Target 6.c: Halt and begin to reverse the incidence of TB by 2015
	■ Targets linked to the MDGs and endorsed by the Stop TB Partnership: – 2015: reduce prevalence of and deaths due to TB by 50% compared with a baseline of 1990 – 2050: eliminate TB as a public health problem

COMPONENTS

1. **Pursue high-quality DOTS expansion and enhancement**
   a. Secure political commitment, with adequate and sustained financing
   b. Ensure early case detection, and diagnosis through quality-assured bacteriology
   c. Provide standardized treatment with supervision, and patient support
   d. Ensure effective drug supply and management
   e. Monitor and evaluate performance and impact
2. **Address TB/HIV, MDR-TB, and the needs of poor and vulnerable populations**
   a. Scale-up collaborative TB/HIV activities
   b. Scale-up prevention and management of multidrug-resistant TB (MDR-TB)
   c. Address the needs of TB contacts, and of poor and vulnerable populations
3. **Contribute to health system strengthening based on primary health care**
   a. Help improve health policies, human resource development, financing, supplies, service delivery and information
   b. Strengthen infection control in health services, other congregate settings and households
   c. Upgrade laboratory networks, and implement the Practical Approach to Lung Health
   d. Adapt successful approaches from other fields and sectors, and foster action on the social determinants of health
4. **Engage all care providers**
   a. Involve all public, voluntary, corporate and private providers through public–private mix approaches
   b. Promote use of the International Standards for Tuberculosis Care
5. **Empower people with TB, and communities through partnership**
   a. Pursue advocacy, communication and social mobilization
   b. Foster community participation in TB care, prevention and health promotion
   c. Promote use of the Patients' Charter for Tuberculosis Care
6. **Enable and promote research**
   a. Conduct programme-based operational research
   b. Advocate for and participate in research to develop new diagnostics, drugs and vaccines

TABLE 1.1 **Targets for the scale-up of interventions for TB care and control set in the Global Plan to Stop TB 2011–2015**

PLAN COMPONENT AND INDICATORS	2015 TARGET
Diagnosis and treatment of drug-susceptible TB	
Number of cases diagnosed, notified and treated according to the DOTS approach (per year)	6.9 million
Treatment success rate (in annual cohort)	90%
Number of countries with ≥1 laboratory with sputum-smear microscopy services per 100 000 population	149
Diagnosis and treatment of drug-resistant TB	
Percentage of previously treated TB patients tested for MDR-TB	100%
Percentage of new bacteriologically-positive TB patients tested for MDR-TB	20%
Number of countries among the 22 HBCs and 27 high MDR-TB burden countries with ≥1 culture laboratory per 5 million population	36
Percentage of confirmed cases of MDR-TB enrolled on treatment according to international guidelines	100%
Number of confirmed cases of MDR-TB enrolled on treatment according to international guidelines	~270 000
Treatment success rate among confirmed cases of MDR-TB	≥75%
Collaborative TB/HIV activities	
Percentage of TB patients tested for HIV	100%
Percentage of HIV-positive TB patients treated with CPT	100%
Percentage of HIV-positive TB patients treated with ART	100%
Percentage of people living with HIV attending HIV care services who were screened for TB at their last visit	100%
Percentage of people living with HIV attending HIV care services who were enrolled on IPT, among those eligible	100%
Laboratory strengthening (additional to those above)	
Percentage of national reference laboratories implementing a quality management system (QMS) according to international standards	≥50%

ART, antiretroviral therapy; CPT, co-trimoxazole preventive therapy; HBC, high TB burden country; HIV, human immunodeficiency virus; IPT, isoniazid preventive therapy; MDR-TB, multidrug-resistant tuberculosis

comes with a price tag of US$ 47 billion.[1] The main indicators and associated targets for 2015 are summarized in Table 1.1.

WHO has published a global report on TB every year since 1997 (Figure 1.1). The main aim of the report is to provide a comprehensive and up-to-date assessment of the TB epidemic and progress made in prevention, care and control of the disease at global, regional and country levels, in the context of global targets and WHO's recommended strategy for achieving these targets. This 2012 edition – the 17th in the series – continues the tradition. It is based primarily on data compiled in annual rounds of global TB data collection in which countries are requested to report a standard set of data to WHO (Box 1.4). In 2012, a total of 204 countries and territories that account for over 99% of the world's estimated cases of TB reported data (Table 1.2).

The report is structured in seven major chapters. Each chapter is intended to stand alone, but links to other chapters are highlighted where appropriate.

Chapter 2 contains the latest estimates of the burden of disease caused by TB and assessment of progress towards the 2015 targets at global, regional and country levels. The chapter puts the spotlight on Cambodia as a new success story in TB control at country level and for the first

[1] *The Global Plan to Stop TB, 2011–2015*. Geneva, World Health Organization, 2010 (WHO/HTM/STB/2010.2). www.stoptb.org/global/plan/

BOX 1.3

Goals, targets and indicators for TB control

Millennium Development Goals set for 2015

- **Goal 6: Combat HIV/AIDS, malaria and other diseases**

Target 6c: Halt and begin to reverse the incidence of malaria and other major diseases

Indicator 6.9: Incidence, prevalence and death rates associated with TB

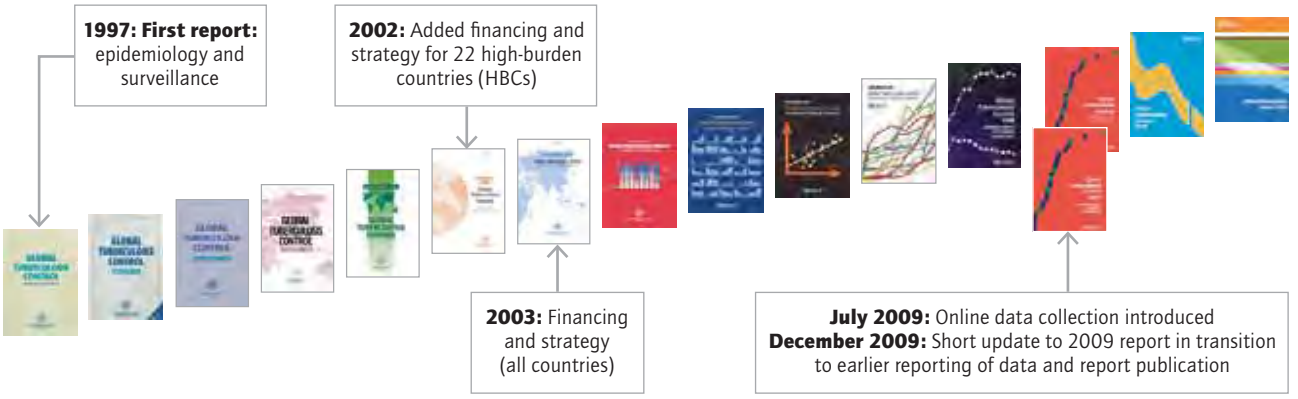
Indicator 6.10: Proportion of TB cases detected and cured under DOTS

Stop TB Partnership targets set for 2015 and 2050

By 2015: Reduce prevalence and death rates by 50%, compared with their levels in 1990

By 2050: Reduce the global incidence of active TB cases to <1 case per 1 million population per year

FIGURE 1.1 **Sixteen annual WHO reports on TB in 15 years, 1997–2011**



BOX 1.4

Data collected in WHO's 2012 round of global TB data collection

Data were requested on the following topics: TB case notifications and treatment outcomes, including breakdowns by case type, age, sex, HIV status and drug resistance status; an overview of services for the diagnosis and treatment of TB; laboratory diagnostic services; drug management; monitoring and evaluation; surveillance and surveys of drug-resistant TB; management of drug-resistant TB; collaborative TB/HIV activities; TB infection control; engagement of all care providers in TB control; the budgets of national TB control programmes (NTPs) in 2012 and 2013; utilization of general health services (hospitalization and outpatient visits) during treatment; and NTP expenditures in 2011. A shortened version of the online questionnaire was used for high-income countries (that is, countries with a gross national income per capita of ≥US$ 12 475 in 2011, as defined by the World Bank)[1] and/or low-incidence countries (defined as countries with an incidence rate of <20 cases per 100 000 population or <10 cases in total).

Since 2009, data have been reported using an online web-based system.[2] In 2012, the online system was opened for reporting on 16 March, with a deadline of 17 May for all WHO regions except the Region of the Americas (31 May) and the European Region (15 June). Countries in the European Union submit notification data to a system managed by the European Centre for Disease Prevention and Control (ECDC). Data from the ECDC system were uploaded into WHO's online system.

Data were reviewed, and followed up with countries where appropriate, by a team of reviewers from WHO (headquarters and regional offices) and the Global Fund. Validation of data by respondents was also encouraged via a series of inbuilt and real-time checks of submitted data as well as a summary report of apparent inconsistencies or inaccuracies that can be generated at any time within the online system. Following corrections and updates by countries, the data used for the main part of this report were the data available in July 2012. **Annex 4** was produced on 25 September 2012, by which time additional data had been reported by a few European countries.[3]

Besides the data reported through the standard TB questionnaire, data about screening for TB among people living with HIV and provision of isoniazid preventive therapy to those without active TB were collected by the HIV department in WHO and UNAIDS. The data were jointly validated and imported into the global TB database.

[1] http://data.worldbank.org/about/country-classifications
[2] www.stoptb.org/tme
[3] For this reason, there may be slight discrepancies between the main part of the report and **Annex 4**.

time includes estimates of the burden of TB in children. The latest status of efforts to improve measurement of TB cases and deaths at country level, with guidance and support from WHO's Global Task Force on TB Impact Measurement, is described.

Chapter 3 presents data on the numbers of cases notified to NTPs and reported to WHO and their treatment outcomes, including breakdowns of cases by type of TB disease, sex and age.

Chapter 4 focuses on drug-resistant TB, covering progress in drug resistance surveillance and associated estimates of the proportion of TB patients that have MDR-TB and extensively drug-resistant TB (XDR-TB), and the latest data on the coverage of testing for MDR-TB among new and previously treated TB patients, notifications of cases of MDR-TB and enrolments on treatment, and treatment outcomes.

Chapter 5 assesses financing for TB care and control. Trends since 2006 are described by source of funding and category of expenditure. Important contrasts in the extent to which different country groups rely upon domestic and donor financing are illustrated. Funding gaps, the unit costs of TB treatment and the cost-effectiveness of TB interventions are discussed as well.

TABLE 1.2 **Reporting of data in the 2012 round of global TB data collection**

WHO REGION OR SET OF COUNTRIES	COUNTRIES AND TERRITORIES		MEMBER STATES	
	NUMBER	NUMBER THAT REPORTED DATA	NUMBER	NUMBER THAT REPORTED DATA
African Region	46	46	46	46
Eastern Mediterranean Region	23	23	22	22
European Region[a]	54	42	53	41
Region of the Americas	46	46	35	35
South-East Asia Region	11	11	11	11
Western Pacific Region	36	36	27	27
High-burden countries (HBCs)[b]	22	22	22	22
WORLD	**216**	**204**	**194**	**182**

[a] Countries that did not report by the deadlines were mostly low-incidence countries in Western Europe.
[b] The HBCs are Afghanistan, Bangladesh, Brazil, Cambodia, China, the Democratic Republic of the Congo, Ethiopia, India, Indonesia, Kenya, Mozambique, Myanmar, Nigeria, Pakistan, the Philippines, the Russian Federation, South Africa, Thailand, Uganda, the United Republic of Tanzania, Viet Nam and Zimbabwe.

Chapter 6, on TB diagnostics and laboratory strengthening, summarizes recent policy development and analyses laboratory capacity in 2011. The development of laboratory capacity through the EXPAND-TB project and the latest data on progress in rolling out Xpert MTB/RIF since endorsement of this rapid molecular test in 2010 are given particular attention.

Chapter 7 contains the most recent data on progress in implementing collaborative TB/HIV activities to jointly address the epidemics of TB and HIV. The lives saved by these interventions since WHO policy was issued in 2004 and the need to further increase the coverage of antiretroviral therapy for TB patients living with HIV are highlighted.

Chapter 8 discusses research and development for new TB diagnostics, drugs and vaccines. After years of stagnation, considerable progress has occurred in the last decade and the development pipelines as of mid-2012 are described and discussed.

The report also has four annexes. **Annex 1** explains the methods used to produce estimates of the burden of disease caused by TB. **Annex 2** contains country profiles for the 22 high-burden countries (HBCs) that collectively account for about 80% of the world's TB cases (profiles for all countries are available online[1]). **Annex 3** contains regional profiles. **Annex 4** consists of summary tables that provide data on key indicators for the world, WHO's six regions and individual countries.

[1] www.who.int/tb/data

CHAPTER 2

The burden of disease caused by TB

KEY FACTS AND MESSAGES

- There has been major progress in reducing TB cases and deaths in the past two decades.
- The 2015 MDG target of halting and reversing TB incidence has been achieved, with TB incidence falling globally for several years and declining at a rate of 2.2% between 2010 and 2011. Globally, the TB mortality rate has fallen by 41% since 1990 and the world is on track to reach the global target of a 50% reduction by 2015.
- Mortality and incidence rates are falling in all of WHO's six regions and in most of the 22 HBCs that account for over 80% of the world's TB cases.
- Cambodia provides an important new success story for TB control in a HBC: a national population-based survey completed in 2011 showed that TB prevalence had fallen 45% since a baseline survey in 2002.
- Despite this encouraging progress, the global burden of TB remains enormous. There were an estimated 8.7 million incident cases of TB in 2011 (13% co-infected with HIV). There were also 1.4 million deaths from TB (990 000 deaths among HIV-negative individuals and 430 000 among people who were HIV-positive). These deaths included 0.5 million among women, making TB one of the top killers of women worldwide.
- Geographically, the burden of TB is highest in Asia and Africa. India and China combined have almost 40% of the world's TB cases; the South-East Asia and Western Pacific Regions of which they are a part account for 60%. The African Region has approximately one quarter of the world's cases, and the highest rates of cases and deaths relative to population.
- Globally, 3.7% of new cases and 20% of previously treated cases are estimated to have MDR-TB.
- Estimates of the burden of disease caused by TB are being continuously improved at country level, supported by WHO's Global Task Force on TB Impact Measurement.

The burden of disease caused by TB can be measured in terms of incidence (defined as the number of new and relapse cases of TB arising in a given time period, usually one year), prevalence (defined as the number of cases of TB at a given point in time) and mortality (defined as the number of deaths caused by TB in a given time period, usually one year).

This chapter presents estimates of TB incidence, prevalence and mortality (absolute numbers and rates) between 1990 and 2011 and (for prevalence and mortality) forecasts up to 2015 (in **sections 2.1–2.3**). These data are used to assess progress towards achieving the global targets for TB control set for 2015: that incidence should be falling (MDG Target 6.c) and that prevalence and death rates should be halved by 2015 compared with 1990 (**Box 1.3** in **Chapter 1**). Key aspects of the methods used to produce the estimates are provided at the beginning of each section.[1] **Section 2.4** contains estimates of the number of prevalent cases of multidrug-resistant TB (MDR-TB) in 2011, and estimates of the proportion of MDR-TB cases globally, regionally and in high TB-burden countries (HBCs).[2]

In response to increasing demand and global attention, this 2012 global report is the first to feature estimates of the number of TB cases and deaths among children and the first to include estimates of TB mortality among women that include HIV-associated TB deaths.[3] The chapter also puts the spotlight on Cambodia, which provides a new success story for TB control at country level. A national survey in 2011 showed that TB prevalence had fallen by 45% in the 9 years since a baseline survey in 2002.

There is uncertainty in all estimates of the burden of disease caused by TB. **Section 2.5** profiles efforts to improve measurement of the burden of the disease under the umbrella of the WHO Global Task Force on TB Impact Measurement. These include efforts to strengthen surveillance of cases and deaths via notification and vital registration (VR) systems, and national surveys of the prevalence of TB disease in global focus countries.

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[1] A detailed description is provided in **Annex 1**.

[2] **Chapter 4** includes a much fuller discussion of the MDR-TB epidemic and the latest data on progress in the diagnosis and treatment of MDR-TB.

[3] In previous reports, estimates were restricted to the number of TB deaths among women who were HIV-negative.

BOX 2.1

Uncertainty in estimates of TB incidence, prevalence and mortality

Measuring the incidence of TB at national level has never been done because it would require long-term studies among large cohorts of people (hundreds of thousands) at high cost and with challenging logistics. In countries with a high burden of TB, prevalence can be directly measured in nationwide surveys using sample sizes of around 50 000 people; costs range from US$ 1 to US$ 4 million per survey.[1] Between 2009 and 2015, an unprecedented number of national TB prevalence surveys are being conducted in countries where TB is endemic. In low and medium-burden countries, sample sizes and costs become prohibitively large. TB mortality among HIV-negative people can be directly measured if national vital registration (VR) systems of high coverage – in which causes of death are accurately coded according to the latest revision of the international classification of diseases (ICD-10) – are in place. Sample VR systems covering representative areas of the country (as in China) provide an interim solution. Mortality surveys can also be used to directly measure deaths caused by TB. In 2011, most countries with a high burden of TB lacked national or sample VR systems and few had conducted mortality surveys. TB mortality among HIV-positive people is hard to measure even when VR systems are in place because deaths among HIV-positive people are coded as HIV deaths and contributory causes (such as TB) are often not reliably recorded.

For all these reasons, the estimates of TB incidence, prevalence and mortality included in this chapter are presented with uncertainty intervals. The methods used to produce best estimates and uncertainty intervals are described in detail in Annex 1.

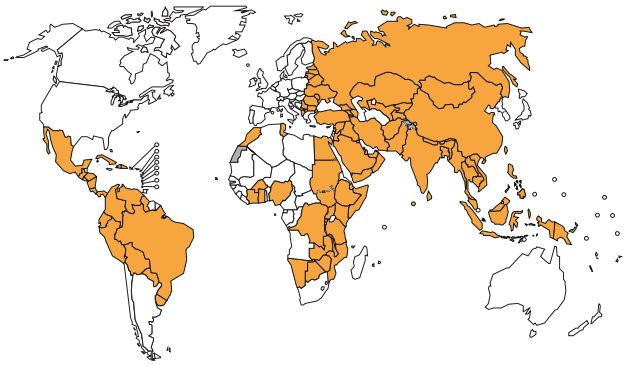
[1] *TB prevalence surveys: a handbook*. Geneva, World Health Organization, 2011 (WHO/HTM/TB/2010.17).

2.1 Incidence

The incidence of TB cannot be measured directly (Box 2.1). For 96 countries that account for 89% of the world's TB cases, estimates were revised between 2009 and 2012 in regional or country workshops (Figure 2.1) using a framework (Figure 2.2) and associated tools developed by the WHO Global Task Force on TB Impact Measurement. In-depth analyses of the available surveillance, survey and programmatic data were undertaken, and expert opinion about the fraction of cases diagnosed but not reported, or not diagnosed at all, was documented. Reliance on expert opinion is one of the reasons why estimates are uncertain (Box 2.1); strengthening surveillance and better quantifying the extent of under-reporting (i.e. the number of cases that are missed by surveillance systems) are needed to reduce this uncertainty (efforts to do so are discussed in Section 2.5). For countries not covered in workshops, estimates are based on extending previous time-series or on updates using mortality data from VR systems combined with evidence about the case fatality rate (see Annex 1 for details).

In 2011, there were an estimated 8.7 million incident cases of TB (range, 8.3 million–9.0 million) globally, equivalent to 125 cases per 100 000 population (Table 2.1, Table 2.2, Figure 2.3, Figure 2.4, Figure 2.5). Most of the estimated number of cases in 2011 occurred in Asia (59%) and Africa (26%);[1] smaller proportions of cases occurred in the Eastern Mediterranean Region (7.7%), the European Region (4.3%) and the Region of the Americas (3%). The 22 HBCs that have been given highest priority at the global level since 2000 (listed in Table 2.1 and Table 2.2) accounted for 82% of all estimat-

FIGURE 2.1 **Progress in applying the Task Force framework for assessment of TB surveillance data, as of July 2012[a]**



[a] All countries shown in orange participated in regional workshops held from April 2009 to June 2010, with the exception of the United Republic of Tanzania where a country mission was undertaken in October 2009 and India where three country missions were undertaken between April and July 2011. As follow-up to the regional workshop held for countries in the Western Pacific Region in June 2010, national workshops were also held in China in June 2011, in India in July 2011 and July 2012, in Cambodia in February 2012 and in Indonesia in March 2012. Further details about these workshops are provided in ANNEX 1.

[1] Asia refers to the WHO regions of South-East Asia and the Western Pacific. Africa means the WHO African Region.

FIGURE 2.2 **Framework for assessment of TB surveillance data (notification and vital registration data)**

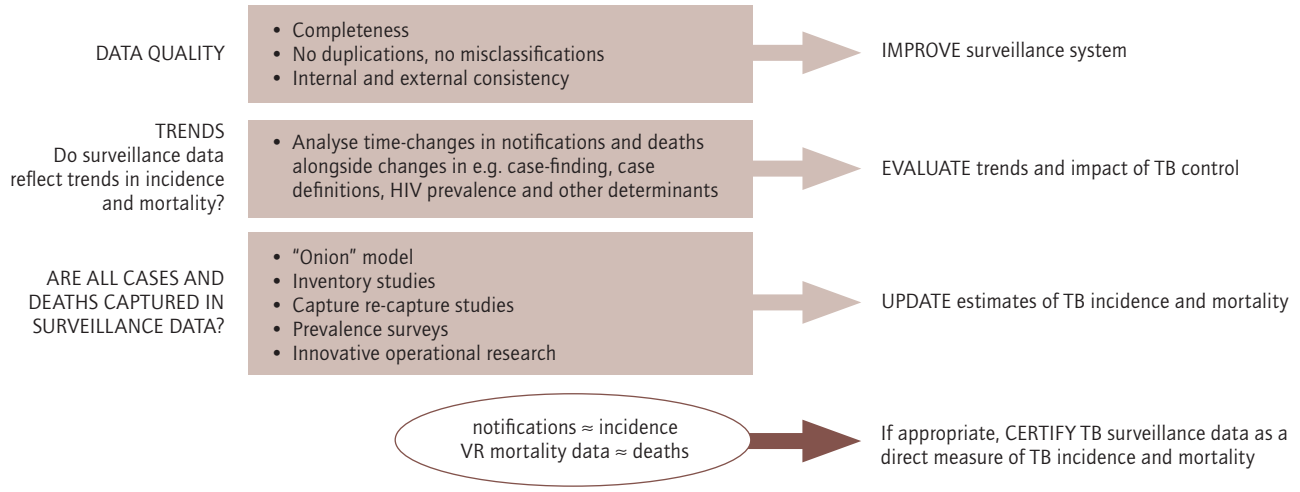


TABLE 2.1 **Estimated burden of disease caused by TB, 2011.** Numbers in thousands.[a]

		MORTALITY[b]			PREVALENCE			INCIDENCE			HIV-POSITIVE INCIDENT TB CASES		
	POPULATION	BEST[c]	LOW	HIGH	BEST	LOW	HIGH	BEST	LOW	HIGH	BEST	LOW	HIGH
Afghanistan	32 358	13	5.3	23	110	55	190	61	51	73	0.3	0.2	0.4
Bangladesh	150 494	68	29	120	620	300	1 100	340	280	400	0.6	0.3	1.0
Brazil	196 655	5.6	4.6	6.8	91	36	170	83	69	97	16	13	19
Cambodia	14 305	9.1	4.2	16	120	99	140	61	52	70	3.1	2.6	3.6
China	1 347 565	47	45	49	1 400	1 200	1 600	1 000	890	1 100	13	8.6	17
DR Congo	67 758	36	16	65	350	180	570	220	190	250	34	27	41
Ethiopia	84 734	15	11	20	200	160	240	220	160	280	38	28	49
India[d]	1 241 492	300	190	430	3 100	2 100	4 300	2 200	2 000	2 500	94	72	120
Indonesia	242 326	65	29	120	680	310	1 200	450	380	540	15	11	20
Kenya	41 610	9.2	4.7	15	120	63	200	120	110	120	47	45	49
Mozambique	23 930	11	4.0	22	120	56	200	130	91	180	83	58	110
Myanmar	48 337	23	11	40	240	190	310	180	160	210	18	15	22
Nigeria	162 471	27	6.1	64	280	71	620	190	90	330	50	23	86
Pakistan	176 745	59	26	110	620	280	1 100	410	340	490	1.5	1.0	2.1
Philippines	94 852	28	25	31	460	400	520	260	210	310	1.1	0.6	1.6
Russian Federation	142 836	22	22	23	180	72	330	140	120	160	9.3	7.4	11
South Africa	50 460	25	11	44	390	200	630	500	410	600	330	270	390
Thailand	69 519	9.8	4.2	18	110	51	200	86	71	100	13	10	15
Uganda	34 509	5.0	2.1	9.0	63	33	100	67	54	81	35	28	42
UR Tanzania	46 218	6.4	3.3	11	82	43	130	78	73	83	30	28	32
Viet Nam	88 792	30	12	55	290	130	500	180	140	220	14	11	18
Zimbabwe	12 754	6.0	2.4	11	70	37	110	77	59	96	46	36	58
High-burden countries	**4 370 719**	**820**	**680**	**980**	**9 700**	**8 300**	**11 000**	**7 100**	**6 800**	**7 500**	**890**	**810**	**970**
AFR	857 382	220	180	270	2 500	2 100	3 000	2 300	2 100	2 400	870	800	950
AMR	943 019	21	18	24	330	250	420	260	240	280	37	34	40
EMR	608 628	99	61	150	1 000	660	1 500	660	590	740	8.7	7.6	9.9
EUR	899 500	45	44	46	500	370	650	380	350	400	23	20	25
SEAR	1 830 361	480	350	630	5 000	3 800	6 300	3 500	3 200	3 700	140	120	170
WPR	1 808 797	130	100	150	2 500	2 200	2 800	1 700	1 500	1 800	36	31	42
Global	**6 947 687**	**990**	**840**	**1 100**	**12 000**	**10 000**	**13 000**	**8 700**	**8 300**	**9 000**	**1 100**	**1 000**	**1 200**

[a] Numbers for mortality, prevalence and incidence shown to two significant figures. Totals (HBCs, regional and global) are computed prior to rounding.
[b] Mortality excludes deaths among HIV-positive TB cases. Deaths among HIV-positive TB cases are classified as HIV deaths according to ICD-10.
[c] Best, low and high indicate the point estimate and lower and upper bounds of the 95% uncertainty interval.
[d] Estimates for India have not yet been officially approved by the Ministry of Health & Family Welfare, Government of India, and should therefore be considered provisional.

TABLE 2.2 **Estimated burden of disease caused by TB, 2011.** Rates per 100 000 population except where indicated.[a]

	POPULATION (THOUSANDS)	MORTALITY[a]			PREVALENCE			INCIDENCE			HIV PREVALENCE IN INCIDENT TB CASES (%)		
		BEST[b]	LOW	HIGH	BEST	LOW	HIGH	BEST	LOW	HIGH	BEST	LOW	HIGH
Afghanistan	32 358	39	16	71	351	169	597	189	156	225	0.5	0.3	0.7
Bangladesh	150 494	45	19	82	411	199	698	225	185	268	0.2	0.1	0.3
Brazil	196 655	2.9	2.3	3.4	46	18	87	42	35	50	20	19	20
Cambodia	14 305	63	29	111	817	690	954	424	364	489	5.1	4.8	5.3
China	1 347 565	3.5	3.4	3.6	104	91	119	75	66	85	1.2	0.9	1.7
DR Congo	67 758	54	24	96	512	263	842	327	282	375	15	13	17
Ethiopia	84 734	18	14	24	237	191	288	258	191	335	17	17	18
India[c]	1 241 492	24	15	35	249	168	346	181	163	199	4.2	3.3	5.2
Indonesia	242 326	27	12	48	281	130	489	187	155	222	3.3	2.5	4.2
Kenya	41 610	22	11	36	291	152	475	288	276	300	39	39	40
Mozambique	23 930	47	17	91	490	235	837	548	380	747	63	63	64
Myanmar	48 337	48	22	84	506	390	637	381	326	439	9.9	8.8	11
Nigeria	162 471	17	3.7	40	171	44	382	118	56	204	26	25	26
Pakistan	176 745	33	15	60	350	158	618	231	190	276	0.4	0.3	0.5
Philippines	94 852	29	26	33	484	425	546	270	223	322	0.4	0.3	0.6
Russian Federation	142 836	16	15	16	124	50	229	97	82	114	6.7	5.7	7.7
South Africa	50 460	49	21	87	768	399	1 250	993	819	1 180	65	65	66
Thailand	69 519	14	6.1	25	161	73	282	124	102	147	15	14	15
Uganda	34 509	14	6.2	26	183	95	298	193	156	234	53	52	53
UR Tanzania	46 218	14	7.1	23	177	93	286	169	159	180	38	38	39
Viet Nam	88 792	33	14	62	323	148	563	199	153	250	8.0	7.8	8.2
Zimbabwe	12 754	47	19	88	547	287	889	603	466	757	60	59	60
High-burden countries	**4 370 719**	**19**	**15**	**22**	**222**	**190**	**255**	**163**	**155**	**171**	**13**	**11**	**14**
AFR	857 382	26	21	31	293	243	347	262	242	283	39	37	41
AMR	943 019	2.2	1.9	2.5	35	26	44	28	26	29	14	11	17
EMR	608 628	16	10	24	170	108	246	109	97	122	1.5	0.9	2.1
EUR	899 500	5.0	4.9	5.1	56	41	73	42	39	45	6.1	4.4	8.0
SEAR	1 830 361	26	19	34	271	206	344	189	176	203	4.1	3.3	5.0
WPR	1 808 797	6.9	5.7	8.3	138	123	154	92	84	100	2.2	1.4	3.1
Global	**6 947 687**	**14**	**12**	**17**	**170**	**150**	**192**	**125**	**120**	**130**	**13**	**12**	**14**

[a] Mortality excludes deaths among HIV-positive TB cases. Deaths among HIV-positive TB cases are classified as HIV deaths according to ICD-10.
[b] Best, low and high indicate the point estimate and lower and upper bounds of the 95% uncertainty interval.
[c] Estimates for India have not yet been officially approved by the Ministry of Health & Family Welfare, Government of India, and should therefore be considered provisional.

ed incident cases worldwide. Of the 8.7 million incident cases, an estimated 0.5 million were children (**Box 2.2**) and 2.9 million (range, 2.6–3.2 million) occurred among women.

The five countries with the largest number of incident cases in 2011 were India (2.0 million–2.5 million), China (0.9 million–1.1 million), South Africa (0.4 million–0.6 million), Indonesia (0.4 million–0.5 million) and Pakistan (0.3 million–0.5 million). India and China alone accounted for 26% and 12% of global cases, respectively.

Of the 8.7 million incident cases in 2011, 1.0 million–1.2 million (12–14%) were among people living with HIV, with a best estimate of 1.1 million (13%) (**Table 2.1**). The proportion of TB cases coinfected with HIV was highest in countries in the African Region (**Figure 2.6**); overall, 39% of TB cases were estimated to be coinfected with HIV in this region, which accounted for 79% of TB cases among people living with HIV worldwide.

Globally, incidence rates were relatively stable from 1990 up to around 2001, and then started to fall (**Figure 2.3**). Between 2010 and 2011, the rate of decline was 2.2%; if this trend is sustained, MDG Target 6.c will be achieved. The absolute number of incident cases is also falling, albeit slowly (**Figure 2.4**), as the decline in the incidence rate (per 100 000 population) exceeds the rate of growth in the world's population.

Incidence rates are declining in all of WHO's six regions (**Figure 2.7**). The rate of decline between 2010 and 2011 was 0.5% in the Eastern Mediterranean Region, 2.0% in the South-East Asia Region, 2.3% in the Western Pacific Region, 3.1% in the African Region, 3.8% in the Region of the Americas and 8.5% per year in the European

FIGURE 2.3 **Global trends in estimated rates of TB incidence, prevalence and mortality.** Left: Global trends in estimated incidence rate including HIV-positive TB (green) and estimated incidence rate of HIV-positive TB (red). Centre and right: Trends in estimated TB prevalence and mortality rates 1990–2011 and forecast TB prevalence and mortality rates 2012–2015. The horizontal dashed lines represent the Stop TB Partnership targets of a 50% reduction in prevalence and mortality rates by 2015 compared with 1990. Shaded areas represent uncertainty bands. Mortality excludes TB deaths among HIV-positive people.

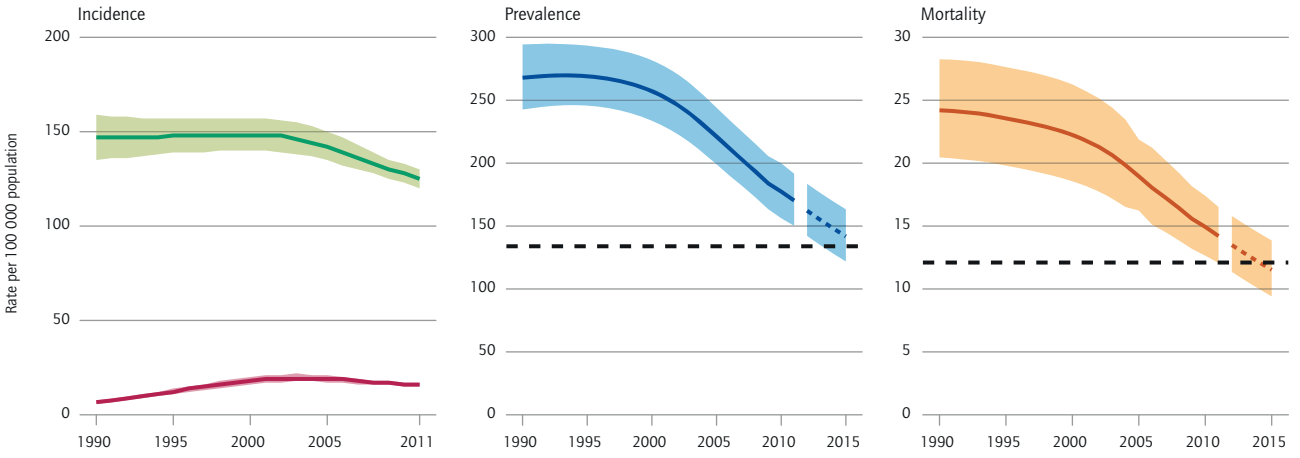
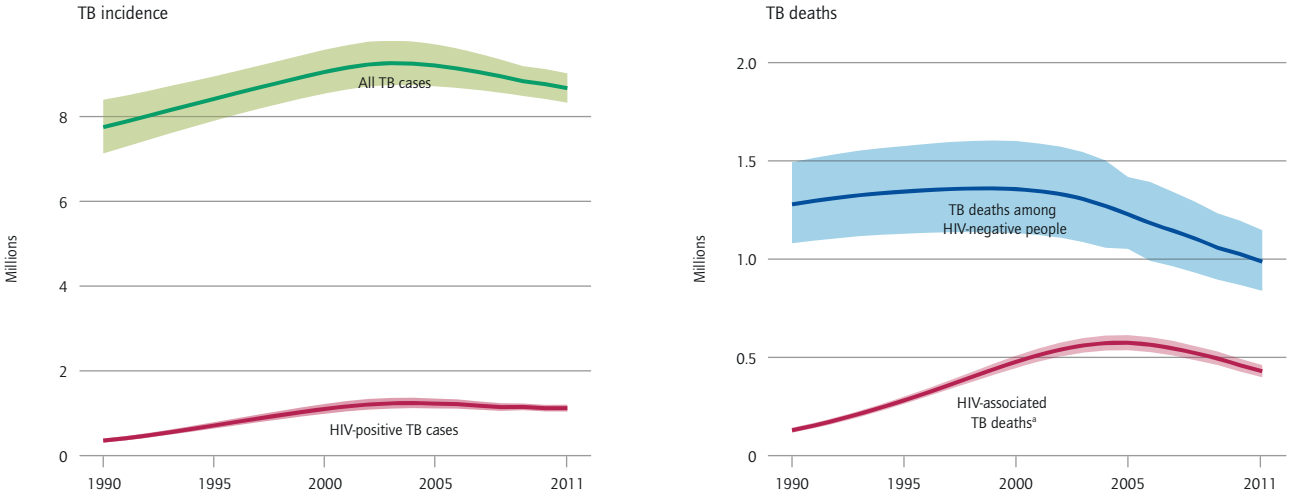


FIGURE 2.4 **Estimated absolute numbers of TB cases and deaths (in millions), 1990–2011**



[a] HIV-associated TB deaths are classified as HIV deaths according to ICD-10.

Region. Incidence rates have been falling since the mid-1990s in the Eastern Mediterranean Region and since around 2000 in South-East Asia; they peaked at the end of the 1990s in the European Region and around 2002 in Africa, and have been falling since 1990 in the Americas and the Western Pacific Region. The latest assessment for the 22 HBCs suggests that incidence rates are falling in most countries (Figure 2.8).

2.2 Prevalence

The prevalence of TB can be directly measured in nationwide population-based surveys, and comprehensive theoretical and practical guidance on how to design, implement, analyse and report such surveys is available.[1] When repeat surveys are conducted, trends in TB prevalence can be directly measured as well. The countries in which surveys have been implemented or are planned in the near future are shown in Figure 2.9.

If survey data are not available, prevalence can be indirectly estimated as the product of incidence and the average duration of disease, but with considerable uncertainty (Annex 1). Although the data available from prevalence surveys allow for a robust assessment of trends in the Western Pacific Region (especially in Cambodia, China and the Philippines) and are becoming more widely avail-

[1] *TB prevalence surveys: a handbook*. Geneva, World Health Organization, 2011 (WHO/HTM/TB/2010.17).

FIGURE 2.5 **Estimated TB incidence rates, 2011**

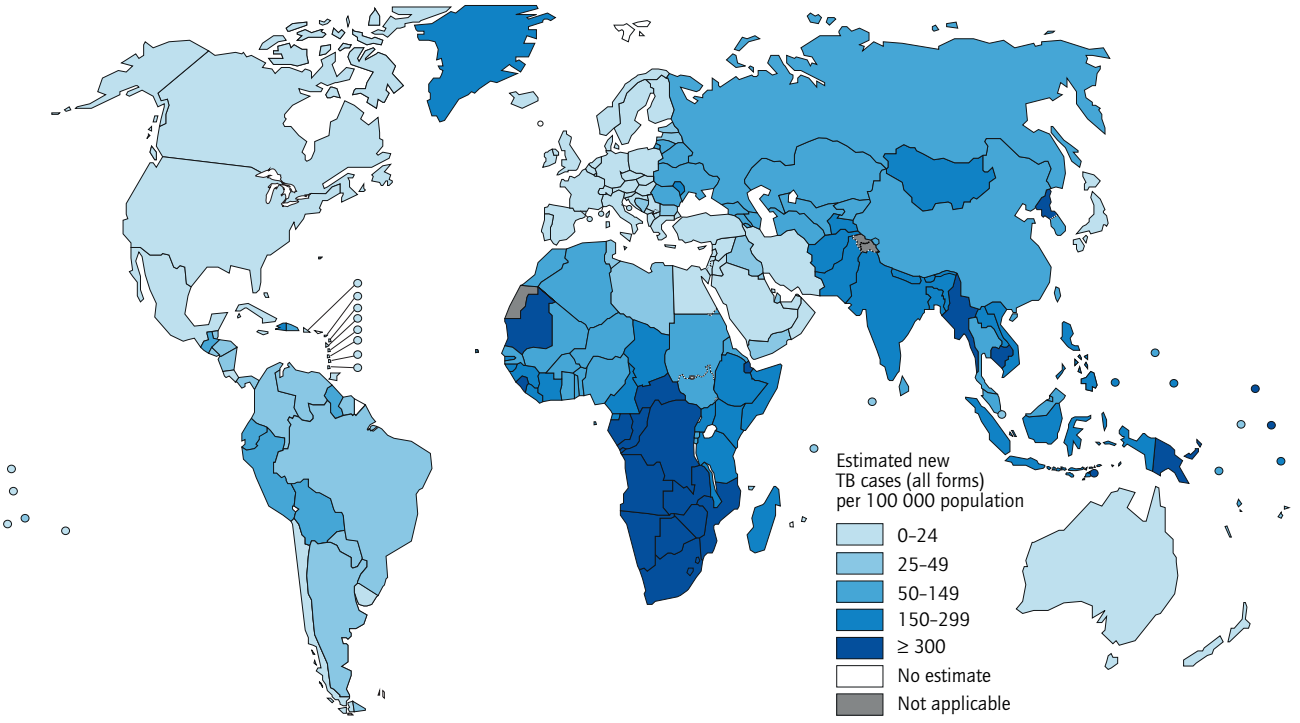
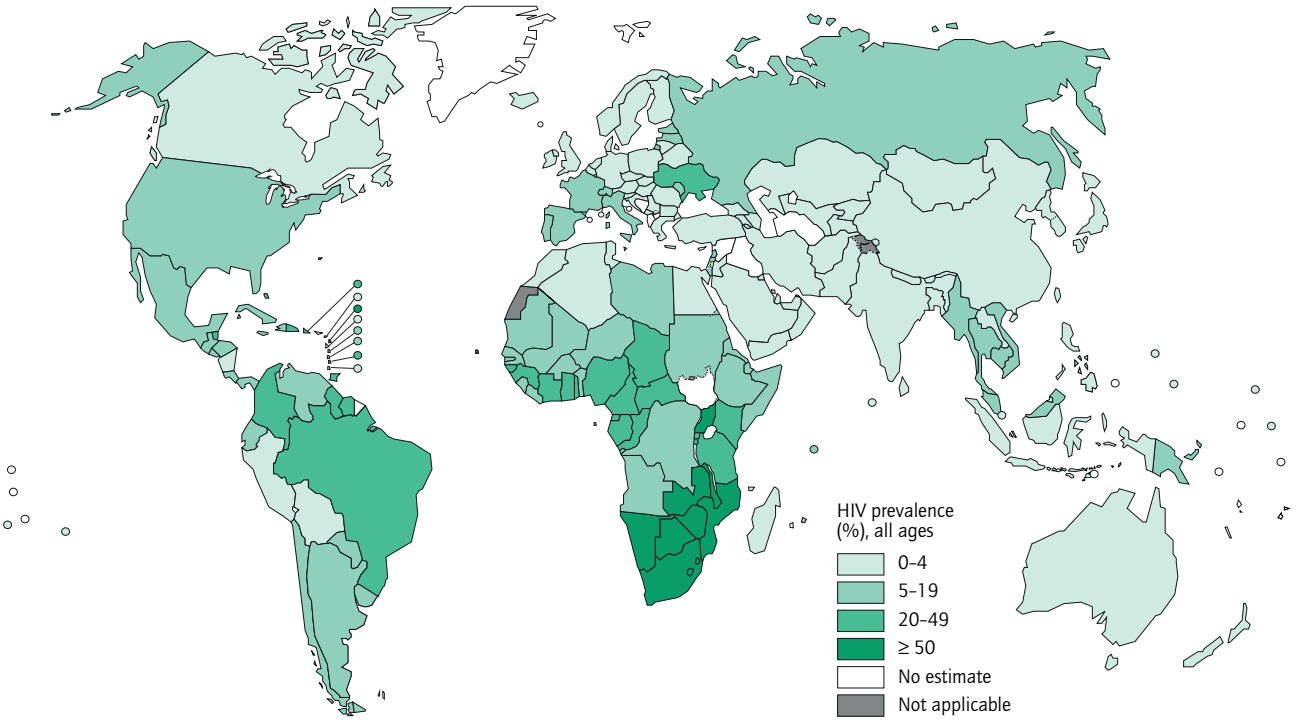


FIGURE 2.6 **Estimated HIV prevalence in new TB cases, 2011**



BOX 2.2

The burden of TB disease among children

For many years, the prevention, diagnosis and treatment of TB among children have been relatively neglected. Greatest attention has been given to the detection and treatment of infectious cases, most of which occur in adults. The Stop TB Strategy launched by WHO in 2006 includes case-finding in high-risk or vulnerable groups such as children and prevention of TB in children who live in the same household as newly detected TB cases. To help to address the burden of TB in children (defined as those aged <15 years) and monitor progress, robust data on childhood TB are necessary. This is the first WHO report on global TB care and control to include estimates of the burden of TB disease among children, with best estimates of 490 000 cases and 64 000 deaths per year.[1] The reasons why it remains difficult to estimate the burden of TB disease in children, the methods used to produce this first set of estimates and the next steps needed to improve them are discussed below.

Challenges in assessing the number of TB cases and deaths among children

There is no easy-to-use and accurate diagnostic test for TB in children. Most children have paucibacillary TB that is harder to diagnose with sputum smear microscopy and culture. Many children, especially younger children, are also not able to expectorate sputum. Diagnosis is usually made using a combination of clinical (as opposed to laboratory) criteria and a non-specific test for tuberculous infection, but there is no universally applied diagnostic algorithm. The definitive diagnosis of extrapulmonary TB requires specialised services that are usually available only in referral hospitals, and thus often not accessible to those in need. Besides diagnostic challenges, children diagnosed with TB are not always reported to national surveillance systems because of the lack of linkages among individual paediatricians, paediatric hospitals and national TB programmes, and data from national surveys including children are limited. Many countries lack VR systems in which deaths from TB are disaggregated and reported by age.

Estimates of TB notifications and TB incidence in children in 2011 – methods and results

The global number of new TB case notifications among children (aged <15 years) is estimated at 327 000 in 2011 (**Table B2.2.1**). This includes cases reported among children and an estimate of the number of cases among children in countries that did not report notifications disaggregated by age. For countries that did not report age-disaggregated data (**Figure B2.2.1**), it was assumed that the child:adult ratio among notified cases was the same (for each case type) as the ratio in countries that did report notifications disaggregated by age (an alternative method using the assumption that the child:adult ratio of notification rates was the same gave similar results). WHO does not request age-disaggregated data for relapse cases or those reported as of unknown treatment history; the number of children in these categories was assumed to be zero.

To estimate TB incidence among children, it was assumed that the ratio of notified to incident cases at the global level in 2011 (best estimate 66%, range 64%–69%) was the same for adults and children. On this basis, TB incidence among children was estimated at 490 000 (range, 470 000–510 000) in 2011, equivalent to about 6% of the total number of 8.7 million incident cases.

Limitations of the methods used include:

- The assumption that the ratio of notified to incident cases is the same for adults and children, in the absence of any data on levels of under-reporting of diagnosed cases for children and adults separately;
- The assumption that reported cases were true cases of TB. Misdiagnosis is possible, especially given the difficulties of diagnosing TB in children; and
- The proportion of cases among children may be different in countries for which age-disaggregated data are not available.

Estimates of TB mortality in children in 2011 – methods and results

Mortality data disaggregated by age from VR systems that have been reported to WHO were analysed. TB death rates per 100 000 population were calculated for children and adults, after adjustment for incomplete coverage and ill-defined causes (see **Annex 1** for further details). For countries without VR data, an ecological statistical model was used to predict the ratio of childhood to adult TB mortality rates. The model included a set of risk factors known to be associated with TB mortality (for example, GDP per capita, the percentage of new cases with MDR-TB, HIV prevalence in the general population and the treatment success rate). The total number of deaths from TB among HIV-negative children was estimated at 64 000 (range, 58 000–71 000) in 2011, equivalent to 6% of the 990 000 TB deaths among HIV-negative TB cases in 2011. The main limitation in the methods is that the countries reporting usable VR data were all middle or high-income countries. Predictions for low-income countries had to be extrapolated from these countries.

Besides the direct impact of TB on children themselves, parental deaths from TB have created large numbers of orphans. In 2009, there were almost 10 million children who were orphans as a consequence of losing at least one of their parents to TB.

Estimates of TB prevalence in children

Data on the prevalence of TB in children are limited to a few nationwide surveys conducted before 2001. Examples include a survey in India in 1956, and surveys in China in 1980, 1990, and 2000. The 2007 survey in the Philippines included children aged 10–14 years. These surveys consistently found a low burden of bacteriologically-confirmed TB in children compared with adults.

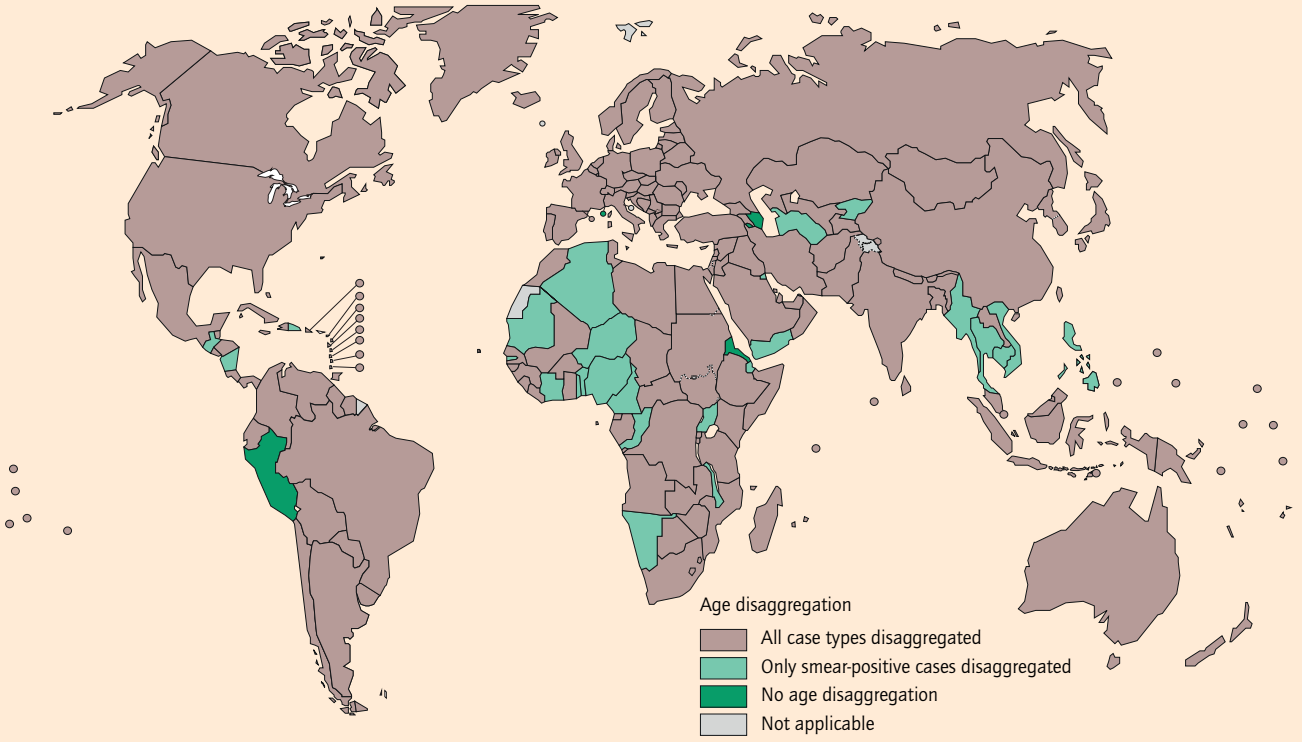
There has been impressive progress in the implementation of nationwide prevalence surveys to measure bacteriologically-confirmed TB since 2008 (see **Section 2.5.2**). These surveys are focusing on adults (aged ≥15 years) and the typical sample size is 50 000–

TABLE B2.2.1 **Reporting of TB case notifications disaggregated by age, 2011**

	SMEAR-POSITIVE	SMEAR-NEGATIVE[a]	EXTRAPULMONARY
Total notifications	2 621 049	1 872 745	813 636
Countries disaggregating by age	2 601 032	1 582 235	684 233
Countries not disaggregating by age	20 017	290 510	129 403
(% total notifications disaggregated)	(99%)	(84%)	(84%)
Number of countries that reported notifications disaggregated by age (number of HBCs)[b]	197 (22)	171 (15)	171 (15)
Total estimated childhood notifications			**327 000**

[a] This includes reported cases for whom smear results were unknown or smears were not done.
[b] An additional 9 countries reported zero TB cases in 2011 and two countries had not reported data to WHO by July 2012.

FIGURE B2.2.1
Reporting of notification data disaggregated by age, 2011



70 000 people. The screening strategy includes chest X-rays and a symptom-based questionnaire for the entire survey population, followed by collection of sputum samples from all those with TB signs and symptoms for subsequent smear and culture examination.

After careful weighing of the advantages and disadvantages by WHO's Global Task Force on TB Impact Measurement (see **Section 2.5**), the inclusion of children in national prevalence surveys has not been recommended. Major reasons are:

- Inclusion of children in a survey would not lead to a precise estimate of TB prevalence among children, since only a few bacteriologically-confirmed cases would be found. Even existing surveys of adults are not able to provide precise estimates for different age groups.
- There are ethical considerations associated with the mass screening of all children, most of whom are healthy. While evidence exists that chest X-ray screening is safe for adults, similar evidence does not exist for children. Furthermore, there is no simple and reliable tool that could be used to restrict the number of children screened by X-ray: for example, there is no reliable test for tuberculous infection.
- Among adults, use of broad criteria for considering an X-ray "abnormal" is encouraged to minimize the number of cases that are missed during screening. Among children, use of tests for tuberculous infection and broad criteria for considering an X-ray "abnormal" would lead to unnecessary efforts to obtain specimens, which among young children requires invasive and uncomfortable gastric aspiration.
- Referral hospitals are needed for the follow-up and diagnostic confirmation of TB in children. These are often not available in the rural areas that account for a large share of the clusters included in national prevalence surveys.
- Inclusion of children would approximately double the sample size and associated costs. The additional logistical complications of including children could also jeopardise the survey as a whole.

Next steps to improve existing estimates of TB cases and deaths among children

Next steps to improve the measurement and estimation of TB incidence among children include:

- Systematic literature reviews of existing data on incident childhood TB, under-reporting of TB in children and misdiagnosis;
- A global consultation to further develop analytical methods and to define and prioritize actions needed to obtain new data;
- Promotion of case-based electronic recording and reporting systems that would facilitate compilation and analysis of age-disaggregated data (among other advantages – see **Section 2.5.1**); and
- Nationwide inventory surveys to measure under-reporting of childhood TB.

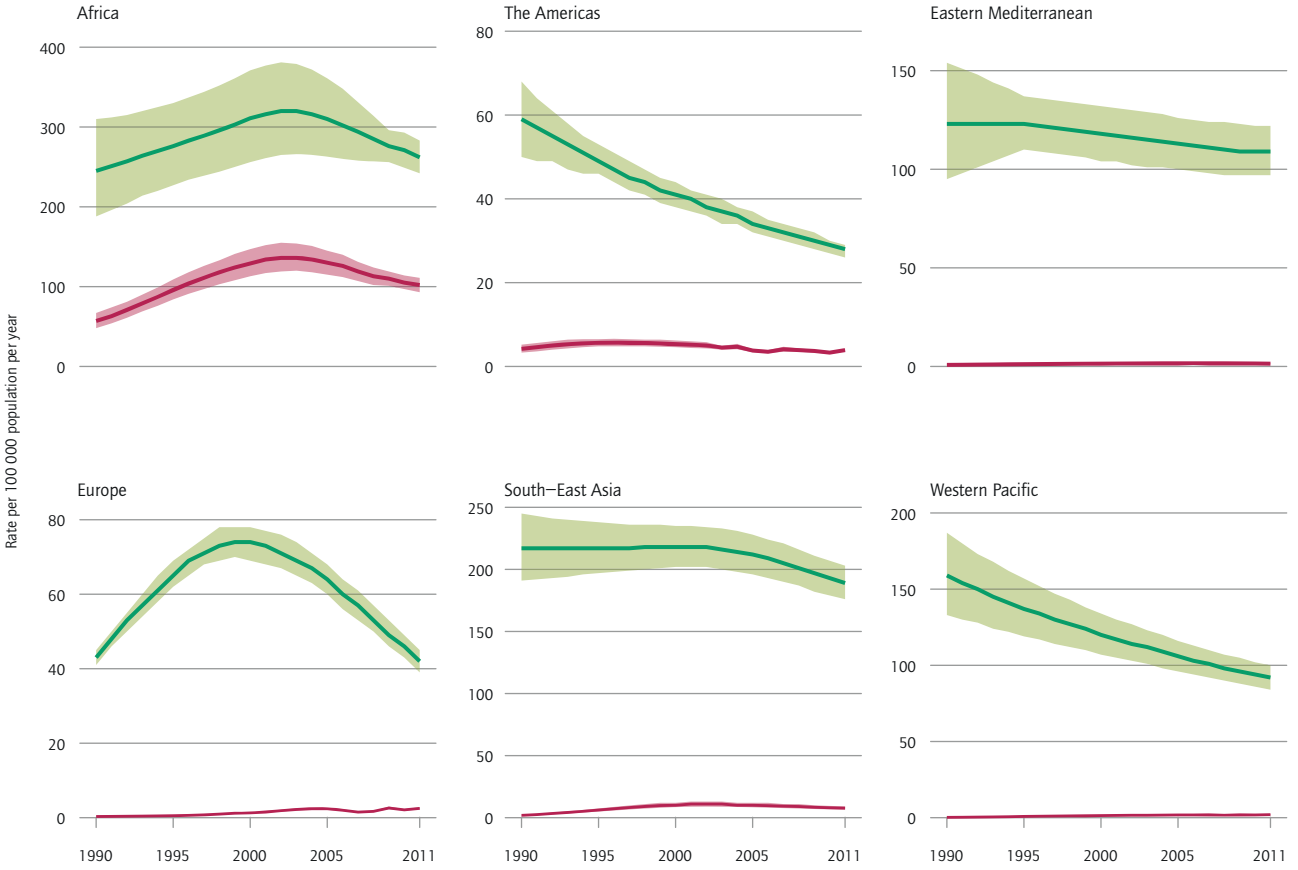
More contact-tracing and the integration of TB activities in maternal, newborn and child health services would also help to find children with TB that might otherwise not be diagnosed.

To improve estimates of TB mortality among children, the main actions required are:

- Collection of age-specific data from sample VR systems and mortality surveys in high-burden countries including China, India and Indonesia;
- Advocacy for further development of and continued investment in VR systems.

[1] This estimate is for TB deaths among HIV-negative children. TB deaths among HIV-positive children are classified as HIV deaths in ICD-10.

FIGURE 2.7 **Estimated TB incidence rates by WHO region, 1990–2011.** Regional trends in estimated TB incidence rates (green) and estimated incidence rates of HIV-positive TB (red). Shaded areas represent uncertainty bands.



able for countries with a high burden of TB (see Section 2.5.2), TB prevalence can be estimated only indirectly in most countries.

There were an estimated 12 million prevalent cases (range, 10 million–13 million) of TB in 2011 (Table 2.1), equivalent to 170 cases per 100 000 population (Table 2.2). The prevalence rate has fallen by 36% globally since 1990.

Current forecasts suggest that the Stop TB Partnership's target of halving TB prevalence by 2015 compared with a baseline of 1990 will not be met worldwide (Figure 2.3). Regionally, prevalence rates are declining in all of WHO's six regions (Figure 2.10). The Region of the Americas halved the 1990 level of TB prevalence by around 2005, well in advance of the target year of 2015, and the Western Pacific Region is close to doing so. Achieving the 50% reduction target by 2015 appears feasible in the European and South-East Asia regions, but not in the African and Eastern Mediterranean regions.

2.3 Mortality

Mortality caused by TB can be directly measured if a national VR system of high coverage with accurate coding of causes of death according to the latest revision of the international classification of diseases (ICD-10) is in place. Sample VR systems can provide an interim solution, and mortality surveys can sometimes be used to obtain direct measurements of TB deaths in countries with no VR system. In the absence of VR systems or mortality surveys, TB mortality can be estimated as the product of TB incidence and the case fatality rate, or from ecological modelling based on mortality data from countries with VR systems.

Until 2008, WHO estimates of TB mortality used VR data for only three countries. This was substantially improved to 89 countries in 2009, although most of these countries were in the European Region and the Region of the Americas, which account for only 8% of the world's TB cases. The use of sample VR data from China and survey data from India for the first time in 2011 enabled a further major improvement to estimates of TB mortal-

FIGURE 2.8 **Estimated TB incidence rates, 22 high-burden countries, 1990–2011.** Trends in estimated TB incidence rates (green) and estimated incidence rates of HIV-positive TB (red). Shaded areas represent uncertainty bands.

[a] Estimates for India have not yet been officially approved by the Ministry of Health & Family Welfare, Government of India and should therefore be considered provisional.

ity, with direct measurements available for 91 countries in 2010. The estimates of TB mortality presented in this report are based on even more VR data. Use of VR data for 119 countries and survey data from India mean that direct measurements of TB mortality were used for 120 countries (shown in Figure 2.11) that collectively account for 46% of the estimated number of TB deaths globally. VR data are most limited in the African Region and parts of the South-East Asia Region. A current example of a country that is building a sample VR system is Indonesia (Box 2.3).

The best estimate of the number of TB deaths worldwide fell just below 1 million among HIV-negative people in 2011 (TB deaths among HIV-positive people are classified as AIDS deaths in ICD-10).[1] The best estimate for 2011 is 990 000 deaths (Table 2.1), with an uncertainty interval of 0.84 million–1.1 million. This was equivalent to 14 deaths per 100 000 population. There were also an additional 0.43 million HIV-associated deaths (range, 0.40 million–0.46 million) i.e. deaths from TB among people who were HIV-positive (data not shown). Thus a total of approximately 1.4 million people (range, 1.3 million–1.6 million) died of TB in 2011, of whom 0.5 million were women (Box 2.4).

The number of TB deaths per 100 000 population among HIV-negative people plus the estimated number of TB deaths among HIV-positive people equates to a best estimate of 20 deaths per 100 000 population in 2011.

Globally, mortality rates (excluding deaths among HIV-positive people)[2] have fallen by 41% since 1990; the current forecast suggests that the Stop TB Partnership's target of a 50% reduction by 2015 compared with a baseline of 1990 will be achieved (Figure 2.3). Mortality rates are also declining in all of WHO's six regions (Figure 2.12). The 2015 target has already been surpassed in the Region of the Americas and the Western Pacific

[1] *International statistical classification of diseases and related health problems, 10th revision (ICD-10)*, 2nd ed. Geneva, World Health Organization, 2007.

[2] Trends in TB mortality rates are restricted to TB deaths among HIV-negative people, given that TB deaths among HIV-positive people are classified as HIV deaths in ICD-10.

FIGURE 2.9 **Countries in which surveys of the prevalence of TB disease have been implemented since 1990 or are planned in the near future**

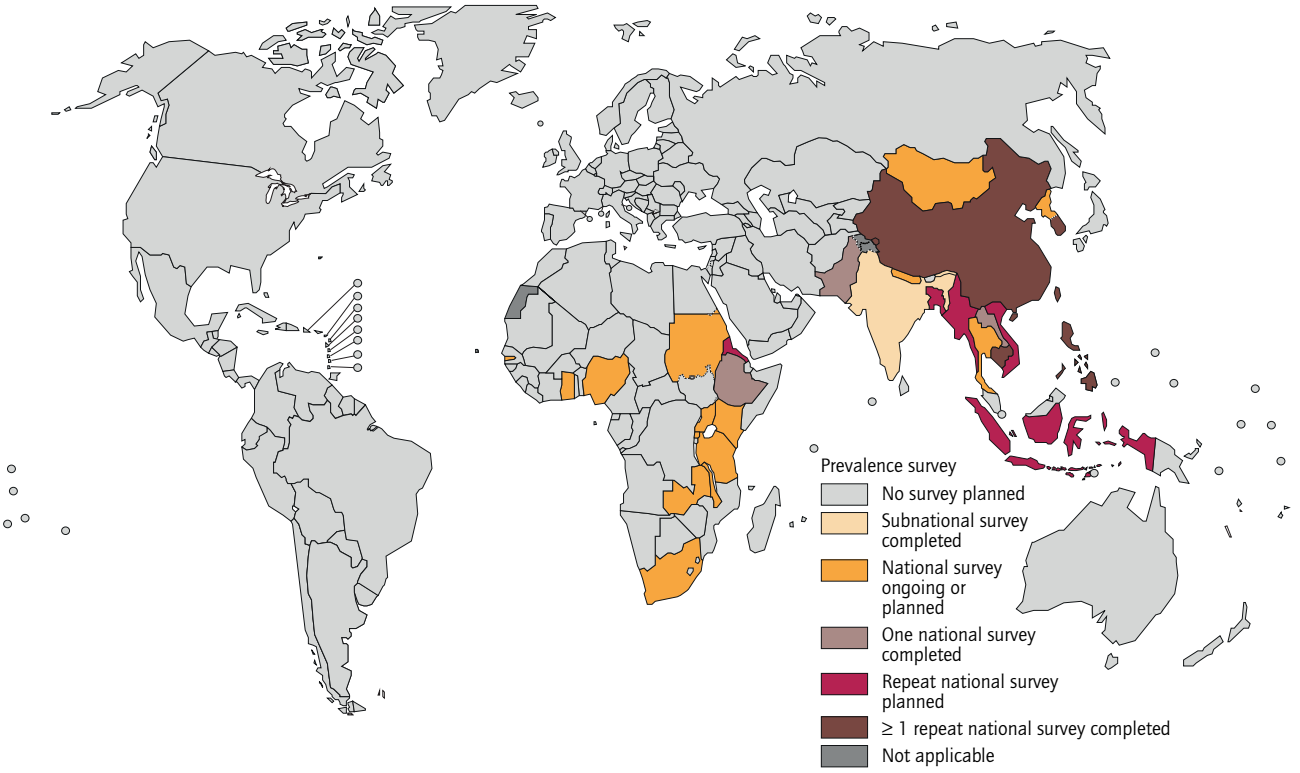


FIGURE 2.10 **Trends in estimated TB prevalence rates 1990–2011 and forecast TB prevalence rates 2012–2015, by WHO region.** Shaded areas represent uncertainty bands. The horizontal dashed lines represent the Stop TB Partnership target of a 50% reduction in the prevalence rate by 2015 compared with 1990. The other dashed lines show projections up to 2015.

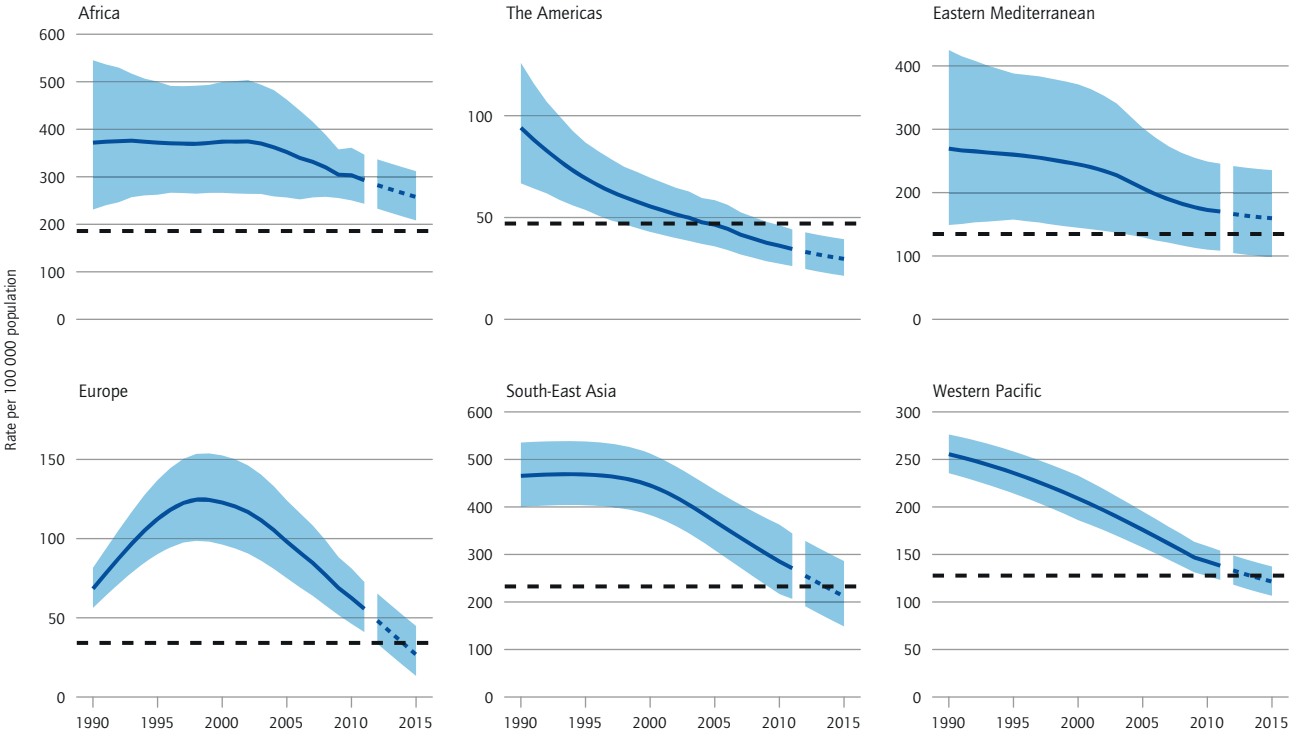
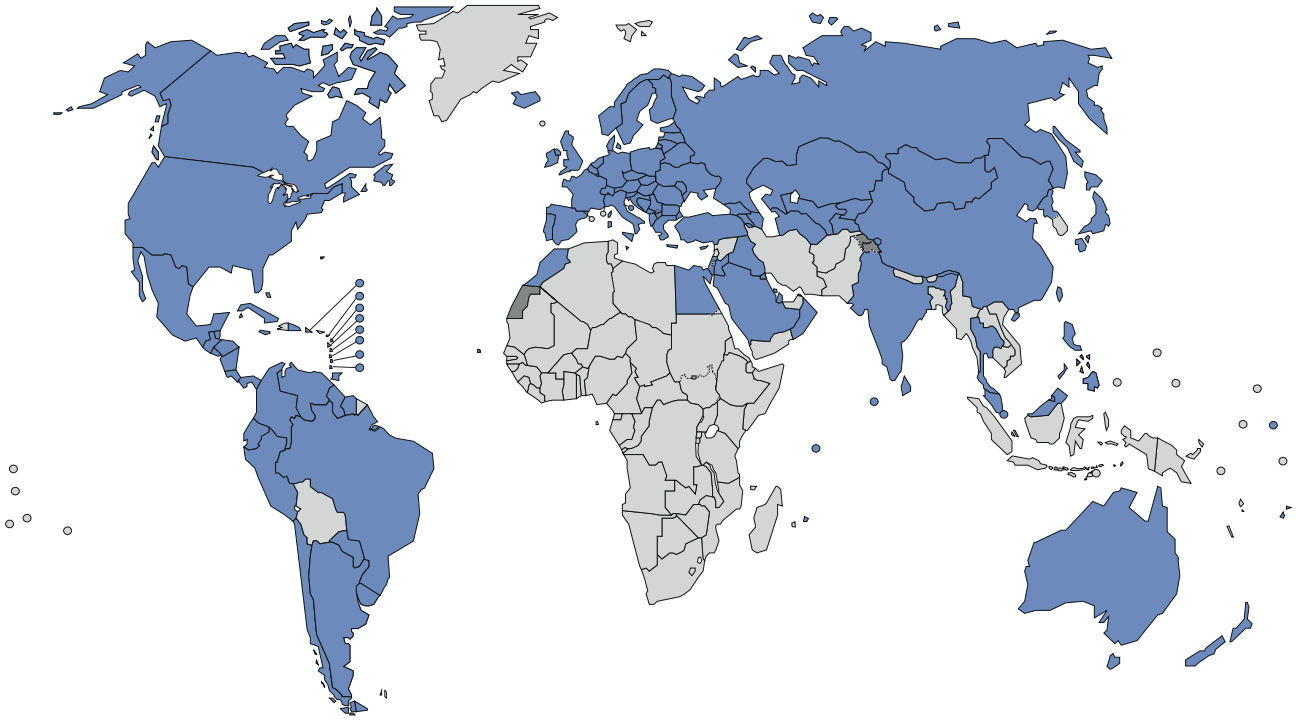


FIGURE 2.11 **Countries (in blue) for which TB mortality is estimated directly using measurements from vital registration systems and/or mortality surveys**



Region, and may have been reached in the Eastern Mediterranean Region. Among the other three regions, the South-East Asia Region appears best placed to achieve the target.

In 2012, considerably more VR data (dating back to 1990) became available to estimate TB mortality in European countries with a high burden of TB. The use of these data means that the regional trend for the European Region has been updated; it indicates a sharp rise until about 1998, followed by a sharp fall back to 1990 levels by 2011. This pattern is consistent across most individual countries (Figure 2.13), and corresponds to the economic, social and political disruption following the breakup of the former Soviet Union, and subsequent rebuilding and economic development. The striking relationship between TB mortality rates and national income per capita in Latvia is shown in Figure 2.14.

Among the 22 HBCs, mortality rates appear to be falling in most countries (Figure 2.15).

2.4 Multidrug-resistant tuberculosis

This report, as in 2011, focuses on estimates of the number of prevalent cases of MDR-TB. The reasons are that MDR-TB is a chronic disease and without appropriate diagnosis and treatment for most of these cases many more prevalent cases than incident cases are expected; calculations of the number of prevalent cases of MDR-TB are more readily understood compared with the complex

BOX 2.3

Building a sample vital registration system in Indonesia

With support from AusAID and technical assistance from University of Queensland, the Indonesian National Institute of Health Research and Development (NIHRD) piloted a sample vital registration system in selected sites (Central Java, Lampung, West Kalimantan, Gorontalo and Papua) covering 2.5 million population from 2006 to 2008. The pilot was named the Indonesian Mortality Registration System Strengthening Project (IMRSSP). The IMRSSP tested the verbal autopsy questionnaires, field implementation, and procedures and standards for calibration of causes of deaths. Results from the IMRSSP demonstrated that the measurement of cause-specific mortality is feasible by strengthening the death registration system in Indonesia. The cost was approximately US$ 0.5–1 per capita per year (in the areas covered by the system). After the pilot, the local Indonesian authorities continued to implement vital registration in the same sites with their own funding; data quality has yet to be assessed.

With support from a Global Fund round 10 grant on health system strengthening, a sample vital registration system is now being introduced. The NIHRD randomly selected 128 sub-districts across the country, covering a population of about 5 million (2% of the country's total). The 128 sub-districts do not include any of the IMRSSP pilot sites. By June 2013, all selected sub-districts will start to collect data on mortality, with preliminary results expected by December 2013. An analysis of the cost of implementing a sample vital registration system with resources that ensure data quality is planned.

BOX 2.4

TB mortality among women

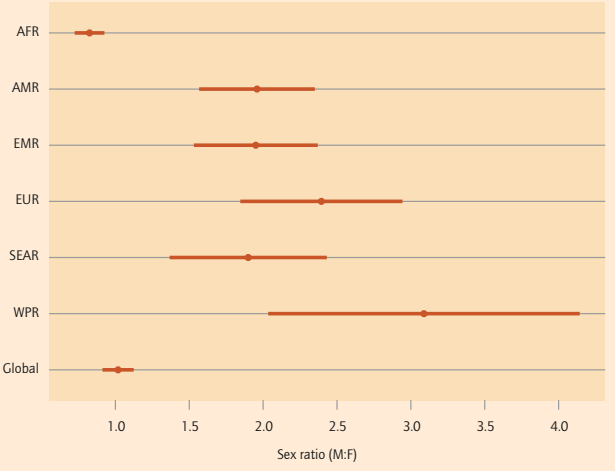
This is the first WHO report on global TB care and control to include estimates of the number of TB deaths among women[1] that include HIV-associated TB deaths (classified as HIV deaths in ICD-10) as well as TB deaths among HIV-negative people. In total, there were an estimated 0.5 million TB deaths among women. This includes 300 000 (range, 250 000–350 000) TB deaths among HIV-negative women (30% of all TB deaths among HIV-negative people) and 200 000 (range, 185 000–215 000) HIV-associated TB deaths (Table 2.4.1). TB is one of the top killers of women worldwide.

Although globally the numbers of HIV-associated TB deaths were similar among men and women, there were regional variations (Figure B2.4.1). In the African Region, more deaths occurred among women than men, while in other regions more deaths were estimated to occur among men. The male:female ratio of HIV-associated TB deaths ranged from 0.83 in the African Region to 3.1 in the Western Pacific Region.

TABLE B2.4.1
Number of HIV-associated TB deaths among women in 2011, by WHO region

	ESTIMATED NUMBER OF DEATHS	
WHO REGION	BEST ESTIMATE	UNCERTAINTY INTERVAL
AFR	169 000	155 000–184 000
AMR	3 130	2 710–3 580
EMR	1 290	1 100–1 500
EUR	2 960	2 490–3 460
SEAR	19 800	16 000–24 000
WPR	3 680	2 810–4 660
Global	200 000	185 000–215 000

FIGURE B2.4.1
The male:female ratio for HIV-associated TB deaths among adults (aged ≥15 years), globally and for WHO regions



[1] Defined as females aged ≥15 years.

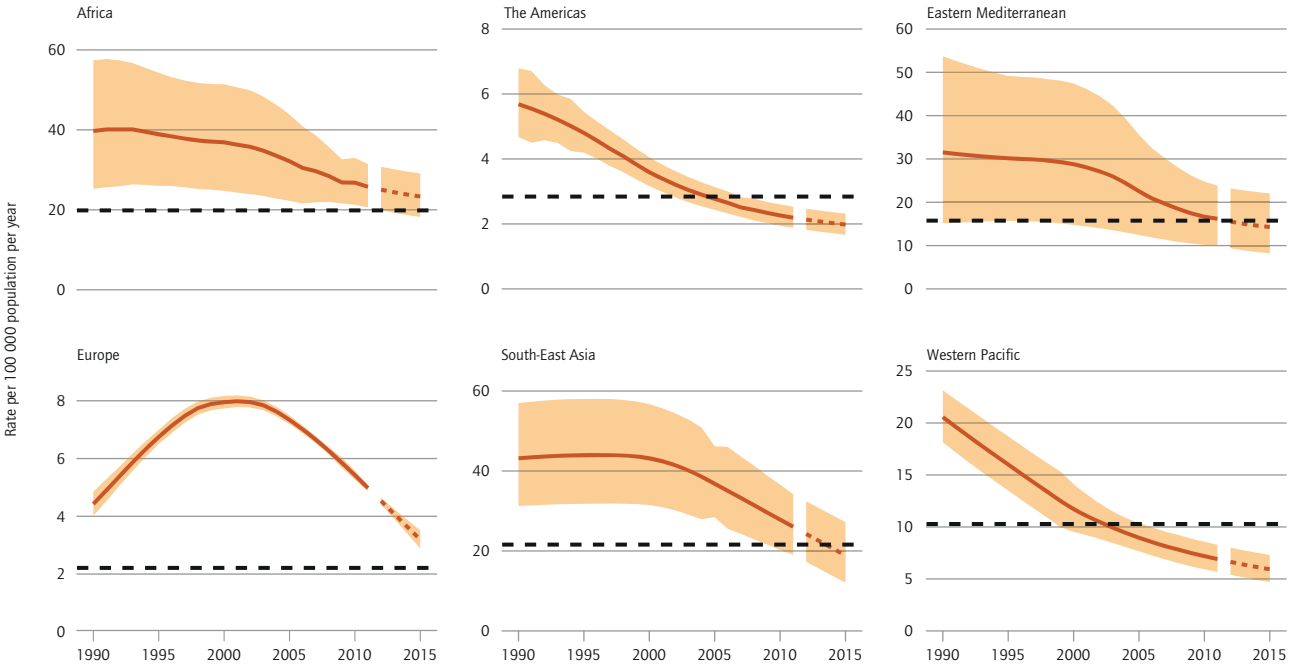
calculations needed to estimate the incidence of MDR-TB; and the number of prevalent cases of MDR-TB directly influences the active transmission of strains of MDR-TB.

The number of prevalent cases of MDR-TB can be estimated as the product of the estimated number of prevalent cases of TB and the best estimate of the proportion of notified TB patients[1] with MDR-TB (and in China a direct measurement is available from the 2010 national TB prevalence survey). Globally in 2011, there were an estimated 630 000 cases of MDR-TB (range, 460 000–790 000) among the world's 12 million prevalent cases of TB. Estimates at country level are not presented for reasons explained in Annex 1. However, estimates of the proportion of new and retreatment cases that have MDR-TB are summarized in Table 2.3.

A recurring and important question is whether the number of MDR-TB cases is increasing, decreasing or stable. A reliable assessment of trends in MDR-TB requires data from Class A continuous surveillance[2] or data from periodic surveys of drug resistance that are designed, implemented and analysed according to WHO guidelines.[3] There has been substantial progress in the coverage of continuous surveillance and surveys of drug resistance (Figure 2.16). Unfortunately, progress is not yet sufficient to provide a definitive assessment of trends in MDR-TB globally or regionally.[4]

[1] This includes new and retreatment cases (see Chapter 3 for definitions).
[2] Class A continuous surveillance refers to data from ongoing surveillance of drug resistance that are representative of the caseload of patients.
[3] *Guidelines for the surveillance of drug resistance in tuberculosis*, 4th ed. Geneva, World Health Organization, 2010 (WHO/HTM/TB/2009.422).
[4] For further details, see Box 2.6 in the 2011 WHO report on global TB control.

FIGURE 2.12 **Trends in estimated TB mortality rates 1990–2011 and forecast TB mortality rates 2012–2015, by WHO region.** Estimated TB mortality excludes TB deaths among HIV-positive people. Shaded areas represent uncertainty bands.[a] The horizontal dashed lines represent the Stop TB Partnership target of a 50% reduction in the mortality rate by 2015 compared with 1990. The other dashed lines show projections up to 2015.



[a] The width of an uncertainty band narrows as the proportion of regional mortality estimated using vital registration data increases or the quality and completeness of the vital registration data improves.

2.5 Strengthening measurement of the burden of disease caused by TB: the WHO Global Task Force on TB Impact Measurement

The estimates of TB incidence, prevalence and mortality and their trend presented in sections 2.1–2.4 are based on the best available data and analytical methods. In 2009, methods were fully revised, and since April 2009 consultations have been held with 96 countries accounting for 89% of the world's TB cases. Nonetheless, there is considerable scope for further improvement. This final section of the chapter describes the latest status of efforts to improve measurement of the burden of disease caused by TB, under the umbrella of the WHO Global Task Force on TB Impact Measurement.

Established in mid-2006, the mandate of the WHO Global Task Force on TB Impact Measurement is to ensure the best possible assessment of whether the 2015 global targets for reductions in the burden of disease caused by TB are achieved, to report on progress in the years leading up to 2015 and to strengthen capacity for monitoring and evaluation at the country level. The Task Force includes representatives from leading technical and financial partners and countries with a high burden of TB.[1]

At its second meeting in December 2007, the Task Force defined three strategic areas of work:[2]

- strengthening surveillance towards the ultimate goal of direct measurement of incidence and mortality from notification and VR systems;
- conducting surveys of the prevalence of TB disease in a set of global focus countries that met epidemiological and other relevant criteria; and
- periodic revision of the methods used to translate surveillance and survey data into estimates of TB incidence, prevalence and mortality.

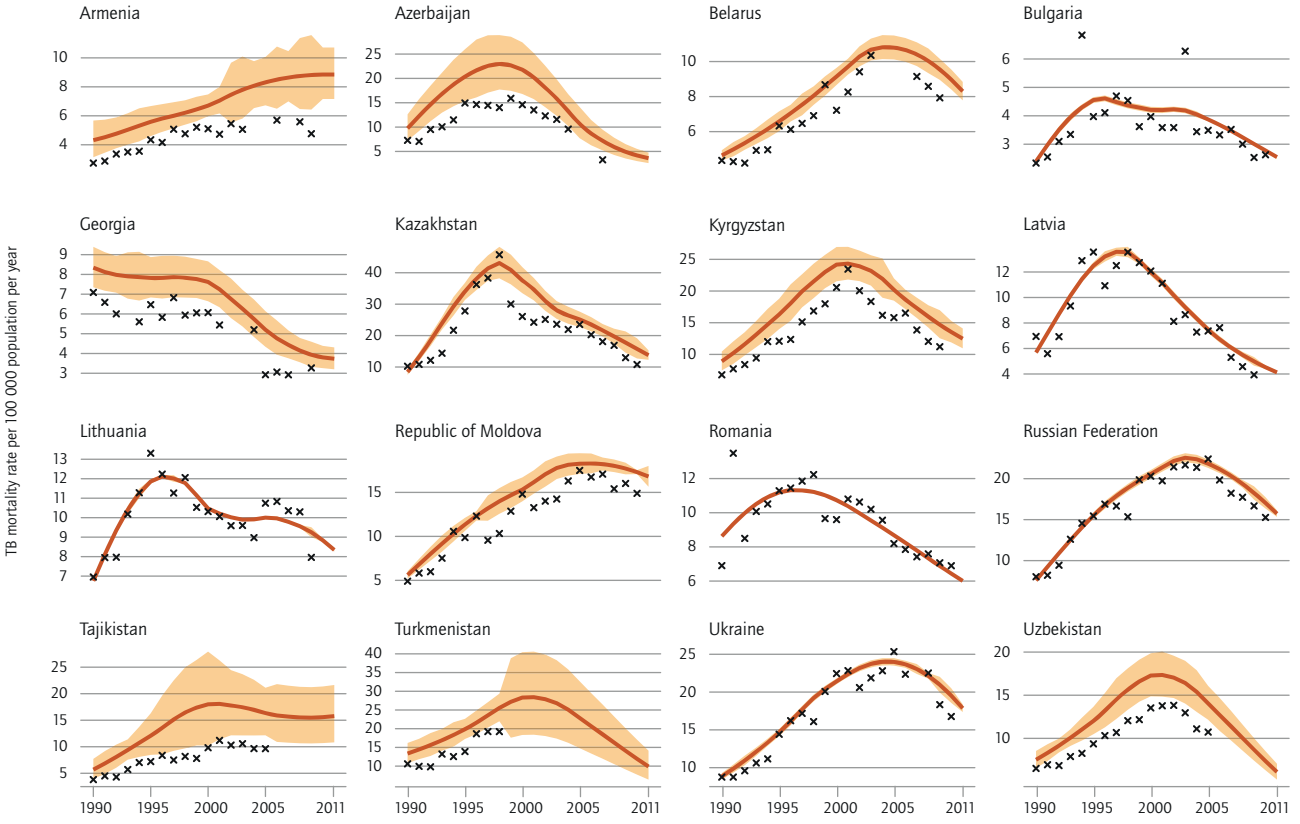
The third area of work is discussed in more detail in Annex 1. The following sections focus on the first two strategic areas of work. Full details of the Task Force's work are available on its web site.[3]

[1] Partners that are actively participating in the work of the Task Force include the Centers for Disease Control and Prevention in the USA, the European Centre for Disease Prevention and Control, the Global Fund, the Health Protection Agency in the UK, the KNCV Tuberculosis Foundation, the London School of Hygiene and Tropical Medicine in the UK, the Research Institute for Tuberculosis in Japan, the Union and USAID. Many countries with a high burden of TB are engaged in the work of the Task Force.

[2] *TB impact measurement: policy and recommendations for how to assess the epidemiological burden of TB and the impact of TB control*. Geneva, World Health Organization, 2009 (Stop TB policy paper no. 2; WHO/HTM/TB/2009.416).

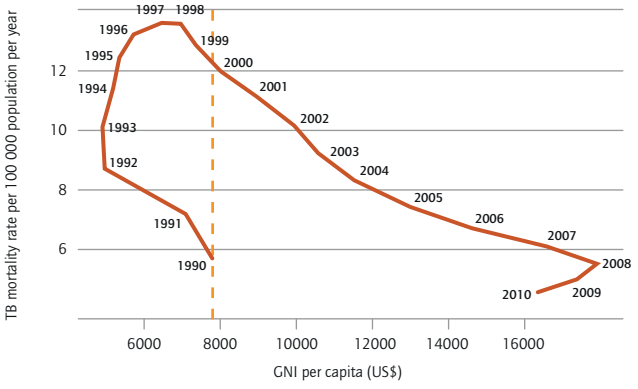
[3] www.who.int/tb/advisory_bodies/impact_measurement_taskforce

FIGURE 2.13 **Trends in TB mortality rates in Eastern European countries, 1990–2011.** The solid orange line shows the best estimate of the TB mortality rate and the orange band represents the uncertainty related to this estimate.[a] Uncertainty is due to adjustments made to the mortality data from vital registration systems that were reported by countries (the reported data are represented by the "x" symbol). Reported data were adjusted to account for incomplete coverage (deaths with no reported cause) and ill-defined causes, and the uncertainty range does not account for miscoding of causes of deaths (such as HIV deaths miscoded as TB deaths); further explanation of methods is provided in **Annex 1**.



[a] The width of an uncertainty band narrows as the quality and completeness of the vital registration data improves.

FIGURE 2.14 **Changes in TB mortality and gross national income (GNI) per capita in Latvia, 1990–2011.** The vertical dashed line shows the GNI per capita in 1990, prior to the economic crisis. The economy shrank during the early 1990s and the level of 1990 was only recovered in 1999.



2.5.1 Strengthening surveillance

In 2008, the Task Force defined a conceptual framework to assess surveillance data as a basis for updating estimates of the burden of disease caused by TB and for defining recommendations for how surveillance needs to be improved to reach the ultimate goal of direct measurement of TB cases and deaths from notification and VR data (**Figure 2.2**). Tools to implement the framework were also developed, and used in the 96 country consultations illustrated in **Figure 2.1**. Major challenges in current estimates of TB incidence include reliance on expert opinion about the number of cases that are diagnosed but not reported to national surveillance systems and the number of cases that are not diagnosed at all. Major challenges in estimating TB mortality include the lack of VR systems of sufficient coverage and quality in many countries, notably in Africa and parts of Asia (**Figure 2.11**).

Since 2011, the Task Force's three priorities have been:

- developing and applying standards and benchmarks for TB surveillance;
- preparing a guide on inventory studies to measure TB under-reporting;

- producing and widely disseminating a guide on electronic recording and reporting (ERR) for TB care and control.

These are discussed in more detail below.

Standards and benchmarks for TB surveillance

The long-term goal is direct measurement of the burden of disease caused by TB from routine surveillance data, using notification data to measure TB incidence and VR data to measure TB mortality. Achieving this goal requires strengthened surveillance in most countries.

While the need to "strengthen surveillance" is difficult to dispute in many countries, putting it into practice requires a clear understanding of what a "model" surveillance system should look like and a method for assessing the current performance of TB surveillance. An assessment of the performance of TB surveillance could then be used to identify which countries have surveillance systems that already provide an accurate measure of the number of TB cases and deaths that occur each year, and to define the actions necessary to strengthen surveillance in countries in which gaps are identified. Countries in the former category could be "certified" or "accredited" as having TB surveillance data that provide a direct measure of TB incidence and/or mortality.

In 2011, the Task Force's subgroup on TB surveillance began work on a TB surveillance checklist of standards and benchmarks, the purpose of which is to:

- assess a national surveillance system's ability to accurately measure TB cases and deaths; and
- identify gaps in national surveillance systems that need to be addressed.

The *standards* are general statements about the characteristics that define a high-performance TB surveillance system. For each standard, *benchmarks* define (in quantitative terms wherever possible) the level of performance that is considered good enough to meet the standard.

A prototype checklist was developed in the first half of 2011. Progress in piloting and refinement of the checklist accelerated after June 2011 mainly due to intensified collaboration between WHO and the Centers for Disease Control and Prevention in the United States of America (USA). By mid-2012, three rounds of testing had been completed with the checklist applied in Brazil, China, Egypt, Estonia, Japan, Kenya, the Netherlands, Thailand, Uganda, the United Kingdom (UK) and the USA; two global meetings to discuss findings and refine the checklist had been held; and a close-to-final version of the checklist was available. The pre-final version contains 9 standards related to measurement of TB cases and one standard related to measurement of TB deaths. For standards related to measurement of TB cases, one is specific to paper-based systems with aggregated data and one is specific to electronic case-based systems. For a coun-

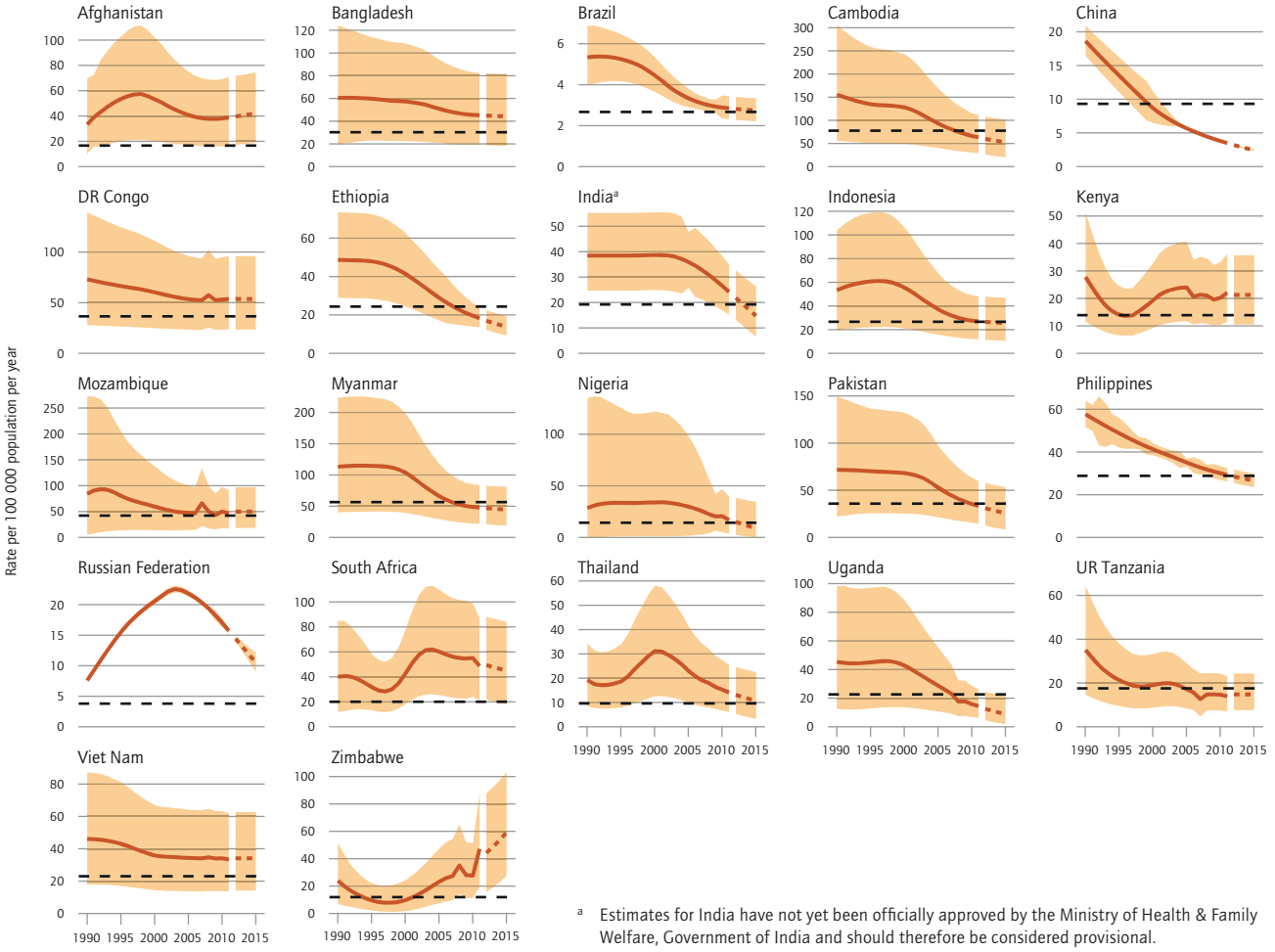
TABLE 2.3 Estimated proportion of TB cases that have MDR-TB, 27 high MDR-TB burden countries and WHO regions

	ESTIMATED % OF NEW TB CASES WITH MDR-TB[a]	CONFIDENCE INTERVAL	ESTIMATED % OF PREVIOUSLY TREATED TB CASES WITH MDR-TB[a]	CONFIDENCE INTERVAL
Armenia	9.4	7.1–12	43	38–49
Azerbaijan	22	19–26	55	52–60
Bangladesh	1.4	0.7–2.5	29	24–34
Belarus	32	30–35	76	72–79
Bulgaria	2.0	1.1–3.2	26	19–33
China	5.7	4.6–7.1	26	22–30
DR Congo	*3.1*	*0.1–7.1*	*10*	*2.1–18*
Estonia	23	17–29	58	43–71
Ethiopia	1.6	0.9–2.7	12	5.6–21
Georgia	11	9.6–12	32	28–35
India	2.1	1.5–2.7	15	13–17
Indonesia	1.9	1.4–2.5	12	8.1–17
Kazakhstan	30	29–32	51	50–53
Kyrgyzstan	26	23–31	52	45–58
Latvia	13	10–16	29	20–40
Lithuania	11	9.2–13	49	44–54
Myanmar	4.2	3.1–5.6	10	6.9–14
Nigeria[b]	*3.1*	*0.1–7.1*	*10*	*2.1–18*
Pakistan	*3.4*	*0.1–11*	*29*	*2.6–56*
Philippines	4.0	2.9–5.5	21	14–29
Republic of Moldova	19	17–22	64	60–67
Russian Federation	20	18–22	46	41–52
South Africa	1.8	1.4–2.3	6.7	5.5–8.1
Tajikistan	13	9.8–16	54	48–59
Ukraine	16	14–18	44	40–49
Uzbekistan	23	18–30	62	53–71
Viet Nam	2.7	2–3.6	19	14–25
High MDR-TB burden countries	**4.3**	**2.1–6.4**	**21**	**12–30**
AFR	2.9	0.1–6.2	11	3.4–18
AMR	2.0	0.8–3.3	11	4.5–18
EMR	3.4	0.1–10	30	6.9–53
EUR	15.1	10–20	44	40–49
SEAR	2.1	1.8–2.5	16	12–19
WPR	4.8	3.4–6.1	22	18–26
Global	**3.7**	**2.1–5.2**	**20**	**13–26**

[a] Best estimates are for the latest available year. Estimates in *italics* are based on regional data.

[b] Direct measurements will be available shortly and are expected to be consistent with the estimates provided in the table.

FIGURE 2.15 **Trends in estimated TB mortality rates 1990–2011 and forecast TB mortality rates 2012–2015, 22 high-burden countries.** Estimated TB mortality excludes TB deaths among HIV-positive people. Shaded areas represent uncertainty bands. The horizontal dashed lines represent the Stop TB Partnership target of a 50% reduction in the mortality rate by 2015 compared with 1990. The other dashed lines show projections up to 2015.



[a] Estimates for India have not yet been officially approved by the Ministry of Health & Family Welfare, Government of India and should therefore be considered provisional.

try's TB surveillance system to be certified as providing a direct measurement of TB cases, all of the standards need to be met. For a country's surveillance system to provide a direct measure of TB deaths, both of the two benchmarks (which are related to geographical coverage and data quality) must be met.

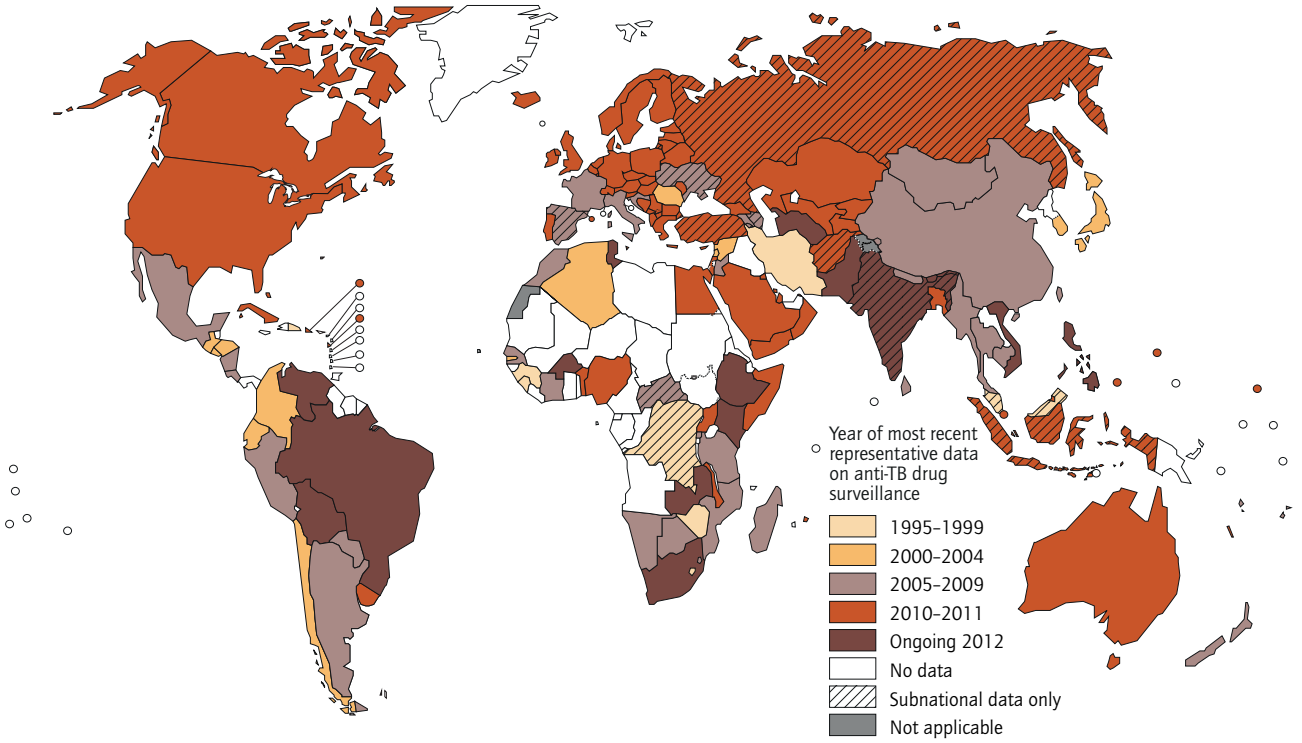
The checklist also includes a supplementary list of three standards and associated benchmarks that can be used to assess whether TB surveillance data provide a direct measure of the number of cases of MDR-TB, the number of HIV-positive cases of TB and TB in children specifically.

The TB surveillance checklist was discussed at meetings of the Technical Evaluation Reference Group (TERG) of the Global Fund and the WHO Global Task Force on TB Impact Measurement held in May 2012. There was consensus that use of the checklist should be integrated within the grant processes of the Global Fund, with results from the systematic assessments of existing TB surveillance using the checklist then used to develop an "investment plan" to strengthen surveillance. With more than 100 low-income and middle-income countries receiving grants for TB care and control from the Global Fund, this approach has great potential to make a real difference to TB surveillance worldwide. As of July 2012, the aim was to apply the checklist in three countries before the end of 2012, and in approximately 15 countries by mid-2014.

Inventory studies to measure TB under-reporting

Inventory studies with record-linkage are used to quantify the number of TB cases that are diagnosed but not recorded in surveillance (notification) data. They allow a much better estimation of TB incidence because they provide concrete evidence of the gap between notified cases and diagnosed cases (which may be especially big in countries with a large private sector). One of the standards in the TB surveillance checklist is that underreporting of diagnosed TB cases is minimal, with a benchmark that in a national investigation less than 10% of diagnosed cases are missed by TB surveillance. Inventory studies are needed to provide evidence of the level of under-reporting; if reporting is below acceptable levels,

FIGURE 2.16 **Progress in global coverage of data on drug resistance, 1994–2011**



corrective actions need to be identified and implemented.

Inventory studies have been implemented in very few countries to date. Examples include the UK, the Netherlands and several countries in the Eastern Mediterranean Region (Egypt, Iraq, Yemen and, most recently, Pakistan). To facilitate and encourage inventory studies in more countries, WHO and its partners (notably the Centers for Disease Control and Prevention in the USA and the UK's Health Protection Agency) initiated the development of a guide on how to design, implement, analyse and report on inventory studies in 2011. As this report went to press, the guide was due to be published before the end of 2012.

Electronic recording and reporting of data

Assessment of various aspects of data quality is the first and most basic of the three major components of the Task Force's framework for assessing surveillance data (**Figure 2.2**) and several of the standards in the TB surveillance checklist are about data quality. In all of the regional and country workshops held between 2009 and 2012, it was evident that it is much easier to assess the quality of TB surveillance data in countries with case-based electronic recording and reporting. In 2011, WHO and its partners produced a guide on electronic recording and reporting for TB care and control, which was widely disseminated in April 2012 (**Box 2.5**).

2.5.2 Surveys of the prevalence of TB disease

Nationwide population-based surveys of the prevalence of TB disease provide a direct measurement of the number of TB cases; repeat surveys conducted several years apart can allow direct measurement of trends in disease burden. Surveys are most relevant in countries where the burden of TB is high (otherwise sample sizes and associated costs and logistics become prohibitive) and surveillance systems are thought (or known) to miss a large fraction of cases.

Before 2007, few countries had implemented prevalence surveys (**Figure 2.9**, **Figure 2.17**). In the 1990s, national surveys were confined to China, Myanmar, the Philippines and the Republic of Korea. Before 2009 and with the exception of Eritrea in 2005, the last national surveys in the African Region were undertaken between 1957 and 1961. From 2002 to 2008, there was typically one survey per year. In 2007, WHO's Global Task Force on TB Impact Measurement identified 53 countries that met epidemiological and other criteria for implementing a survey. A set of 22 global focus countries were selected to receive particular support in the years leading up to 2015.

Following five years of substantial efforts by countries, supported by the Task Force (**Box 2.6**), enormous progress has been achieved (**Figure 2.17**). If surveys are implemented according to schedule, around 20 surveys will be implemented during 2011–2013, with a major peak in activity in 2012 and 2013. The number of surveys being implemented at the same time in 2012, at five,

BOX 2.5

New guidance on electronic recording and reporting for TB care and control

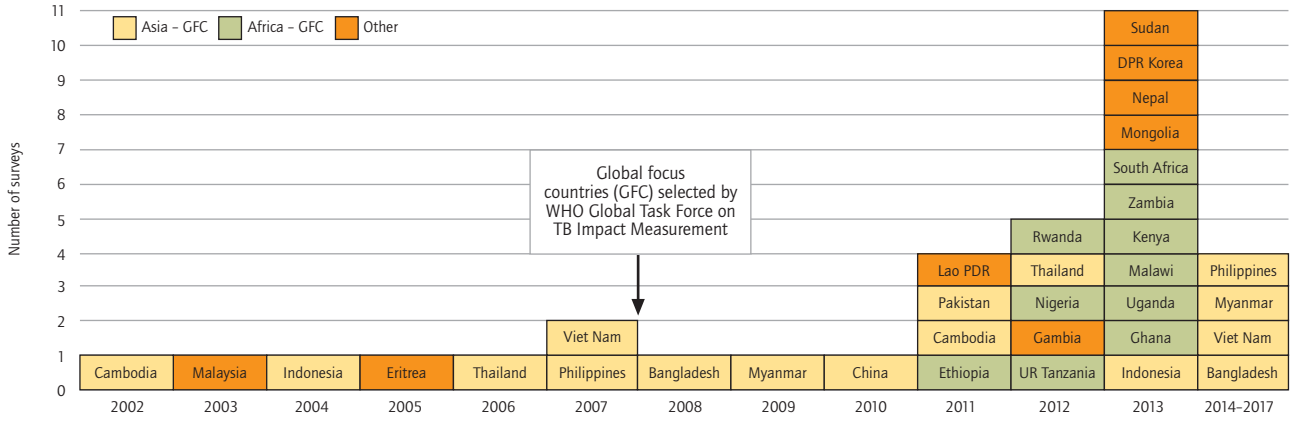
Surveillance systems depend on countries keeping good records of all TB cases notified to national TB control programmes (NTPs) and of TB treatment outcomes. This is a data-intensive activity that is increasingly moving away from paper-based to electronic recording and reporting (ERR).

Advantages of ERR include:

- Better management of individual patients, for example by providing fast access to laboratory results;
- Better programme and resource management, by encouraging staff to use and act upon live data. This may help to prevent defaulting from treatment and assist with management of drug supplies (including avoidance of stockouts);
- Improved surveillance by making it easier for facilities not traditionally linked to the NTP, such as hospitals, prisons and the private sector, to report TB cases, and by reducing the burden of compiling and submitting data through paper-based quarterly reports;
- Greater analysis and use of data, since data can be readily imported into statistical packages, results are available to decision-makers more quickly and it is possible to detect outbreaks promptly;
- Higher quality data, since automated data quality checks can be used and duplicate or misclassified notifications can be identified and removed (which is very difficult or impossible to do nationally with paper-based systems). It is also easier to introduce new data items.

WHO coordinated the development of a guide on how to design and implement ERR according to best-practice standards in 2011. The guide was widely disseminated in April 2012 and is available at www.who.int/tb/publications/electronic_recording_reporting

FIGURE 2.17 **Global progress in implementing national surveys of the prevalence of TB disease, actual (2002–2012) and expected (2013–2017)**



BOX 2.6

Efforts by the Task Force to support TB prevalence surveys and build "AA" collaboration

The WHO Global Task Force on TB Impact Measurement has strongly recommended national TB prevalence surveys in 22 global focus countries: 13 in Africa and 9 in Asia. The African countries are Ethiopia, Ghana, Kenya, Malawi, Mali, Mozambique, Nigeria, Rwanda, Sierra Leone, South Africa, Uganda, the United Republic of Tanzania and Zambia. The Asian countries are Bangladesh, Cambodia, China, Indonesia, Myanmar, Pakistan, the Philippines, Thailand and Viet Nam.

Since 2008, the Task Force has made substantial efforts to support countries to design, implement, analyse and report on surveys. The Task Force subgroup on TB prevalence surveys, led by WHO, has been very active and activities have included:

- close collaboration with the Global Fund to help secure full funding for surveys through reprogramming of grants (several surveys were initially under-budgeted);
- workshops to develop protocols and expert reviews of protocols by at least two Task Force partners not directly involved in the survey;
- production of a second edition of a WHO handbook on TB prevalence surveys (also known as "the lime book"), which provides comprehensive theoretical and practical guidance on all aspects of surveys.[1] The book was produced as a major collaborative effort involving 15 agencies and institutions and 50 authors in 2010, and was widely disseminated in 2011;
- training courses for survey coordinators without prior experience of survey implementation, including opportunities to observe field operations in ongoing surveys;
- training courses to build a group of junior international consultants who can provide technical assistance to countries;
- country missions by experts from the Task Force, mostly funded by the US government through the TB-TEAM mechanism (see **Box 5.2** in **Chapter 5**).

The concept of Asia–Asia, Asia–Africa and Africa–Africa ("AA") collaboration has been strongly promoted. This involves building collaboration among countries implementing surveys such that survey coordinators and other staff can learn from and help each other, with the result that capacity to implement prevalence surveys is built at country, regional and global levels. Examples of AA collaboration are survey coordinators from Asian countries providing guidance and support to those leading surveys in African countries where no recent experience exists; survey staff from Ethiopia providing support to African countries planning surveys in 2012 and 2013; exchange visits and study tours; workshops to observe central and field operations hosted by Cambodia and Thailand; and mid-term reviews in which survey coordinators visit other countries where survey operations are underway.

Besides WHO, technical partners that are actively engaged in prevalence surveys include the Centers for Disease Control and Prevention, USA; the KNCV Tuberculosis Foundation in the Netherlands; the London School of Hygiene and Tropical Medicine, UK; and the Research Institute for Tuberculosis, Japan.

[1] *TB prevalence surveys: a handbook*. Geneva, World Health Organization, 2011 (WHO/HTM/TB/2010.17).
www.who.int/tb/advisory_bodies/impact_measurement_taskforce/resources_documents/thelimebook

is already unprecedented. As this report went to press, surveys were nearing completion in the Gambia, Nigeria, Rwanda, Thailand and the United Republic of Tanzania, with results expected in the first half of 2013.

In late 2011 and early 2012, results from surveys completed in Ethiopia (June 2011) and Cambodia (September 2011) were disseminated. The Ethiopian survey found a lower prevalence of TB than was previously estimated, with most cases in young adults. As this report went to press, dissemination of results from surveys in the Lao People's Democratic Republic and Pakistan was expected by early 2013.

Cambodia is only the third high-burden country to implement a repeat national prevalence survey in the past 20 years (following China and the Philippines). The results provide an excellent example of the value of national TB prevalence surveys for measuring disease burden, evaluating the impact of TB control and identifying ways to improve TB care and control in future (**Box 2.7**).

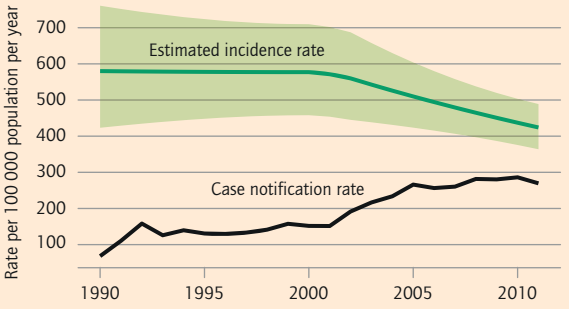
BOX 2.7

Reducing the burden of TB disease: a success story from Cambodia

For the last two decades, Cambodia has been known to have one of the highest levels of TB burden (in terms of rates per 100 000 population) in the world. TB control in Cambodia was reinstated in 1994 following decades of civil conflict and economic hardship. TB services were first limited to provincial and district hospitals. Decentralization of TB control services to the health centre level was initiated in the early 2000s, with nationwide expansion achieved in 2005, contributing to rapidly increasing case notifications (depicted with a solid black line in **Figure B2.7.1**).

At the early stage of DOTS expansion to health centres, the National TB Programme decided to directly measure the burden of TB through a nationwide prevalence survey, completed in 2002. A total of 22 160 people aged ≥15 years participated in the survey, grouped in 42 geographically determined clusters. The survey identified 81 smear-positive TB cases (63% were symptomatic) and 190 smear-negative culture-positive cases. After adjustment for unconfirmed TB and for childhood TB, the prevalence rate for all forms of TB was estimated at 1511 (range 1244–1803) per 100 000 population, one of the highest prevalence rates observed in the world in recent history.

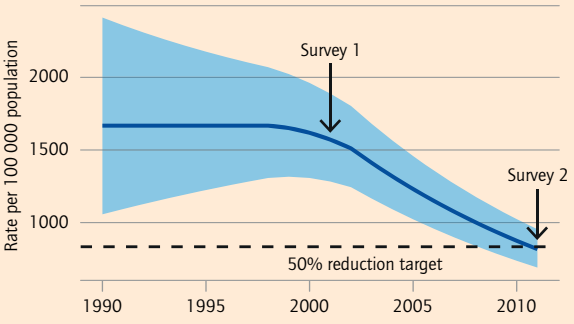
FIGURE B2.7.1
Case notification and estimated incidence rates in Cambodia, 1990–2011



A second nationally representative survey was conducted in 2011. In total, 39 680 people aged ≥15 years were sampled from 62 clusters. 95 smear-positive TB cases (46% were symptomatic) and 218 smear-negative culture-positive TB cases were identified. After adjustment for unconfirmed TB and for childhood TB, the prevalence rate for all forms of TB was estimated at 817 (range 690–954) per 100 000 population, showing a statistically significant reduction since the first survey.

Most bacteriologically-confirmed prevalent cases did not report symptoms listed in the screening criteria. The proportion of people reporting TB symptoms listed in the screening criteria among bacteriologically-confirmed cases declined from 30% in 2002 to 22% in 2011. This highlights the need to revise criteria for TB screening in self-reporting patients, in favour of more sensitive criteria than the traditional but insensitive criteria of a cough of ≥2weeks. There was a significant decline in prevalence rates for all age groups but the biggest reduction was observed in younger age groups. The 2011 survey also highlighted the need for more sensitive diagnostics than sputum smear microscopy.

FIGURE B2.7.2
Estimated TB prevalence (all forms) in Cambodia, 1990–2011



The repeat survey provides robust evidence of a decline in TB burden in Cambodia, following DOTS expansion in 2002 (**Figure B2.7.2**). Results indicate a 45% reduction in the prevalence of bacteriologically-confirmed cases since the first national prevalence survey conducted in 2002, that is, over a period of only 9 years.

The Cambodia results provide a major success story for TB control.

CHAPTER 3

TB case notifications and treatment outcomes

KEY FACTS AND MESSAGES

- In 2011, 6.2 million cases of TB were notified by national TB control programmes and reported to WHO: 5.8 million were individuals newly diagnosed in 2011 and 0.4 million were previously diagnosed TB patients whose treatment regimen was changed. India and China accounted for 39% of notified cases of TB worldwide in 2011, Africa for 24% and the 22 HBCs for 81%.
- In 2010, the treatment success rate was 85% among all new TB cases and 87% among new cases of sputum smear-positive pulmonary TB (the most infectious cases). Improvement in treatment outcomes is needed in the European Region, where the treatment success rate in 2010 was 74% and 67% for new cases and new smear-positive cases respectively.
- The provision of diagnosis and treatment according to the DOTS/Stop TB Strategy has resulted in major achievements in TB care and control. Between 1995 and 2011, 51 million people were successfully treated for TB in countries that had adopted the DOTS/Stop TB Strategy, saving 20 million lives.
- Notifications of TB cases have stabilized in recent years, and in 2011 represented 66% (range, 64–69%) of estimated incident cases. Major efforts are needed to ensure that all cases are detected, notified to national surveillance systems and treated according to international standards, for example through PPM initiatives.
- In most of the 21 countries that reported data, PPM initiatives contributed about 10-40% of total notifications.
- In countries reporting age-disaggregated data, most cases (88%) were aged 15–64 years. Children (aged <15 years) accounted for 6% of notified cases. The male:female ratio was 1.7 globally, ranging from 1.1 to 2.2 among WHO's six regions.
- Reporting of cases and treatment outcomes disaggregated by age and sex needs to be improved in some parts of the world, including several HBCs.

The total number of TB cases that occur each year can be estimated globally and for regions and individual countries, but with uncertainty (as explained in Chapter 2). This uncertainty reflects the fact that national surveillance systems do not capture all cases in most countries. Cases may be missed by routine notification systems because people with TB do not seek care, seek care but remain undiagnosed, or are diagnosed by public and private providers that do not report cases to local or national authorities.

Routine recording and reporting of the numbers of TB cases diagnosed and treated by national TB control programmes (NTPs) and monitoring the outcomes of treatment is one of the core elements of the Stop TB Strategy (Chapter 1). The number of people diagnosed and treated for TB and associated treatment outcomes are routinely reported by NTPs in almost all countries; these data are reported in turn to WHO in annual rounds of global TB data collection. With increasing engagement by NTPs of the full range of care providers, including those in the private sector and those in the public sector not previously linked to NTP reporting systems, data are also better reflecting the total number of diagnosed cases. The number of TB cases that are not diagnosed is expected to be low in countries with readily accessible and high-quality health care.

This chapter has four parts. Section 3.1 summarizes the total number of people diagnosed with TB and notified by NTPs in 2011, including disaggregations by case type, age and sex. Section 3.2 highlights the contribution to total case notifications of public–public and public–private mix (PPM) initiatives. Section 3.3 presents trends in notifications between 1990 and 2011 and compares these with trends in estimated TB incidence. Estimates of the ratio of notified:incident cases (an indicator known as the case detection rate) are provided for selected years. Section 3.4 describes the latest data on treatment outcomes (for cases registered for treatment in 2010) as well as treatment outcomes achieved in each year since 1995.

3.1 Case notifications in 2011 by type of disease, age and sex

In 2011, 6.2 million people with TB were notified to NTPs and reported to WHO. Of these, 5.8 million had a new episode of TB (shown as the total of new and relapse cases in Table 3.1). Of these 5.8 million cases, 5.5 million had

TABLE 3.1 **TB case notifications, 2011**

	TOTAL NOTIFIED	NEW					RETREATMENT		NEW AND RELAPSE(A)	HISTORY UNKNOWN	PERCENT NEW PULMONARY CASES SMEAR-POSITIVE
		SMEAR-POSITIVE	SMEAR-NEGATIVE	SMEAR NOT DONE	EXTRA-PULMONARY	CASE TYPE UNKNOWN	RELAPSE	RETREATMENT EXCL. RELAPSE			
Afghanistan	28 167	13 789	4 166	1 989	6 286	623	1 130	184	27 983		69
Bangladesh	159 023	98 948	21 921	0	27 329	0	2 701	4 665	150 899	3 459	82
Brazil	84 137	40 294	12 683	8 278	10 067	15	3 555	6 490	74 892	2 755	66
Cambodia	39 670	15 812	7 686	0	14 690	0	367	1 115	38 555	0	67
China	911 884	377 005	479 486	2 028	6 540	0	34 610	12 215	899 669	0	44
DR Congo	114 290	71 321	13 471		21 579		3 761	4 158	110 132		84
Ethiopia	159 017	49 594	52 967	2 530	49 305	0	2 143	2 478	156 539	0	47
India	1 515 872	642 321	340 203		226 965	1 952	112 508	191 923	1 323 949		65
Indonesia	321 308	197 797	101 750		14 054		5 348	2 359	318 949		66
Kenya	103 981	37 085	30 394	9 416	17 069	0	3 356	6 661	97 320	0	48
Mozambique	47 452	19 537	18 159	0	5 504	0	1 427	2 825	44 627	0	52
Myanmar	143 140	42 324	62 038		27 769		4 606	6 403	136 737		41
Nigeria	93 050	47 436	33 034	0	3 793	0	2 515	6 272	86 778	0	59
Pakistan	270 394	105 733	103 824	0	45 537	0	5 947	5 460	261 041	3 893	50
Philippines	202 033	90 876	95 297		2 202	0	3 190	10 468	191 565	0	49
Russian Federation	159 479	29 191	63 917	1 189	10 023		8 590	46 569	112 910		31
South Africa	389 974	129 770	70 341	77 925	47 285	0	18 394	27 521	343 715	18 738	47
Thailand	67 676	33 169	20 726		10 014	0	1 915	1 852	65 824	0	62
Uganda	49 016	25 614	12 830	1 559	5 001		1 302	2 710	46 306		64
UR Tanzania	61 148	24 115	20 438	0	13 725	0	1 079	1 791	59 357	0	54
Viet Nam	100 176	50 719	20 205		17 934	2 679	6 925	1 714	98 462		72
Zimbabwe	41 305	12 596	15 303	3 869	5 192	0	1 444	2 901	38 404	0	40
High-burden countries	**5 062 192**	**2 155 046**	**1 600 839**	**108 783**	**587 863**	**5 269**	**226 813**	**348 734**	**4 684 613**	**28 845**	**56**
AFR	1 460 766	605 929	357 811	109 258	240 843	1 069	52 283	74 622	1 367 193	18 951	56
AMR	231 880	121 130	36 371	14 254	33 757	1 315	10 004	11 613	216 831	3 436	71
EMR	425 821	170 748	128 182	7 206	93 605	623	11 223	10 102	411 587	4 132	56
EUR	356 670	79 831	121 362	6 896	42 489	3 191	22 838	73 296	275 872	7 502	38
SEAR	2 358 127	1 067 367	598 800	0	333 993	2 878	135 650	215 554	2 138 688	3 885	64
WPR	1 383 249	576 044	630 219	17 435	68 949	2 708	50 841	33 257	1 346 196	3 796	47
Global	**6 216 513**	**2 621 049**	**1 872 745**	**155 049**	**813 636**	**11 784**	**282 839**	**418 444**	**5 756 367**	**41 702**	**56**

Blank cells indicate data not reported.

TB for the first time and 0.3 million were people who had a recurrent episode of TB after being previously cured of the disease. Besides a small number of cases whose history of treatment was not recorded, the remaining 0.4 million had already been diagnosed with TB but their treatment was changed to a retreatment regimen (for definitions of each type of case, see Box 3.1).

Among people who were diagnosed with TB for the first time (new cases), 2.6 million had sputum smear-positive pulmonary TB, 1.9 million had sputum smear-negative pulmonary TB, 0.2 million did not have a sputum smear done and 0.8 million had extrapulmonary TB (Table 3.1). Of the new cases of pulmonary TB, 56% were sputum smear-positive.

India and China accounted for 39% of the 5.8 million new and relapse cases of TB that were notified in 2011 (23% and 16%, respectively); the South-East Asia and Western Pacific regions of which these countries are a part accounted for 60% of cases globally. African countries accounted for 24% (one quarter of these cases were from one country – South Africa). The WHO Eastern Mediterranean and European regions and the Region of the Americas accounted for 16% of new and relapse cases notified in 2011 (7%, 5% and 4%, respectively). The 22 HBCs accounted for 81%.

Among the 22 HBCs, the percentage of new cases of pulmonary TB that were sputum smear-positive was relatively low in the Russian Federation (31%), Zimbabwe (40%), Myanmar (41%), South Africa (47%), Ethiopia (47%) and Kenya (48%). A comparatively high proportion of new cases of pulmonary TB were sputum smear-positive in Bangladesh (82%), the Democratic Republic of the Congo (84%) and Viet Nam (72%).

Almost all (98%) of the notifications of new cases of

BOX 3.1[1]

Definitions of TB cases

Definite case of TB A patient with *Mycobacterium tuberculosis* complex identified from a clinical specimen, either by culture or by a newer method such as molecular line probe assay. In countries that lack laboratory capacity to routinely identify *M. tuberculosis*, a pulmonary case with one or more initial sputum specimens positive for acid-fast bacilli (AFB) is also considered to be a "definite" case, provided that there is functional external quality assurance with blind rechecking.

Case of TB A definite case of TB (defined above) or one in which a health worker (clinician or other medical practitioner) has diagnosed TB and decided to treat the patient with a full course of anti-TB treatment.

Case of pulmonary TB A patient with TB disease involving the lung parenchyma.

Smear-positive pulmonary case of TB A patient with one or more initial sputum smear examinations (direct smear microscopy) AFB-positive; or one sputum examination AFB-positive plus radiographic abnormalities consistent with active pulmonary TB as determined by a clinician. Smear-positive cases are the most infectious and thus of the highest priority from a public health perspective.

Smear-negative pulmonary case of TB A patient with pulmonary TB who does not meet the above criteria for smear-positive disease. Diagnostic criteria should include: at least two AFB-negative sputum smear examinations; radiographic abnormalities consistent with active pulmonary TB; no response to a course of broad-spectrum antibiotics (except in a patient for whom there is laboratory confirmation or strong clinical evidence of HIV infection); and a decision by a clinician to treat with a full course of anti-TB chemotherapy. A patient with positive culture but negative AFB sputum examinations is also a smear-negative case of pulmonary TB.

Extrapulmonary case of TB A patient with TB of organs other than the lungs (e.g. pleura, lymph nodes, abdomen, genitourinary tract, skin, joints and bones, meninges). Diagnosis should be based on one culture-positive specimen, or histological or strong clinical evidence consistent with active extrapulmonary disease, followed by a decision by a clinician to treat with a full course of anti-TB chemotherapy. A patient in whom both pulmonary and extrapulmonary TB has been diagnosed should be classified as a pulmonary case.

New case of TB A patient who has never had treatment for TB or who has taken anti-TB drugs for less than one month.

Retreatment case of TB There are three types of retreatment case: (i) a patient previously treated for TB who is started on a retreatment regimen after previous treatment has failed (treatment after failure); (ii) a patient previously treated for TB who returns to treatment having previously defaulted; and (iii) a patient who was previously declared cured or treatment completed and is diagnosed with bacteriologically-positive (sputum smear or culture) TB (relapse).

Case of multidrug-resistant TB (MDR-TB) TB that is resistant to two first-line drugs: isoniazid and rifampicin. For most patients diagnosed with MDR-TB, WHO recommends treatment for 20 months with a regimen that includes second-line anti-TB drugs.

Note: New and relapse cases of TB are incident cases. Cases of TB started on a retreatment regimen following treatment failure or treatment interruption are prevalent cases.

[1] See *Treatment of tuberculosis guidelines*, 4th ed. Geneva, World Health Organization, 2010 (WHO/HTM/STB/2009.420).

BOX 3.2

Achievements in global TB care and control, 1995–2011

WHO began systematic monitoring of progress in TB control in 1995. Data compiled on an annual basis since then allow achievements in TB care and control to be assessed.

Between 1995 and 2011, 51 million people were successfully treated for TB in countries that had adopted the DOTS/Stop TB Strategy (out of a total of 60 million treated). This saved approximately 20 million lives.[1]

The number of lives saved is based on the estimate that in the absence of treatment, approximately 40% of people with TB would die of the disease. This estimate allows for differences in the mortality rates for smear-positive compared with other types of TB disease (see Chapter 1), and for differences in mortality rates between HIV-negative and HIV-positive people.

[1] For estimates of the incremental number of lives saved by improvements in TB care associated with implementation of the DOTS and Stop TB Strategy compared with pre-1995 standards of care, see Glaziou P et al. Lives saved by tuberculosis control and prospects for achieving the 2015 global target for reducing tuberculosis mortality. *Bulletin of the World Health Organization*, 2011, 89:573–582.

TABLE 3.2 **Notifications of new cases of smear-positive pulmonary TB by age and sex, 2011**

	0–14 YEARS	15–44 YEARS	45–64 YEARS	≥65 YEARS	% AGED < 15 YEARS	MALE/FEMALE RATIO
Afghanistan	669	8 574	3 319	1 227	5	0.51
Bangladesh	932	53 585	30 877	13 554	< 1	1.9
Brazil	692	25 270	11 080	3 211	2	2.2
Cambodia	73	6 810	6 412	2 581	< 1	1.2
China	1 378	173 523	128 585	73 519	< 1	2.6
DR Congo	3 379	47 529	17 207	3 206	5	1.2
Ethiopia	3 830	38 518	6 272	1 074	8	1.2
India	12 985	388 447	187 705	53 174	2	2.2
Indonesia	1 714	115 631	67 378	13 074	< 1	1.5
Kenya	985	29 884	5 207	1 009	3	1.6
Mozambique					–	–
Myanmar	307	23 902	14 198	3 907	< 1	1.9
Nigeria	1 107	34 559	9 604	2 167	2	1.6
Pakistan	3 895	64 309	27 495	10 034	4	1.1
Philippines	953	51 919	31 069	6 935	1	2.4
Russian Federation	51	18 066	9 477	1 597	< 1	2.7
South Africa	3 404	94 427	27 552	4 387	3	1.2
Thailand	114	14 980	11 862	6 213	< 1	2.4
Uganda	695	18 486	4 842	917	3	1.8
UR Tanzania	411	17 149	5 047	1 508	2	1.8
Viet Nam	95	23 404	18 271	8 949	< 1	3.0
Zimbabwe	326	9 953	1 879	438	3	1.2
High-burden countries	**37 995**	**1 258 925**	**625 338**	**212 681**	**2**	**1.9**
AFR	19 183	427 731	114 303	23 574	3	1.4
AMR	2 337	62 127	27 495	11 311	2	1.8
EMR	5 763	105 833	42 736	16 303	3	1.2
EUR	391	46 807	24 197	6 962	< 1	2.3
SEAR	17 144	626 659	329 687	93 857	2	2.0
WPR	2 880	272 434	196 490	104 444	< 1	2.4
Global	**47 698**	**1 541 591**	**734 908**	**256 451**	**2**	**1.9**

Blank cells indicate data not reported.
– indicates values that cannot be calculated.

smear-positive pulmonary TB were disaggregated by age and sex (Table 3.2); 85% were aged 15–64 years and 2% were children (aged <15 years). The global male:female sex ratio was 1.9, but among HBCs this varied from 0.5 in Afghanistan to 3.0 in Viet Nam. Variation among countries may reflect real differences in epidemiology as well as differential access to or use of health-care services linked to the NTP.

Reporting of cases disaggregated by age and sex was much less complete for new smear-negative pulmonary and extrapulmonary cases. For example, data disaggregated by age and sex according to the categories shown in Table 3.2 were not available for 12 HBCs. When the available data for all new cases were combined, most cases (88%) were aged 15–64 years and 6% were among children (<15 years); the male:female ratio was 1.7, ranging from 1.1 to 2.2 among WHO's six regions. Further efforts are needed to improve reporting of all cases disaggregated by age and sex.

3.2 Contribution of public–public and public–private mix (PPM) initiatives to TB case notifications in 2011

In many countries, especially those with a large private sector, collaboration with the full range of health-care providers is one of the best ways to ensure that all people with TB are promptly diagnosed, notified to NTPs and given standardized care. This is component 4 of the Stop TB Strategy (Chapter 1); its two subcomponents are:

- involving all public, voluntary, corporate and private providers through PPM approaches; and
- promoting the International Standards for Tuberculosis Care through PPM initiatives.

Efforts to engage all health-care providers are being introduced and scaled up in many countries. Demonstrating this progress is not always possible: it requires systematic recording of the source of referral and place of TB treatment locally, and reporting and analysis of aggre-

TABLE 3.3 **Contribution of public–private and public–public mix (PPM) to notifications of TB cases in 21 countries, 2011**

WHO REGION AND COUNTRY	TYPES OF NON-NTP CARE PROVIDERS ENGAGED	NUMBER OF NEW TB CASES NOTIFIED IN 2011	CONTRIBUTION TO TOTAL NOTIFICATIONS OF NEW TB CASES IN 2011
AFRICAN REGION			
Angola	Diverse private and public providers	13 989	28%
Ethiopia	Diverse private providers	15 052	9.5%
Ghana	Diverse private and public providers	1 781	11%
Kenya	Private clinics and hospitals and prisons	10 076	9.6%
Nigeria	Private clinics and hospitals	21 562	23%
UR Tanzania	Private facilities and faith-based organizations	13 067	21%
REGION OF THE AMERICAS			
El Salvador	Diverse private and public providers	581	30%
Haiti	Private practitioners, NGOs and prison services	5 170	36%
EASTERN MEDITERRANEAN REGION			
Iran (Islamic Republic of)	Diverse private and public providers	3 563	31%
Iraq	Diverse private and public providers	5 624	61%
Pakistan[a]	Private clinics and hospitals	21 117	20%
Egypt	Health insurance organizations, NGOs and other public providers	2 234	24%
Sudan	Diverse private and public providers	2 277	11%
Syrian Arab Republic	Diverse private and public providers	2 694	73%
SOUTH-EAST ASIA REGION			
Bangladesh	Diverse private, public and NGO providers	19 668	12%
India[b]	Diverse private, public and NGO providers	13 991	2.1%
Indonesia	Public and private hospitals	71 454	22%
Myanmar	Diverse private, public and NGO providers	31 838	22%
WESTERN PACIFIC REGION			
China	General public hospitals	389 112	43%
Philippines	Private clinics and hospitals	24 031	12%
Republic of Korea	Diverse private providers	44 684	89%

[a] Data are for smear-positive cases of pulmonary TB only.
[b] Data are for smear-positive cases of pulmonary TB in 14 cities where PPM surveillance is in place.

gated data nationally.[1] Nonetheless, a growing number of countries are systematically recording and reporting data on the contribution of PPM initiatives to TB notifications (Table 3.3). In most of the 21 countries (including 11 HBCs) for which data were reported, PPM initiatives contributed about 10% to 40% of total notifications.

Approaches to engage non-NTP care providers vary according to the local context. For example, in the Philippines, the national health insurance organization has designed a special TB package for providers that collaborate with the NTP. India has incentive-based schemes for individual and institutional providers. China uses an Internet-based system for mandatory reporting of TB cases by all providers. It is also noticeable that countries have prioritized different types of care providers. These include general public hospitals (in China), private clinics and hospitals (in Nigeria and the Republic of Korea), medical colleges (in India) and health insurance organizations that also provide health services (in Egypt). Social security organizations and prison health services are the main non-NTP providers in the Region of the Americas and in Eastern Europe, respectively.

Comparisons with data reported by countries in previous years show that the contribution of PPM to case notifications has grown in some countries, including China, Indonesia, Myanmar and the Republic of Korea. The unexplained variations in the data from other countries indicate that their PPM initiatives, and the recording and reporting aspects in particular, need to be strengthened.

In most countries, only a small proportion of targeted care providers collaborate actively with NTPs and contribute to TB case notifications. Achieving early TB case detection to minimize disease transmission will require greater involvement of front-line health workers such as community-based informal providers, general practitioners and pharmacists – who are often the first point of contact for people with symptoms of TB. The need for

[1] WHO recommends that the source of referral and the place of treatment should be routinely recorded and reported.

BOX 3.3

Engaging private providers in countries with a large private sector

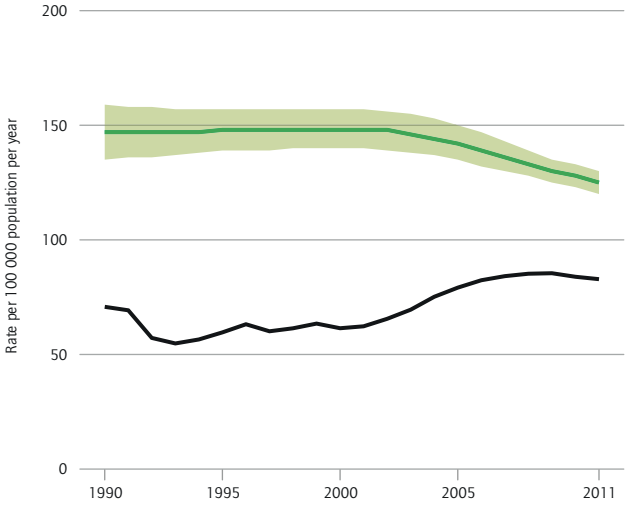
Data reported by countries indicate that NTPs mostly engage non-profit and institutional care providers as part of their PPM programmes. Establishing collaborative links with these providers is relatively less demanding than engaging for-profit private providers and, for a given amount of effort, may yield a higher number of TB case notifications. However, engaging more seriously with for-profit practitioners, especially in countries with a large private sector, is necessary to increase the number of people with TB who are diagnosed early, treated according to international standards and reported to national TB control programmes. It is also required to reduce costs to TB patients, prevent the emergence and spread of drug-resistant TB and protect soon-to-be-available new anti-TB drugs.

The extent of the sale and use of anti-TB drugs in the private sector in 10 countries that account for about 60% of estimated TB cases globally was assessed in 2011.[1] The private markets in four Asian countries (India, Indonesia, Pakistan and the Philippines) had the largest volumes of sales relative to estimated numbers of TB cases. Annual sales ranged from 65% to 117% of the drugs needed to treat the estimated number of incident cases occurring each year with a standard 6–8 month regimen in these countries. The study authors concluded that expansion of PPM programmes was needed.

Efforts to engage public and private health-care providers in TB care and control have been implemented for several years in India, Indonesia, Pakistan and the Philippines. Nonetheless, the reported data indicate that there is substantial scope for greater engagement of the private sector in these and other countries with a large private sector. Disaggregated data on the contribution of providers in the private sector to TB case notifications is not reported by most countries; among those that do report, the contribution of the large for-profit private sector is too small to be of any significance. The recent decision by the Government of India to make notification of TB cases mandatory by law is a welcome step in the right direction.

[1] Wells WA et al. Size and usage patterns of private TB drug markets in the high burden countries. *PLoS One*, 2011, 6(5):e18964.

FIGURE 3.1 **Global trends in case notification (black) and estimated TB incidence (green) rates, 1990–2011**



greater attention to collaboration with for-profit private providers, especially in countries where there is a large private medical sector and anti-TB drugs are readily available in private pharmacies, is highlighted in Box 3.3.

A new initiative to engage nongovernmental organizations in TB care and control, named ENGAGE-TB, is described in Box 3.4.

3.3 Trends in case notifications since 1990 and estimates of the case detection rate

Globally, the number of TB cases diagnosed and notified per 100 000 population has stabilized since 2008, following a marked increase between 2001 and 2007 (Figure 3.1). Globally and in all WHO regions, a clear gap between the numbers of notified cases and the estimated numbers of incident cases exists, although this is narrowing, particularly in the Western Pacific Region (mostly driven by trends in China) and the Region of the Americas (Figure 3.2). Trends in the 22 HBCs are shown in Figure 3.3, and for other countries are illustrated in country profiles that are available online.[1]

The case detection rate (CDR)[2] for TB is an indicator that is included within the Millennium Development Goals (Chapter 1). For a given country and year, the CDR is calculated as the number of new and relapse TB cases (see Box 3.1 for definitions) that were notified by NTPs (Table 3.1), divided by the estimated number of incident

[1] www.who.int/tb/data

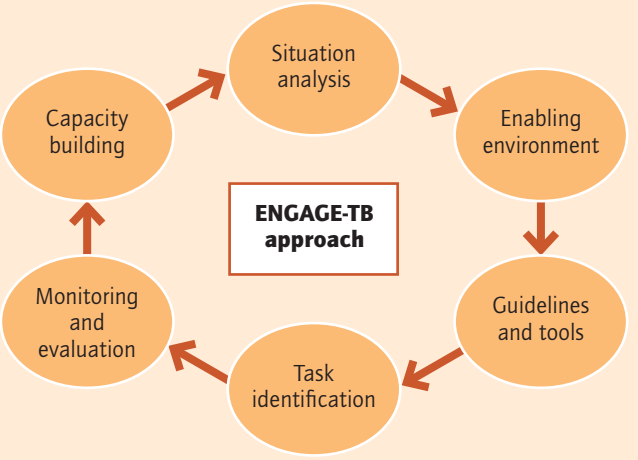
[2] The CDR is actually a ratio rather than a rate, but the term "rate" has become standard terminology in the context of this indicator.

BOX 3.4

Integrating community-based TB activities – ENGAGE-TB

During the past five years, the percentage of estimated cases of incident TB detected and reported to NTPs has stagnated at around 60–70%. The "missing" cases are either diagnosed and treated by providers not reporting to the public health system or are not reached by the current network of providers of TB care at all. Among notified cases, diagnosis may be delayed. To reach the unreached and to find people with TB earlier in the course of their illness, a wider range of stakeholders already involved in community-based activities needs to be engaged. These include non-governmental organizations (NGOs) and other civil society organizations that are active in community-based development, particularly in primary health care, maternal and child health and HIV prevention, treatment and care, but which have not yet included TB in their activities.

The ENGAGE-TB initiative seeks to integrate community-based activities to control TB in the ongoing work of such NGOs, aligned with national strategies and plans and supported by new operational guidance developed by WHO.[1] The guidance recommends the creation or strengthening of NGO coalitions for TB care and control, regular meetings between the leadership of such coalitions and NTP staff at various levels, and streamlining monitoring and evaluation through a single recording and reporting system. The guidance supports more explicit measurement of community-based contributions to case notifications and treatment outcomes. The six components through which integration can be more systematically undertaken are shown in the figure opposite.



Community-based activities are conducted outside the premises of formal health facilities (hospitals, health centres and clinics) using community-based structures (such as schools, places of worship and congregate settings) and homesteads. Examples include:

- creating awareness about TB, communication for behavioural change and community mobilization;
- efforts to reduce stigma and discrimination;
- screening and testing for TB and other TB related co-morbidities (e.g. through HIV counselling and testing, and screening for diabetes), including through home visits;
- facilitating access to diagnostic services, for example by providing transportation to health-care facilities;
- initiating and providing interventions to prevent TB, including isoniazid preventive therapy and TB infection control;
- referring community members for diagnosis of TB and other co-morbidities;
- initiating, providing and observing treatment for TB and other co-morbidities;
- supporting adherence to treatment through peer support, education and individual follow-up;
- supporting social and livelihood schemes, such as food supplementation and income generation;
- providing home-based palliative care for TB and other co-morbidities; and
- supporting community-led advocacy.

[1] ENGAGE-TB: Integrating community-based TB activities into the work of NGOs and other CSOs (in press).

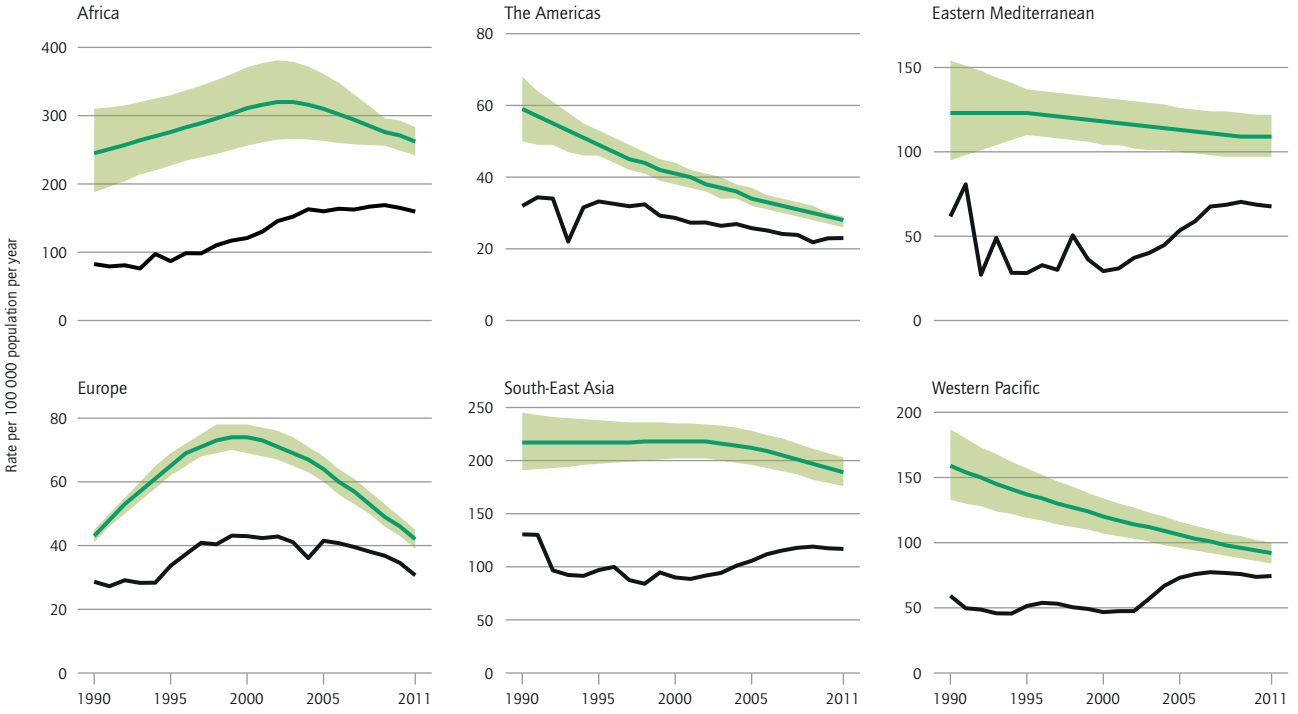
cases of TB that year. The CDR is expressed as a percentage; it gives an approximate[1] indication of the proportion of all incident TB cases that are actually diagnosed, reported to NTPs and started on treatment.

The best estimate of the CDR for all forms of TB globally in 2011 was 66% (range, 64–69%), up from 53–59% in 2005 and 38–43% in 1995 – the year in which the DOTS strategy began to be introduced and expanded (Table 3.4). The highest CDRs in 2011 were estimated to be in the Region of the Americas (best estimate 84%; range, 79–89%), the Western Pacific Region (best estimate 81%; range, 75–89%) and the European Region (best estimate 73%; range, 69–78%). The other regions had estimated CDRs in the range 55–70%, with best estimates of around 60%. All regions have improved their estimated CDRs since the mid-1990s, with improvements particularly evident since 2000. Among the 22 HBCs, the highest rates of case detection in 2011 were estimated to be in Brazil, China, Kenya, the Russian Federation and the United Republic of Tanzania; the lowest rates were in Afghanistan, Bangladesh, Mozambique and Nigeria.

To close the gap between notified cases and estimated

[1] It is approximate because of uncertainty in the underlying incidence of TB and because notified cases are not necessarily a subset of incident cases that occurred in the same year; see Chapter 2 for further discussion.

FIGURE 3.2 **Case notification and estimated TB incidence rates by WHO region, 1990–2011.** Regional trends in case notification rates (new and relapse cases, all forms) (**black**) and estimated TB incidence rates (green). Shaded areas represent uncertainty bands.



TB incidence, action is needed in three broad areas:

- **strengthening surveillance**, to ensure that all cases diagnosed with TB are reported and accounted for by routine notification systems. Establishing links with the full range of health-care providers through PPM, as well as stronger enforcement of legislation regarding notification of cases (where this is mandated by law) can help to minimize the under-reporting of TB cases. Inventory studies (see Section 2.5.1 in Chapter 2 for further details) can be used to help quantify the extent to which diagnosed cases are unreported (the "surveillance gap").
- **improving diagnostic capacity**, to ensure that people with TB who seek care are actually diagnosed. It may require better laboratory capacity as well as more knowledgeable and better trained staff, especially in peripheral-level health-care facilities. Details about current progress in strengthening laboratories and introducing new rapid diagnostics are provided in Chapter 6.
- **increasing access to health care** (in financial and/or geographical terms), for people with TB who do not seek care, and improved awareness of how to recognize the signs and symptoms of TB.

3.4 Treatment outcomes

3.4.1 New cases of smear-positive pulmonary TB

Data on treatment outcomes for sputum smear-positive cases of pulmonary TB are shown in Table 3.5 (definitions of the categories used to report treatment outcomes are provided in Box 3.5). Globally, the rate of treatment success for the 2.7 million new cases of sputum smear-positive pulmonary TB who were treated in the 2010 cohort was 87%. This was the fourth successive year that the target of 85% (first set by the World Health Assembly in 1991) was met or exceeded globally. It is also impressive that as the size of the global treatment cohort grew from 1.0 million in 1995 to 2.7 million in 2010, the treatment success rate progressively improved.

Among WHO's six regions, three met or exceeded the 85% target: the Eastern Mediterranean Region, the South-East Asia Region and the Western Pacific Region. The treatment success rate was 82% in the African Region (where there has been steady improvement since 1999), 77% in the Region of the Americas (where the rate has been relatively stable since 2002) and 67% in the European Region (where major efforts to increase treatment success rates are needed).

Of the 22 HBCs, 15 reached or exceeded the 85% target in 2010. The seven HBCs that reported lower rates of treatment success were Brazil (74%), Ethiopia (83%), Nigeria (84%), the Russian Federation (53%), South Africa (79%), Uganda (71%) and Zimbabwe (81%); all except Ethiopia and the Russian Federation made prog-

TABLE 3.4 **Estimates of the case detection rate for new and relapse cases (%), 1995–2011[a]**

	1995			2000			2005			2010			2011		
	BEST[b]	LOW	HIGH	BEST	LOW	HIGH	BEST	LOW	HIGH	BEST	LOW	HIGH	BEST	LOW	HIGH
Afghanistan	–	–	–	16	14	20	42	35	51	47	40	57	46	38	55
Bangladesh	21	18	26	26	22	32	39	32	48	46	39	56	45	37	54
Brazil	79	66	97	74	62	91	84	71	100	88	75	110	91	77	110
Cambodia	23	18	29	26	21	33	52	44	63	65	57	76	64	55	74
China	33	28	40	33	28	39	74	65	85	87	77	99	89	79	100
DR Congo	30	25	36	38	32	45	52	45	61	53	46	61	50	43	58
Ethiopia	11	7.2	18	33	22	55	49	32	82	69	52	97	72	55	96
India	58	51	67	49	44	54	49	44	54	59	54	65	59	54	65
Indonesia	8.7	7.0	11	19	16	24	56	46	70	66	56	80	70	59	85
Kenya	61	56	66	72	67	77	80	76	85	82	79	86	81	78	85
Mozambique	23	11	73	23	13	51	31	20	54	34	25	49	34	25	49
Myanmar	11	8.6	14	17	14	21	57	49	68	71	62	83	74	64	87
Nigeria	8.8	2.7	160	12	3.9	170	26	9.4	190	40	24	83	45	26	96
Pakistan	4.5	3.7	5.5	3.3	2.8	4.0	39	32	47	65	55	79	64	54	78
Philippines	48	40	59	47	39	58	53	44	65	65	54	79	75	63	91
Russian Federation	60	51	70	75	65	89	66	56	78	79	67	93	81	70	96
South Africa	56	47	69	59	49	72	61	51	75	72	61	87	69	58	83
Thailand	59	49	71	32	27	38	56	47	68	75	63	91	76	64	93
Uganda	22	14	41	29	20	48	47	36	66	61	51	76	69	57	86
UR Tanzania	59	51	69	68	60	77	74	69	80	77	72	82	76	71	81
Viet Nam	37	29	49	56	44	73	56	44	74	54	43	70	56	44	73
Zimbabwe	55	40	79	56	45	71	50	41	63	56	44	72	50	40	65
High-burden countries	**39**	**36**	**42**	**39**	**36**	**42**	**54**	**51**	**58**	**65**	**62**	**69**	**66**	**63**	**69**
AFR	31	26	38	39	33	47	52	44	61	61	56	66	61	56	66
AMR	68	63	73	70	65	75	75	70	80	80	75	86	84	79	89
EMR	23	21	26	25	22	28	47	42	54	63	56	71	62	55	70
EUR	52	49	54	58	55	62	65	61	70	76	71	81	73	69	78
SEAR	45	41	49	41	38	44	50	46	54	61	57	66	62	58	66
WPR	37	33	43	39	35	43	69	63	76	79	72	86	81	75	89
Global	**40**	**38**	**43**	**41**	**39**	**44**	**56**	**53**	**59**	**66**	**63**	**68**	**66**	**64**	**69**

– indicates values that cannot be calculated.

[a] Estimates for all years are recalculated as new information becomes available and techniques are refined, so they may differ from those published previously.

[b] Best, low and high indicate best estimates followed by lower and upper bounds. The lower and upper bounds are defined as the 2.5th and 97.5th centiles of outcome distributions produced in simulations.

ress compared with 2010. In Brazil and Uganda, low rates reflect a relatively high proportion of patients for whom the outcome of treatment was not evaluated (10% and 13%, respectively) and high default rates (11% in both countries). In the Russian Federation, treatment failure rates are high, possibly linked to MDR-TB.

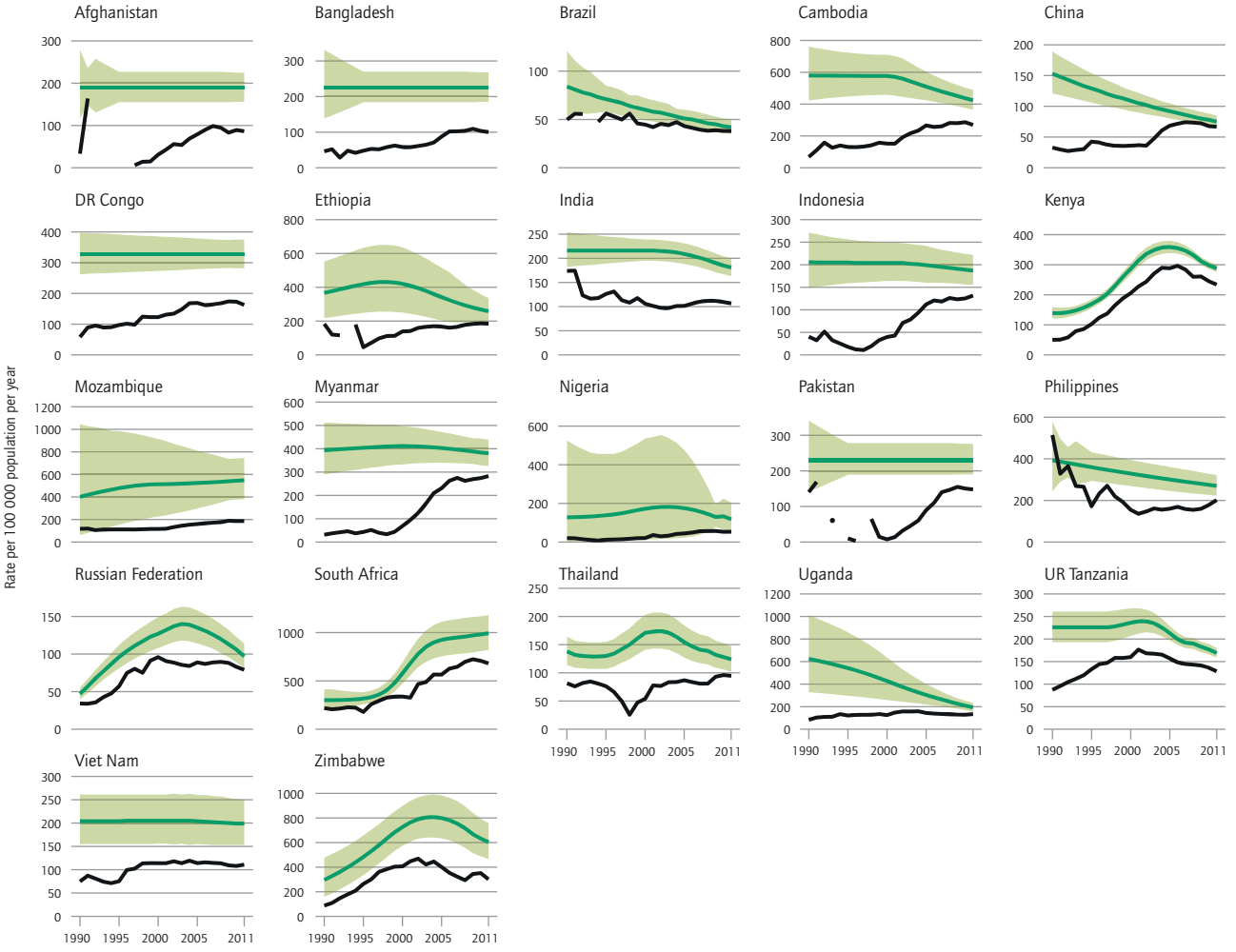
3.4.2 All new cases

Data on treatment outcomes for all new cases of TB are shown in Table 3.6. Globally, the rate of treatment success was 85% in 2010. Among WHO's six regions, the highest rates were in the Eastern Mediterranean (88%), South-East Asia (89%) and Western Pacific (92%) regions. The treatment success rate was 73% in the African Region, 74% in the Region of the Americas and 74% in the European Region. The data for the African Region were affected by missing data for South Africa. Once these are available and reported, the treatment success rate will be higher.

Of the 22 HBCs, 14 reached or exceeded a treatment success rate of 85% among all new cases in 2010. The eight countries that reported lower rates of treatment success were Brazil (72%), Ethiopia (77%), Nigeria (81%), the Russian Federation (66%), South Africa (53%),[1] Thailand (83%), Uganda (68%) and Zimbabwe (76%).

[1] The NTP in South Africa noted that data reported to WHO were incomplete; the figure of 53% is thus an underestimate.

FIGURE 3.3 **Case notification and estimated TB incidence rates, 22 high-burden countries, 1990–2011.** Trends in case notification rates (new and relapse cases, all forms) (**black**) and estimated TB incidence rates (green). Shaded areas represent uncertainty bands.



BOX 3.5

Definitions of treatment outcomes for drug-susceptible TB

Cured A patient who was initially sputum smear-positive and who was sputum smear-negative in the last month of treatment and on at least one previous occasion.

Completed treatment A patient who completed treatment but did not meet the criteria for cure or failure. This definition applies to sputum smear-positive and sputum smear-negative patients with pulmonary TB and to patients with extrapulmonary disease.

Died A patient who died from any cause during treatment.

Failed A patient who was initially sputum smear-positive and who remained sputum smear-positive at month 5 or later during treatment.

Defaulted A patient whose treatment was interrupted for 2 consecutive months or more.

Not evaluated A patient whose treatment outcome is not known.

Successfully treated A patient who was cured or who completed treatment.

Cohort A group of patients in whom TB has been diagnosed, and who were registered for treatment during a specified time period (e.g. the cohort of new sputum smear-positive cases registered in the calendar year 2010). This group forms the denominator for calculating treatment outcomes. The sum of the above treatment outcomes, plus any cases for whom no outcome is recorded (including those "still on treatment" in the European Region) and "transferred out" cases should equal the number of cases registered. Some countries monitor outcomes among cohorts defined by sputum smear and/or culture, and define cure and failure according to the best laboratory evidence available for each patient.

TABLE 3.5 Treatment success for new smear-positive cases (%) and cohort size (thousands), 1995–2010

a. Treatment success (%)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Afghanistan	–	–	45	33	86	85	84	87	86	89	90	84	87	88	86	90
Bangladesh	71	63	73	77	79	81	83	84	85	90	91	92	92	91	92	92
Brazil	17	20	27	40	78	71	55	80	77	76	76	73	72	71	72	74
Cambodia	91	94	91	95	93	91	92	92	93	91	93	93	94	95	95	94
China	93	94	95	95	95	93	95	92	93	94	94	94	94	94	95	96
DR Congo	74	48	64	70	69	78	77	78	83	85	85	86	87	87	88	90
Ethiopia	61	71	72	74	74	80	76	76	70	79	78	84	84	84	84	83
India	25	21	18	27	21	34	54	60	76	82	86	86	87	87	88	88
Indonesia	91	81	54	58	50	87	86	86	87	90	91	91	91	91	91	90
Kenya	75	77	65	77	79	80	80	79	80	80	82	85	85	85	86	87
Mozambique	39	55	65	–	71	75	78	78	76	77	79	83	79	84	85	85
Myanmar	67	79	82	82	81	82	81	81	81	84	84	84	85	85	85	86
Nigeria	49	32	73	73	75	79	79	79	78	73	75	76	82	78	83	84
Pakistan	70	–	67	23	70	74	77	78	79	82	83	88	91	90	91	91
Philippines	60	35	78	71	87	88	88	88	88	87	89	88	89	88	89	91
Russian Federation	65	57	67	68	65	68	67	67	61	60	58	58	58	57	55	53
South Africa	58	61	68	72	57	63	61	68	67	69	71	74	74	76	73	79
Thailand	64	78	58	68	77	69	75	74	73	74	75	77	83	82	86	85
Uganda	44	33	40	62	61	63	56	60	68	70	73	70	75	70	67	71
UR Tanzania	73	76	77	76	78	78	81	80	81	81	82	85	88	88	88	90
Viet Nam	89	89	85	92	92	92	93	92	92	93	92	93	92	92	92	92
Zimbabwe	53	32	69	70	73	69	71	67	66	54	68	60	78	74	78	81
High-burden countries	**53**	**50**	**56**	**62**	**60**	**67**	**72**	**75**	**81**	**84**	**86**	**87**	**87**	**87**	**88**	**88**
AFR	60	56	64	70	68	71	70	73	73	74	76	75	80	80	80	82
AMR	50	51	58	67	79	76	69	81	80	79	79	76	79	77	76	77
EMR	79	66	73	57	79	81	82	84	82	83	83	86	88	88	88	88
EUR	67	58	72	63	75	75	74	74	75	70	72	70	71	70	69	67
SEAR	33	31	29	40	34	50	63	68	79	84	87	87	88	88	89	88
WPR	80	72	91	92	91	90	91	90	91	91	92	92	92	92	93	93
Global	**57**	**54**	**60**	**64**	**64**	**69**	**73**	**76**	**80**	**83**	**85**	**84**	**86**	**86**	**86**	**87**

b. Cohort size (thousands)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Afghanistan			2.0	2.9	2.0	3.1	6.3	7.8	6.8	10	10	12	13	13	12	13
Bangladesh	11	30	34	38	38	38	41	47	54	63	85	102	104	106	109	106
Brazil	46	45	43	30	27	34	41	29	38	43	42	48	38	41	41	42
Cambodia	4.4	9.1	12	13	16	15	14	17	19	19	21	19	19	20	18	17
China	131	175	189	210	208	214	190	194	267	385	473	470	466	464	449	430
DR Congo	16	25	26	33	35	36	41	45	54	62	65	63	66	66	72	73
Ethiopia	5.1	11	12	15	21	30	32	37	40	41	39	37	38	41	45	47
India	265	291	293	284	345	349	384	396	420	489	507	553	592	616	625	630
Indonesia	3.0	12	21	40	46	52	54	76	93	129	159	175	161	166	169	183
Kenya	6.5	13	19	22	27	28	31	31	34	41	40	39	38	37	37	36
Mozambique	11	13	11		12	13	14	15	16	17	18	18	18	19	20	20
Myanmar	7.9	9.7	9.2	10	12	17	21	24	27	31	37	40	43	41	42	42
Nigeria	9.5	24	11	13	15	16	17	21	28	34	35	40	44	46	45	45
Pakistan	0.8		2.8	29	3.0	4.1	6.3	15	20	32	48	66	89	100	102	104
Philippines	90	126	27	21	37	50	55	59	68	78	81	86	87	85	89	89
Russian Federation	0.05	43	0.7	0.7	1.5	3.6	4.1	5.2	6.3	26	26	31	32	32	32	30
South Africa	28	45	55	37	81	86	101	99	114	127	135	140	143	144	139	134
Thailand	20	0.1	3.7	8.0	14	23	20	27	28	28	30	29	30	33	28	30
Uganda	15	15	18	13	14	14	17	19	20	21	21	20	21	23	23	23
UR Tanzania	20	21	22	24	24	24	24	24	25	26	25	25	25	24	25	24
Viet Nam	38	48	54	55	53	53	54	57	56	58	55	56	54	53	51	52
Zimbabwe	9.7	12	12	13	13	14	17	16	14	15	13	16	11	10	10	12
High-burden countries	**739**	**967**	**879**	**912**	**1 044**	**1 119**	**1 186**	**1 260**	**1 450**	**1 776**	**1 965**	**2 087**	**2 132**	**2 181**	**2 184**	**2 185**
AFR	178	233	268	235	323	365	409	452	491	552	564	566	577	591	606	635
AMR	129	134	125	111	110	111	102	105	110	121	119	132	116	109	123	123
EMR	46	51	60	89	66	64	52	76	81	98	114	132	156	167	167	170
EUR	34	94	24	48	22	41	50	54	60	75	81	98	108	114	105	84
SEAR	318	360	376	399	473	512	550	604	661	780	856	938	974	1 011	1 022	1 045
WPR	296	372	294	313	353	360	346	357	439	575	663	663	661	657	641	622
Global	**1 001**	**1 245**	**1 147**	**1 195**	**1 347**	**1 453**	**1 510**	**1 649**	**1 842**	**2 200**	**2 396**	**2 529**	**2 591**	**2 649**	**2 665**	**2 680**

Blank cells indicate data not reported.
– indicates values that cannot be calculated.

TABLE 3.6 Treatment success for all new cases (%) and cohort size (thousands), 1995–2010

a. Treatment success (%)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Afghanistan	–	–	45	33	86	85	84	87	86	89	90	84	87	88	86	86
Bangladesh	71	63	73	77	79	81	83	84	85	90	90	91	90	91	91	91
Brazil	17	20	27	40	78	71	55	80	77	72	72	69	72	69	70	72
Cambodia	91	94	91	95	93	91	92	92	93	91	91	92	93	94	94	89
China	93	94	95	95	95	93	95	92	93	92	92	92	93	93	94	95
DR Congo	74	48	64	70	69	78	77	78	83	85	85	60	86	86	88	89
Ethiopia	61	71	72	74	74	80	76	76	70	79	78	84	84	80	81	77
India	25	21	18	27	21	34	54	60	76	81	87	87	88	88	89	89
Indonesia	91	81	54	58	50	87	86	86	87	87	89	90	90	90	89	89
Kenya	75	77	65	77	79	80	80	79	80	77	81	83	83	84	84	86
Mozambique	39	55	65	–	71	75	78	78	76	77	79	83	79	84	85	85
Myanmar	67	79	82	82	81	82	81	81	81	82	83	83	84	84	84	88
Nigeria	49	32	73	73	75	79	79	79	78	73	75	76	82	78	84	81
Pakistan	70	–	67	23	70	74	77	78	79	80	82	86	90	89	91	90
Philippines	60	35	78	71	87	88	88	88	88	78	89	88	88	84	85	90
Russian Federation	65	57	67	68	65	68	67	67	61	65	67	69	69	69	68	66
South Africa	58	61	68	72	57	63	61	68	67	65	69	70	71	73	68	53
Thailand	64	78	58	68	77	69	75	74	73	71	71	75	81	80	84	83
Uganda	44	33	40	62	61	63	56	60	68	70	73	68	72	67	64	68
UR Tanzania	73	76	77	76	78	78	81	80	81	82	83	85	88	88	88	89
Viet Nam	89	89	85	92	92	92	93	92	92	92	92	92	91	92	92	92
Zimbabwe	53	32	69	70	73	69	71	67	66	48	66	67	78	70	75	76
High-burden countries	**53**	**50**	**56**	**62**	**60**	**67**	**72**	**75**	**81**	**82**	**85**	**85**	**87**	**87**	**86**	**86**
AFR	60	56	64	70	68	71	70	73	73	70	74	72	77	77	76	73
AMR	50	51	58	67	79	76	69	81	80	76	75	73	78	73	73	74
EMR	79	66	73	57	79	81	82	84	82	82	82	86	87	87	87	88
EUR	67	58	72	63	75	75	74	74	75	75	77	75	76	76	75	74
SEAR	33	31	29	40	34	50	63	68	79	83	87	87	88	88	89	89
WPR	80	72	91	92	91	90	91	90	91	88	90	90	91	91	91	92
Global	**57**	**54**	**60**	**64**	**64**	**69**	**73**	**76**	**80**	**81**	**84**	**84**	**85**	**85**	**85**	**85**

b. Cohort size (thousands)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Afghanistan			2.0	2.9	2.0	3.1	6.3	7.8	6.8	10	10	12	13	13	12	26
Bangladesh	11	30	34	38	38	38	41	47	54	63	119	141	144	106	156	150
Brazil	46	45	43	30	27	34	41	29	38	81	78	81	47	73	75	78
Cambodia	4.4	9.1	12	13	16	15	14	17	19	30	34	34	35	38	39	40
China	131	175	189	210	208	214	190	194	267	644	788	847	889	932	923	877
DR Congo	16	25	26	33	35	36	41	45	54	62	65	92	89	93	106	109
Ethiopia	5.1	11	12	15	21	30	32	37	40	41	39	37	38	139	139	152
India	265	291	293	284	345	349	384	396	420	1 066	1 071	1 137	1 199	1 226	1 244	1 229
Indonesia	3.0	12	21	40	46	52	54	76	93	206	244	266	263	293	289	296
Kenya	6.5	13	19	22	27	28	31	31	34	97	98	101	99	99	99	90
Mozambique	11	13	11		12	13	14	15	16	17	18	18	18	19	20	20
Myanmar	7.9	9.7	9.2	10	12	17	21	24	27	66	73	84	85	90	91	127
Nigeria	9.5	24	11	13	15	16	17	21	28	34	35	40	44	46	86	78
Pakistan	0.8		2.8	29	3.0	4.1	6.3	15	20	84	117	149	191	206	212	256
Philippines	90	126	27	21	37	50	55	59	68	126	81	123	136	140	141	162
Russian Federation	0.05	43	0.7	0.7	1.5	3.6	4.1	5.2	6.3	39	74	97	99	103	101	94
South Africa	28	45	55	37	81	86	101	99	114	243	259	271	247	236	367	338
Thailand	20	0.1	3.7	8.0	14	23	20	27	28	47	49	47	47	54	43	48
Uganda	15	15	18	13	14	14	17	19	20	21	21	31	37	39	38	40
UR Tanzania	20	21	22	24	24	24	24	24	25	61	59	58	25	59	60	59
Viet Nam	38	48	54	55	53	53	54	57	56	92	55	91	91	91	88	88
Zimbabwe	9.7	12	12	13	13	14	17	16	14	54	43	43	39	40	45	46
High-burden countries	**739**	**967**	**879**	**912**	**1 044**	**1 119**	**1 186**	**1 260**	**1 450**	**3 183**	**3 430**	**3 799**	**3 872**	**4 134**	**4 374**	**4 403**
AFR	178	233	268	235	323	365	409	452	491	846	886	940	930	1 087	1 297	1 251
AMR	129	134	125	111	110	111	102	105	110	191	187	197	157	168	191	196
EMR	46	51	60	89	66	64	52	76	81	178	226	259	307	320	331	391
EUR	34	94	24	48	22	42	50	55	60	171	221	274	276	279	248	220
SEAR	318	360	376	399	473	512	550	604	661	1 530	1 639	1 758	1 835	1 880	1 940	1 980
WPR	296	372	294	313	353	360	346	357	439	963	1 030	1 163	1 216	1 261	1 259	1 240
Global	**1 001**	**1 245**	**1 147**	**1 195**	**1 347**	**1 453**	**1 511**	**1 649**	**1 843**	**3 879**	**4 188**	**4 592**	**4 720**	**4 995**	**5 267**	**5 278**

Blank cells indicate data not reported.
– indicates values that cannot be calculated.

CHAPTER 4

Drug-resistant TB

KEY FACTS AND MESSAGES

- By the end of 2012, representative surveillance data on levels of MDR-TB will be available from all 27 high MDR-TB and 22 high TB burden countries, and from 135 of 194 Member States. Globally, 3.7% (2.1–5.2%) of new cases and 20% (13–26%) of previously treated cases are estimated to have MDR-TB.
- There were an estimated 310 000 (range, 220 000–400 000) MDR-TB cases among notified TB patients with pulmonary TB in 2011. Almost 60% of these cases were in India, China and the Russian Federation.
- Extensively drug-resistant TB, or XDR-TB, has been identified in 84 countries; the average proportion of MDR-TB cases with XDR-TB is 9.0% (6.7–11.2%).
- Levels of MDR-TB remain worryingly high in some parts of the world, notably countries in eastern Europe and central Asia. In several of these countries, 9–32% of new cases have MDR-TB and more than 50% of previously treated cases have MDR-TB.
- There has been progress in the detection and treatment of MDR-TB in the last two years. Globally, almost 60 000 cases of MDR-TB were notified to WHO in 2011, mostly by European countries and South Africa. The number of cases reported by the 27 high MDR-TB burden countries almost doubled between 2009 and 2011.
- Despite progress, the number of MDR-TB cases notified in 2011 represented only 19% of the estimated 310 000 cases of MDR-TB among reported TB patients with pulmonary TB, and less than 10% in the two countries with the largest number of cases, China and India. Achieving universal access to treatment requires a bold and concerted drive on many fronts of TB care, and increased financing.
- Major efforts are needed to improve treatment success rates among patients with MDR-TB. The Global Plan target of ≥75% by 2015 was reached by only 30 of 107 countries that reported treatment outcome data for patients with MDR-TB.

Drug-resistant TB (DR-TB) threatens global TB control and is a major public health concern in several countries. The first part of this chapter summarizes the latest status of progress in global surveillance of anti-TB drug resistance, using the most recent data on multidrug-resistant TB (MDR-TB), extensively drug-resistant TB (XDR-TB) and resistance to fluoroquinolones gathered from special surveys and continuous surveillance (Section 4.1). The second part of the chapter (Section 4.2) assesses national progress in diagnosing and treating MDR-TB, using data on diagnostic testing for DR-TB, enrolment on treatment with second-line drugs for those found to have MDR-TB and treatment outcomes.

4.1 Surveillance of drug-resistant TB

4.1.1 Progress in the coverage of drug resistance surveillance

Since the launch of the Global Project on Anti-tuberculosis Drug Resistance Surveillance in 1994, data on drug resistance have been systematically collected and analysed from 135 countries worldwide (70% of WHO's 194 Member States). This includes 63 countries that have continuous surveillance systems based on routine diagnostic drug susceptibility testing (DST) of all TB patients and 72 countries that rely on special surveys of representative samples of patients.

During the past 4 years, most of the 27 high MDR-TB and 22 high TB burden countries (a total of 36 countries) have expanded coverage of surveillance of drug resistance to obtain more accurate estimates of the burden of MDR-TB (Figure 4.1). In 2008, 16 of these 36 countries had no nationally representative drug resistance surveillance data (including 8 countries with data only from subnational areas) and only 3 countries (the Baltic States) had a nationwide routine surveillance system for monitoring drug resistance. By the end of 2012 when the survey concludes in Pakistan, baseline representative information about the burden of drug resistance will be available from all 27 high MDR-TB and 22 high TB burden countries.

Countries such as Afghanistan (Central region), Bangladesh, Belarus, Bulgaria, Nigeria, Uganda and the central Asian republics of Kyrgyzstan, Tajikistan and Uzbekistan, which previously had no or very limited information on drug resistance, concluded surveys in 2010–2011. Data for Afghanistan could not be disaggregated by history of treatment (% of MDR among all forms

FIGURE 4.1 **Progress in implementing surveys for anti-TB drug-resistance in the 27 high MDR-TB and 22 high-TB burden countries**

	2008	2012
Afghanistan	No data	Completed in 2010
Bangladesh	No data	Completed in 2011
Belarus	No data	Completed in 2011
Bulgaria	No data	Completed in 2010
Kyrgyzstan	No data	Completed in 2011
Nigeria	No data	Completed in 2011
Pakistan	No data	Ongoing
Tajikistan	No data	Completed in 2011
DR Congo	1999	No more recent data
India	9 States	1 additional State
Indonesia	2 Provinces	1 additional Province in 2010
Russian Federation	4 Oblasts	17 additional Oblasts
Azerbaijan	2007	Planned for 2013
Uganda	1997	Completed in 2011
Ukraine	2006	Planned for 2013
Uzbekistan	2005	Completed in 2011
Brazil	1996	Ongoing
Cambodia	2007	No more recent data
China	2007	Planned for 2013
Ethiopia	2005	Ongoing
Kenya	1995	Ongoing
Mozambique	2007	No more recent data
Myanmar	2007	Planned for 2013
Philippines	2004	Ongoing
South Africa	2002	Ongoing
Thailand	2006	No more recent data
UR Tanzania	2007	No more recent data
Viet Nam	2006	Ongoing
Zimbabwe	1995	Planned for 2013
Armenia	2007	Moving towards routine surveillance
Georgia	2007	Routine surveillance
Kazakhstan	2001	Routine surveillance
Republic of Moldova	2006	Routine surveillance
Estonia	Routine surveillance	Routine surveillance
Latvia	Routine surveillance	Routine surveillance
Lithuania	Routine surveillance	Routine surveillance

Survey/surveillance at subnational level
Nationwide survey
Nationwide routine surveillance

of TB: 6.3%; range 3.7–10.0). Six countries (Azerbaijan, the Democratic Republic of the Congo, India, Indonesia, the Russian Federation and Ukraine) still rely on drug resistance surveillance data gathered from limited subnational areas. In the Democratic Republic of the Congo, logistic issues have prevented the implementation of a nationwide survey. In Indonesia, after two surveys at provincial level, the national TB control programme (NTP) has opted to work towards establishing a nationwide sentinel system to monitor drug resistance. Concrete plans exist in Azerbaijan and Ukraine to start nationwide surveys in 2012. Drug resistance surveys are ongoing in Brazil, Ethiopia, Kenya, Pakistan, the Philippines, South Africa and Viet Nam.

By the end of 2011, India and the Russian Federation, which combined with China contribute to almost 60% of the estimated global burden of MDR-TB, had produced reliable data only at subnational level. These countries should consider conducting nationwide drug resistance surveys in the short term to better understand the burden of MDR-TB and properly plan diagnostic and treatment services.

Routine surveillance represents the best approach for measuring drug resistance and monitoring trends. Among the 27 high MDR-TB and 22 high TB burden countries, Georgia, Kazakhstan, the Republic of Moldova and the Baltic States now have proper routine surveillance systems to monitor drug resistance.

A group of countries – Benin, Bolivia, Chile, Colombia, El Salvador, Lebanon, Sri Lanka, Mongolia, Nicaragua and Rwanda – that relied on special surveys to monitor drug resistance have established a routine surveillance system for all previously treated cases. This is the first step towards routine drug susceptibility testing for all TB patients.

Central and Francophone Africa remain the regions where drug resistance surveillance data are most lacking, largely as a result of the scarce laboratory infrastructure.

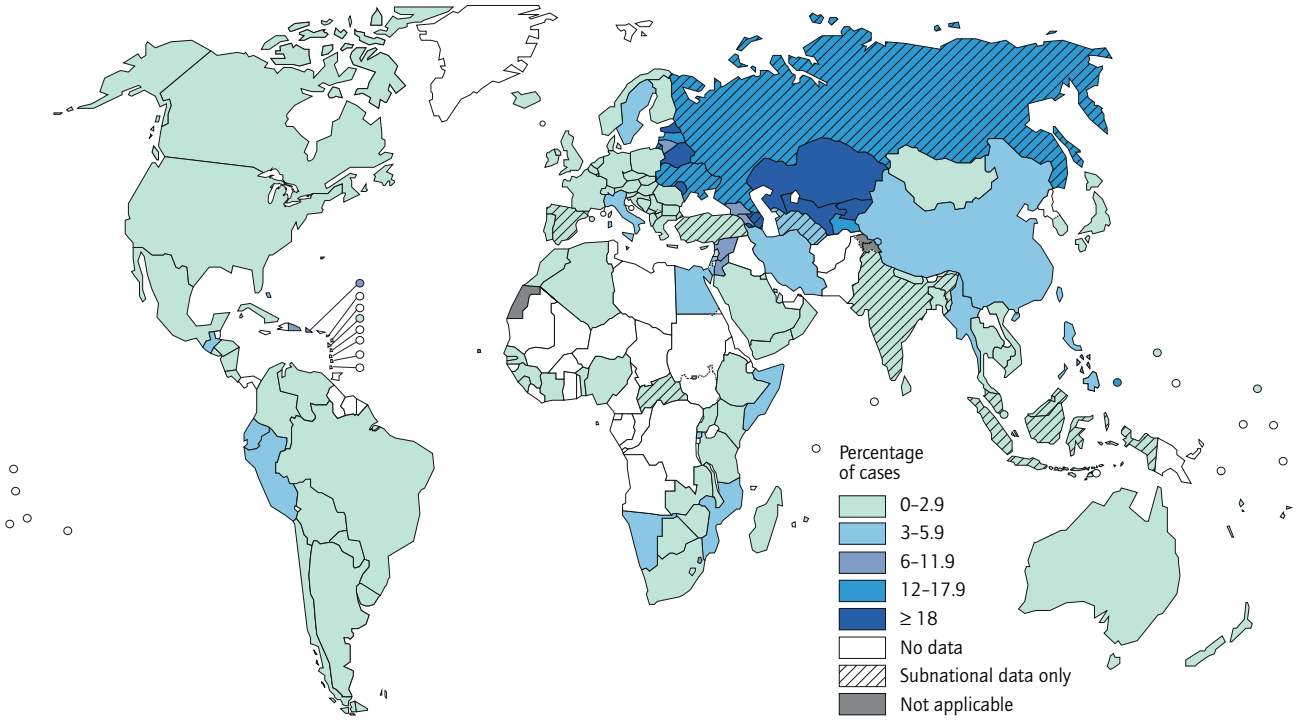
4.1.2 Percentage of new and previously treated TB cases that have MDR-TB

Globally, 3.7% (2.1–5.2%) of new cases and 20% (13–26%) of previously treated cases are estimated to have MDR-TB (Chapter 2).

The proportions of new TB cases with MDR-TB at country level are shown in Figure 4.2. Proportions ranged from 0% to 32.3% and were highest in Belarus (32.3%), Estonia (22.9%), Kazakhstan (30.3%), Kyrgyzstan (26.4%; preliminary results), the Republic of Moldova (19.4%) and Uzbekistan (23.2%). Although the average proportion of patients with MDR-TB in the Russian Federation is lower than in these countries, the proportion is high in several oblasts (with Arkhangelsk Oblast at the highest level: 35.1% in 2010).

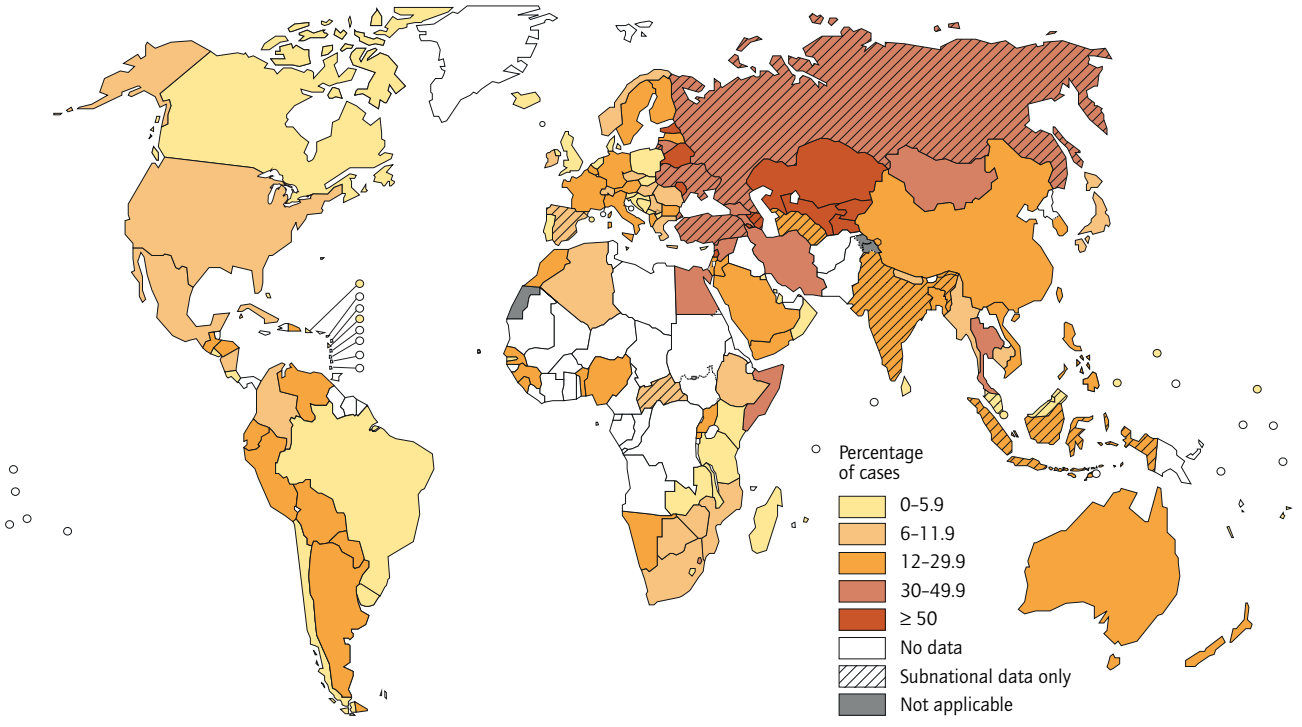
The proportion of previously treated TB cases with

FIGURE 4.2 **Percentage of new TB cases with MDR-TB[a]**



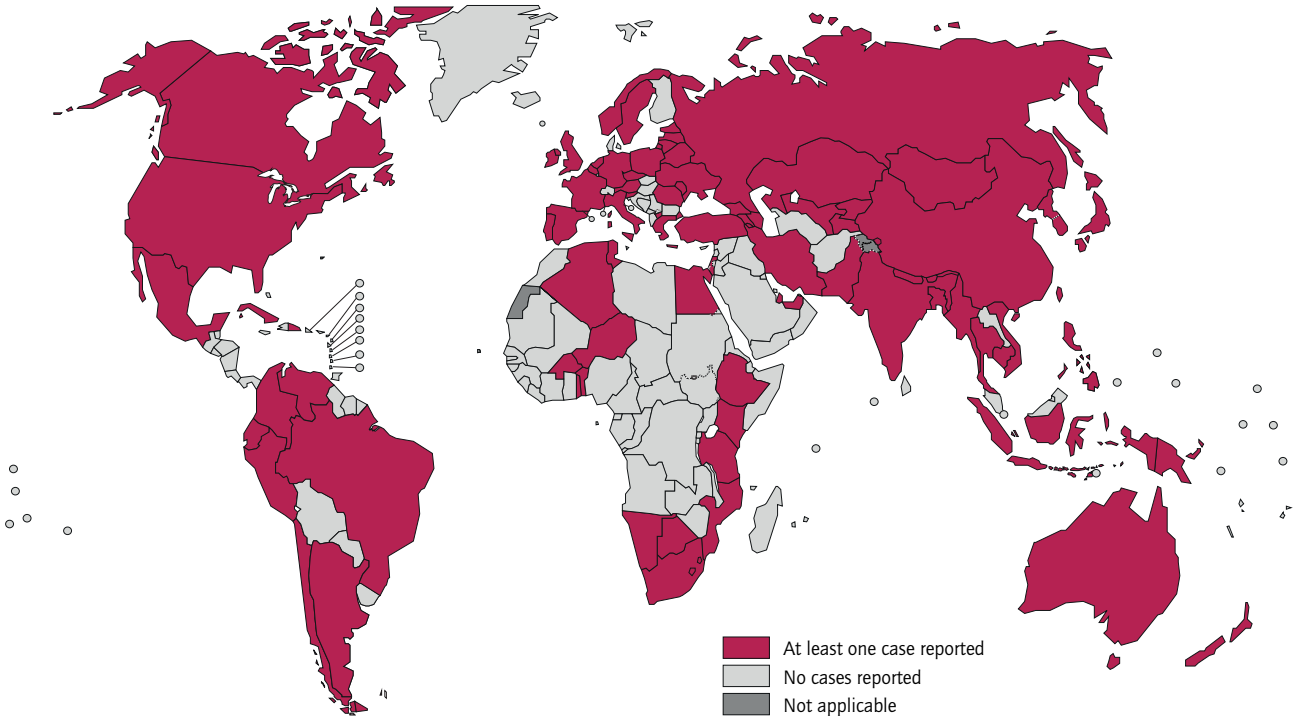
[a] Figures are based on the most recent year for which data have been reported, which varies among countries.

FIGURE 4.3 **Percentage of previously treated TB cases with MDR-TB[a]**



[a] Figures are based on the most recent year for which data have been reported, which varies among countries.

FIGURE 4.4 **Countries that had notified at least one case of XDR-TB by the end of 2011**



MDR-TB at country level ranged from 0% to 65.1% (Figure 4.3). Countries or subnational areas with the highest reported proportions were Azerbaijan (Baku city, 55.8% in 2007), Belarus (75.6% in 2011), Estonia (57.7% in 2011), Kazakhstan (51.3% in 2011), Kyrgyzstan (51.6% in 2011; preliminary results), the Republic of Moldova (63.5% in 2011), Tajikistan (53.6% in 2011; preliminary results) and Uzbekistan (62.0% in 2011). In the Russian Federation, even if the average proportion of cases with MDR-TB does not exceed 50%, the proportion is above 50% in several oblasts (with Arkhangelsk Oblast at the highest level: 58.8% in 2008).

These data confirm that eastern European and central Asian countries continue to represent hot spots for MDR-TB, with nearly one third of new and two thirds of previously treated TB cases affected by MDR-TB in some settings.

4.1.3 XDR-TB and resistance to second-line anti-TB drugs

Extensively drug-resistant TB (XDR-TB) has been identified in 84 countries globally (Figure 4.4). A total of 65 countries and 3 territories reported representative data from continuous surveillance or special surveys on the proportion of XDR-TB among MDR-TB cases. Combining their data, the proportion of MDR-TB cases with XDR-TB was 9.0% (95% confidence interval, 6.7%–11.2%). Since 2007, only 13 out of 68 (19.1%) countries and territories have reported more than 10 XDR-TB cases in a single year. Among them, the proportion of MDR-TB cases with XDR-TB was highest in Azerbaijan (Baku city, 12.7%), Belarus (11.9%), Estonia (18.7%), Latvia (12.6%), Lithuania (16.5%) and Tajikistan (Dushanbe city and Rudaki district, 21.0%).

The levels of resistance to fluoroquinolones in patients with MDR-TB are described in Box 4.1.

4.2 Management of drug-resistant TB

4.2.1 Coverage of drug susceptibility testing (DST)

The diagnosis of DR-TB requires that TB patients are tested for susceptibility to drugs. The Global Plan to Stop TB 2011–2015 (Chapter 1) includes targets that by 2015 all new cases of TB considered at high risk of MDR-TB (estimated at about 20% of all new bacteriologically-positive cases globally) and all previously treated cases should undergo DST. Likewise, all patients with MDR-TB need to be tested for XDR-TB.

With the exception of the European Region, DST for first-line drugs was done for a small proportion of cases in 2011 (Table 4.1); just over 50% of countries reported data. Coverage of DST in new cases has remained stable in recent years and is below that envisaged by the Global Plan for 2011 (Figure 4.5). Globally, less than 4% of new bacteriologically-positive cases and 6% of previously treated cases were tested for MDR-TB in 2011, with particularly low levels of testing in the African and South-East Asia regions. In the European Region, 56% of new cases and 27% of previously treated cases were tested for MDR-TB. Among the 27 high MDR-TB burden countries – which account for 86% of estimated MDR-TB cases in

BOX 4.1

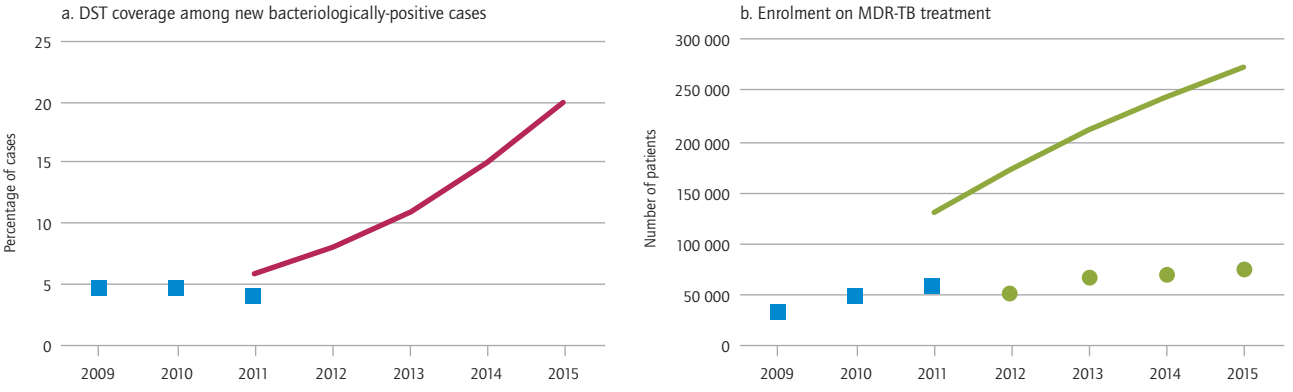
Frequencies of resistance to fluoroquinolones among MDR-TB cases

Fluoroquinolones represent the most powerful class of bactericidal second-line drugs for the treatment of MDR-TB. Patients with MDR-TB and additional resistance to fluoroquinolones have a more serious form of disease compared with those with MDR-TB alone. Their disease is more difficult to treat, and risks evolving into XDR-TB and acquiring resistance to any of the second-line injectable agents.

Monitoring resistance to fluoroquinolones in MDR-TB patients is critical to predict the efficacy of second-line treatment and possibly modify the composition of the treatment regimen. Since 2007, WHO has collected surveillance data on cases of MDR-TB with additional resistance to fluoroquinolones. In most cases, only the compound most commonly used in the country is tested for susceptibility, usually ofloxacin, moxifloxacin or levofloxacin.

A total of 62 countries and 3 territories reported representative data on the proportion of MDR-TB cases that had additional resistance to fluoroquinolones. Combining their data, the proportion of MDR-TB cases with additional resistance to fluoroquinolones was 14.5% (95% confidence interval 11.6–17.4%), inclusive of cases with XDR-TB.

FIGURE 4.5 **DST coverage among new cases and enrolment on MDR-TB treatment, compared with the targets in the Global Plan to Stop TB, 2011–2015.** Lines indicate the planned targets, blue squares show the situation in 2009–2011 and green circles the projected enrolments 2012–2015.



the world – the proportion of cases tested was higher than 20% among new cases in 10 of the 12 European countries reporting data, and exceeded 50% among previously treated cases in six European countries. While data on DST were not available for new and previously treated cases separately, overall 13% of TB cases were tested for drug resistance in South Africa. Among non-European high MDR-TB burden countries, testing for MDR-TB among new cases was highest in China (2.6%); among previously treated cases testing coverage was higher and reached 17% in the Philippines. India, the country estimated to have the highest number of MDR-TB cases among notified TB patients (Figure 4.6), reported no data.

Among TB patients who were notified and confirmed to have MDR-TB in 2011, 23% were reported to have second-line DST for both fluoroquinolones and second-line injectable drugs, and coverage exceeded 90% in Armenia, Estonia, Georgia, Lithuania and Pakistan. South Africa accounted for most of the cases with second-line DST data reported globally, as well as the high level observed in the African Region, which drops from 67% to 9% when excluding this country. Otherwise, second-line DST reports were available for 51% of cases in the Eastern Mediterranean Region, 40% in the Region of the Americas and 8–10% in the other regions.

Progressive acquisition of drug resistance is a considerable risk if TB patients are inadequately tested and treated (see Box 4.2). Increasing the coverage of diagnostic DST is urgently needed to improve the diagnosis of MDR-TB and XDR-TB, and requires strengthening laboratory capacity and the introduction of new rapid diagnostics (for further details, see Chapter 6).

4.2.2 Notification of MDR-TB cases and enrolment on treatment

The suboptimal levels of coverage of DST in many countries are one of the main reasons why the number of people who are diagnosed with MDR-TB remains low. Globally, just under 60 000 cases of MDR-TB were notified to WHO in 2011, mostly by European countries and South Africa (Table 4.2). This represented 19% of the 310 000 (range, 220 000–400 000) cases of MDR-TB estimated to exist among patients with pulmonary TB who were notified in 2011. An additional 4500 rifampicin-

TABLE 4.1 **DST coverage among TB and MDR-TB cases, 27 high MDR-TB burden countries and WHO regions, 2011**

	NEW BACTERIOLOGICALLY POSITIVE CASES		PREVIOUSLY TREATED CASES		CONFIRMED MDR-TB CASES	
	NUMBER WITH DST[a] RESULT	% OF CASES WITH DST RESULT	NUMBER WITH DST[a] RESULT	% OF CASES WITH DST RESULT	NUMBER WITH DST[b] RESULT	% OF CASES WITH DST RESULT
Armenia	439	96	90	23	79	100
Azerbaijan		–		–	0	0
Bangladesh	71	0.1	761	10	0	0
Belarus		–		–	0	–
Bulgaria	588	62	145	41	46	84
China	9 940	2.6		–	46	2.9
DR Congo	22	<0.1	160	2.0	0	0
Estonia	210	100	52	68	75	96
Ethiopia	73	0.1	139	3.0	0	0
Georgia	2 197	83	675	52	440	93
India		–		–	0	0
Indonesia	5	<0.1	695	9.0	88	23
Kazakhstan	5 293	83	4 790	55	0	0
Kyrgyzstan	451	29	232	22	357	44
Latvia	562	96	82	85	95	90
Lithuania	1 031	100	369	100	295	100
Myanmar		–		–	0	0
Nigeria	12	<0.1	76	0.9	14	15
Pakistan		–		–	344	100
Philippines	25	<0.1	2 325	17	0	0
Republic of Moldova	1 379	74	1 006	68	0	0
Russian Federation	34 007	78	13 620	25	0	0
South Africa		–		–	8 072	80
Tajikistan	161	7.4	415	45	122	20
Ukraine		–		–	0	0
Uzbekistan	484	11	123	6.4	834	60
Viet Nam		–		–	0	0
High MDR-TB burden countries	**56 950**	**2.6**	**25 755**	**4.5**	**10 907**	**21**
AFR	1 311	0.2	3 707	2.9	8 272	67
AMR	13 334	10	4 234	20	1 183	40
EMR	2 264	1.2	1 466	6.9	431	51
EUR	69 467	56	25 561	27	2 757	8.5
SEAR	1 200	0.1	1 925	0.5	642	9.7
WPR	25 284	4.2	5 131	6.1	336	7.7
Global	**112 860**	**3.8**	**42 024**	**6.0**	**13 621**	**23**

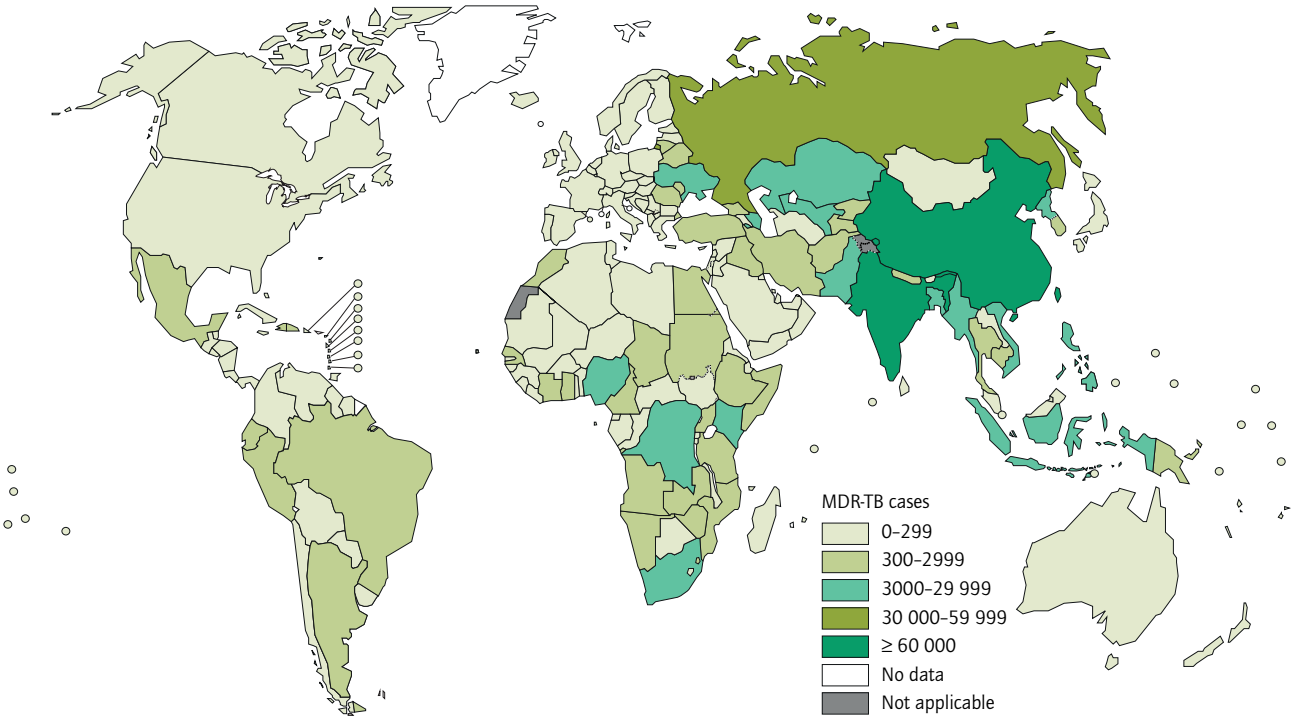
Blank cells indicate data not reported.
– indicates values that cannot be calculated.
[a] DST is for isoniazid and rifampicin.
[b] DST is for a fluoroquinolone and a second-line injectable drug.

resistant cases were reported to have been detected using Xpert MTB/RIF; 80% of these were accounted for by the Philippines and South Africa.[1]

The proportion of TB patients estimated to have MDR-TB that were actually diagnosed was under 20% in almost all of the high MDR-TB countries outside the European Region – including India (6%) and China (3%). The notable exception was South Africa where the numbers reported exceeded the estimated number of cases (**Figure 4.7**). In the Russian Federation, which ranks third in terms of estimated numbers of cases of MDR-TB globally, the proportion of estimated cases that were diagnosed was 31%. Overall, 52/174 countries estimated to have at least one MDR-TB case among notified TB patients reported more than 50% of their expected MDR-TB caseload (2015 target: 100%). Nonetheless, there has been an increase

[1] These are separate from other rifampicin-resistant cases detected by Xpert MTB/RIF, which were included under MDR-TB notifications following subsequent laboratory testing.

FIGURE 4.6 **Number of MDR-TB cases estimated to occur among notified pulmonary TB cases, 2011**



BOX 4.2

"Totally drug-resistant TB" and developments in India in 2012

In December 2011, clinicians in Mumbai, India reported TB patients with what was termed "total drug resistance".[1] As a result of the intense public interest generated by this episode, in March 2012 WHO convened 40 experts to discuss its implications, whether current evidence makes it possible to define patterns of drug resistance beyond extensively drug resistance TB (XDR-TB) and if better guidance on appropriate treatment options for these patients was possible. While the group acknowledged that patients such as those described in Mumbai pose a formidable challenge to clinicians and public health authorities, no reliable definition beyond XDR-TB could be proposed. Without having a better evidence base, no changes to the current guidelines on how to design treatment regimens for patients with broad patterns of resistance could be recommended. Improvements in the accuracy of drug susceptibility testing to certain drugs and the release of innovative new drugs will, however, change this position in future.

Since December 2011, several important measures have been taken by the Indian government. In Mumbai, laboratory and hospital facilities were improved, contact-tracing stepped up and efforts made to train staff on drug-resistant TB and infection control. Medical staff and funding were increased substantially. Access to second-line drugs was provided to eligible patients. National regulations governing private sales of anti-TB medication were strengthened. By the end of 2012, all 35 states in the country are expected to provide programmatic management of drug-resistant TB. In May 2012, India made TB a notifiable disease and data collection on TB using a web-based system was initiated.[2]

[1] Udwadia ZF et al. Totally drug-resistant tuberculosis in India. *Clinical Infectious Diseases*, 2012, 54(4):579–581.

[2] Press Information Bureau English Releases (available from: http://pib.nic.in/newsite/erelease.aspx?relid=83486).

in the total number of MDR-TB cases notified between 2010 and 2011 in 19 of the high MDR-TB countries and in all WHO regions except the Eastern Mediterranean and European regions.

The ratio of notified MDR-TB cases to numbers of patients starting treatment with second-line drug regimens for MDR-TB was almost 1:1 globally, but lower in the African and South-East Asia regions in 2011, possibly reflecting the empiric treatment of TB patients at risk of MDR-TB without a laboratory confirmation or enrolment on treatment of MDR-TB patients detected before 2011 (Table 4.2). Enrolments in the high MDR-TB burden countries nearly doubled between 2009 and 2011 as a result of steady annual increases in 12 of the countries, including India, the Philippines, the Russian Federation, South Africa and Ukraine, each of which reported enrolling more than 2000 patients in 2011. Among 120 countries reporting sex-disaggregated data, the median male:female ratio was 2. Most countries providing MDR-TB enrolment data did not report the inclusion of any

TABLE 4.2 Notified cases of MDR-TB and enrolments on MDR-TB treatment 2009–2011, projected enrolments 2012–2015 and treatment outcome reporting for 2009 cohort, 27 high MDR-TB burden countries and WHO regions

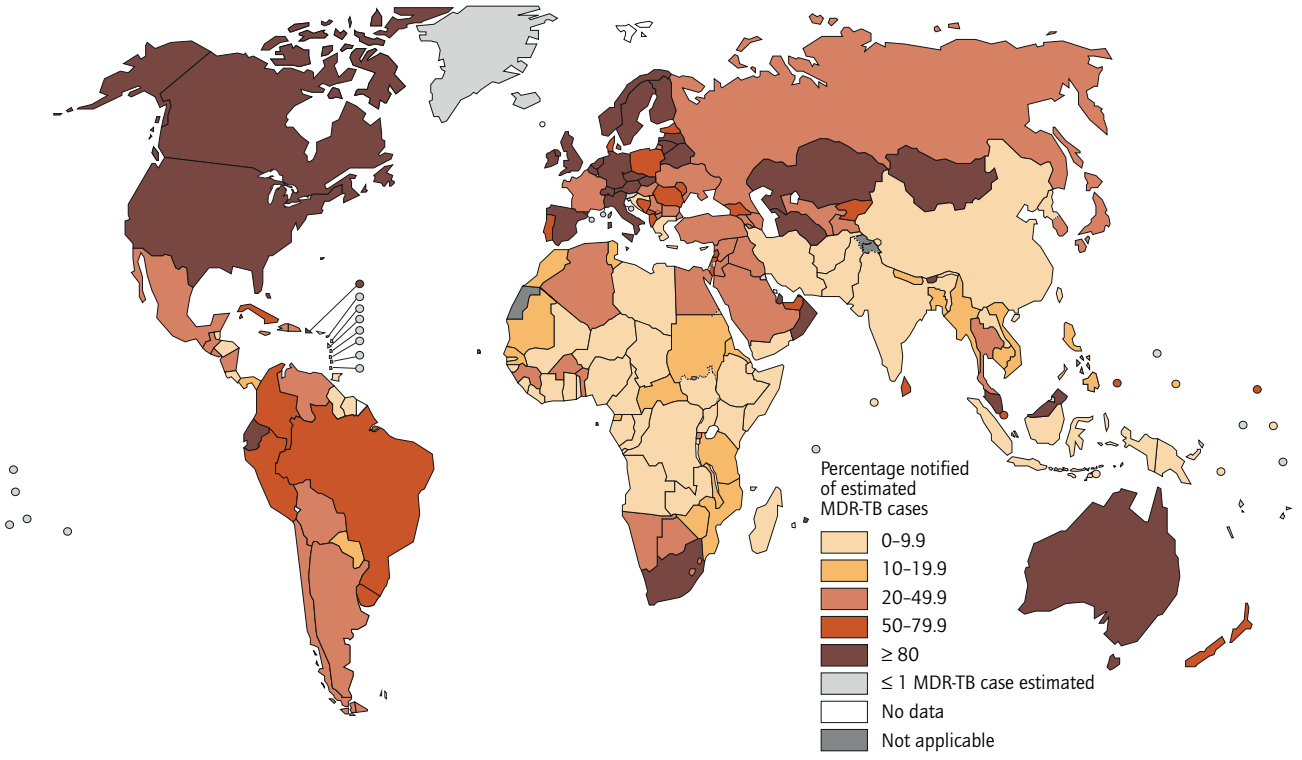
	NOTIFIED CASES			CASES ENROLLED ON MDR-TB TREATMENT			CASES EXPECTED TO BE ENROLLED ON MDR-TB TREATMENT				MDR-TB CASES REPORTED WITH TREATMENT OUTCOME DATA, 2009 COHORT	
	2009	2010	2011	2009	2010	2011	2012	2013	2014	2015	N	%[a]
Armenia	156	177	79	134	154	88	240	200	200		134	86
Azerbaijan		552	722		286	572						–
Bangladesh		339	509	352	339	390	2 597	1 050	1 300	2 000	167	–
Belarus	1 342	1 576			200							–
Bulgaria	43	56	55	43	56	42	60	70	70	70	43	100
China	474	2 792	1 601	458	1 222	1 155	7 237	3 495			260	55
DR Congo	91	87	121	176	191	128	700	800	900	1 000	177	195
Estonia	86	63	78	86	63	75	80	70	65	65	85	99
Ethiopia	233	140	212	88	120	199	1 071	1 714	2 143	2 571	73	31
Georgia	369	359	475	266	618	737	550	540	540	530	503	136
India	1 660	2 967	4 237	1 136	2 967	3 384	15 000	25 000	30 000	32 000	715	43
Indonesia		182	383	20	142	260	900	1 800	1 700		19	–
Kazakhstan	3 644	7 387	7 408	3 209	5 705	5 261		6 280	7 000	7 000	7 579	208
Kyrgyzstan	785	566	806	545	566	492		1 100	1 000		545	69
Latvia	131	87	105	124	87	103	125	125	125	125	131	100
Lithuania	322	310	296	322	310	296					322	100
Myanmar	815	192	690	64	192	163	400	400	400	400	64	7.9
Nigeria	28	21	95	0	23	38	220	400	450	550		–
Pakistan	49	444	344	368	424	344	1 115	2 900	5 300	6 360	74	151
Philippines	1 073	522	1 148	501	548	2 397	2 372	2 372	2 237	2 237	394	37
Republic of Moldova	1 069	1 082	1 001	334	791	765						–
Russian Federation	14 686	13 692	13 785	8 143	13 692	18 902						–
South Africa	9 070	7 386	10 085	4 143	5 402	5 643					4 654	51
Tajikistan	319	333	604	52	245	380	230	800	800	800	52	16
Ukraine	3 482	5 336	4 298	3 186	3 870	4 950					3 238	93
Uzbekistan	654	1 023	1 385	464	628	855	1 865	2 155			464	71
Viet Nam	217	101	601	307	101	578	950	1 100	1 300	1 500	101	47
High MDR-TB burden countries	**40 798**	**47 772**	**51 123**	**24 521**	**38 942**	**48 197**	**35 712**	**52 371**	**55 530**	**57 208**	**19 794**	**49**
AFR	10 741	9 340	12 384	5 994	7 209	7 467	4 409	5 735	6 645	7 539	6 143	57
AMR	2 884	2 661	2 969	3 153	3 249	3 087	3 435	3 684	3 404	5 551	2 340	81
EMR	496	886	841	707	976	756	3 293	3 937	6 499	7 770	511	103
EUR	28 157	33 863	32 348	17 169	28 336	34 769	4 023	12 262	10 073	8 863	14 158	50
SEAR	2 560	3 937	6 615	2 040	3 901	4 572	20 856	30 217	35 374	36 373	1 140	45
WPR	2 059	4 295	4 392	1 422	2 210	4 946	11 102	7 553	4 167	4 440	1 027	50
Global	**46 897**	**54 982**	**59 549**	**30 485**	**45 881**	**55 597**	**47 118**	**63 388**	**66 162**	**70 536**	**25 319**	**54**

Blank cells indicate data not reported.

– indicates values that cannot be calculated.

[a] The percentage of MDR-TB cases originally notified in 2009 with outcomes reported. Percentage may exceed 100% as a result of updated information about MDR-TB cases in 2009, absence of linkage between notification systems for TB and MDR-TB, and the inclusion in the treatment cohort of cases of MDR-TB cases from a year prior to 2009.

FIGURE 4.7 **Notified cases of MDR-TB as a percentage of MDR-TB cases estimated to occur among notified pulmonary TB cases, 2011[a]**



[a] MDR-TB notifications from 2010 are used for 18 countries with missing 2011 data.

children; in the 37 that did, children represented 1–13% of total enrolments.

While the absolute numbers of TB cases notified with MDR-TB and started on second-line treatment remain low compared with the Global Plan's targets, enrolments increased by 21% globally between 2010 and 2011 (**Figure 4.5**). Country plans envisage increased enrolments between 2012 and 2015, although numbers remain well below targets, partly as a result of incomplete information on forecasts in countries with large burdens, such as China, the Russian Federation and South Africa. To reach the targets set out in the Global Plan and advance towards universal access to treatment, a bold and concerted drive will be needed on many fronts of TB care, particularly in the countries where the highest burden is located.

4.2.3 Treatment outcomes for MDR-TB and XDR-TB

Standardized monitoring methods and indicators have allowed countries to report MDR-TB treatment outcomes in a comparable manner for several years.[1] In most cases, treatment of MDR-TB lasts 20 months or longer, and requires daily administration of drugs that are more toxic and less effective than those used to treat drug-susceptible forms of TB. In a few countries, shorter treatment regimens are being used to treat patients with MDR-TB (**Box 4.3**).

A total of 107 countries reported outcomes for more than 25 000 MDR-TB cases started on treatment in 2009 (**Table 4.2**; **Figure 4.8**). This is equivalent to 54% of the number of MDR-TB cases notified by countries in the same year. The Global Plan envisages that by 2015, all countries will report outcomes for all notified MDR-TB cases. In contrast, among 117 countries reporting at least one case of MDR-TB in 2009, 60 overall – including 10 high MDR-TB burden countries – reported outcomes for a cohort whose size exceeded 80% of original notifications.

The proportion of MDR-TB patients who successfully completed treatment varied from 44% (Eastern Mediterranean Region) to 58% (South-East Asia Region). Deaths were highest in the African Region (19%) and the proportion of patients whose treatment failed was highest in the European Region (12%). Overall, treatment success was 48%, while 28% of cases were reported as lost to follow-up or had no outcome information. Among a subset of 200 XDR-TB patients in 14 countries, treatment success was 33% overall and 26% died. The Global Plan's target for 2015 of achieving at least 75% treatment success in MDR-TB patients was only reached by 30/107 countries. Moving towards the target for treatment success requires enhancing and scaling up the currently available drug

[1] These methods and indicators are defined in *Guidelines for the programmatic management of drug-resistant tuberculosis, Emergency update 2008*. Geneva, World Health Organization, 2008 (WHO/HTM/TB/2008.402). It is anticipated that revised definitions of treatment outcomes will be released in 2013 following piloting in several countries.

BOX 4.3

Treatment regimens for MDR-TB lasting up to 12 months

WHO's guidelines on treatment of MDR-TB recommend an intensive phase of 8 months and a total duration of 20 months in most patients.[1] While these recommendations are conditional, they are based on >9000 cases treated in observational studies.[2] There is much less evidence on the effectiveness and safety of regimens of substantially reduced duration and different drug composition, which have been termed short-regimens. One observational study from Bangladesh using shorter regimens yielded much higher treatment success than is usually achieved with the longer regimens, and for this reason has generated much interest in the scientific community.[3]

WHO's position is that regimens which are markedly different from those that make up the current norm should be used only within the context of research and under close monitoring of the clinical and bacteriological response to treatment for a period of at least 12 months after treatment is completed. One of the major concerns is that patients who do well after 9–12 months of treatment with less drugs in the continuation phase than in the longer regimen may have a higher risk of acquiring resistance in the process and relapsing. Proper attention to regulatory and ethical issues will be needed to facilitate gathering evidence for use in future updates of policy and standards. Until sufficient evidence is available to inform a change in policy, WHO is advising countries on a case-by-case basis to introduce short MDR-TB regimens in projects where:

- treatment is delivered under operational research conditions following international standards (including Good Clinical Practice and safety monitoring), with the objective of assessing the effectiveness and safety of these regimens;
- the project is approved by a national ethics review committee, ahead of any patient enrolment; and
- the programmatic management of DR-TB and the corresponding research project are monitored by an independent monitoring board set up by, and reporting to, WHO.

1 *Guidelines for the programmatic management of drug-resistant tuberculosis*, 2011 update. (WHO/HTM/TB/2011.6). Geneva, World Health Organization, 2011.

2 Ahuja SD et al. Multidrug Resistant Pulmonary Tuberculosis Treatment Regimens and Patient Outcomes: An Individual Patient Data Meta-analysis of 9,153 Patients. *PLoS Med*. 2012, 9(8):e1001300.

3 Van Deun A et al. Short, highly effective, and inexpensive standardized treatment of multidrug-resistant tuberculosis. *American Journal of Respiratory and Critical Care Medicine*, 2010, 182(5): 684–692.

BOX 4.4

MDR-TB and mortality

The national surveillance data included in this report show that in all WHO regions a much larger proportion of patients in the MDR-TB cohorts die compared with the overall TB patient cohorts (**Figure 4.8**; see also **Table 3.5** and **Table 3.6** in **Chapter 3**). MDR-TB has been described as an independent risk factor for dying even after adjustment for potential confounders.[1,2]

Data on TB mortality for 2011 from vital registration systems (which exclude deaths attributed to HIV) and data from drug resistance surveillance on the proportion of TB patients with MDR-TB (among those not previously treated for TB) were analysed to explore the relationship between these variables. There was no association between TB mortality rates and the proportion of TB patients with MDR-TB level in high-income countries ($p=0.3$) but there was a positive and significant association in low and lower middle-income countries ($p<0.001$). The positive association remained after adjusting for differences in the age-structure of the population and the prevalence of HIV-related TB.

Variations in the mortality to total TB notification (M:N) ratio observed in the European region, with high levels in the Russian Federation (M:N ratio of 20%), lower levels in Estonia, Latvia and Lithuania (11%) and even lower levels in the high-income western European countries, may reflect the impact of differences in the burden of drug-resistant TB and in the effectiveness of efforts to treat MDR-TB.

Analysis of TB mortality data, despite inherent limitations, may help to improve understanding of the different determinants of death in TB patients, such as MDR-TB. Further exploration of these data is warranted.

1 Low S et al. Mortality among tuberculosis patients on treatment in Singapore. *Int J Tuberc Lung Dis*, 2009, 13(3):328-34.

2 Mathew TA et al. Causes of death during tuberculosis treatment in Tomsk Oblast, Russia. *Int J Tuberc Lung Dis*, 2006, 10(8):857-63.

regimens globally, providing more support that helps patients adhere to treatment and improving data collection, including TB mortality statistics (Box 4.4).

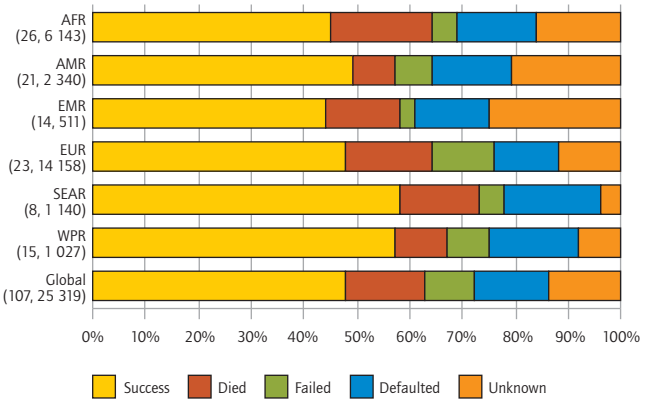
4.2.4 Other aspects of MDR-TB programme management

In the course of their illness, patients with MDR-TB may be cared for as outpatients or in hospitals, usually secondary or tertiary facilities. WHO recommends that where possible patients with MDR-TB are treated using ambulatory care rather than models of care based principally on hospitalization. National policies differ in the predominant model of care that is employed. Among the high MDR-TB burden countries, those in Eastern Europe hospitalize 75–100% of patients except for the central Asian countries (Kazakhstan, Tajikistan and Uzbekistan; 30–71%). In the African Region, there is very wide variation in hospitalization, from 10% of patients (Democratic Republic of the Congo) to much higher levels of 70% (South Africa) and >95% (Ethiopia and Nigeria). The average duration of hospital stay ranged from 7 to 240 days (median: 90 days). The number of visits to a health facility after diagnosis of MDR-TB also differed markedly among countries from less than 25 (Bangladesh, Estonia, Georgia, Pakistan, South Africa and Viet Nam) to over 600 (Bulgaria, Indonesia and Latvia).

Palliative and end-of-life care delivered through home-based or institutional services is important for patients with advanced disease that is not responding to treatment. Nine of the European high MDR-TB burden countries plus South Africa reported providing such care within the scope of the TB control programme.

Among 14 high MDR-TB burden countries providing information on the quality of second-line drugs in the public sector, most reported conformity to international standards in all or some supplies of kanamycin (12/14), capreomycin (9/11, with 3 other countries not using it), levofloxacin (10/12, with 2 others not using it), ethionamide/prothionamide (12/14) and *p*-aminosalicylic acid (9/11, with 3 others not using it). Two countries reported that all their drugs conformed only to national regulatory norms.

FIGURE 4.8 **Treatment outcomes for patients diagnosed with MDR-TB by WHO region, 2009 cohorts.** The number of countries reporting outcomes for at least one case, followed by total cases with outcome data, shown beside each bar.



The information needed to adequately monitor TB patients, and in particular those on MDR-TB treatment, is substantial. The use of electronic systems as a tool to manage data is therefore strongly encouraged (see also Box 2.5). One of the Global Plan's targets is that all 27 high MDR-TB countries manage their data on treatment of MDR-TB patients electronically by 2015. By 2011, 20 reported that national databases were in place for MDR-TB patients, but none were available in Bangladesh, India (see also Box 4.2), Myanmar, Nigeria, the Russian Federation, Ukraine and Viet Nam.

CHAPTER 5

Financing TB care and control

KEY FACTS AND MESSAGES

- The Global Plan to Stop TB 2011–2015 sets out the funding needed for implementation of TB care and control in low and middle-income countries. From 2013 to 2015, up to US$ 8 billion per year is required. In 2015, about US$ 5 billion is needed for the diagnosis and treatment of drug-susceptible TB, US$ 2 billion for diagnosis and treatment of MDR-TB and almost US$ 1 billion for TB/HIV interventions.
- In 2013 funding is expected to reach US$ 4.8 billion in 104 low- and middle-income countries (94% of global cases) that reported data to WHO. These amounts generally exclude funding for TB/HIV interventions, notably ART, that are funded via HIV programmes. Thus, an extra US$ 2–3 billion per year is needed from national and international sources by 2015.
- There is capacity to mobilize increased funding from domestic sources in low and middle-income countries, especially in Brazil, the Russian Federation, India, China and South Africa (BRICS) that already rely entirely or mostly on national contributions. Increased domestic funding in BRICS will be especially critical for scaling up the diagnosis and treatment of MDR-TB.
- International donor funding of up to US$ 1 billion per year is needed for low and middle-income countries 2013–2015 to close funding gaps. This is double the amount of US$ 0.5 billion expected in 2013 but still much less than the amounts being mobilized for malaria (US$ 2.0 billion in 2010) and HIV (US$ 6.9 billion in 2010).
- International donor funding is especially critical to safeguard recent gains in TB care and control and enable further progress in low-income countries and in the group of 17 HBCs outside BRICS. In these country groups, it provides >60% and about one third of total funding, respectively.
- Of the international donor funding expected by national TB control programmes in 2013, 88% is from the Global Fund. In the absence of any other major streams of international donor funding for TB, the Global Fund has a crucial role in sustaining and ensuring further progress in TB care and control worldwide.
- The cost per person successfully treated for TB with first-line drugs is in the range US$ 100 to US$ 500 in almost all countries with a high burden of TB.

Progress in TB prevention, care and control requires adequate funding. WHO began monitoring of funding for TB in 2002, and the global TB database holds data from 2002 up to 2013. This chapter focuses on the years 2006–2013, during which trends can be assessed for 104 low- and middle-income countries that collectively account for 94% of the world's TB cases.

Trends in total funding are broken down by country group (**Section 5.1**), category of expenditure (**Section 5.2**) and sources of funding (**Section 5.3**), highlighting striking variations in countries' reliance on donor funding. **Section 5.4** compares funding for TB care and control with total government expenditures on health care. **Section 5.5** presents estimates of the cost per patient successfully treated with first-line drugs, as well as the total reported funding and unit cost per person for first-line and second-line anti-TB drugs. **Section 5.6** describes the funding gaps reported by countries. The final part of the chapter (**Section 5.7**) assesses the gap between projections of potential funding from domestic sources and the funding requirements specified in the Global Plan.

Further details for each of the 104 countries and a few additional countries for which trends could not be assessed for the entire period 2006–2013 are provided in country finance profiles that are available online.[1]

[1] www.who.int/tb/data

5.1 Funding for TB care and control by country group, 2006–2013

In the 104 countries for which trends in TB funding since 2006 can be assessed and that report 94% of the world's TB cases (listed in Table 5.1), funding is expected to reach US$ 4.8 billion in 2013 (Figure 5.1). This is an increase in real terms from US$ 3.4 billion in 2006 and a small increase from US$ 4.6 billion in 2012.

Brazil, the Russian Federation, India, China and South Africa (BRICS), which report 48% of the world's TB cases (Chapter 3), account for US$ 3 billion (63%) of the expected total of US$ 4.8 billion in 2013 (Figure 5.1). The other 17 high TB burden countries (HBCs) outside BRICS (listed in Table 5.2), which report 34% of the world's TB cases, account for US$ 0.6 billion. A group of 10 European countries other than the Russian Federation accounts for a further US$ 0.5 billion (80% of which is accounted for by three countries: Romania, Turkey and Uzbekistan).

Patterns of funding for multidrug-resistant TB (MDR-TB) specifically are different, as described in Box 5.1.

5.2 Funding for TB care and control by category of expenditure, 2006–2013

In each year 2006–2013, the largest share of funding has been used for the diagnosis of TB and treatment with first-line drugs (all categories of expenditure except those labelled MDR-TB in Figure 5.2 and Figure 5.4). However, funding for the diagnosis and treatment of MDR-TB has been increasing and is expected to exceed US$ 0.7 billion in 2013 (Figure 5.2). Much of the increase is accounted for by BRICS, but allocations are increasing in other HBCs and the rest of the world as well (Figure 5.4).

The relatively small amounts of funding reported for collaborative TB/HIV activities (see Chapter 7 for further details) reflect the fact that funding for most of these interventions (including the most expensive, antiretroviral treatment) is usually channelled to national HIV programmes and nongovernmental organizations rather than to national TB control programmes (NTPs).

5.3 Funding for TB care and control by source of funding, 2006–2013

Domestic funding from national governments is the single largest source of funding for TB care and control (Figure 5.3), accounting for 90% of total expected funding in 2013.[1] Of the remaining 10% that is expected from donor sources in 2013, most (88%) is accounted for by

[1] Domestic funding includes funding for outpatient visits and inpatient care in hospitals, the costs of which are not usually included in NTP budgets and expenditures. The amount of domestic funding for these inputs to TB treatment are estimated by combining data on the average number of outpatient visits and days in hospital per TB patient reported by countries with WHO estimates of the unit costs of outpatient visits and bed-days (see www.who.int/choice).

FIGURE 5.1 **Funding for TB care and control in 104 countries reporting 94% of global cases, by country group, 2006–2013**

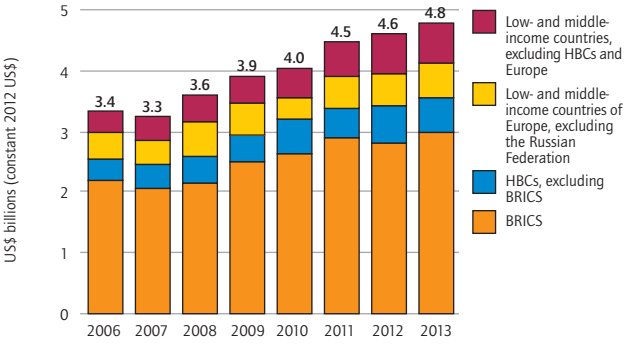
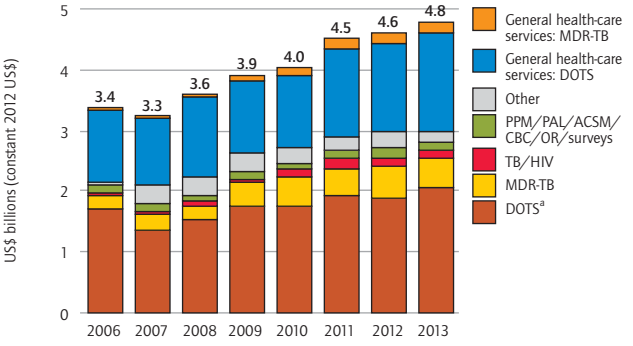


FIGURE 5.2 **Funding for TB care and control in 104 countries reporting 94% of global cases, by line item, 2006–2013**



[a] DOTS includes funding available for first-line drugs, NTP staff, programme management and supervision, and laboratory equipment and supplies.

FIGURE 5.3 **Funding for TB care and control in 104 countries reporting 94% of global cases, by source, 2006–2013**

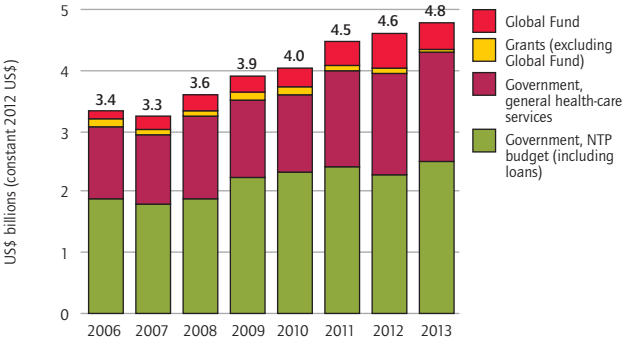
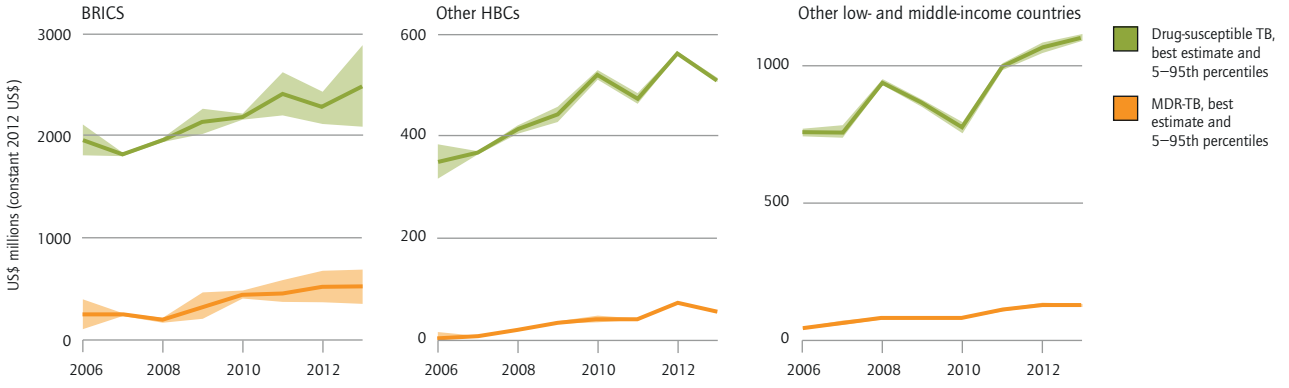


TABLE 5.1 104 countries for which trends in TB funding could be assessed, by income group and WHO region, 2006–2013[a]

WHO REGION	LOW-INCOME (GNI PER CAPITA US$ 1025 IN 2011)	LOWER MIDDLE-INCOME (GNI PER CAPITA US$ 1026–4035 IN 2011)	UPPER MIDDLE-INCOME (GNI PER CAPITA US$ 4036–12 475 IN 2011)
African	Benin, Burkina Faso, Burundi, Central African Republic, Chad, Democratic Republic of the Congo, Eritrea, Ethiopia, Gambia, Guinea-Bissau, Kenya, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Niger, Rwanda, Sierra Leone, Togo, Uganda, United Republic of Tanzania, Zimbabwe	Cameroon, Cape Verde, Congo, Côte d'Ivoire, Ghana, Lesotho, Nigeria, Sao Tome and Principe, Senegal, Swaziland, Zambia	Botswana, Gabon, Namibia, South Africa
Americas	Haiti	Bolivia (Plurinational State of), El Salvador, Guatemala, Guyana, Honduras, Nicaragua, Paraguay	Argentina, Brazil, Colombia, Dominican Republic, Ecuador, Jamaica, Mexico, Panama, Suriname, Venezuela (Bolivarian Republic of)
Eastern Mediterranean	Afghanistan, Somalia	Djibouti, Egypt, Morocco, Pakistan, Sudan, Yemen	Iran (Islamic Republic of), Jordan, Lebanon, Tunisia
European		Armenia, Georgia, Republic of Moldova, Uzbekistan	Bulgaria, Latvia, Montenegro, Romania, Russian Federation, Serbia, Turkey
South-East Asia	Bangladesh, Myanmar, Nepal	Bhutan, India, Indonesia, Sri Lanka, Timor-Leste	Maldives, Thailand
Western Pacific	Cambodia	Kiribati, Lao People's Democratic Republic, Micronesia (Federated States of), Mongolia, Papua New Guinea, Philippines, Solomon Islands, Tonga, Vanuatu, Viet Nam	China, Malaysia, Tuvalu

[a] Another 11 low- and lower middle-income countries with data available for the years 2011–2013 were included in the analyses of Figure 5.12: **low-income, African**: Guinea; **low-income, European**: Kyrgyzstan, Tajikistan; **low-income, South-East Asia**: Democratic People's Republic of Korea; **lower middle-income, Americas**: Belize; **lower middle-income, Eastern Mediterranean**: Iraq, Syrian Arab Republic, West Bank and Gaza Strip; **lower middle-income, European**: Ukraine; **lower middle-income, Western Pacific**: Fiji, Marshall Islands.

FIGURE 5.4 Funding for drug-susceptible TB[a] and MDR-TB,[b] 2006–2013, by country group



[a] Costs include first-line drugs, NTP staff, programme management and supervision, laboratory equipment and supplies, hospital stays and clinic visits.
[b] Costs include second-line drugs, programme management and supervision, hospital stays and clinic visits.

TABLE 5.2 NTP budgets, available funding, cost of utilization of general health-care services and total funding required for TB care and control, 2013 (current US$ millions)[a,b]

	NTP BUDGET REQUIRED	AVAILABLE FUNDING			REPORTED FUNDING GAP	COST OF GENERAL HEALTH-CARE SERVICES (ESTIMATED)	TOTAL FUNDING REQUIRED	% OF DOMESTIC FUNDING IN NTP BUDGET	% OF DOMESTIC FUNDING IN TOTAL AVAILABLE[c]
		GOVERNMENT (INCLUDING LOANS)	GLOBAL FUND	GRANTS (EXCLUDING GLOBAL FUND)					
Afghanistan	11	0.4	2.2	1.1	7.2	2.8	14	10	30
Bangladesh	50	1.2	15	0	34	3.2	54	7.1	15
Brazil	86	70	0	0.1	16	22	108	100	100
Cambodia	25	1.1	2.9	4.8	17	6.8	32	12	31
China	341	239	48	0	55	0	341	83	83
Democratic Republic of the Congo	14	0	8.6	0	5.2	0.2	14	0	1.1
Ethiopia	52	0	13	0	39	12	64	0	24
India	207	120	81	5.7	0	93	300	58	71
Indonesia[d]	117	2.7	29	0	85	39	156	8.5	59
Kenya	51	8.6	3.6	3.5	36	9.5	61	55	64
Mozambique	35	1.9	3.7	2.5	27	6.7	42	24	41
Myanmar	31	0.7	8.3	0.3	22	6.6	38	7.5	27
Nigeria	39	8.7	12	8.3	10	17	57	30	56
Pakistan	52	0	17	0	35	12	63	0	41
Philippines	78	28	0	0	50	98	176	100	100
Russian Federation								–	–
South Africa								–	–
Thailand	44	40	1.0	0	2.7	3.5	48	98	98
Uganda								–	–
United Republic of Tanzania	57	7.6	4.6	2.8	42	1.9	59	51	53
Viet Nam	63	5.6	13	0	45	49	113	31	81
Zimbabwe	38	2.8	7.5	3.5	24	17	54	20	42
22 high-burden countries[e]	**1 390**	**538**	**270**	**33**	**549**	**401**	**1 791**	**64**	**73**
AFR	821	383	129	38	272	680	1 501	70	85
AMR	177	123	15	1.5	37	170	347	88	95
EMR	126	32	44	1.9	48	65	192	41	66
EUR	1 590	1 547	30	0	14	522	2 227	98	99
SEA	479	181	145	6.5	146	162	642	54	68
WPR	541	293	69	6.1	173	225	765	80	87
Low income	467	37	125	24	283	85	551	20	32
Lower middle income	831	264	250	27	291	517	1 348	49	74
Upper middle income	2 435	2 257	57	3.2	117	1 221	3 774	97	98
Low- and middle-income countries	**3 733**	**2 558**	**431**	**54**	**691**	**1 823**	**5 673**	**84**	**89**

Blank cells indicate data not reported.

– indicates values that cannot be calculated.

[a] Values in this table may differ from those presented in the figures of this chapter, as they have not been adjusted to constant 2012 US$.

[b] Region, income group and global totals include estimates for those countries that did not report data for 2013.

[c] Total available is the sum of funding available in the NTP budget plus the cost of general health-care services. In low-income countries, the percentage of general health-care services cost that is domestically funded is assumed to equal the midpoint between the percentage of NTP funding from domestic sources and 100%. In all other countries it is assumed to equal 100%. Sensitivity to this assumption is analyzed in Figure 5.5.

[d] Indonesia was not able to report funding expected from provincial and district budgets in 2013; these numbers reflect only the central government's expected contribution.

[e] These totals do not include estimates for countries that did not report data for 2013 (Russian Federation, South Africa and Uganda).

BOX 5.1

Funding for diagnosis and treatment of MDR-TB, 2009–2013

The geographical distribution of MDR-TB cases differs considerably from that of all TB cases. Of the estimated 310 000 MDR-TB cases among notified pulmonary TB cases in 2011, almost 60% were accounted for by three countries: (in rank order) India, China and the Russian Federation (Chapter 4). Of the 27 high MDR-TB burden countries that account for about 85% of estimated cases globally, 15 are in the European Region, where the prevalence of MDR-TB among new and previously treated cases is highest (ranging from 9%–32% in new cases and 29%–76% among previously treated cases). The costs of diagnosing and treating MDR-TB are also much higher than the costs of diagnosing and treating drug-susceptible TB. The regimens recommended in WHO guidelines, which last 20 months for most patients, can cost several thousands of US dollars. Other costs associated with patient care are also high.[1]

The funding available for MDR-TB treatment in the 104 countries that reported financial data, and which have 75% of the world's estimated cases of MDR-TB, increased from US$ 0.5 billion in 2009 to US$ 0.6 billion in 2011 (Table B5.1.1).[1] This figure is expected to increase to more than US$ 0.7 billion in 2012 and 2013. NTP spending on second-line drugs and programme management accounts for about three quarters of the total. Second-line drugs alone now amount to more than US$ 0.3 billion per year. The remaining funding (about US$ 0.2 billion) is channelled through general health-care services (GHS) for inpatient and outpatient treatment of patients with MDR-TB.

TABLE B5.1.1
Funding available and reported gaps for MDR-TB in 104 low- and middle-income countries, US$ millions

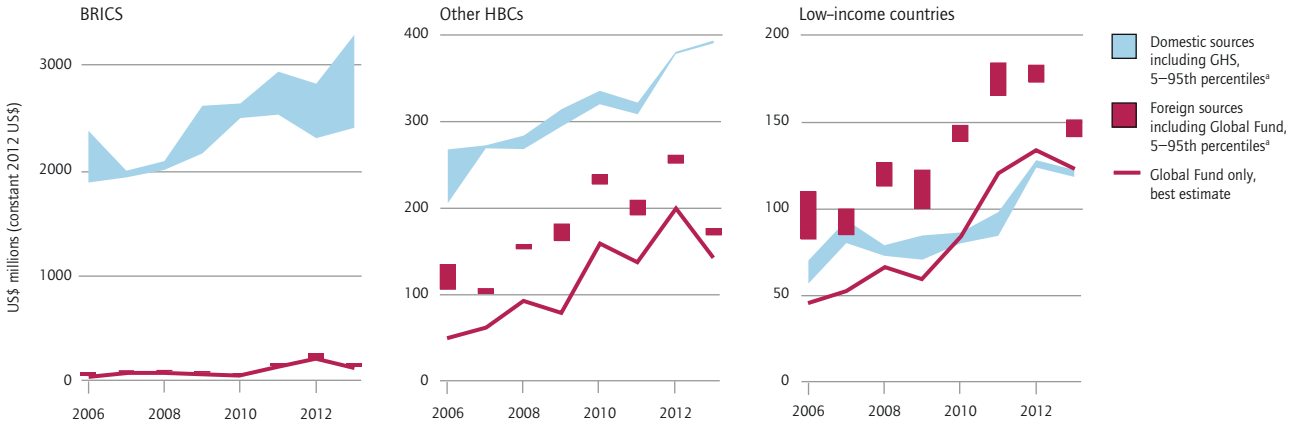
		2009	2010	2011	2012	2013
Low- and middle-income countries	Available funding[a]	450	566	615	719	705
	Avaliable (NTP only)[b]	353	445	443	541	523
	Avaliable (GHS only)	97	121	172	178	183
	% domestic[c]	*89*	*90*	*85*	*71*	*78*
	Reported gap	117	58	81	115	84
High MDR-TB burden countries	Available funding[a]	384	490	526	610	600
	Avaliable (NTP only)[b]	315	409	408	492	472
	Avaliable (GHS only)	68	81	118	119	128
	% domestic[c]	*90*	*91*	*85*	*70*	*77*
	Reported gap	109	42	58	94	61
Upper middle-income countries	Available funding[a]	387	501	513	533	521
	Avaliable (NTP only)[b]	307	400	373	389	374
	Avaliable (GHS only)	80	101	140	144	148
	% domestic[c]	*95*	*97*	*93*	*86*	*92*
	Reported gap	99	6	11	67	8
Lower middle-income countries	Available funding[a]	48	54	82	158	162
	Avaliable (NTP only)[b]	33	35	53	128	131
	Avaliable (GHS only)	15	19	28	30	31
	% domestic[c]	*57*	*42*	*46*	*32*	*40*
	Reported gap	11	38	49	26	42
Low-income countries	Available funding[a]	14	11	20	28	21
	Avaliable (NTP only)[b]	13	9	16	24	18
	Avaliable (GHS only)	1	2	3	4	3
	% domestic[c]	*38*	*29*	*34*	*26*	*31*
	Reported gap	6	15	22	23	33

GHS, general health-care services for hospital stays and clinic visits; MDR-TB, multidrug-resistant TB; NTP, national TB control programme or equivalent
[a] Includes funding for second-line drugs, MDR-TB programme management and supervision and estimated cost of GHS for patients with MDR-TB.
[b] Includes funding for second-line drugs, MDR-TB programme management and supervision only.
[c] Assumes GHS is domestically funded.

About 85% of the funding available is concentrated in the high MDR-TB burden countries, in particular upper middle-income countries. In absolute terms, China and India have the largest external grants for MDR-TB, at US$ 41 million and US$ 43 million respectively from the Global Fund in 2013. Meanwhile, low-income and lower middle-income countries report a funding gap of US$ 75 million in 2013, leaving almost one third of their budgets for MDR-TB unfunded.

[1] Fitzpatrick C, Floyd K. A systematic review of the cost and cost effectiveness of treatment for multidrug-resistant tuberculosis. *Pharmacoeconomics*, 2012, 30:63–80.

FIGURE 5.5 **Trends in domestic and donor funding for TB care and control, 2006–2013, by country group[a]**



[a] In probabilistic sensitivity analysis, the percentage of GHS costs that is domestically funded in low-income countries is assumed to follow a uniform distribution, ranging from the percentage of NTP funding from domestic sources up to 100%.

grants from the Global Fund (Table 5.2). Funding reported by NTPs from other donor sources amounts to only US$ 54 million in 2013, although bilateral and multilateral funds are not always channelled through NTPs. For example, donors may provide funding directly to nongovernmental organizations and to technical agencies. Recent data on technical assistance compiled by TB-TEAM (TB Technical Assistance Mechanism) are provided in Box 5.2.

International donor funding for TB care and control has increased from US$ 0.2 billion in 2006 to almost US$ 0.5 billion in 2013, but still falls short of funding for malaria (US$ 2.0 billion in 2010)[1] and HIV (US$ 6.9 billion in 2010).[2]

Global statistics on sources of funding conceal important variations in the extent to which countries rely on domestic and donor financing (Figure 5.5, Figure 5.6, Table 5.2). Differences among BRICS, the other 17 HBCs and the group of low-income countries are especially striking (Figure 5.5). In BRICS, domestic funding has consistently accounted for most of the funding for TB care and control (for example, >95% in 2012 and 2013), although India is an outlier at 71% in 2013. In the other 17 HBCs (listed in Table 5.2), the share of total funding from donor sources was in the range 28–41% between 2006 and 2013. The group of low-income countries (24 African countries as well as Afghanistan, Bangladesh, Cambodia, Haiti, Myanmar, Nepal and Somalia) are most reliant on donor funding: for example, in 2012, 59% of total funding was from donor sources. In 2013, ≥70% of available funding will be from donor sources in five HBCs: Afghanistan, Bangladesh, the Democratic Republic of the Congo, Ethiopia and Myanmar (Table 5.2).

Throughout the period 2006–2011, donor funding exceeded domestic funding in low-income countries, and in 2010 and 2011 financing from the Global Fund alone exceeded domestic contributions. The data reported in 2012 suggest that this pattern will persist in 2012 and 2013. The Global Fund has a crucial role in sustaining and ensuring further progress in TB care and control.

Of particular concern is the expectation that donor funding will be lower in 2013 compared with 2012 in the 17 HBCs outside BRICS and low-income countries (current data suggest decreases of up to 33% and 18%, respectively). Donor funding is essential to safeguard recent gains in TB control in the 17 HBCs outside BRICS and low-income countries.

5.4 Funding for TB care and control compared with total government expenditures on health care

In general, spending on TB control as a proportion of public sector health expenditures[3] is relatively low (Figure 5.7). In most countries, TB control accounts for less than 3% of public health expenditures. Countries with higher levels of spending on TB relative to total government expenditures on health are mostly in Africa, eastern Europe (for example, Ukraine) or central Asia. Part of the explanation for countries in eastern Europe and central Asia is comparatively high levels of MDR-TB (see Chapter 4), which is more expensive to treat. Other reasons include continued use of models of care for all forms of TB that rely extensively on inpatient care. For example, in Kazakhstan, 84% of smear-negative cases[4] and 96%

[1] *World malaria report 2011*. Geneva, World Health Organization, 2011.

[2] *Financing the response to AIDS in low- and middle-income countries: international assistance from donor governments in 2010. UNAIDS and the Kaiser Family Foundation, 2010* (also available at www.unaids.org).

[3] Source: World Health Organization National Health Account database (www.who.int/nha/en) accessed via http://data.worldbank.org/indicator/SH.XPD.PUBL.ZS in July 2012.

[4] For case definitions, see Chapter 3.

BOX 5.2

Technical assistance for TB care and control

The Global Plan to Stop TB 2011–2015 highlights the important role of technical assistance to NTPs. The funding required over five years was estimated at US$ 2.1 billion, or approximately US$ 400 million per year.

The TB Technical Assistance Mechanism (TB-TEAM) of the Stop TB Partnership was established in 2007 to monitor and coordinate the provision of technical assistance to NTPs. The secretariat function is carried out by WHO's Stop TB Department. Requests from countries for technical assistance are matched to appropriate technical partners via the TB-TEAM web site. Technical partners are expected to provide information about the purpose of the mission, the dates of travel, funding sources and a mission report via the website. All technical partners are invited to review and comment on quarterly and annual analyses of data.

TABLE B5.2.1
Number of missions conducted by technical partners and reported to TB-TEAM, 2011

PROVIDER OF TECHNICAL ASSISTANCE	NUMBER OF MISSIONS IN 2011	% OF TOTAL
WHO regional offices	126	20
The Union	86	13
KNCV Tuberculosis Foundation	67	10
Centers for Disease Control and Prevention (CDC), USA	60	9
WHO headquarters	55	9
Global Drug Facility	39	6
WHO country offices	35	5
Grant Management Solutions (GMS) project	33	5
NTP/national TB-TEAM	25	4
TB-REACH	19	3
Other	100	16
Total	**645**	**100**

In 2011, 645 missions were completed and reported to TB-TEAM (Table B5.2.1). About one third of recorded missions were organized by WHO, mainly by regional offices, and one third by the Union, the KNCV Tuberculosis Foundation and the United States Centers for Disease Control and Prevention (CDC).

In 2011, the main technical areas for which assistance was provided were MDR-TB and XDR-TB; monitoring and evaluation linked to impact measurement; the grant processes of the Global Fund; review missions; and laboratory strengthening (Table B5.2.2). The data also show that the number of missions fell between 2009 and 2011. This downward trend occurred among most major technical partners, including WHO, the KNCV Tuberculosis Foundation and the Union (data not shown), and was especially noticeable for three topics: MDR and XDR-TB, management of drugs and commodities, and development of Global Fund proposals.

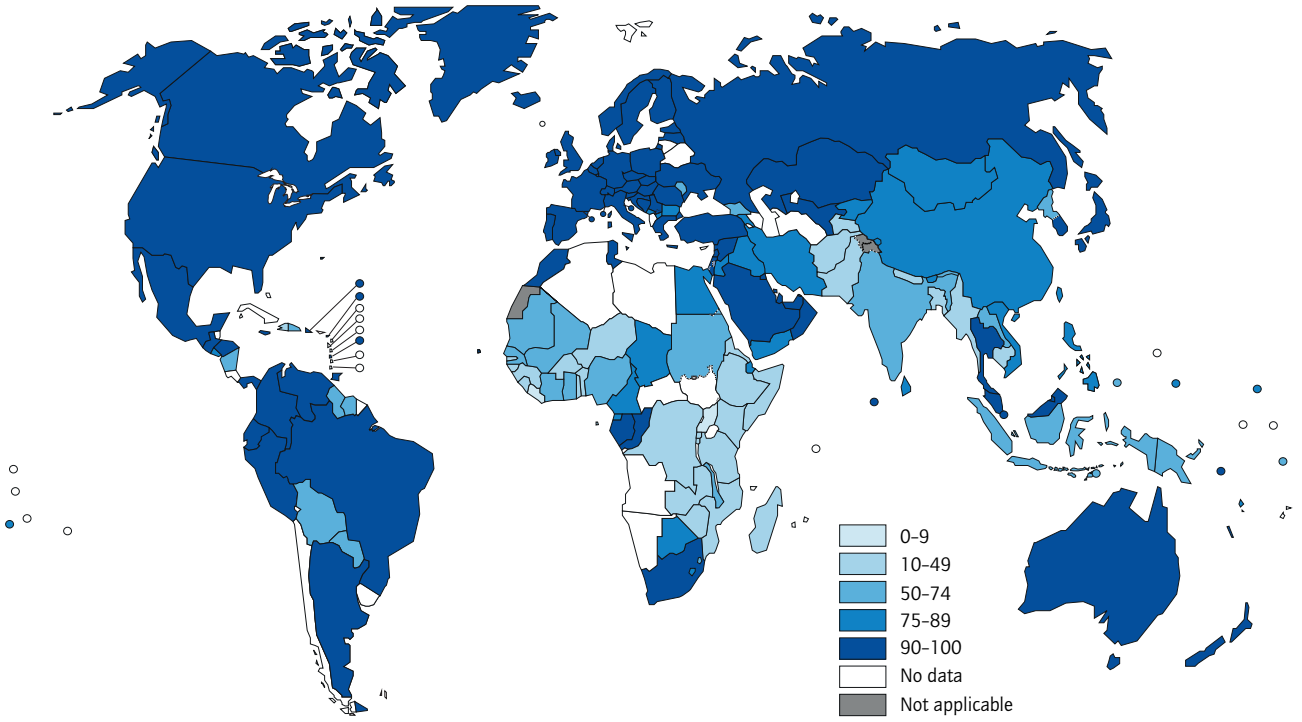
Information on sources of funding is often not recorded; in the first half of 2012, the source of funding was not recorded for 40% of missions. Of the 389 missions for which information on funding was provided, 78% was from agencies of the US government, notably the United States Agency for International Development (USAID) and OGAC (the Office of the Global AIDS Coordinator). The remaining 22% was from Eli Lilly and the Canadian International Development Agency (CIDA).

TABLE B5.2.2
Number of missions by topic reported to TB-TEAM, 2009–2011

TOPIC	2009	2010	2011	% OF TOTAL IN 2011
MDR-TB and XDR-TB	120	129	91	14
Monitoring and evaluation, supervision and impact measurement	46	63	73	11
Global Fund grant processes, bottlenecks	34	40	72	11
TB programme planning and review; regional meetings	77	107	64	10
Laboratory strengthening	54	79	57	9
Drugs and commodities management	89	70	53	8
Infection control	26	34	36	6
Operational and basic science research	9	17	34	5
TB/HIV	13	17	31	5
Human resources development	27	39	23	4
Global Fund proposal development	52	30	19	3
Advocacy, communication and social mobilization	26	18	12	2
Childhood TB	3	4	9	1
Drug resistance surveillance	2	8	9	1
Other	217	114	62	10
Total	**795**	**769**	**645**	**100**

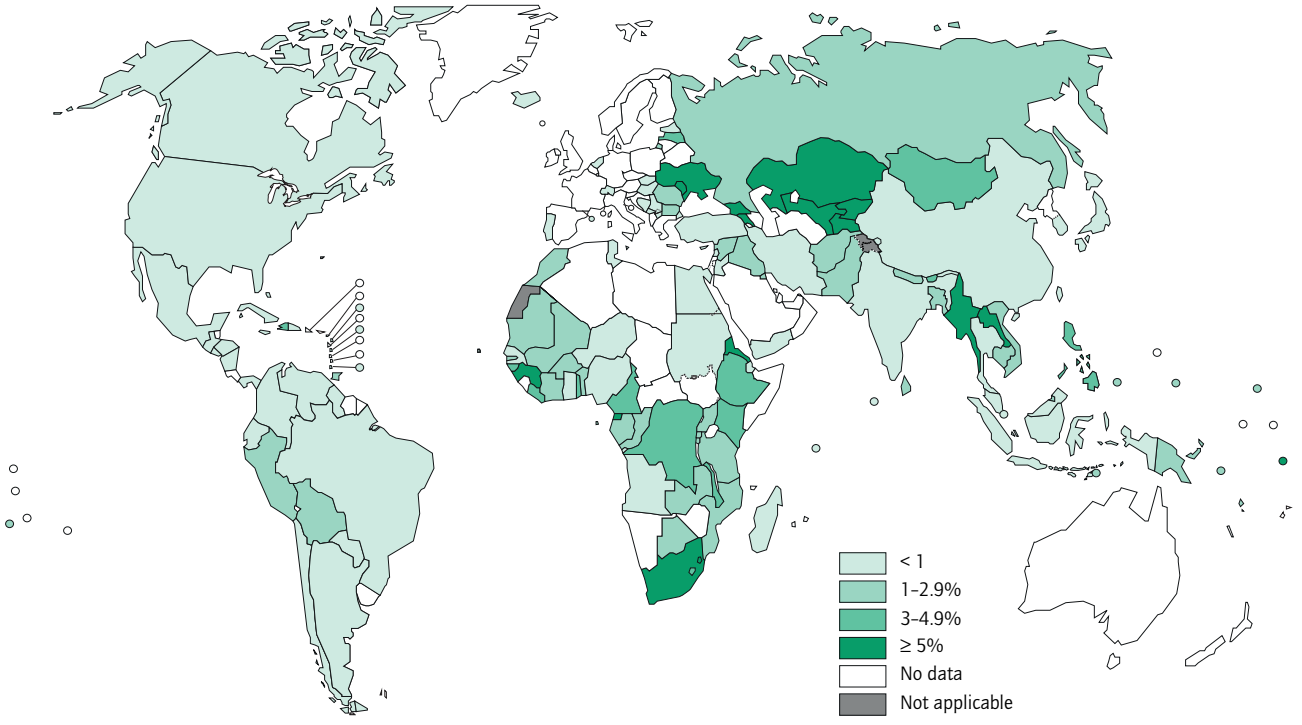
The regional distribution of missions broadly correlates to TB burden (data not shown). An exception is the European Region, which accounts for 19% of missions but for 5% of TB cases reported globally. Most of the missions in this region are related to MDR-TB and laboratory strengthening. The South-East Asia Region has a comparatively low share of missions (12%) while reporting almost 40% of TB cases globally. One explanation may be that technical assistance provided from within-country sources in India is not captured in the database.

FIGURE 5.6 **Domestic funding as a percentage of total funding available for TB care and control,[a] average 2009–2011**



[a] General health-care services are assumed to be domestically funded in all but the low-income countries, where the share of domestic funding is instead taken to be the median value obtained through the probabilistic sensitivity analysis described in Figure 5.5.

FIGURE 5.7 **Expenditures for TB care and control as a percentage of public sector health expenditures, average 2007–2009**



of smear-positive cases are hospitalized, with average lengths of stay of 60 and 100 days respectively; 35% of MDR-TB cases are hospitalized for 160 days. Nonetheless, there are signs that countries are reducing their reliance on hospitalization. For example, Uzbekistan reported a reduction in the number of dedicated TB beds from more than 15 000 in 2008 to less than 11 000 in 2012; the average duration of hospitalization for MDR-TB patients decreased from 270 to 90 days during the same period.

5.5 Unit costs and cost effectiveness of TB care

The estimated cost per patient successfully treated for TB with first-line drugs is shown for each of the 22 HBCs in Figure 5.8. The cost generally lies in the range US$ 100–500 per patient successfully treated. The exceptions are Bangladesh, India and Myanmar (under US$ 100); Brazil (above US$ 500); and the Russian Federation and South Africa (both above US$ 1000). From 2006 to 2011, the cost per patient treated increased in almost all of the HBCs, as did GDP [gross domestic product] per capita.

It is noticeable that in all of the HBCs, the cost per patient treated is less than GDP per capita (that is, all values lie below the solid red line in Figure 5.8). Besides GDP, a further explanation for variation in costs appears to be the scale at which treatment is provided. Some of the countries with relatively low costs for their income level (for example, China, India, Indonesia and Pakistan) are countries where the total number of patients treated each year is comparatively high (as shown by the size of the circles in Figure 5.8).

As in previous years, the cost of treating TB patients with first-line drugs in the Russian Federation is higher than might be expected for the country's income level. The relatively high cost is due in large part to an extensive network of hospitals and sanatoria that are used for lengthy inpatient care. It should also be highlighted that the characteristics of the patient population in the Russian Federation (such as high rates of alcohol dependency and unemployment, and a comparatively high proportion of ex-prisoners) may also warrant additional investments in some aspects of TB care. Examples include patient enablers and incentives to support outpatient care, and psychosocial support.

The cost per patient successfully treated with first-line drugs at country level is summarized in Figure 5.9. In most countries in the African, South-East Asia and Western Pacific regions, the cost per patient successfully treated is under US$ 1000 (exceptions include Botswana and South Africa in the African Region, and Malaysia and Mongolia in the Western Pacific Region). Costs are higher in the Region of the Americas and the European Region (notably in Kazakhstan).

Evidence on the cost effectiveness of interventions for TB care and control is summarized in Box 5.3.

Data reported by countries also allow analysis of the funding available for first- and second-line anti-TB drugs, and the unit cost (per patient) for first- and second-line regimens (Figure 5.10). The total funding amounts to about US$ 0.2 billion per year for first-line drugs, with a cost per patient of less than US$ 40 in low- and lower middle-income countries, and around US$ 50 in upper middle-income countries. The Global Drug Facility's Stop TB Patient Kit costs only US$ 22.30 for new cases; freight, quality control, inspection, agent fees and insurance may explain why some low-income countries continue to report unit costs in excess of these prices.

Public spending on second-line drugs is at least US$ 0.2 billion. Unfortunately, Figure 5.10 does not include amounts being spent in the Russian Federation and South Africa, which are known to be large but for which reliable data are not available for the years 2009–2013; if these were included, spending on second-line drugs would greatly exceed spending on first-line drugs. The unit cost for second-line anti-TB drugs is much higher than that for first-line drugs. National programmes spent US$ 1200–3800 per patient treated with second-line drugs in 2011. They appear to be budgeting for increases in 2013: from about US$ 2600 per patient in low-income countries to US$ 4700 per patient in upper middle-income countries.

5.6 Funding gaps reported by countries, 2006–2013

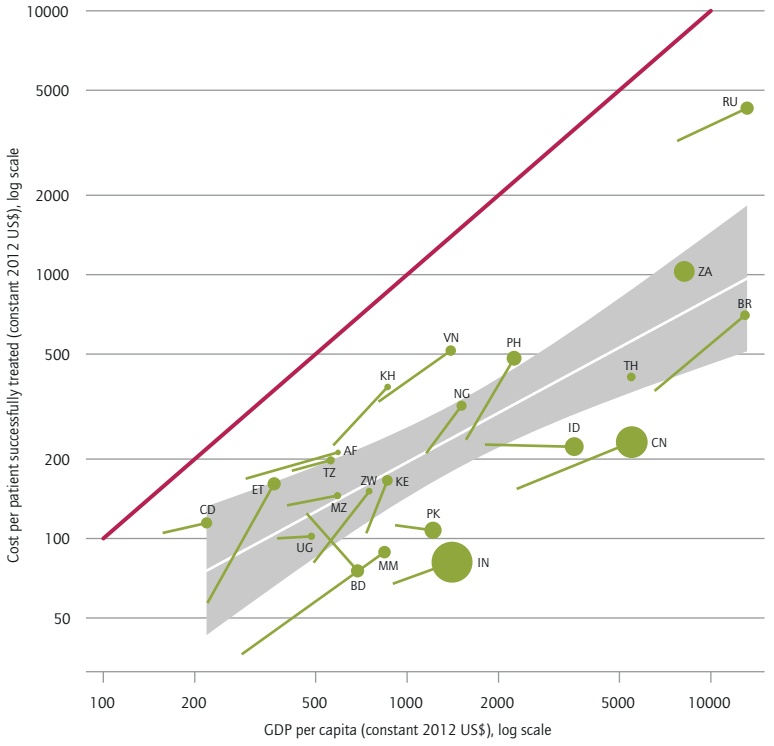
Despite increases in funding and 10 completed rounds of proposals[1] to the Global Fund, NTPs continue to report funding gaps (Figure 5.11). Since 2007, these gaps have been in the range US$ 0.4–0.7 billion per year. In 2013, funding gaps are anticipated for several elements of TB care and control, including first-line drugs. It is also evident that while countries have developed budgets for activities to strengthen and enhance the basics of TB care and control (such as public–public and public–private mix initiatives to increase reporting of cases and improve treatment outcomes, and advocacy, communication and social mobilization), gaps relative to available funding for these activities (shown in Figure 5.2) are comparatively large.

Funding gaps have persisted and widened during the past decade.[2] Funding gaps reported for 2013 are more than 20% of the budgets developed by NTPs in 38 countries, including 16 HBCs (Table 5.2).

[1] The first round was completed in 2003. Round 10 was completed in 2010.

[2] Further details for individual HBCs can be found in Annex 2, and in finance country profiles for more than 100 countries that are available online at www.who.int/tb/data.

FIGURE 5.8 Cost per TB patient successfully treated with first-line drugs,[a] 22 high TB burden countries,[b] 2006 and 2011[c]



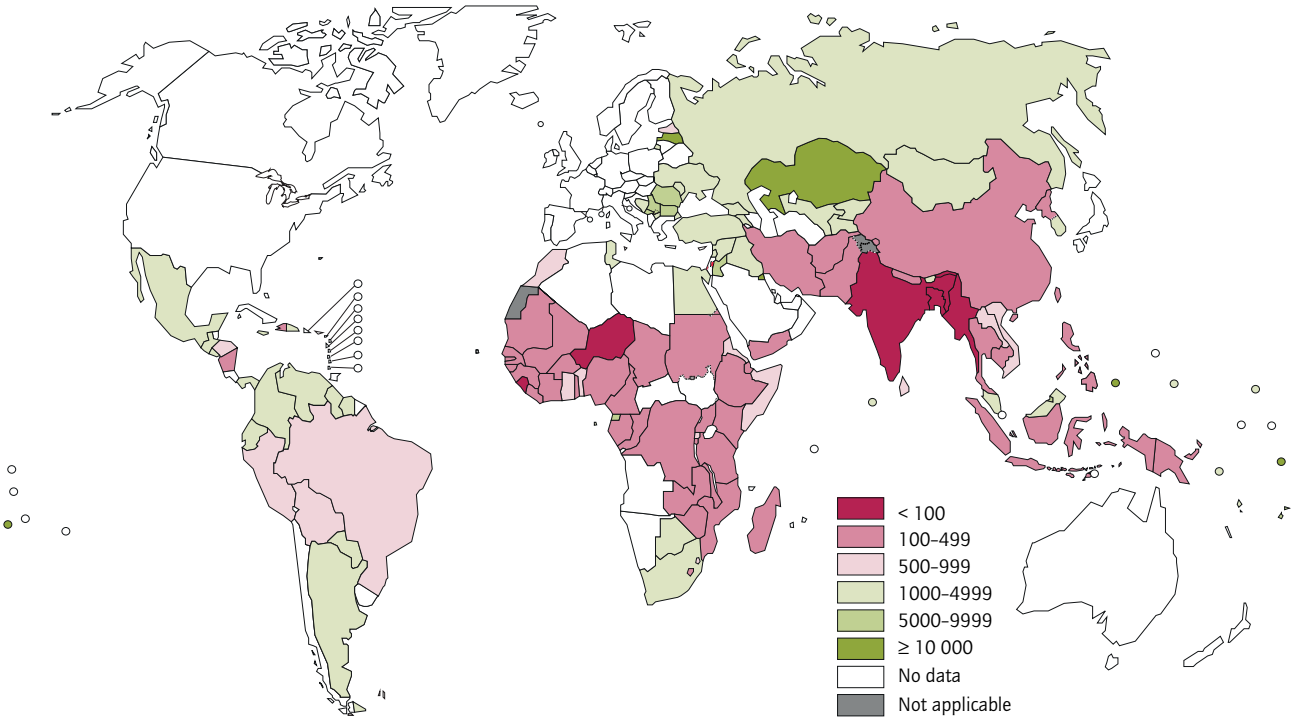
- The size of the green circle is proportional to the number of patients treated in 2011.
- The green tail attached to each circle depicts the change in cost per patient successfully treated and GDP per capita between 2006 and 2011.
- The grey area depicts the 95% confidence interval for the prediction (= white line) of the unweighted log–log regression of cost per patient successfully treated on GDP per capita in 2011.
- The red line marks where cost per patient successfully treated equals GDP per capita.

[a] Costs include first-line drugs, NTP staff, programme management and supervision, laboratory equipment and supplies, collaborative TB/HIV activities, PPM, PAL, ACSM, CBC, operational research, surveys, hospital stays and clinic visits.

[b] AF Afghanistan; BD Bangladesh; BR Brazil; CN China; CD Democratic Republic of the Congo; ET Ethiopia; ID Indonesia; IN India; KE Kenya; KH Cambodia; MM Myanmar; MZ Mozambique; NG Nigeria; PK Pakistan; PH Philippines; RU Russian Federation; TH Thailand; TZ United Republic of Tanzania; UG Uganda; VN Viet Nam; ZA South Africa; ZW Zimbabwe.

[c] Costs per patient treated are case-weighted three-year averages, 2004–2006 and 2009–2011, to minimize distortions associated with non-annual expenses on items such as buildings, equipment and buffer stocks of drugs. No time trend is provided for South Africa and Thailand, due to lack of data.

FIGURE 5.9 Cost per TB patient successfully treated with first-line drugs[a] (US$), average 2009–2011



[a] Costs include first-line drugs, NTP staff, programme management and supervision, laboratory equipment and supplies, collaborative TB/HIV activities, PPM, PAL, ACSM, CBC, operational research, surveys, hospital stays and clinic visits.

BOX 5.3

Cost effectiveness of interventions for TB care and control

National TB control programmes have provided good value for the US$ 23 billion they received in the years 2006–2011. A total of 34 million TB cases were detected and treated over the same period. Treatment success rates have risen (Table 3.5, Table 3.6) while unit costs have remained low relative to income levels (Figure 5.8). The cost effectiveness of core interventions for TB care and control is strongly supported by reviews and meta-analyses of economic evaluations, as summarized in Table B5.3.1.

The disability adjusted life year (DALY) is a commonly-used metric for measuring and comparing health outcomes across interventions. Applied to TB treatment, a DALY averted is approximately equal to a year of life saved. For patients with smear-positive pulmonary TB that is sensitive to first-line drugs, a short course of chemotherapy for 6 months costs as little as US$ 5–50 per year of life saved. Treating smear-negative forms of drug-sensitive TB costs somewhat more, at US$ 60–200 per year of life saved (reflecting a lower case fatality rate in the absence of treatment and less transmission). TB that is resistant to both isoniazid and rifampicin (MDR-TB) requires longer and more expensive treatment with second-line drugs and costs US$ 200–800 per year of life saved.

TABLE B5.3.1

Summary of the available evidence on the cost effectiveness of interventions for TB care and control[1,2,3,4]

POPULATION	INTERVENTION	COST PER DALY AVERTED (US$)[a]
Patients with smear-positive TB	First-line treatment under DOTS	5–50
Patients with smear-negative or extrapulmonary TB	First-line treatment under DOTS	60–200
Patients with MDR-TB	18–24 months of second-line treatment under WHO guidelines	200–800
People living with HIV, infected with TB	Isoniazid preventive therapy	15–300
People living with HIV, with TB disease	First-line drugs under DOTS plus ART	100–365
People in whom TB is suspected	Diagnosis of TB using *Xpert MTB/RIF* as an add-on to smear	40–200

[a] For those unfamiliar with the DALY, this column may be interpreted as the cost per year of life saved.

WHO defines an intervention as "highly cost effective" if the cost per DALY averted is less than the GDP per capita of the country in which it is being implemented. According to this benchmark, interventions for TB care and control are highly cost effective even in the lowest-income countries. The high cost effectiveness of TB care and control was recognized by the Disease Control Priorities Project in 2006: TB treatment was listed as one of the "best buys" in public health.[5] More recently, the Copenhagen Consensus included the expansion of TB treatment among its top five investments, out of some 40 proposals designed by experts to address urgent global challenges including armed conflict, climate change, education, hunger and control of infectious diseases.[6]

1 Dye C, Floyd K. Tuberculosis. In: *Disease control priorities in developing countries*, 2nd ed. New York, Oxford University Press, 2006:289–312.

2 Baltussen, R, Floyd K, Dye C. Achieving the millennium development goals for health: cost effectiveness analysis of strategies for tuberculosis control in developing countries. *BMJ*, 2005, 331:1364–1368.

3 Fitzpatrick C, Floyd K. A Systematic Review of the Cost and Cost Effectiveness of Treatment for Multidrug-Resistant Tuberculosis. *Pharmacoeconomics*, 2012, 30:63–80.

4 Vassall A et al. Rapid diagnosis of tuberculosis with the Xpert MTB/RIF assay in high burden countries: a cost-effectiveness analysis. *PLoS Medicine*, 2011, 8(11):e1001120 (doi:10.1371/journal.pmed.1001120).

5 www.dcp2.org/main/Home.html

6 Nobel laureates: more should be spent on hunger, health: top economists identify the smartest investments for policy-makers and philanthropists [press release dated 14 May 2012]. Denmark, Copenhagen Consensus, 2012 (available at www.copenhagenconsensus.com/Projects/CC12/Outcome.aspx; accessed July 2012).

5.7 Projections of potential funding from domestic sources and funding requirements specified in the Global Plan

The *Global Plan to Stop TB 2011–2015* was published by the Stop TB Partnership in 2010.[1] It sets out what needs to be done to achieve the global targets for TB control set for 2015 in 149 low- and middle-income countries,[2] and the associated funding requirements (Table 5.3). The total requirement over five years amounts to US$ 47 billion. Excluding research and development for new TB drugs, diagnostics and vaccines (Chapter 8), which are not the responsibility of NTPs, the total is US$ 37 billion.

Funding needs for TB care and control in the Global Plan (i.e. amounts excluding those for research) were estimated to grow from around US$ 6 billion in 2011 to US$ 8 billion in 2015. Diagnosis and treatment with first-line drugs for drug-susceptible TB following the DOTS approach account for the largest single share of funding – US$ 4 billion in 2011 increasing to around US$ 5 billion in 2015. The second largest component is diagnosis and

1 The *Global Plan to Stop TB, 2011–2015*. Geneva, World Health Organization, 2010 (WHO/HTM/STB/2010.2).

2 For a summary of the targets set in the plan, see Chapter 1.

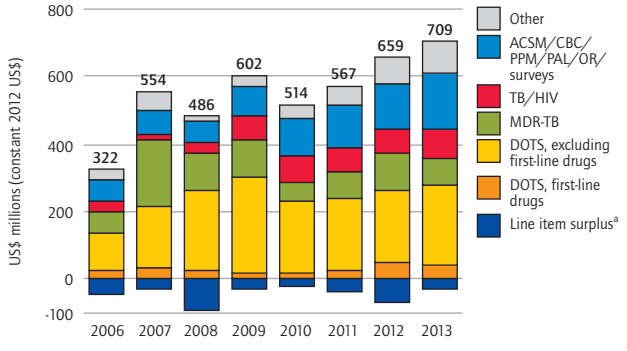
FIGURE 5.10 Total cost and unit cost of first- and second-line anti-TB drugs in 99 countries,[a] 2009–2013,[b] by income group

[a] These 99 countries account for 85% of global drug-susceptible TB cases and 29% of MDR-TB cases receiving treatment. See also note (c).

[b] Values for 2012 and 2013 are based on country plans and budgets, not actual expenditures. Unit costs are case-weighted two-year averages to adjust for purchases of buffer stock.

[c] The Russian Federation (R) and South Africa (S) were excluded as they did not report expenditures for 2011 or funding expected for 2012–2013. Together, they account for about 9% of global drug-susceptible TB cases and 45% of MDR-TB cases receiving treatment.

FIGURE 5.11 Funding gaps for TB care and control as reported by countries, by line item, 2006–2013

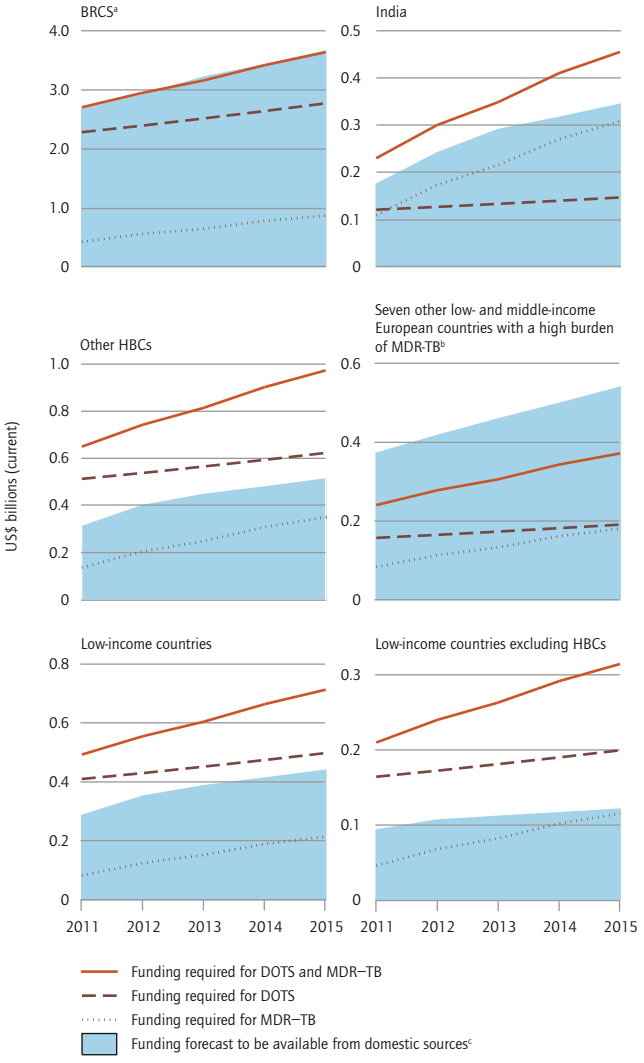


[a] Funding available for a given line item may exceed that required for the same line item under a country's plan and budget.

TABLE 5.3 Summary of funding requirements for TB control during the period 2011–2015, as set out in the Global Plan to Stop TB

PLAN COMPONENT	TOTAL FUNDING REQUIRED (US$ BILLIONS) [% OF TOTAL]	PLAUSIBLE RANGE
Implementation	**36.9 [79%]**	**36.1–37.7**
DOTS	22.6 [48%]	22.1–23.2
MDR-TB	7.1 [15%]	6.6–7.7
TB/HIV	2.8 [6%]	2.7–2.9
Laboratory strengthening	4.0 [8%]	3.7–4.2
Technical assistance	0.4 [1%]	not estimated
Research and development	9.8 [21%]	
Fundamental research	2.1 [5%]	
New diagnostics	1.7 [4%]	
New drugs	3.7 [8%]	
New vaccines	1.9 [4%]	
Operational research	0.4 [1%]	
All components	**46.7 [100%]**	**45.9–47.5**

FIGURE 5.12 **Funding required for DOTS and MDR-TB in the Global Plan 2011-2015 compared with projections of potential funding from domestic sources, for six country groups**



[a] Brazil, Russian Federation, China and South Africa (BRICS excluding India)

[b] The seven countries included in this group are Armenia, Georgia, Kyrgyzstan, Republic of Moldova, Tajikistan, Ukraine and Uzbekistan. Of the funding available in 2012, approximately half is accounted for by Ukraine. The countries in this group continue to hospitalize TB patients for lengthy periods of time, while in the Global Plan it was assumed that reliance on inpatient hospital care in the European Region would be progressively reduced between 2006 and 2015 to an average of 60 days per patient with drug-susceptible TB by 2015. This explains why the funding amounts estimated to be needed in the Global Plan are lower than the funding available in this group of countries.

[c] Assumes that: 1) international donor funding received by BRICS in 2011 is substituted by domestic sources; and 2) domestic funding for TB care and control in all low and middle-income countries will keep pace with IMF forecasts of growth in GDP per capita.

treatment of MDR-TB, for which the funding requirement was estimated at US$ 1 billion in 2011, rising to US$ 1.9 billion in 2015. The funding required for collaborative TB/HIV activities (see **Chapter 7**) increases to about US$ 1 billion by 2015, mostly (about 90% of the total) for antiretroviral therapy for HIV-positive TB patients that would be funded via HIV programmes (not NTPs).

The funding requirements set out in the Global Plan are considerably more than the funding amounts reported by countries. For example, the funding required in 2015 according to the Global Plan is about US$ 2 billion more than the funding reported to be available in 2013.[1] In this context – and with international funding constrained by economic stagnation or recession in traditional donor countries – assessing the funding that can be mobilized from domestic sources is of increasing importance.

Figure 5.12 shows estimates of the funding required for treatment of TB and MDR-TB in the Global Plan, and for selected groupings of countries defined by their TB burden and income level. Amounts for collaborative TB/HIV activities are deliberately excluded because ART, the main intervention in terms of cost, is not funded through NTPs. It is therefore not appropriate to compare funding needs for collaborative TB/HIV activities with funding reported by NTPs. Also shown in **Figure 5.12** are projections of the funding that could be mobilized from domestic sources in each country group, on the assumption that: (i) international donor funding received by BRICS in 2011 is substituted by domestic sources; and (ii) domestic allocations for TB care and control in all low- and middle-income countries will keep pace with IMF forecasts of growth in GDP per capita.

The data shown in **Figure 5.12** provide insights that could inform future discussions about investments in TB care and control, including prioritization of donor funding among countries and interventions and targets for resource mobilization. For example:

- There is domestic capacity to fund the investments needed for basic TB care and control (DOTS) in BRICS.
- An increase in domestic allocations for TB care and control in line with forecast growth in GDP per capita would be sufficient to mobilize the funding needed for diagnosis and treatment of MDR-TB in Brazil, the Russian Federation, China and South Africa (all of which are upper middle-income countries).
- In India, without growth in domestic allocations for TB above forecast growth in GDP per capita, about US$ 0.1 billion per year is needed from donor sources.

[1] This is excluding amounts for TB/HIV that are mostly for ART funded through HIV programmes, and allowing for funding in the 34 countries considered in the Global Plan that are not in the group of 115 countries for which data were available for 2011 or 2012 (**Table 5.1**). It is anticipated that most of the funding for TB/HIV interventions will need to come from international donors.

- The 14 countries not included in the list of 22 HBCs but that are part of the list of the 27 high MDR-TB burden countries are all European countries. Of these 14 countries, six are upper middle-income countries and one is a high-income country (Estonia). Among the seven low- and lower middle-income countries, available funding from domestic sources appears to be sufficient, although some rationalization in the use of hospital care may be required.
- The 17 HBCs outside BRICS require donor funding of about US$ 0.3–0.5 billion per year to reach Global Plan targets for implementing DOTS and scaling up diagnosis and treatment for MDR-TB. This amount could be lowered if reductions in the price of second-line anti-TB drugs needed for treatment of MDR-TB could be achieved.
- Low-income countries require donor funding of about US$ 0.2–0.3 billion per year to reach Global Plan targets for implementing DOTS and scaling up diagnosis and treatment for MDR-TB, of which US$ 0.1–0.2 billion per year is in countries outside HBCs.

In addition to the funding needs for DOTS and MDR-TB set out in the Global Plan, additional investments will be needed for the scale-up of new rapid molecular diagnostics. Further details about these diagnostics are provided in **Chapter 6**.

Overall, these observations suggest that international donor funding of up to US$ 1 billion per year is needed for diagnosis and treatment of TB and MDR-TB in low- and middle-income countries 2013–2015 to close funding gaps. It is anticipated that most of the funding required for TB/HIV interventions will also need to come from international donor sources.

CHAPTER 6

Diagnostics and laboratory strengthening

KEY FACTS AND MESSAGES

- Conventional technologies have been constraining diagnosis of TB and drug-resistant TB, but the recent availability of new rapid tests has the potential to revolutionize TB care.
- The roll-out of Xpert MTB/RIF, a new rapid molecular test that can diagnose TB and rifampicin-resistant TB within hours, has been impressive. Between its endorsement by WHO in December 2010 and the end of June 2012, 1.1 million test cartridges were procured in 67 (46%) of the 145 countries eligible to purchase them at concessional prices. Acceleration in uptake is still needed to realize the full potential of the technology.
- Scaling up use of the Xpert MTB/RIF assay is expected to be greatly accelerated by a 41% drop in the cartridge price from US$ 16.86 to US$ 9.98 announced in August 2012. It is essential that expansion in capacity to diagnose drug-resistant TB is closely aligned with expansion in capacity to provide treatment.
- Laboratory capacity to conduct sputum smear microscopy still requires strengthening: only 15 of the 22 high TB burden countries met the target of having 1 microscopy centre per 100 000 population in 2011.
- Substantial strengthening of laboratory capacity to detect DR-TB is needed. Among the 36 countries with a high burden of TB and MDR-TB, 19 did not have the recommended capacity of 1 laboratory to perform culture and DST per 5 million population in 2011.
- The WHO/GLI Supranational Reference Laboratory (SRL) Network has assumed a greater role in global efforts to strengthen TB laboratories. It now comprises 29 laboratories in all WHO regions, with 4 additional candidate SRLs under development.
- WHO has developed more comprehensive policies on the proper use of TB diagnostics, which now include guidance on approved tests as well as 'negative' guidance to dissuade practitioners from using poorly performing and/or overly costly tests. Countries should take decisive action to ban poorly-performing and overly costly tests and introduce WHO-recommended technologies.

A high-quality laboratory system that uses modern diagnostics is a prerequisite for early, rapid and accurate detection of TB. Of the estimated 8.7 million incident TB cases in 2011, only 66% were diagnosed and notified to national TB control programmes, due in part to inadequate laboratory capacity in many low- and middle-income countries. Furthermore, of the notified cases of pulmonary TB, around one-third were not bacteriologically confirmed using a WHO-recommended laboratory method, and a proportion of the patients in whom TB was clinically diagnosed without laboratory confirmation may not have had TB. These numbers do not capture the significant delay that many patients experience in receiving a diagnosis of TB because of poorly functioning laboratory systems, resulting in delays to the start of their treatment, additional suffering and expenses, and adverse treatment outcomes.

As described in Chapter 4, diagnosis of drug resistance remains a particular challenge for laboratory systems in many low- and middle-income countries. Only 19% of the 310 000 cases of multidrug-resistant TB (MDR-TB) estimated to exist among patients with pulmonary TB received a laboratory-confirmed diagnosis of their disease and were notified in 2011. Rapid and timely detection of TB cases and strengthened capacity to diagnose cases of drug-resistant TB are thus global priorities for TB care and control.

This chapter has three parts. The first describes developments in WHO's policies on TB diagnostics during 2011–2012; the second provides the status of laboratory capacity globally, regionally and nationally, focusing on 36 countries in the combined list of 22 high TB burden countries and 27 high MDR-TB burden countries; the third describes the strengthening of laboratories with a focus on the EXPAND-TB project, the Supranational Reference Laboratory Network and laboratory accreditation.

6.1 Developments in WHO policies on TB diagnostics

WHO has established a systematic process for the timely formulation of policy on new TB diagnostics in response to the active research and development pipeline in recent years and resultant new tools (see Chapter 8). This dynamic process involves synthesizing the available evidence through systematic reviews and meta-analyses, assessing the evidence and its expected impact

on public health by an external Expert Group using the recommended GRADE approach,[1] and preparing policy guidance[2] for dissemination to Member States and other stakeholders.[3] Policy documents are reviewed every 3–5 years, taking into account new evidence.

In 2011, WHO issued two 'negative' policy statements on TB diagnostics: one against the use of commercial, antibody-based serodiagnostic tests to diagnose active TB disease; the other a caution against commercial interferon-gamma release assays (IGRAs) as a public health intervention to detect latent TB infection in low- and middle-income settings.

An Expert Group that reviewed the evidence on use of commercial, antibody-based serodiagnostic tests found that they provide inconsistent and imprecise results with highly variable values for sensitivity and specificity. No evidence was found that existing commercial serological assays improve outcomes that are important to patients. As a result of this policy, in June 2012 the Government of India banned the import, manufacture, distribution and sale of commercial serodiagnostic tests for TB, which have been profligately used in the private sector to diagnose TB. This bold action is expected to greatly reduce the frequency of false diagnoses of TB and facilitate the introduction of WHO-approved diagnostics into the market.

After reviewing the available evidence on commercial IGRAs, an Expert Group concluded that:

- there are insufficient data and low-quality evidence on the performance of IGRAs in low- and middle-income countries, typically those with a high burden of TB and/or HIV;
- IGRAs and the tuberculin skin test (TST) cannot accurately predict the risk of infected individuals developing active TB disease;
- neither IGRAs nor the TST should be used to diagnose active TB disease; and
- IGRAs are more costly and technically complex to perform than the TST.

Given their comparable performance but increased cost, replacing the TST with IGRAs as a public health intervention in resource-constrained settings is not recommended. These guidelines are not intended to apply to high-income countries or to supersede their national guidelines.

In 2012, Expert Groups were convened to review the available evidence on two commercially available diagnostic tests: a manual assay using the loop-mediated isothermal amplification (LAMP) platform to detect TB DNA in sputum specimens (TB-LAMP®, Eiken Chemical Co. Ltd., Japan), and a line probe assay for detecting resistance to second-line anti-TB drugs (GenoType® MTBDRsl, Hain Lifescience, Germany).

The Expert Group reviewing the TB-LAMP assay concluded that there was insufficient evidence to proceed with the development of policy guidance.

For Genotype MTBDR*sl*, the Expert Group found that while the test's specificity for detecting resistance to fluoroquinolones and second-line injectables was high, its sensitivity was suboptimal. Therefore, while the test has the potential to be used as a rule-in test for XDR-TB where capacity to use line probe assays is available, it cannot be used as a replacement test for conventional phenotypic drug susceptibility testing (DST). The Expert Group also noted that there is incomplete cross-resistance between the second-line injectables, and that the assay does not allow for specific resistance to individual second-line injectables to be determined. Detailed conclusions of the Expert Group meetings will be described in reports to be published on the website.[4]

6.2 Status of laboratory capacity globally, regionally and nationally

Despite the development in recent years of more sensitive technologies, diagnosis of TB in most low- and middle-income countries continues to rely on sputum smear microscopy. Maintaining a high level of quality to perform smear microscopy is therefore critical. Of the 144 low- and middle-income countries and territories reporting on numbers of smear microscopy laboratories, only 42% indicated the existence of an external quality assessment programme that encompassed all smear laboratories in the country.

While globally the target of 1 microscopy centre per 100 000 population has been reached, considerable disparities remain at regional and country levels (**Table 6.1**). The Western Pacific and Eastern Mediterranean regions had only 0.5 and 0.8 centres per 100 000 population in 2011, respectively, and 7 of the 22 high TB burden countries also failed to meet the target.

In 2009, WHO recommended the use of the more sensitive fluorescent light-emitting diode (LED) microscopy instead of traditional Ziehl–Neelsen (ZN) microscopy. Roll-out, however, has been slow. As of 2011, only 2% of microscopy laboratories globally were using LED microscopes, with little variability between regions and no high TB burden country reporting more than 10% absorption.

The current target for both culture and DST capacity is 1 laboratory per 5 million population; this target was

[1] **www.gradeworkinggroup.org**
[2] *WHO handbook for guideline development*. Geneva, World Health Organization, 2012.
[3] WHO policies on TB diagnostics are available at: **www.who.int/tb/laboratory/policy_statements**
[4] **www.who.int/tb/laboratory/policy_statements**

TABLE 6.1 **Laboratory capacity, 2011**[a]

YES ■ NO □	HIGH TB BURDEN	HIGH MDR-TB BURDEN	SMEAR MICROSCOPY			CULTURE		DRUG SUSCEPTIBILITY TESTING		LINE PROBE ASSAY		XPERT MTB/RIF
			NUMBER OF LABORATORIES	LABORATORIES PER 100 000 POPULATION	PERCENTAGE OF LABORATORIES USING LED MICROSCOPES	NUMBER OF LABORATORIES	LABORATORIES PER 5 MILLION POPULATION	NUMBER OF LABORATORIES	LABORATORIES PER 5 MILLION POPULATION	NUMBER OF LABORATORIES	LABORATORIES PER 5 MILLION POPULATION	NUMBER OF SITES
Afghanistan	■	□	600	1.9	2	3	0.5		–		–	
Armenia	□	■	30	1.0	0	1	1.6	1	1.6	1	1.6	0
Azerbaijan	□	■		–	–		–		–		–	
Bangladesh	■	■	1 057	0.7	1	3	<0.1	2	<0.1	0	0	0
Belarus	□	■	196	2.1	2	41	21	20	10	1	0.5	0
Brazil	■	□	4 028	2.0	< 1	306	7.8	45	1.1	0	0	0
Bulgaria	□	■	34	0.5	–	33	22	13	8.7	3	2.0	0
Cambodia	■	□	211	1.5	9	3	1.0	1	0.3	0	0	1
China	■	■	3 328	0.2	2	594	2.2	195	0.7	20	<0.1	16
DR Congo	■	■	1 508	2.2	0	1	<0.1	1	<0.1	0	0	0
Estonia	□	■	5	0.4	40	2	7.5	2	7.5	2	7.5	2
Ethiopia	■	■	1 947	2.3	–	2	0.1	1	<0.1	2	0.1	
Georgia	□	■	29	0.7	–	2	2.3	1	1.2	1	1.2	1
India	■	■	13 026	1.0	2	37	0.1	37	0.1	17	<0.1	18
Indonesia	■	■	5 566	2.3	0	46	0.9	5	0.1	2	<0.1	5
Kazakhstan	□	■	466	2.9	0	100	31	22	6.8	10	3.1	0
Kenya	■	□	1 581	3.8	9	6	0.7	1	0.1	1	0.1	3
Kyrgyzstan	□	■	122	2.3	0	4	3.7	3	2.8		–	
Latvia	□	■	16	0.7	0	4	8.9	1	2.2	1	2.2	1
Lithuania	□	■		–	–		–		–		–	
Mozambique	■	□	430	1.8	< 1	2	0.4	2	0.4	0	0	1
Myanmar	■	■	415	0.9	< 1	2	0.2	2	0.2	2	0.2	2
Nigeria	■	■	1 229	0.8	2	5	0.2	4	0.1	3	<0.1	8
Pakistan	■	■	1 187	0.7	< 1	12	0.3	10	0.3	2	<0.1	16
Philippines	■	■	1 986	2.1	0	10	0.5	2	0.1	1	<0.1	14
Republic of Moldova	□	■		–	–		–		–		–	
Russian Federation	■	■	3 746	2.6	–	117	4.1		–		–	
South Africa	■	■	244	0.5	–	15	1.5	15	1.5	10	1.0	55
Tajikistan	□	■	92	1.3	0	3	2.1	1	0.7	2	1.4	2
Thailand	■	□	1 100	1.6	< 1	65	4.7	15	1.1	2	0.1	11
Uganda	■	□	1 081	3.1	1	7	1.0	8	1.2	8	1.2	18
Ukraine	□	■		–	–		–		–	0	0	0
UR Tanzania	■	□	945	2.0	3	5	0.5	1	0.1	1	0.1	6
Uzbekistan	□	■	320	1.2	< 1	7	1.3	2	0.4	3	0.5	0
Viet Nam	■	■	800	0.9	< 1	25	1.4	2	0.1	2	0.1	2
Zimbabwe	■	□	151	1.2	3	2	0.8	2	0.8	0	0	11
High-burden countries			**–**	**1.1**	**1**	**–**	**1.5**	**–**	**0.4**	**–**	**<0.1**	**–**
High MDR-TB burden countries			**–**	**0.9**	**< 1**	**–**	**1.3**	**–**	**0.4**	**–**	**0.1**	**–**
AFR			–	1.5	3	–	0.7	–	0.4	–	0.2	–
AMR			–	2.4	< 1	–	17	–	0.9	–	0.1	–
EMR			–	0.8	< 1	–	1.8	–	0.4	–	<0.1	–
EUR			–	1.1	< 1	–	9.4	–	4.4	–	1.0	–
SEAR			–	1.2	3	–	0.4	–	0.2	–	<0.1	–
WPR			–	0.5	1	–	3.6	–	0.7	–	0.2	–
Global			**–**	**1.1**	**2**	**–**	**3.9**	**–**	**0.8**	**–**	**0.2**	**–**

Blank cells indicate data not reported.
– indicates values that cannot be calculated.
[a] The regional and global figures are aggregates of data reported by low- and middle-income countries and territories. Data for the variables shown in the table are not requested from high-income countries in the WHO data collection form.

revised as a result of the introduction of new technologies in which culture and DST are invariably performed together. In 2011, 19 of the 36 countries in the combined list of 22 high TB burden countries and 27 high MDR-TB burden countries did not reach the target (Table 6.1). Of these 36 countries, 9 reported more than 1 laboratory per 5 million population using line probe assays – a high-throughput tool used at central and regional levels to rapidly detect resistance to rifampicin and, in some cases, isoniazid. These numbers are changing quickly, as laboratory strengthening efforts including EXPAND-TB (see Section 6.3) come to fruition.

Quality-assured DST is critical to ensure accurate detection of drug resistance for subsequent treatment decisions and to avoid false diagnoses. External quality assessment schemes for DST appear to be comprehensively installed more commonly than those for microscopy. While 42% of countries claim to have a comprehensive scheme for microscopy (as stated above), 71% of the 115 low- and middle-income countries and territories indicating capacity for DST reported an external quality assessment scheme encompassing all DST laboratories.

The target for culture and DST capacity of 1 laboratory per 5 million population is likely to be revised downwards in future following the introduction of the WHO-recommended automated nucleic amplification assay Xpert® MTB/RIF (Cepheid, Sunnyvale, CA, USA). Xpert MTB/RIF technology (see Box 6.1) can detect rifampicin resistance-conferring mutations, has sensitivity for TB detection equivalent to that of solid culture, and compared with culture methods it can be used at lower levels of the laboratory network. Importantly, however, culture will remain essential for testing of susceptibility to drugs other than rifampicin, and is currently the only tool available for monitoring the response to treatment of the growing number of patients being treated for MDR-TB. Ongoing evaluation of evidence on the use of Xpert MTB/RIF and its impact on the workload of other laboratory diagnostics, including microscopy, culture and DST, will allow for refinement of the current targets.

While a number of countries report suboptimal capacity to detect TB and drug resistance, patients in many parts of the world still access laboratory testing by seeking care in the private sector. The quality of diagnostic services in this sector is highly variable, and some private practitioners continue to use diagnostic tests that are not recommended by WHO. In addition, in some settings laboratories in the public sector that are not under the auspices of the national TB control programme also diagnose TB without necessarily following recommended guidelines and quality assurance procedures. Collaboration between national TB control programmes and all laboratories offering TB diagnosis is therefore critical to ensure that national guidelines are followed, that appropriate diagnostic tests are used, and that patients diagnosed with TB are notified to the national TB control programme and receive proper care. In 2011, 15 of 36 high burden countries reported some level of collaboration with laboratories in the private sector; 17 reported collaboration with laboratories in the public sector.

6.3 Strengthening TB laboratories globally, regionally and nationally

One of the main prerequisites for strengthening TB laboratory capacity in countries is dynamic policy reform, adapting WHO guidelines on TB diagnostics into national TB control programme guidelines. Table 6.2 presents the uptake of selected WHO policy guidance at global, regional and country levels, focusing on the 36 countries in the combined list of 22 high TB burden countries and 27 high MDR-TB burden countries.

All reporting high MDR-TB burden countries and 85% of reporting countries globally had incorporated into their national guidelines the WHO policy guidance on conventional phenotypic DST by 2011. Countries in the African Region have the lowest uptake (69%).

Incorporation of policy guidance on liquid culture is highly variable, ranging from as low as 45% in the Eastern Mediterranean Region to 84% in the European Region. Globally, uptake of policy on line probe assays is relatively low (44%) for all countries; only 17% of countries in the Region of the Americas reported incorporation of the guidance in their national guidelines.

Although recommended by WHO only in December 2010, WHO's policy guidance on Xpert MTB/RIF has been incorporated into national guidelines by one third (33%) of reporting countries; two thirds (64%) of the high TB burden countries and half (50%) of the high MDR-TB burden countries have already incorporated the assay in their revised diagnostic policies.

The EXPAND-TB project is a global initiative of multiple partners that aims to strengthen laboratory capacity for detecting drug-resistant TB and establish rapid diagnostics in 27 countries. Launched in 2008, the project is a collaboration among WHO, the Global Laboratory Initiative (GLI), FIND and the Global Drug Facility, funded by UNITAID and other partners. As shown in Figure 6.1, the participating countries are at various stages of project implementation: 17 were in the final phase of routine testing and monitoring as of July 2012, compared with 6 in July 2011. Given the time required to establish the necessary infrastructure for central level laboratories capable of using liquid culture and line probe assays, the EXPAND-TB project is now coming to fruition in the routine detection and reporting of drug-resistant TB cases. Several of the countries participating in the project have reported considerable increases in the numbers of drug-resistant cases during recent years (Figure 6.2).

The WHO/GLI TB Supranational Reference Laboratory (SRL) Network is another driving force in strengthening

BOX 6.1

Rolling out Xpert MTB/RIF globally

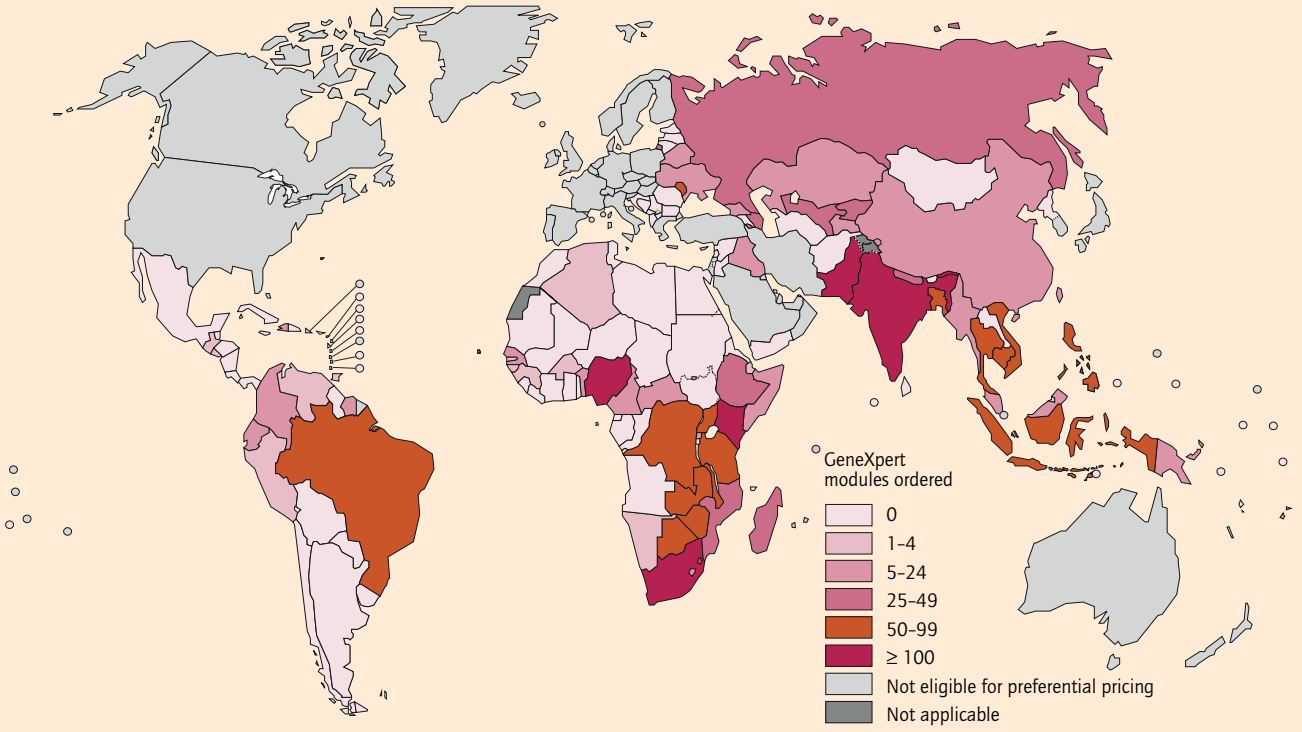
In December 2010, WHO recommended use of the Xpert® MTB/RIF (Cepheid, Sunnyvale, CA, USA) assay for the rapid and simultaneous detection of TB and rifampicin resistance using the GeneXpert platform. The test entails fewer biosafety and human resource requirements than conventional culture or DST. Furthermore, its sensitivity for detecting TB is significantly higher than that of microscopy, particularly in patients with HIV infection.

By the end of June 2012, Xpert MTB/RIF had been rolled out in 67 of the 145 countries eligible to purchase instruments and cartridges at concessional prices. 1.1 million test cartridges and 3602 GeneXpert instrument modules had been procured, with technical and financial assistance from many partners and donors. South Africa has led the adoption of the technology and intends to use it countrywide as a replacement for microscopy for the diagnosis of TB; as of June 2012, the country accounted for 37% of the modules and 53% of the cartridges procured globally. The most up-to-date data on procurement and country-specific site locations and plans, together with WHO guidance documents on use of the test, are available on a dedicated WHO website.[1]

To gain evidence on Xpert MTB/RIF for the refinement of its global policy guidance, WHO has been systematically collecting data from early implementers of Xpert MTB/RIF on the tests conducted and algorithms used, the effects of introducing the technology on laboratory workload, and operational and logistic challenges encountered.[2] As of July 2012, 31 sites in 12 countries had contributed data. Systematic collection of complementary laboratory and patient indicators is also underway by partners including TBCARE I, TB REACH, the South Africa National Health Laboratory Services and Médecins Sans Frontières. Operational research projects, including those inventoried by the TREAT-TB initiative,[3] are expected to yield further critical information on the impact and cost effectiveness of Xpert MTB/RIF in various diagnostic algorithms.

Scaling up use of the Xpert MTB/RIF assay globally is expected to be greatly accelerated by a drop in the price per test from US$ 16.86 to US$ 9.98, following execution of a novel financing agreement between the manufacturer (Cepheid) and the Bill & Melinda Gates Foundation, the United States Agency for International Development (USAID), the United States President's Emergency Plan for AIDS Relief (PEPFAR) and UNITAID in August 2012. The catalytic effect of the price reduction on such global scale-up will be complemented by a US$ 25.9 million grant from UNITAID to WHO's Stop TB Department and the Stop TB Partnership. The new three-year TBXpert project will provide the Xpert MTB/RIF technology to 21 recipient countries by linking a broad network of implementing partners with existing initiatives for TB laboratory strengthening, using innovative approaches to expand access to vulnerable populations in the public and private sectors.

FIGURE B6.1.1
Progress in the roll-out of Xpert MTB/RIF, by July 2012



[1] www.who.int/tb/laboratory/mtbrifrollout

[2] More detail on this initiative can be found at: www.who.int/tb/features_archive/xpert_use_web/

[3] http://xrmt.treattb.org/

TABLE 6.2 Incorporation of WHO policy guidance for diagnosis of TB, 2011[a]

YES ■ NO □	HIGH TB BURDEN	HIGH MDR-TB BURDEN	CONVENTIONAL DRUG SUSCEPTIBILITY TESTING (DST)	LIQUID CULTURE AND RAPID SPECIATION TEST	LINE-PROBE ASSAY FOR DETECTING RESISTANCE TO RIFAMPICIN	ALGORITHM FOR THE DIAGNOSIS OF TB IN PEOPLE LIVING WITH HIV	XPERT MTB/ RIF ASSAY
Afghanistan	■	□	□	□	□	■	□
Armenia	□	■	■	■	■	□	□
Azerbaijan	□	■					
Bangladesh	■	■	■	□	□	■	□
Belarus	□	■	■	□	■	■	□
Brazil	■	□	■	□	□	■	□
Bulgaria	□	■	■	■	□	■	□
Cambodia	■	□	■	■	□	■	■
China	■	■	■	■	□	■	□
DR Congo	■	■	■	□	□	■	□
Estonia	□	■	■	■	■	■	■
Ethiopia	■	■	■	■	■	■	■
Georgia	□	■	■	■	■	■	■
India	■	■	■	■	■	■	■
Indonesia	■	■	■	■	■	■	■
Kazakhstan	□	■	■	■	■	■	□
Kenya	■	□	■	■	■	■	■
Kyrgyzstan	□	■	■	□		■	□
Latvia	□	■	■	■	■	■	■
Lithuania	□	■					
Mozambique	■	□	■	□	□	□	□
Myanmar	■	■	■	■	■	■	■
Nigeria	■	■	■	■	■	□	■
Pakistan	■	■	■	■	■	□	■
Philippines	■	■	■	□	■		■
Republic of Moldova	□	■					
Russian Federation	■	■	■	■	■	■	□
South Africa	■	■	■	■	■	■	■
Tajikistan	□	■	■	■	□	■	□
Thailand	■	□	■	■	■	■	■
Uganda	■	□	■	■	■	■	■
Ukraine	□	■	■	□	□	■	□
UR Tanzania	■	□	■	■	■	■	□
Uzbekistan	□	■	■	■	■	■	□
Viet Nam	■	■	■	■	■	■	■
Zimbabwe	■	□	■	■	□	■	■
High-burden countries			**95%**	**73%**	**64%**	**86%**	**64%**
High MDR-TB burden countries			**100%**	**75%**	**74%**	**87%**	**50%**
AFR			69%	69%	43%	76%	32%
AMR			96%	61%	17%	78%	13%
EMR			86%	45%	40%	52%	45%
EUR			100%	84%	63%	75%	32%
SEAR			90%	50%	40%	80%	40%
WPR			78%	72%	56%	82%	44%
Global			**85%**	**67%**	**44%**	**74%**	**33%**

Blank cells indicate data not reported.

[a] The regional and global figures are aggregates of data reported by low- and middle-income countries and territories. Data for the variables shown in the table are not requested from high-income countries in the WHO data collection form.

FIGURE 6.1 **The EXPAND-TB project – progress by July 2012**

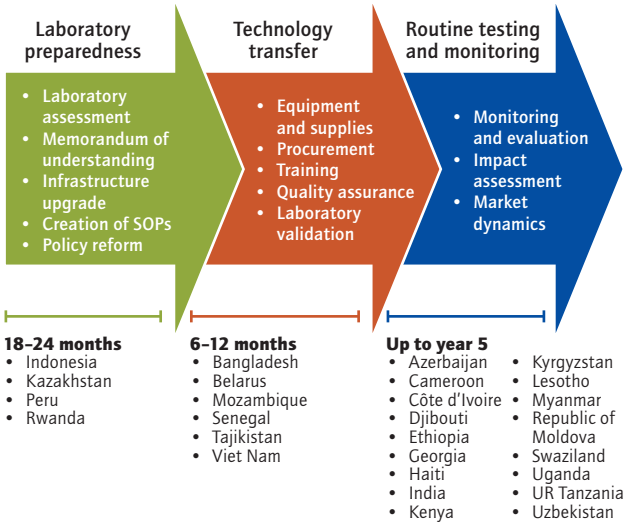
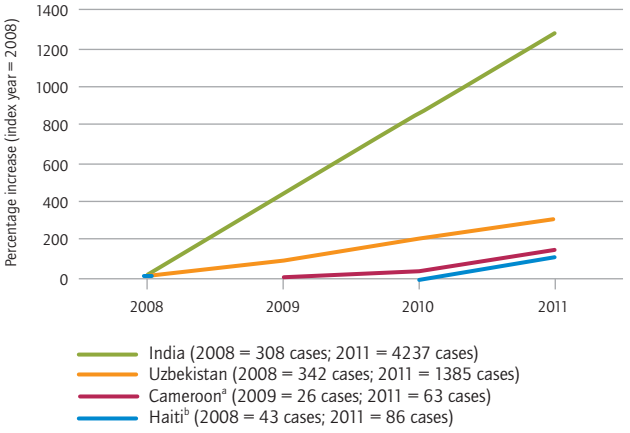


FIGURE 6.2 **Increase in cases of MDR-TB reported by selected countries participating in the EXPAND-TB project, 2008–2011**



[a] Index year for Cameroon is 2009, as data were not reported for 2008.
[b] Data were not reported for Haiti for 2009.

laboratories globally. Created in 1994 to provide quality-assured DST within the framework of the Global Project on Anti-TB Drug Resistance Surveillance, the network today plays a more comprehensive role in strengthening laboratory capacity in partner countries. Its terms of reference were revised in 2009 and, with increased funding via the US President's Emergency Plan for AIDS Relief (PEPFAR) and other sources, SRLs have been able to formalize their relationships with partner countries and increase the scope of their activities. The network has grown in size and comprises 29 laboratories in all regions (Figure 6.3). Additionally, 4 candidate SRLs are under mentorship, including the national TB reference laboratories of Benin, Denmark and Uganda, and the Aga Khan University of Pakistan. Pending completion of successful mentorship and the establishment of country partners, these new laboratories will help widen the geographical reach of the network, in particular in the African and Eastern Mediterranean regions.

Implementing quality management systems in TB laboratories, especially in resource-constrained settings, has been a particular focus of laboratory strengthening efforts during 2011–2012. In 2011, the GLI Stepwise Process toward TB Laboratory Accreditation tool was launched,[1] led by the Union, the United States Centers for Disease Control and Prevention, the Royal Tropical Institute in the Netherlands and WHO. The GLI tool provides both guidance and an incentive for improving laboratory quality towards meeting requirements for international standards of accreditation. The Global Plan includes a target that more than half of all national TB reference laboratories should have implemented a quality management system by 2015. In 2012, field testing of the tool was started in Uganda and Benin; further uptake is expected in 2012–2013.

[1] www.gliquality.org

FIGURE 6.3 **The Supranational Reference Laboratory Network**

CHAPTER 7

Addressing the co-epidemics of TB and HIV

KEY FACTS AND MESSAGES

- In 2011, 1.1 million (13%) of the 8.7 million people who developed TB worldwide were HIV-positive; 79% of these HIV-positive TB cases were in the African Region.
- WHO's recommended package of collaborative TB/HIV activities to reduce the burden of TB/HIV includes HIV testing for TB patients; CPT and early initiation of ART for HIV-positive TB patients; and screening for TB among people living with HIV and provision of IPT to those eligible for it.
- Substantial progress in the implementation of collaborative TB/HIV activities has occurred since WHO recommendations were first issued in 2004, and further progress was evident in 2011.
- The percentage of notified TB patients with a documented HIV test result in the African Region rose from 60% in 2010 to 69% in 2011; 46% of those tested in 2011 were HIV-positive, ranging from 8% in Ethiopia to 77% in Swaziland. Worldwide, 40% of TB patients notified in 2011 had a documented HIV test result, up from 33% in 2010 and more than ten times the level of 2004.
- In 2011, 79% of TB patients known to be HIV-positive, were provided with CPT, and 48% were started on ART, similar to levels achieved in 2010. More work remains to be done to ensure that all HIV-positive TB patients are rapidly started on ART, in line with WHO recommendations. Their progress on treatment should also be closely monitored.
- In 2011, 3.2 million people enrolled in HIV care were reported to have been screened for TB, up 39% from 2.3 million in 2010. Of those without active TB disease, 0.45 million were provided with IPT, more than double the number started on IPT in 2010 (mostly the result of progress in South Africa).
- The scale-up of collaborative TB/HIV activities saved a total of 1.3 million lives between 2005 and the end of 2011.

People living with HIV who are also infected with TB are much more likely to develop TB disease than those who are HIV-negative.[1] Starting in the 1980s, the HIV epidemic led to a major upsurge in TB cases and TB mortality in many countries, which persisted throughout the 1990s and up to around 2004, especially in southern and east Africa (**Chapter 2**, **Chapter 3**).

In 2011, 1.1 million (13%) of the 8.7 million people who developed TB worldwide were HIV-positive (**Chapter 2**, **Table 2.1**); 79% of these HIV-positive TB cases were in the African Region. Globally, there were an estimated 0.4 million HIV-associated TB deaths in 2011, with approximately equal numbers among men and women (see **Chapter 2**). WHO, UNAIDS and the Stop TB Partnership have set a target of halving TB mortality rates among people who are HIV-positive by 2015 compared with 2004 (the year in which TB mortality among HIV-positive people is estimated to have peaked).[2]

WHO recommendations on the interventions needed to prevent, diagnose and treat TB in people living with HIV have been available since 2004,[3,4] and are collectively known as collaborative TB/HIV activities. They include testing TB patients for HIV, providing antiretroviral therapy (ART) and co-trimoxazole preventive therapy (CPT) to TB patients living with HIV, providing HIV prevention services for TB patients, intensifying TB case-finding among people living with HIV, offering isoniazid preventive therapy (IPT) to people living with HIV who do not have active TB, and controlling the spread of TB infection in health-care and congregate settings (the latter three activities are referred to as the "*Three Is for HIV/TB*").

Antiretroviral therapy significantly reduces the risk of morbidity and mortality from TB. A meta-analysis published in 2012 found that ART reduces the individual risk

[1] The probability of developing TB among people living with HIV divided by the probability of developing TB among HIV-negative people is the incidence rate ratio (IRR). The median value of the IRR in 155 countries for which data were available in 2011 was 14 (inter-quartile range 12–20).

[2] *Getting to zero: 2011–2015 strategy*. Geneva, Joint United Nations Programme on HIV/AIDS, 2010.

[3] *Policy on collaborative TB/HIV activities*. Geneva, World Health Organization, 2004 (WHO/HTM/TB/2004.330; WHO/HTM/HIV/2004.1).

[4] *WHO policy on collaborative TB/HIV activities: guidelines for national programmes and other stakeholders*. Geneva, 2012 (WHO/HTM/TB/2012.1).

of TB disease by 65%, irrespective of CD4 cell-count.[1] IPT and ART given together can have an additive effect and substantially reduce the risk of developing active TB disease among people living with HIV. This evidence is the reason why updated WHO policy guidance on collaborative TB/HIV activities (issued in 2012) includes *earlier initiation of ART* along with the *Three Is for HIV/TB* as key interventions to prevent TB among people living with HIV.[2] ART is recommended for all TB patients living with HIV, irrespective of their CD4 cell-count.

Testing TB patients for HIV and providing CPT to TB patients living with HIV are typically the responsibility of national TB control programmes (NTPs). National HIV programmes are usually responsible for initiating intensified case-finding for TB among people living with HIV as well as providing IPT to those without active TB. Provision of ART to TB patients living with HIV has often been the responsibility of national HIV programmes, but can also be done by NTPs, especially to facilitate better access to care. When NTPs do not provide ART directly, they are responsible for referring TB patients living with HIV to ART services.

WHO began monitoring the implementation and expansion of collaborative TB/HIV activities in 2004. This chapter presents the latest status of progress, using data for 2004 up to 2011.[3]

7.1 HIV testing for TB patients

In 2011, the number of notified TB patients who had a documented HIV test result reached 2.5 million (**Figure 7.1**), equivalent to 40% of notified TB cases (**Table 7.1**, **Figure 7.2**); this was an increase from 2.1 million and 33% respectively in 2010, and more than 10 times the level of 3.1% reported in 2004 (**Figure 7.2**).

The coverage of HIV testing for TB patients was particularly high in the African Region, where 69% of TB patients had a documented HIV test result in 2011, up from 60% in 2010. Impressively, in 28/46 African countries, ≥75% of TB patients had a documented HIV test result in 2011 (**Figure 7.3**), up from 22 countries in 2010. In Kenya, Rwanda, Mozambique, Swaziland, Togo, the United Republic of Tanzania, Zambia and Zimbabwe, >85% of TB patients had a documented HIV result (**Table 7.1**). Globally, there were 80 countries in which ≥75% of TB patients had a documented HIV test result.

Outside the African Region, in 2011 the percentage of TB patients who had a documented HIV test result exceeded 50% in the European Region and the Region of the Americas (mostly influenced by the numbers of TB patients with a documented HIV test result in the Russian Federation and Brazil, respectively). In other regions, the percentage ranged from 11% in the Eastern Mediterranean Region to 32% in the South-East Asia Region. In the 41 high TB/HIV burden countries identified as priorities for TB/HIV at the global level in 2002 (listed in **Table 7.1**), overall 45% of TB patients notified in 2011 had a documented HIV test result; levels of HIV testing were especially low in Indonesia and Myanmar (**Table 7.1**).

The highest rates of HIV coinfection were reported for TB patients in the African Region (**Table 7.1**), where 46% of those with an HIV test result were HIV-positive (compared with 44% in 2010). The percentage of TB patients found to be HIV-positive in the 28 African countries in the list of 41 priority countries ranged from 8% in Ethiopia to 77% in Swaziland. Besides Swaziland, ≥50% of the TB patients with an HIV test result were HIV-positive in Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Uganda, Zambia and Zimbabwe.

FIGURE 7.1 Number of TB patients with known HIV status, 2004–2011

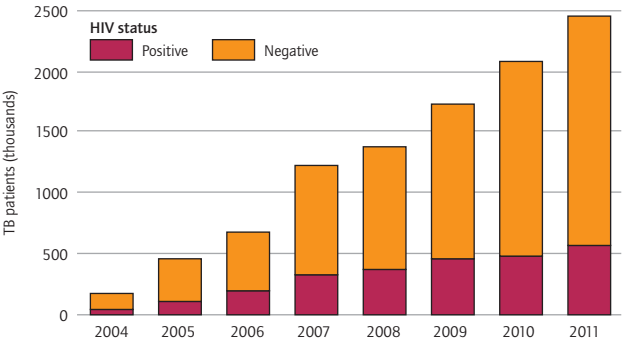
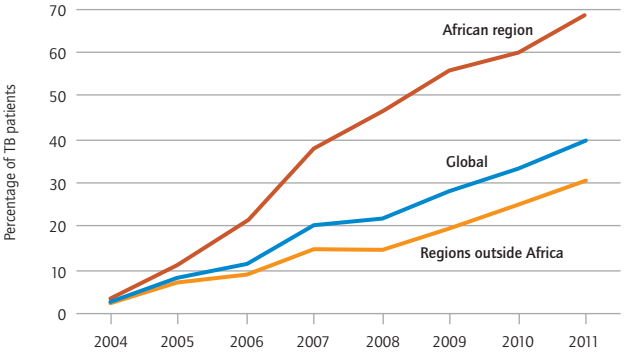


FIGURE 7.2 Percentage of TB patients with known HIV status, 2004–2011



[1] Suthar AB et al. Antiretroviral Therapy for Prevention of Tuberculosis in Adults with HIV: A Systematic Review and Meta-Analysis. *PLoS Medicine*, 2012, 9(7): e1001270. (doi:10.1371/journal.pmed.1001270).

[2] *WHO policy on collaborative TB/HIV activities: guidelines for national programmes and other stakeholders*. Geneva, 2012 (WHO/HTM/TB/2012.1).

[3] This chapter does not discuss infection control or services aimed at preventing HIV among TB patients. Data for infection control are limited for most countries, but available data can be accessed at **www.who.int/tb/data**. Data on HIV prevention services for TB patients are collected by WHO's HIV department and UNAIDS as part of their joint monitoring of progress towards universal access and the global response to AIDS.

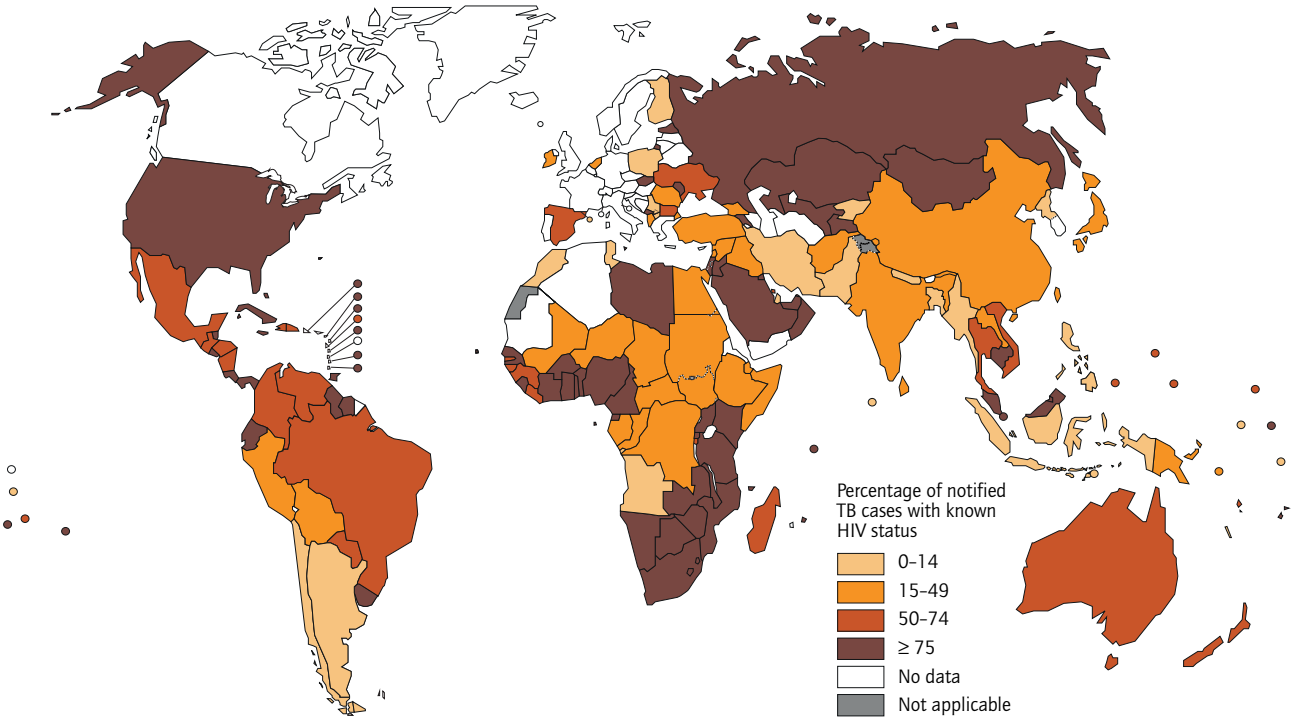
TABLE 7.1 **HIV testing, treatment for HIV-positive TB patients and prevention of TB among people living with HIV, 41 high TB/HIV burden countries and WHO regions, 2011.** Numbers in thousands except where indicated.

	ESTIMATED HIV-POSTIVE INCIDENT TB CASES			NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	% OF NOTIFIED TB PATIENTS TESTED FOR HIV	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF IDENTIFIED HIV-POSITIVE TB PATIENTS STARTED ON CPT	% OF IDENTIFIED HIV-POSITIVE TB PATIENTS STARTED ON ART	NUMBER OF HIV- POSITIVE PEOPLE SCREENED FOR TB	NUMBER OF HIV- POSITIVE PEOPLE PROVIDED WITH IPT
	BEST	LOW	HIGH							
Angola	8.5	6.2	11	5.1	10	19	80	80		
Botswana	5.9	5.3	6.6	5.4	80	64	82	45	0.2	
Brazil	16	13	19	49	58	20		92		
Burkina Faso	1.6	1.4	1.9	4.6	82	17	94		3.6	
Burundi	2.6	2.2	2.9	4.8	71	22	95	48		0
Cambodia	3.1	2.6	3.6	33	82	5.1	88	79	4.7	1.3
Cameroon	19	15	22	20	81	38				1.4
Central African Republic	7.1	5.7	8.7	1.9	33	39	12	9.3	0.6	
Chad	5.2	4.1	6.4	4.1	38	23				
China	13	8.6	17	209	23	2.3		36		
Congo	4.9	3.9	6.1	2.2	20	31	24	26	2.8	
Côte d'Ivoire	10	8.7	12	18	80	26	80	36		
Djibouti	0.6	0.5	0.7	1.3	34	14				
DR Congo	34	27	41	31	27	16	54	23		
Ethiopia	38	28	49	65	41	8.4	62	39	174	31
Ghana	4.6	4.0	5.2	13	79	23	71	28		
Haiti	4.3	3.6	5.2	10	73	19	12	17		
India	94	72	120	689	45	6.5	91	59	386	
Indonesia	15	11	20	3.5	1.1	36	92	42		
Kenya	47	45	49	97	93	39	97	64		
Lesotho	11	9.2	12	10	82	76	90	40		
Malawi	18	16	19	17	83	60	89	60	297	
Mali	1.5	1.3	1.7	2.0	35	21	72	69	29	
Mozambique	83	58	110	42	88	63	91	29		17
Myanmar	18	15	22	4.5	3.1	20	100	80	12	0.4
Namibia	8.4	6.6	10	10	84	50	98	54	13	14
Nigeria	50	23	86	76	81	26	68	43	224	1.0
Russian Federation	9.3	7.3	11	79[a]						
Rwanda	2.9	2.6	3.3	6.6	97	28	97	80		
Sierra Leone	3.8	3.1	4.6	10	78	8.9	25	28	4.0	
South Africa	330	270	390	323	83	65	76	44	1 256	373
Sudan	2.8	2.1	3.6	3.1	15	9.5	0	100		
Swaziland	12	10	15	8.4	92	77	95	51	58	
Thailand	13	10	15	50	74	15	75	59	41	
Togo	1.0	0.8	1.2	3.0	100	22				
Uganda	35	28	42	39	80	53	93	32	553	
Ukraine	8.1	6.7	9.6	29	72	20		44		
UR Tanzania	30	28	32	54	88	38	95	38	148	
Viet Nam	14	11	18	59	59	8.0	72	48		
Zambia	38	35	42	42	86	64	87	53		
Zimbabwe	46	36	58	35	86	60	29	67		
High TB/HIV burden countries	**1 100**	**990**	**1 100**	**2 170**	**45**	**25**	**80**	**48**	**3 208**	**439**
AFR	870	800	950	1 002	69	46	79	46	2 770	438
AMR	37	34	40	124	53	17	43	64	2.7	1.7
EMR	8.7	7.6	9.9	45	11	4.0	59	48	1.0	0.1
EUR	23	20	25	187	52	6.5	64	47	9.2	4.6
SEAR	140	120	170	750	32	7.2	89	59	440	0.4
WPR	36	31	42	352	25	3.9	71	47	11	1.8
Global	**1 100**	**1 000**	**1 200**	**2 460**	**40**	**23**	**79**	**48**	**3 234**	**446**

Blank cells indicate data not reported.

[a] This number is for new TB patients only. It was not possible to calculate the percentage of all TB patients with known HIV status.

FIGURE 7.3 **Percentage of TB patients with known HIV status by country, 2011[a]**



[a] Data for the Russian Federation are for new TB patients only.

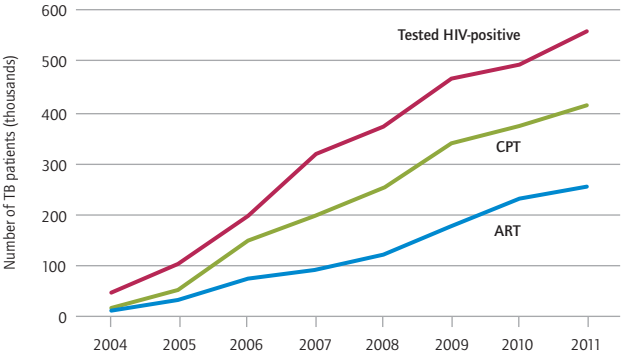
In the Region of the Americas, the percentage of TB patients with a documented HIV test result who were HIV-positive was 17%. In the Eastern Mediterranean, European, South-East Asia and Western Pacific regions, less than 10% of TB patients with a documented HIV test result were HIV-positive. The global average across all regions was 23%, and 25% among the 41 high TB/HIV burden countries.

7.2 Co-trimoxazole preventive therapy and antiretroviral therapy for TB patients living with HIV

Globally, the number of TB patients living with HIV who were enrolled on CPT increased to 0.41 million in 2011, up from a negligible number in 2004 and 0.37 million in 2010 (Figure 7.4). The coverage of CPT among TB patients with a documented HIV-positive test result was 79% in 2011 (Table 7.1, Figure 7.5). Further progress is needed to reach the target of 100% that is included in the *Global Plan to Stop TB, 2011–2015*[1] (see Chapter 1). The African and South-East Asia regions achieved particularly high levels of enrolment on CPT: 79% and 89% of TB patients known to be living with HIV, respectively (Table 7.1). Countries that achieved rates of enrolment on CPT of >90% in 2011 included Burkina Faso, Burundi, India, Indonesia, Kenya, Lesotho Mozambique, Myanmar, Namibia, Rwanda, Swaziland, Uganda and the United Republic of Tanzania.

The number of HIV-positive TB patients on ART has

FIGURE 7.4 **Number of HIV-positive TB patients enrolled on co-trimoxazole preventive therapy (CPT) and antiretroviral therapy (ART), 2004–2011**

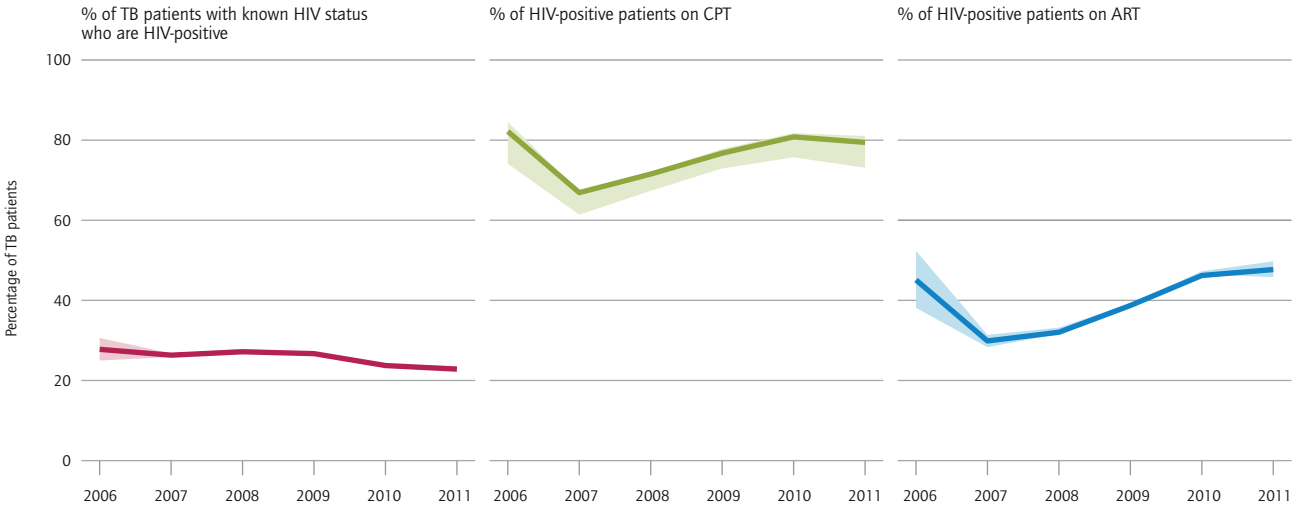


grown from a very low level in 2004 (Figure 7.4) to reach 258 000 in 2011. Among TB patients notified in 2011[2] and who had a documented HIV-positive test result, 48% were on ART globally in 2011 (Table 7.1, Figure 7.5), a small improvement from 46% in 2010. In the African Region, 46% of the TB patients notified in 2011 who had a documented HIV-positive test result were on ART in

[1] The *Global Plan to Stop TB, 2011–2015*. Geneva, World Health Organization, 2010 (WHO/HTM/STB/2010.2).

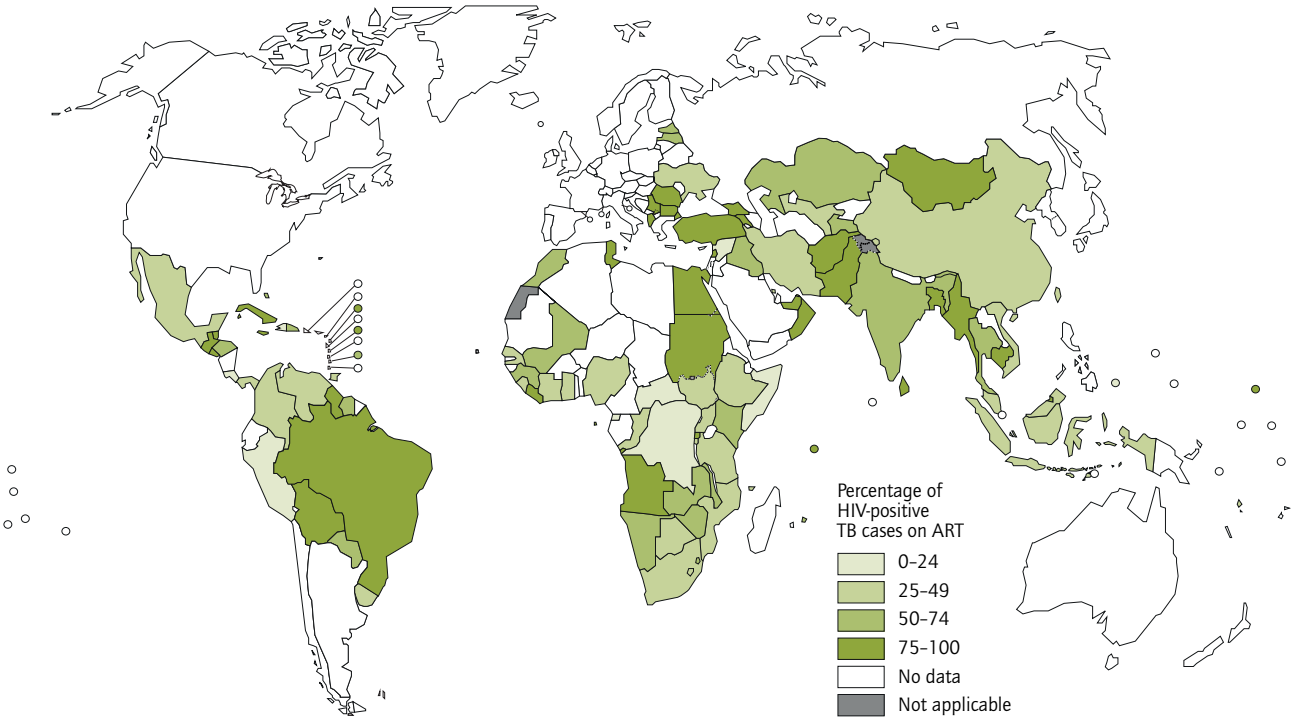
[2] In the annual WHO TB data collection form, countries are asked to report the number of TB patients notified in the most recent calendar year who were living with HIV and who "started or continued on ART".

FIGURE 7.5 **Percentage of TB patients with known HIV status who were HIV positive, and percentage of HIV-positive TB patients enrolled on co-trimoxazole preventive therapy (CPT) and antiretroviral therapy (ART), 2006–2011[a]**



[a] The solid lines show values for countries that reported data. The shaded areas show upper and lower limits when countries that did not report data are considered.

FIGURE 7.6 **Percentage of HIV-positive TB patients enrolled on antiretroviral therapy (ART), 2011**



2011 (up from 44% in 2010). Among the 41 high TB/HIV burden countries, 15 reported enrolling more than 50% of notified TB patients known to be living with HIV on ART in 2011 (Table 7.1, Figure 7.6).

Given WHO's recommendation that all HIV-positive TB patients are eligible for ART irrespective of their CD4 cell-count and the Global Plan's target of providing ART to all TB patients known to be living with HIV by 2015 (Chapter 1), the coverage of ART for HIV-positive TB patients needs to be improved. This could be facilitated by using TB services and infrastructure to allow decentralization of care delivery according to national guidelines and the local context (Box 7.1).

7.3 Intensifying case-finding and isoniazid preventive therapy among people living with HIV

Until 2010, data on intensified screening for TB among people living with HIV and provision of IPT to those without active TB were requested from NTPs as part of

BOX 7.1

Accelerating progress in providing ART to TB patients living with HIV

People with HIV-associated TB have a high risk of mortality. For example, in autopsy studies of people who were HIV-positive, TB was identified in 30–79%.[1,2] Expanding access to ART will have a significant impact on mortality among HIV-positive TB patients, in addition to reducing the risk of developing TB among people living with HIV who do not have active TB.

Since 2010, WHO has recommended ART for TB patients regardless of CD4 cell-count. Furthermore, the optimum time to start ART in patients with HIV-associated TB has now been established in three large randomized controlled trials.[3,4,5] These studies collectively showed that ART should be given concurrently with TB treatment regardless of CD4 cell-count. The risk of AIDS and death in those with profound immunosuppression (CD4 cell-count <50 cells/mm3) was minimized by starting ART in weeks 2–4 of TB treatment. WHO now recommends initiating TB treatment first, then starting ART as soon as possible within the first 8 weeks of TB treatment. Those with profound immunosuppression should be started on ART within the first 2 weeks of TB treatment.

Despite the current policy recommendations, only 48% of TB patients known to be living with HIV were started on ART in 2011 (**Figure 7.5**, **Table 7.1**). There are several explanations for this, including the availability and allocation of resources and the attitude and capacity of health-care providers. Delayed and inconsistent uptake and adaptation of global policies by national authorities and the relative centralization of ART services compared with the greater decentralization of TB services to more peripheral levels of the health-care system merit special attention.

In a recent analysis of TB and HIV policies and guidelines covering 72 countries,[6] ART was recommended for all TB patients living with HIV, irrespective of their CD4 cell-count, in 24 countries. However, in 24 countries ART was recommended for TB patients living with HIV only if their CD4 cell-count was ≤350 cells/mm^3. In one country, ART was recommended for TB patients living with HIV if their CD4 cell-count was ≤200 cells/mm^3. In the remaining 23 countries, guidelines did not specify any criteria for when to initiate ART in TB patients living with HIV.

TABLE B7.1.1
Distribution of facilities providing TB and ART services in five high TB/HIV burden countries contributing 60% of the global burden of HIV-associated TB, 2011

COUNTRY	TB TREATMENT FACILITIES	ART FACILITIES
India	32 583	1080
Mozambique[a]	1333	229
Nigeria	4387	491
South Africa	4203	3222
Zimbabwe	1548	590

[a] Data for 2010.

The results from a study of the availability of TB and ART services in five high TB/HIV burden countries are shown in **Table B7.1.1**. In each country, there were far more facilities providing TB services. The ratio of TB to ART facilities ranged from 1.3 in South Africa to 30 in India.

These analyses show that to increase the coverage of ART for TB patients living with HIV, national authorities need to adopt national policies and programme guidelines that promote and ensure access to ART. The widely decentralized TB services and staffing offer an opportunity to further decentralize ART services to peripheral-level health-care facilities.

1 Martinson NA et al. Causes of death in hospitalized adults with a premortem diagnosis of tuberculosis: an autopsy study. *AIDS*, 2007, 21:2043–2050.

2 Lawn SD, Harries AD, Meintjes G et al. Reducing deaths from tuberculosis in antiretroviral treatment programmes in sub-Saharan Africa. *AIDS*, 2012 (epub ahead of print).

3 Blanc FX et al. Earlier versus later start of antiretroviral therapy in HIV-infected adults with tuberculosis. *New England Journal of Medicine*, 2011, 365:1471–1481.

4 Havlir DV et al. Timing of antiretroviral therapy for HIV-1 infection and tuberculosis. *New England Journal of Medicine*, 2011, 365:1482–1491.

5 Abdool Karim SS et al. Integration of antiretroviral therapy with tuberculosis treatment. *New England Journal of Medicine*, 2011, 365:1492–1501.

6 Gupta SS et al. Three I's for HIV/TB and early ART to prevent HIV and TB: policy review of HIV and TB guidelines for high HIV/TB-burden African countries (in press).

the global TB data collection form. In 2011, in an effort to streamline efforts to collect data and improve their quality, information about these two interventions was collected by WHO's HIV/AIDS Department from national HIV programmes as part of reporting on universal access. UNAIDS – the Joint United Nations Programme on HIV/AIDS – also collects data on the multisectoral response to the HIV epidemic, including health system indicators. In 2012, information on TB screening and IPT was collected through the UNAIDS monitoring system. This alternation between systems for data collection may help to explain why fewer countries reported data on TB screening and IPT provision in 2011 compared with 2010. Recording and reporting of TB screening among people living with HIV and provision of IPT to those without active TB is a particular challenge in many countries; further efforts are needed to facilitate and improve the tracking of progress nationally and globally.

Among the 53 countries that reported data, 3.2 million people enrolled in HIV care were screened for TB in 2011,

FIGURE 7.7 **Intensified TB case-finding among people living with HIV, 2005–2011**

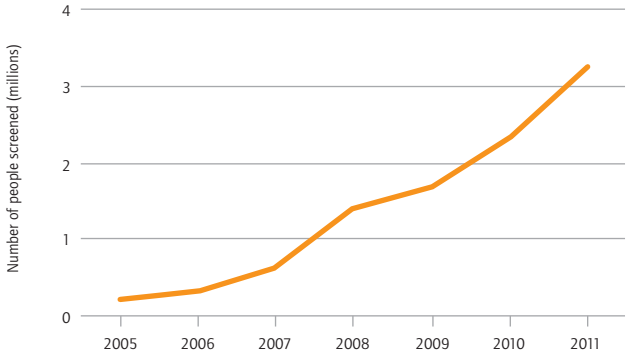


FIGURE 7.8 **Provision of isoniazid preventive therapy (IPT) to people living with HIV without active TB, 2005–2011**

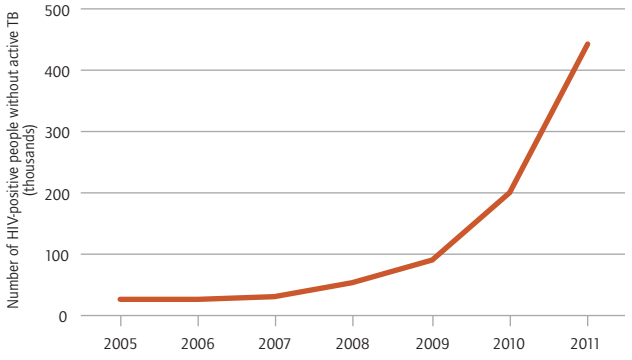
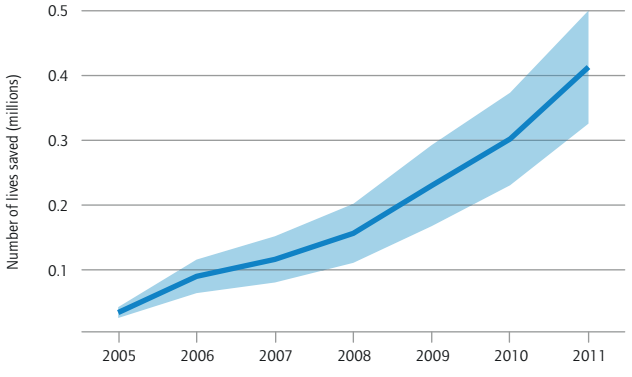


FIGURE 7.9 **Estimated number of lives saved globally by the implementation of TB/HIV interventions, 2005–2011.** The blue band represents the uncertainty interval.



compared with 2.3 million in 71 countries in 2010 (Figure 7.7). Unfortunately, at the time this report went to press, the total number of people enrolled in HIV care in 2011 was not available (the figure was 4.0 million in 2010). Nonetheless, it is clear that further progress is needed to approach the target in the Global Plan, which is to screen all those enrolled in HIV care for TB by 2015.

Among 29 countries that reported data, IPT was provided to almost 450 000 people living with HIV in 2011, more than double the 201 000 people provided with IPT in 2010 (Figure 7.8). Most of the increase occurred in South Africa, where 373 000 people were reported to have been provided with IPT in 2011, followed by Ethiopia (31 000), Mozambique (17 000) and Namibia (14 000). Unfortunately, at the time this report went to press, the total number of people newly enrolled in HIV care in 2011 and potentially eligible for IPT was not available (the figure was 1.5 million in 2010). However, as with TB screening among people in HIV care, it is clear that further efforts are needed to reach the Global Plan's 2015 target of providing IPT to all those eligible for it – estimated at approximately 50% of those newly enrolled in HIV care.

7.4 Lives saved by the implementation of collaborative TB/HIV activities, 2005–2011

In the years between the publication of WHO's first policy on collaborative TB/HIV activities in 2004 and updated guidance launched in 2012,[1,2] considerable progress in implementing the recommended package of interventions occurred, as documented in Section 7.1, Section 7.2 and Section 7.3. At the time that updated guidance was published in March 2012, the lives saved as a result of the implementation of collaborative TB/HIV activities between 2005 and 2010 were estimated. Here, the analysis is extended to 2011 and methods are explained.

Four interventions were considered:

- ART provided during TB treatment for people living with HIV;
- CPT provided during TB treatment for people living with HIV;
- IPT for HIV-positive people enrolled in HIV care;
- Early TB diagnosis through systematic screening for TB among people living with HIV.

These interventions were compared with a counterfactual scenario defined as no ART, no CPT, no IPT and no TB screening.

[1] *Policy on collaborative TB/HIV activities*. Geneva, World Health Organization, 2004 (WHO/HTM/TB/2004.330; WHO/HTM/HIV/2004.1).

[2] *WHO policy on collaborative TB/HIV activities: guidelines for national programmes and other stakeholders*. Geneva, 2012 (WHO/HTM/TB/2012.1).

TABLE 7.2 **Assumptions used to estimate lives saved by ART, CPT, screening for TB among people living with HIV and IPT**

INTERVENTION	MEAN EFFICACY IN PREVENTING TB DEATHS	DISTRIBUTION	ASSUMPTIONS
ART for TB patients	0.7	Uniform, 0.6–0.8	
CPT for TB patients[a]	0.21	Normal, standard error 0.09	CPT has no additional benefit if ART is also provided.
IPT for people living with HIV without active TB disease	0.3	Uniform, 0.25–0.35	Efficacy of IPT in preventing TB 0.6; case fatality rate of 50% among HIV-positive TB cases.
Systematic screening of people living with HIV to detect cases of TB, followed by early initiation of TB treatment	0.01	Uniform, 0.0043–0.0157	The probability of detecting TB in systematic screening, per person screened, is 0.05. Detected cases of TB are already on CPT and the proportion started on ART is equal to the global ART:CPT ratio. TB screening has no additive effect for people already on ART. Additional impact of early TB treatment for people not on ART but on CPT is 0.2.

[a] www.aidsmap.com/Cotrimoxazole-prophylaxis-cuts-risk-of-death-for-HIV-positive-patients-with-TB-in-Zambia/page/1430833/

The effectiveness of the four interventions was estimated using the parameters defined in **Table 7.2**.

Between 2005 and 2011, the number of lives saved rose from less than 50 000 in 2005 to over 0.4 million in 2011 (**Figure 7.9**); the total cumulative number of lives saved was 1.3 million (range 1.2–1.5 million).

Four limitations of the analysis should be noted. First, any errors and inconsistencies in data reported by countries could not be accounted for. Second, the impact of TB screening among people living with HIV is hard to estimate; the frequency of TB screening determines how early TB diagnosis will be made compared with no screening, and no global data on the frequency of screening were available. Third, only four of the 12 collaborative activities were considered. Fourth, the impact of collaborative TB/HIV activities on the transmission of TB and HIV was not accounted for. For the latter two reasons, the estimates presented here are likely to be conservative.

CHAPTER 8

Research and development

KEY FACTS AND MESSAGES

- Conventional technologies have been constraining progress in TB care and control, but efforts to develop new TB diagnostics, drugs, and vaccines have intensified during the past decade and considerable progress has been made.
- WHO has endorsed several new diagnostic tests or methods since 2007, including Xpert MTB/RIF that has the potential to transform TB care. Other new tests, including point-of-care tests, are in development.
- For the first time in 40 years, a coordinated portfolio of promising new anti-TB drugs is in development, with 11 new or repurposed anti-TB drugs in clinical trials.
- Results from two Phase III trials of 4-month regimens for the treatment of drug-susceptible TB are expected in 2013. In addition, 2 new compounds are being evaluated for use as an adjunct to current optimized regimens for MDR-TB; one compound recently moved to a Phase III trial and the other is expected to do so before the end of 2012.
- A new three-drug combination regimen that could be used to treat both drug-sensitive TB and MDR-TB and shorten treatment duration has been tested in a Phase II study of early bactericidal activity, with encouraging results.
- There are 11 vaccine candidates for TB prevention in Phase I or Phase II trials and one immunotherapeutic vaccine in a Phase III trial. It is hoped that one or two of the candidates in a Phase II trial will enter a Phase III trial in the next 2–3 years, with the possibility of licensing at least one new vaccine by 2020.
- Funding for TB research and development has increased in recent years, but stagnated between 2009 and 2010. At US$ 630 million in 2010, funding falls far short of the annual target of US$ 2 billion specified in the Global Plan to Stop TB 2011–2015.

There has been major progress in TB care and control since the mid-1990s (**Chapters 2–7**). However, achievement of the Stop TB Partnership's target of eliminating TB by 2050 (**Chapter 1**) requires the development of new diagnostics, drugs and vaccines as well as better and wider use of existing technologies. For example, modeling studies show that TB elimination by 2050 demands a combination of improved diagnosis of drug-susceptible and drug-resistant TB, better and shorter treatments for all forms of TB, treatment of people with latent TB infection on a massive scale (especially in high-risk populations) and mass vaccination with a vaccine that is more effective than BCG.[1]

During the past decade, efforts to develop new diagnostics, drugs and vaccines for TB have intensified. For example, public–private partnerships have been created to stimulate the development of novel tools for TB control. These include the Foundation for Innovative New Diagnostics (in 2003), which works on the development of novel diagnostics for TB among a range of other diseases; the TB Alliance (in 2000), for new anti-TB drugs; and for new vaccines against TB, Aeras (in 2003) and the TB Vaccine Initiative (in 2008). The Stop TB Partnership includes three working groups for new diagnostics, new drugs and new vaccines, which represent important forums for exchanging information and promoting research.

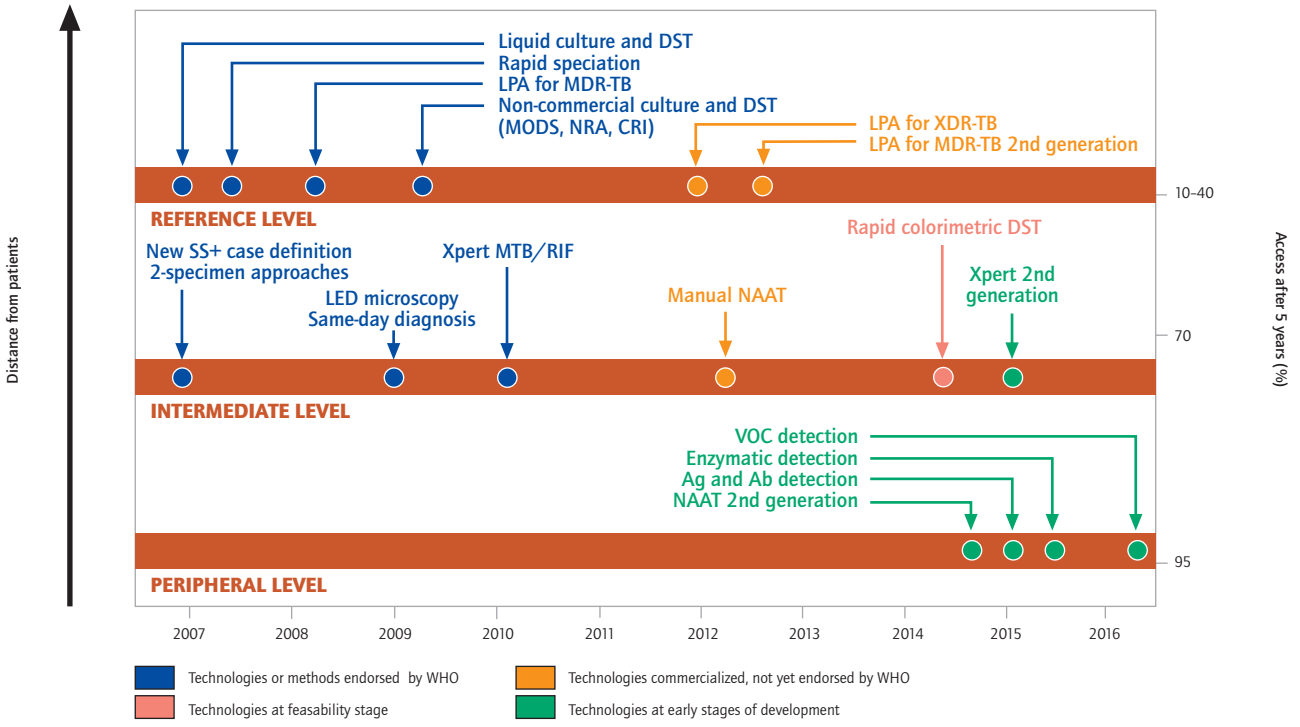
Funding for TB research and development increased from US$ 363 million in 2005 to US$ 630 million in 2010[2] but stagnated between 2009 and 2010. The 2010 level of funding falls about US$ 1.4 billion per year short of the needs described in the *Global Plan to Stop TB 2011–2015*.[3] Major sources of existing funding include the United States National Institutes of Health/National Institute of Allergy and Infectious Diseases (NIH/NIAID), the Bill & Melinda Gates Foundation, the European Commission (including the European Developing Countries Clinical Trials Partnership, EDCTP), USAID and DFID, as well as

[1] Abu-Raddad LJ et al. Epidemiological benefits of more effective tuberculosis vaccines, drugs and diagnostics. *Proceedings of the National Academy of Sciences of the United States of America*, 2009, 106(33):13980–139805.

[2] Jiménez-Levi E. *2011 Report on tuberculosis research funding trends, 2005–2010*, 2nd ed. New York, NY, Treatment Action Group, 2012.

[3] The *Global Plan to Stop TB, 2011–2015*. Geneva, World Health Organization, 2010 (WHO/HTM/STB/2010.2).

FIGURE 8.1 **The development pipeline for new TB diagnostics, July 2012**



Abbreviations: **DST** Drug susceptibility test; **NAAT** Nucleic acid amplification test; **LTBI** Latent TB infection; **Ag** Antigen; **Ab** Antibody; **MODS** Microscopic observation drug-susceptibility; **NRA** Nitrate reductase assay; **CRI** Colorimetric redox indicator assay; **LED** Light-emitting diode; **LPA** Line probe assay; **VOC** Volatile organic compound.

several other national, bilateral and multilateral agencies, private companies and philanthropic organizations. To highlight the need for and catalyse further efforts in TB research, a roadmap outlining critical priority areas for future scientific investment across the research spectrum was published in 2011.[1]

In 2011, a chapter on the latest status of progress in TB research and development was introduced in the series of WHO global reports on TB for the first time. In this 2012 report, the status of progress as of July 2012 is summarized, drawing primarily on information provided by the secretariats of the relevant working groups of the Stop TB Partnership.

8.1 New diagnostics for TB

Sputum-smear microscopy – the most commonly used diagnostic test for TB – is more than 100 years old. This test is relatively insensitive and it cannot be used to identify paucibacillary or extrapulmonary TB. Diagnosis using culture methods – the current reference standard – requires laboratory infrastructure that is not widely available in countries with a high burden of TB (Chapter 6), and results are only available after a few weeks. Conventional methods used to diagnose multidrug-resistant TB (MDR-TB) also rely on culturing of specimens followed by drug susceptibility testing (DST); results take weeks to obtain and not all laboratories with the capacity to perform DST of first-line drugs have the capability to perform DST of second-line drugs.

The status of the pipeline for new TB diagnostics in July 2012 is shown in Figure 8.1. After decades of stagnation, accelerated development of new TB diagnostics in the past decade presents real hope that rapid diagnosis of TB and MDR-TB can become a reality, thus removing longstanding barriers to TB care and control.

In the past 5 years, WHO has endorsed several new tests and diagnostic approaches. These include:

- liquid culture with rapid speciation as the reference standards for bacteriological confirmation;
- molecular line probe assays for rapid detection of MDR-TB;
- non-commercial culture and DST methods;
- light-emitting diode fluorescence microscopes for improved smear microscopy; and
- Xpert MTB/RIF (Cepheid, Sunnyvale, CA, USA) for the rapid diagnosis of TB and rifampicin-resistant TB.

Following WHO's endorsement of Xpert MTB/RIF in December 2010, research on its use has proliferated. By July 2012, more than 65 peer-reviewed publications had been published, covering the full spectrum of research and confirming initial findings on the test's performance.

[1] *An international roadmap for tuberculosis research*. Geneva, World Health Organization, 2011 (also available at: www.stoptb.org/assets/documents/resources/publications/technical/tbresearchroadmap.pdf; accessed July 2012).

BOX 8.1

Xpert MTB/RIF operational research projects mapped by TREAT-TB

TREAT-TB, a research programme implemented by the Union (an international NGO that conducts work on TB and other lung diseases) with funding from USAID, is monitoring and mapping operational research on Xpert MTB/RIF as part of its work. The topics for which research is being conducted and the number of studies per topic are summarized below.

Use in target populations
People suspected of having TB: 14 studies
People suspected of having MDR-TB: 9 studies
HIV-associated TB: 7 studies
Children: 4 studies

Use at different levels of the health-care system
Point-of-care level: 14 studies
District level: 11 studies
Central level: 7 studies

Impact assessment
Health-care system costs: 13 studies
Patient costs: 12 studies
Health-care system requirements: 12 studies
Equity issues: 3 studies

Further details are available from the TREAT-TB web site at www.treattb.org

BOX 8.2

Xpert MTB/RIF innovations, 2011–2012

There have been five innovations since WHO endorsed the Xpert MTB/RIF assay in December 2010:

- **refinements to the Xpert MTB/RIF assay cartridge**, implemented in 2011, resulting in increased rifampicin specificity without loss of sensitivity;
- **modifications to the software, fluidics and minor changes to Probe B**, resulting in reduced error rates compared with those observed with the earlier cartridges;
- **development of a calibration kit for users**, allowing users to recalibrate the optical system, verify the functioning of the thermal system and conduct a series of system-level tests to ensure full system functionality within specifications, thereby reducing the need for remote calibration of GeneXpert modules;
- **better packaging of cartridges**, resulting in reduced packaging requirements, thus reducing waste and shipping costs; and
- **development of validation panels**, allowing end-users to validate the expected performance of the GeneXpert instrument following installation, to demonstrate their ability to use the assay correctly, and to interpret and report results. Artificial sputum samples spiked with heat-killed TB bacilli, developed by the Global Laboratory Initiative, are now being shipped with each new GeneXpert instrument.

Of particular programmatic relevance are several operational research studies addressing key research questions identified following a WHO Global Consultation on Xpert MTB/RIF held in Geneva in December 2010. These studies are being mapped by an interactive tool developed by the Union-led and USAID-funded TREAT-TB initiative,[1] which complements the monitoring of Xpert MTB/RIF roll-out by WHO.[2] By July 2012, 24 operational research projects in 16 countries had been registered, covering multiple aspects of Xpert MTB/RIF implementation (Box 8.1).

The possibility of using Xpert MTB/RIF to improve the diagnosis of extrapulmonary TB and the diagnosis of TB in children is also being explored. The overall sensitivity and specificity in studies completed to date ranges from 75% to 95%, depending on the type of specimen, with excellent specificity of 99%–100% for all types of specimens investigated. WHO plans to evaluate the evidence in the first half of 2013. It should be noted that specimen collection remains problematic for extrapulmonary TB and in young children who cannot expectorate sputum. Developing safe and effective strategies for specimen collection and optimizing specimen processing for individuals with paucibacillary disease thus remain important topics for research. In the meantime, ongoing innovations to the Xpert MTB/RIF assay have already resulted in significant improvements to the technology (Box 8.2).

In 2011, WHO issued strong policy recommendations against the use of poorly-performing yet expensive commercial, antibody-based serological diagnostic tests, and cautioned against the use of commercial interferon-gamma release assays to detect latent TB infection in high-burden TB and HIV settings (further details about this policy guidance are provided in Chapter 6).

In 2012, WHO evaluated two tests that were already commercially available: a manual molecular assay to detect TB DNA in sputum specimens (TB-LAMP®, Eiken Chemical Co. Ltd., Japan); and a line probe assay for detecting resistance to second-line anti-TB drugs (GenoType® MTBDR*sl*, Hain Lifescience, Germany). The evidence-based process followed by WHO resulted in the conclusion that available data for the TB-LAMP assay were insufficient to proceed with the development of policy guidance. The same process also led to the conclusion that the line probe assay for detecting resistance to second-line anti-TB drugs cannot be used as a replacement test for conventional phenotypic DST, given its modest sensitivity to detect resistance to fluoroquinolones and second-line injectable agents. While the high specificity of the test may allow the assay to be used as a triage test to guide initial treatment – albeit limited to smear-positive

[1] www.treattb.org
[2] http://who.int/tb/laboratory/mtbrifrollout/en/index.html

sputum specimens and TB isolates from culture – conventional phenotypic testing remains the reference standard for detecting extensively drug-resistant TB (XDR-TB) until more data become available. Further details about the evaluation of these tests is provided in **Chapter 6**.

Consistent challenges in developing new TB diagnostics have been the sophisticated and costly laboratory infrastructure and specialized human resources required for the range of tests needed to diagnose TB in its various forms, and test utility being restricted to increasingly sophisticated levels of laboratory services. Only one DST technology – based on a rapid colorimetric method suitable for use at the intermediate laboratory level – is currently at the stage of being tested for feasibility. Second-generation Xpert assays and possible alternative molecular technologies are in the early or conceptual stages of development and are not expected to reach the market before the end of 2015.

TB remains unique among the major infectious diseases in lacking accurate and rapid point-of-care (POC) tests. Insufficient progress in biomarker research, technical difficulties in transforming sophisticated laboratory technologies into robust yet accurate POC platforms, and a lack of interest from industry have resulted in slow and suboptimal progress. The era of "omics" has seen large-scale searches for biological markers of disease and the application of emerging technologies to identify novel markers of disease, particularly from blood and urine. These have traditionally been directed at finding reliable surrogates for culture to assess and/or predict treatment prognosis and have only recently become a focus for the development of TB diagnostics.

Non-sputum based tests remain an attractive avenue to explore for POC development. Commercially available antigen detection assays can identify *Mycobacterium tuberculosis* lipoarabinomannan (LAM) in urine; however, their accuracy in routine clinical use has been suboptimal.[1] Two recent studies evaluating a low-cost, POC version of a commercial TB-LAM test (Determine® TBLAM, Alere Inc., Waltham, MA, USA) showed moderate sensitivity and high specificity in a subgroup of TB patients living with HIV who had advanced immunosuppression (CD4 cell-counts <50), but the overall sensitivity in patients with culture-confirmed TB remained low.[2,3] Further research is needed to evaluate the placement of this test in appropriate algorithms and assess its clinical impact.

The target product profile for an ideal POC test for TB has been described[4] and the evolving landscape of TB diagnostics offers greater promise for developing a user-friendly, robust POC test. Nonetheless, it remains to be seen whether a single test would meet all the requirements of accuracy, speed, robustness, ease-of-use, safety and affordability. In the foreseeable future, therefore, tools in the pipeline will need to be rapidly assessed and deployed if found to be good, while implementation of existing tools must be accelerated in dynamic diagnostic algorithms and at the appropriate levels of laboratory services.

Policy uptake and roll-out of contemporary, rapid TB diagnostics is encouraging (**Chapter 6**), but urgent expansion in their availability and use is required to achieve the testing targets set out in the Global Plan. In addition to the funding required for implementation and scale-up of new technologies endorsed by WHO and appropriate laboratory services (**Chapter 5**), increased investment in research and development in new TB diagnostics remains imperative. In 2010, funding represented only 8% (US$ 48 million) of the overall investment (US$ 630 million) in TB research and development. Indeed, TB diagnostics suffers the largest relative funding gap: US$ 48 million represents only 14% of the Global Plan's target of US$ 340 million/year, compared with 31% for new anti-TB drugs and 20% for new TB vaccines.[5]

8.2 New drugs to treat and prevent TB

The anti-TB drugs used in first-line treatments are around 50 years old. The regimen that is currently recommended by WHO for new cases of drug-susceptible TB is highly efficacious, with cure rates of around 90% in HIV-negative patients. Nonetheless, it requires 6 months of treatment with first-line drugs (a combination of rifampicin, isoniazid, ethambutol and pyrazinamide for 2 months, followed by a 4-month continuation phase of rifampicin and isoniazid). Regimens for MDR-TB treatment currently recommended by WHO entail 20 months of treatment with second-line drugs for most patients, and are associated with multiple (and sometimes serious) side-effects and lower cure rates (see **Chapter 4**). There are also interactions between anti-TB treatment and antiretroviral therapy (ART) for people living with HIV. New drugs are required to shorten and simplify treatment, to improve

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[1] Minion J et al. Diagnosing tuberculosis with urine lipoarabinomannan: systematic review and meta-analysis. *European Respiratory Journal*, 38(6):1398–1405, 2011.

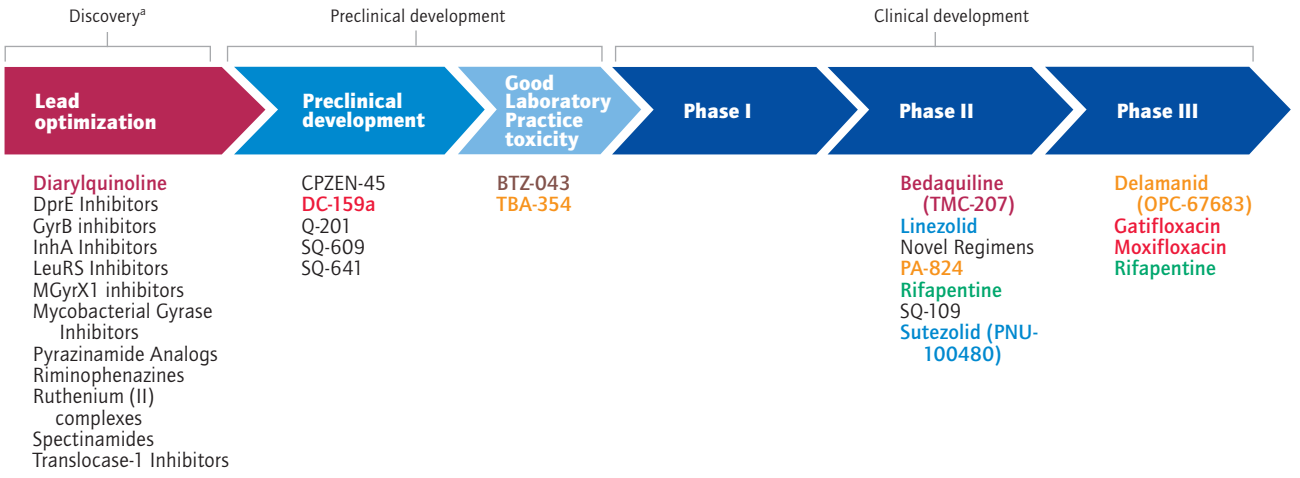
[2] Lawn SD et al. Screening for HIV-associated pulmonary tuberculosis prior to antiretroviral therapy: diagnostic accuracy of a low-cost, urine antigen, point-of-care screening assay for HIV-associated pulmonary tuberculosis before antiretroviral therapy: a descriptive study. *Lancet Infectious Diseases* [epub ahead of print, Oct. 17, 2011].

[3] Peter J et al. The clinical utility of urine lipoarabinomannan and the novel point-of-care lateral flow strip test (determine® TB) for the diagnosis of tuberculosis in hospitalised patients with HIV-related advanced immunosuppression. *American Journal of Respiratory and Critical Care Medicine*, 2011, 183:A5313.

[4] *Paris meeting on TB point-of-care test specifications*. Treatment Action Group, Médecins Sans Frontières, 2009 (available at: **http://www.msfaccess.org/TB_POC_Parismeeting/**; accessed July 2012).

[5] Jiménez-Levi E. *2011 Report on tuberculosis research funding trends, 2005–2010*, 2nd ed. New York, NY, Treatment Action Group, 2012.

FIGURE 8.2 **The development pipeline for new TB drugs, July 2012**



[a] Ongoing projects without a lead compound series can be viewed at www.newtbdrugs.org/pipeline-discovery
Source: Stop TB Partnership Working Group on New TB Drugs; see www.newtbdrugs.org

the efficacy and tolerability of treatment for MDR-TB and to improve the treatment of TB among people living with HIV. New drugs could also help to treat latent TB infection in people without active TB disease; at present, preventive therapy usually consists of 6–9 months of isoniazid monotherapy.

The status of the pipeline for new anti-TB drugs in July 2012 is shown in **Figure 8.2**. Of the 11 new or repurposed TB drugs under clinical investigation (one more than in mid-2011), 4 are in Phase III (efficacy) trials and 7 are in Phase II (early bactericidal activity and sputum culture conversion) trials. Two of the Phase III trials are evaluating 4-month combination regimens in which a fluoroquinolone (gatifloxacin or moxifloxacin) is substituted for either ethambutol or isoniazid; results are expected in 2013. A third Phase III trial is evaluating the use of rifapentine (a rifamycin that has a longer half-life than rifampicin) as part of a 4-month regimen for the treatment of drug-susceptible TB. Since mid-2011, the delamanid (OPC-67683) compound, which is being tested as an addition to optimized background therapy for the treatment of MDR-TB, has moved from a Phase II to a Phase III trial.

Of the seven individual compounds in Phase II trials, bedaquiline (TMC-207) is being tested as an addition to optimized background therapy for the treatment of MDR-TB. It is expected to move to a Phase III trial before the end of 2012. The other six compounds in Phase II trials are linezolid, which has been tested for the treatment of XDR-TB at a dose of 600 mg/day in the Republic of Korea; sutezolid (PNU-100480), an oxazolidinone analogue of linezolid; PA-824, a nitro-imidazole; SQ-109, originally synthesized as a derivative of ethambutol; and AZD-5847, another oxazolidinone.

Besides individual compounds, very promising results on the early bactericidal activity of a novel TB regimen (NC-001) that includes three drugs (PA-824, moxifloxacin and pyrazinamide) became available in July 2012 (**Box 8.3**).

These major advances in drug development mean that multiple trials will be needed in various high-burden countries. This presents several challenges. Trials are lengthy and costly, since patients need to be followed up for an extended period of time after completing treatment. New drugs have to be tested in various drug combinations with current and/or newly re-purposed drugs;[1] to facilitate this, novel biomarkers for treatment response and sterilizing activity, new approaches to the design of clinical trials[2] and increased capacity (including staff and infrastructure) to implement trials in accordance with international standards are required.

Several research groups and institutions worldwide are working to address and overcome these challenges. A good example is the NIH-funded AIDS Clinical Trials Group, whose goal is to transform TB treatment (including HIV-associated TB) by developing and optimizing regimens to treat and prevent TB more quickly and effectively. The group is working on the identification of biomarkers to better understand TB pathogenesis and treatment response and to shorten future clinical trials by using surrogate markers for clinical end-points.[3] This is closely linked to strengthening the capacity of clini-

[1] Lienhardt C et al. New drugs for the treatment of tuberculosis: needs, challenges, promise, and prospects for the future. *Journal of Infectious Diseases*, 2012; published online March 23 (doi: 10.1093/infdis/jis034).
[2] Phillips PJ et al. Innovative trial designs are practical solutions for improving the treatment of tuberculosis. *Journal of Infectious Diseases*, 2012 (doi:10.1093/infdis/JIS041).
[3] **https://actgnetwork.org/**

cal trial sites and building laboratory and pharmacology research capacity; efforts are coordinated with other clinical trial networks to optimize efforts to develop new combination regimens. The Critical Path to New TB Drug Regimens initiative, whose goal is to accelerate the development of novel regimens that will shorten TB treatment, is also an important example of a global effort to ensure that the necessary trials can be implemented.[1]

8.3 New vaccines to prevent TB

The BCG (Bacille-Calmette-Guérin) vaccine for the prevention of TB is almost 100 years old. The vaccine protects against severe forms of TB in children (TB meningitis and miliary TB), but its efficacy in preventing pulmonary TB in adults is highly variable. BCG is not recommended for use in infants known to be infected with HIV, due to the risk of disseminated BCG disease. Historic opportunities for developing new TB vaccines arose during the 1990s, following the development of techniques for genetic manipulation of mycobacteria and completion of the genome sequence of *M. tuberculosis*.

Two different approaches are being used to develop TB vaccines for prevention of TB.[2] The first approach is to develop vaccines that would do better than BCG and replace it – such as an improved version of BCG or a new attenuated live *M. tuberculosis* vaccine. The second approach is to develop a "prime-boost" strategy in which BCG continues to be given to neonates (as now), since it prevents TB in infants and children, and give the new vaccine as a "booster" dose at a later stage. Alternatively, the new vaccine would be delivered to infants alongside other vaccines at 3–9 months of age and as a separate booster in young adults. The vaccine candidates currently under development could be used to prevent either infection (pre-exposure), or to prevent primary progression to disease or reactivation of latent TB (post-exposure). Work is also being carried out to develop vaccines that could be used as immunotherapeutic agents, i.e. to improve responsiveness to chemotherapy.

The status of the pipeline for new vaccines in July 2012 is shown in **Figure 8.3**. Of the 12 vaccine candidates in clinical trials, 11 are for prevention of TB and one is an immunotherapeutic vaccine.

MVA85A is an attenuated vaccinia-vectored vaccine candidate designed as a booster vaccine for infants, adolescents and adults. Among existing vaccine candidates for TB prevention, it is the one that is most advanced in terms of clinical testing. The first Phase IIb trial of this vaccine was conducted in South Africa from 2009 to 2011, with 2797 infants enrolled. Results are expected in early 2013, and will provide the first efficacy data of a

[1] **http://www.c-path.org/CPTR.cfm**

[2] Kaufmann SHE, Hussey G, Lambert PH. New vaccines for tuberculosis. *Lancet*, 2010, 375:2110–2119.

BOX 8.3

Testing the new drug regimen PaMZ (NC-001): progress by mid-2012

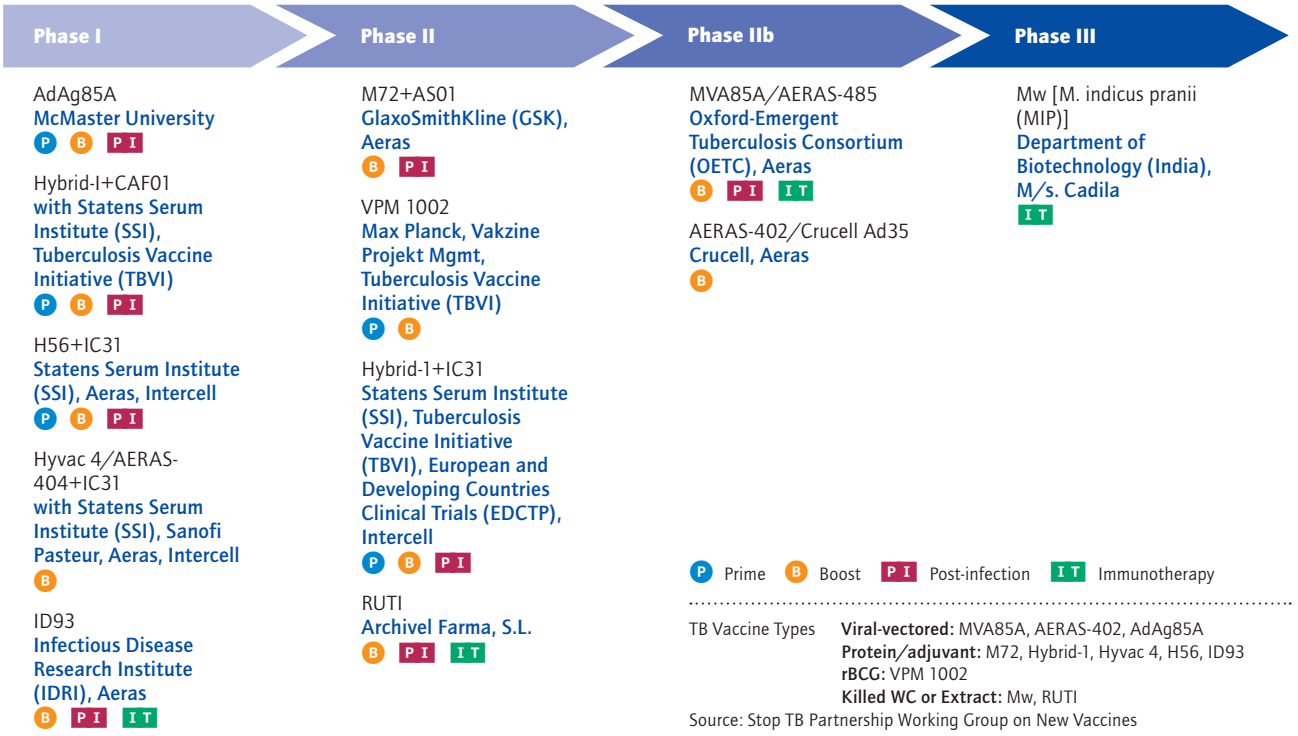
Novel anti-TB drug regimens could transform therapy by shortening and simplifying the treatment of both drug-sensitive and drug-resistant TB with the same oral regimen. Novel regimens for treatment of MDR-TB have the potential to be much less expensive than currently recommended therapies (since they include fewer drugs and treatment duration is shorter), fostering expansion of treatment globally.

NC-001 – also known as New Combination 1 – is a trial of a novel TB regimen that includes the drug candidate PA-824 combined with moxifloxacin and the standard first-line anti-TB drug, pyrazinamide (PaMZ). The trial is being conducted in partnership with and sponsored by the TB Alliance. The regimen has been tested for early bactericidal activity against pulmonary TB over a 2-week period, with encouraging results.[1] The regimen had bactericidal activity at least comparable to a standard regimen of isoniazid (H), rifampicin (R), pyrazinamide (Z) and ethambutol (E). This study also validated a new approach to the development of new anti-TB drug regimens, which has the potential to reduce the time required to complete clinical trials from decades to years. Research on NC001 has also included testing of some novel combinations of two drugs that may form the "core" of future regimens, thus informing other clinical trials being planned during the next 18 months and beyond.

The testing of the PaMZ regimen advanced to a 2-month trial (called NC-002) in March 2012. In this trial, carried out in Brazil, South Africa and the United Republic of Tanzania, PaMZ is being tested for patients with drug-sensitive TB and patients with drug-resistant TB who are sensitive to the drugs included in the new regimen. The NC-002 trial is a landmark trial: it is the first to simultaneously investigate treatment of both drug-sensitive and drug-resistant disease using the same regimen. Results are expected in the third quarter of 2013.

[1] Diacon AH et al. 14-day bactericidal activity of PA-824, bedaquiline, pyrazinamide, and moxifloxacin combinations: a randomised trial. *Lancet*, 2012;380(9846):986-93.

FIGURE 8.3 **The development pipeline for new vaccines, July 2012**



Source: Stop TB Partnership Working Group on New Vaccines

BOX 8.4

Tuberculosis vaccines: a strategic blueprint

Research into TB vaccines is at a pivotal moment as focus shifts from the discovery of novel approaches and moving new vaccine candidates from the laboratory to early clinical trials to building on the progress that has already been made. This includes learning from the efficacy of vaccine candidates in clinical development, establishing much-needed markers and correlates of immune protection that will help to identify the next generation of vaccine candidates, and laying the groundwork for the licensure and distribution of new TB vaccines.

In March 2012, the Stop TB Partnership's Working Group on New TB Vaccines published *Tuberculosis vaccines: a strategic blueprint*. This charts the future course of TB vaccine research and is intended as guidance for researchers, regulators, advocates, donors, policy and decision-makers, among other stakeholders. The blueprint outlines the major scientific challenges and priorities, critical activities and crucial questions that need to be addressed to develop life-saving TB vaccines in five key priority areas:

- Creativity in research and discovery. The major question to be answered is why certain individuals infected with *M. tuberculosis* are resistant to TB disease.
- Correlates of immunity and biomarkers for TB vaccines. Here, the focus is on identifying correlates of immunity for TB vaccines.
- Clinical trials: harmonization and cooperation. The main question to be addressed is whether TB vaccines can effectively reduce the transmission of *M. tuberculosis*.
- Rational selection of TB vaccine candidates. This priority area tackles the challenge of having all developers of vaccines agree to standardized criteria for the selection and development of novel TB vaccines.
- The critical need for advocacy, community acceptance and funding. Here, the emphasis is on innovative approaches to mobilizing funding for TB vaccines.

The blueprint is designed to initiate a renewed, intensified and well-integrated international effort to develop TB vaccines that will have a significant impact on global TB control.

The complete blueprint, including relevant opinion editorials, is available at http://www.stoptb.org/wg/new_vaccines/

new TB vaccine candidate. A Phase IIb trial of MVA85A is now being conducted in adults living with HIV in Senegal and South Africa; the trial started in 2011 and up to 1400 participants will be enrolled.

AERAS-402/Crucell Ad35 is an adeno-vectored vaccine candidate designed as a booster vaccine for infants, adolescents and adults. A Phase IIb multicentre clinical trial in healthy infants is under way in Kenya, Mozambique and South Africa; up to 4000 participants will be enrolled.

There are four vaccines in Phase II trials. M72 and Hybrid-1 are two distinct protein subunit vaccines, formulated in novel adjuvants to enhance their immunogenicity. Both vaccines, which are based on a combination of two immune-dominant antigens from *M. tuberculosis*, are being tested in Phase IIa trials in Europe and Africa. VPM 1002 is a live recombinant vaccine, derived from the Prague strain of the BCG vaccine into which the listerolysin gene from *Listeria* monocytogenes has been cloned and the urease gene deleted to improve immunogenicity. This vaccine is currently in a Phase IIa trial in South Africa. Finally, RUTI, a non-live vaccine based on fragmented *M. tuberculosis* bacteria, is in a Phase IIa trial in Spain.

Research on new TB vaccines is at a crucial juncture. While the past decade focused on the discovery of novel approaches and moving new vaccine candidates from the laboratory to early clinical trials, the next decade will focus on consolidating progress.[1] This will entail learning from the efficacy of vaccine candidates in clinical development and identifying much-needed markers and correlates of immune protection that will greatly assist in the selection of the next generation of vaccine candidates.[2] The future course of work on new TB vaccines has been charted in a new strategic document, *Tuberculosis vaccines: a strategic blueprint*, developed by the Stop TB Partnership's Working Group on New TB Vaccines and published in March 2012 (**Box 8.4**).

8.4 Fundamental science and operational research to stimulate innovation and optimize the use of available tools

Fundamental science is necessary to drive innovations in new tools for improved TB care and control. Fundamental research is required to better characterize *M. tuberculosis* and to improve understanding of the interaction between the bacillus and the human host, as a basis for maintaining the flow of new technologies into the product pipeline. Investments in basic science for TB worldwide, at US$ 129 million in 2010, represented 20% of global spending on TB research and development. The largest share of this funding (43%) was from NIH/NIAID.

Researchers supported to conduct biomedical and fundamental research on TB through NIAID and other major funding agencies are making great strides in redefining the spectrum of TB disease and the transition from latent to active TB, and developing a better understanding of the reasons why prolonged antibiotic treatment is needed. This progress is expected to deliver better knowledge about pathogenesis, identification of biomarkers and bio-signatures relevant to new TB diagnostics. It is also expected to point to new targets for anti-TB drugs as well as early indicators of protective immunity, vaccine efficacy and early response to treatment. Such developments will facilitate the selection and testing of new interventions. To catalyze further progress and pave the way for future research, an *International Roadmap for TB Research* has been developed.[3] This outlines critical priority areas for future scientific investment.

A guide on *Operational research priorities to improve TB care and control* was published in 2011.[4] It defines the critical questions that need to be addressed to improve current programmatic performance and to facilitate the introduction of novel strategies and interventions that use new tools.

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[1] Ottenhoff THM, Kaufmann SHE. Vaccines against tuberculosis: where are we and where do we need to go? *PLoS Pathogens*, 2012, 8(5):e1002607 (doi:10.1371/journal.ppat.1002607).

[2] Barker LF et al. Tuberculosis vaccine research: the impact of immunology. *Current Opinion in Immunology*, 2009, 21(3):331–338.

[3] Stop TB Partnership and World Health Organization. *An International Roadmap for Tuberculosis Research*. Geneva: World Health Organization, 2011 (also available at: **www.stoptb.org/assets/documents/resources/publications/technical/tbresearchroadmap.pdf**; accessed July, 2012).

[4] Stop TB Partnership, Global Fund to Fight AIDS, Tuberculosis and Malaria. *Priorities in operational research to improve tuberculosis care and control*. Geneva, World Health Organization, 2011 (also available at: **http://whqlibdoc.who.int/publications/2011/9789241548250_eng.pdf**; accessed July 2012).

ANNEX 1

Methods used to estimate the global burden of disease caused by TB

This annex explains the methods that were used to produce estimates of the global burden of disease caused by TB (measured in terms of incidence, prevalence and mortality). It has nine major sections:

- **General approach.** This section provides some background information about the methods used to produce estimates of disease burden.
- **Definitions.** This section defines TB incidence, prevalence and mortality, the case fatality rate (CFR) and the case notification rate. It also explains the regions for which estimates of disease burden are produced and sources of information on population estimates.
- **Estimates of TB mortality, 1990–2011.** This section explains the three methods used to estimate TB mortality, and the countries for which they were applied. Methods for estimating the number of HIV-associated TB deaths and for disaggregation of TB mortality by age and sex are also described.
- **Estimates of TB incidence, 1990–2011.** This section explains the main methods used to estimate TB incidence, and the countries for which they were applied. Methods to estimate the prevalence of HIV among incident TB cases are described.
- **Estimates of TB prevalence, 1990–2011.** This section explains the two methods used to estimate TB prevalence, and the countries for which they were applied.
- **Estimates of the number of cases of multidrug-resistant TB (MDR-TB).** This section explains how estimates of the proportion of notified cases of TB that had MDR-TB in 2011 were produced and used to assess the number of prevalent cases of MDR-TB in 2011.
- **Projections of TB incidence, prevalence and mortality.** This section explains how projections up to 2015 were produced.
- **Uncertainty framework.** This section explains the general approach to including uncertainty in all estimates.

1. General approach

Estimates of the burden of disease caused by TB (measured in terms of incidence, prevalence and mortality) are produced annually by WHO using information gathered through surveillance systems (case notifications and death registrations), special studies (including surveys of the prevalence of disease, mortality surveys and in-depth analyses of surveillance data), expert opinion and consultations with countries. Two recent publications provide up-to-date guidance about how TB incidence, prevalence and mortality should be measured,[1] based on the work of the WHO Global Task Force on TB Impact Measurement.[2] The methods used to estimate the burden of disease were updated in 2009 following 18 months of work by an expert group convened by the Task Force. Improvements to methods included systematic documentation of expert opinion and how this has been used to produce estimates of disease burden, simplification of models,[3] updates to parameter values based on the results of systematic reviews, much greater use of mortality data from VR systems and systematic documentation of uncertainty (hence the uncertainty intervals shown on all of the estimates of disease burden in this report).

2. Definitions

2.1 Incidence, prevalence, mortality, case fatality rate, case notification rate

Incidence is defined as the number of new and recurrent (relapse) episodes of TB (all forms) occurring in a given year. Recurrent episodes are defined as a new episode of TB in people who have had TB in the past and for whom there was bacteriological confirmation of cure and/or documentation that treatment was completed (Box 3.1, Chapter 3). In the remainder of this Annex, relapse cases are referred to as *recurrent* cases because the term is more useful when explaining the estimation of TB incidence. Recurrent cases may be true relapses or a new episode of TB caused by reinfection. In current case definitions, both relapse cases and patients who require a change in treatment are called "retreatment cases". However, people with a continuing episode of TB that requires a treatment change are prevalent cases, not incident cases.

Prevalence is defined as the number of TB cases (all forms) at a given point in time.

Mortality from TB is defined as the number of deaths caused by TB in HIV-negative people, according to the latest revision of the international classification of diseases (ICD-10). TB deaths among HIV-positive people are classified as HIV deaths in ICD-10. For this reason, estimates of deaths from TB in HIV-positive people are presented separately from those in HIV-negative people.

The **case fatality rate** is the risk of death from TB among people with active TB disease.[4]

The **case notification rate** refers to new and recurrent episodes of TB notified to WHO for a given year, expressed per 100 000 population. The case notification rate for new and recurrent TB is important in the estimation of TB

[1] *TB impact measurement: policy and recommendations for how to assess the epidemiological burden of TB and the impact of TB control*. Geneva, World Health Organization, 2009 (Stop TB policy paper, no. 2; WHO/HTM/TB/2009.416). The policy paper is available on the Task Force's web site **www.who.int/tb/advisory_bodies/impact_measurement_taskforce**

[2] For further details, see the Task Force web site at: **www.who.int/tb/advisory_bodies/impact_measurement_taskforce**

[3] For example, some parameter values are now estimated only at global level or for regions, rather than for each country individually.

[4] Straetemans M et al. Assessing tuberculosis case fatality ratio: a meta-analysis. *PLoS One*. 2011, 6(6):e20755.

incidence. In some countries, however, information on treatment history may be missing for some cases. When data on treatment history are not available, recurrent cases cannot be distinguished from cases whose treatment was changed, since both are registered and reported in the category "retreatment". Data for patients reported in the "unknown history" category are assessed with national TB control programmes (NTPs) to determine the proportion of such patients included in the category of recurrent cases.

2.2 Regions

Regional analyses are generally undertaken for the six WHO regions (that is, the African Region, the Region of the Americas, the Eastern Mediterranean Region, the European Region, the South-East Asia Region and the Western Pacific Region). For analyses related to MDR-TB and for an ecological model used to estimate TB mortality in some countries, nine epidemiological regions were defined. These were African countries with high HIV prevalence, African countries with low HIV prevalence, Central Europe, Eastern Europe, high-income countries,[1] Latin America, the Eastern Mediterranean Region (excluding high-income countries), the South-East Asia Region (excluding high-income countries) and the Western Pacific Region (excluding high-income countries). The countries in these nine regions are listed in **Appendix 1**.

2.3 Population estimates

Where population sizes are needed to calculate TB indicators, the 2012 revision of estimates provided by the United Nations Population Division (UNPD) was used.[2] The UNPD estimates sometimes differ from those made by countries.

3. Estimates of TB mortality, 1990–2011

The best sources of data about deaths from TB (excluding TB deaths among HIV-positive people) are VR systems in which causes of death are coded according to ICD-10 (although the older ICD-9 and ICD-8 classification are still in use in several countries). Deaths from TB in HIV-positive people are coded under HIV-associated codes.

Three methods were used to estimate TB mortality:

- direct measurements of mortality from vital registration (VR) systems or mortality surveys.
- indirect estimates based on an ecological model.
- indirect estimates derived from multiplying estimates of TB incidence by estimates of the CFR.

Each method is described in more detail below. The source of data used for each country is available from tbdata@who.int upon request.

3.1 Estimating TB mortality from vital registration data and mortality surveys

Data from VR systems are reported to WHO by Member States and territories every year. In countries with functioning VR systems in which causes of death are coded according to the two latest revisions of the international classification of diseases (underlying cause of death: ICD-10 A15-A19, equivalent to ICD-9: 010-018), VR data are the best source of information about deaths from TB among people not infected with HIV. When people with AIDS die from TB, HIV is registered as the underlying cause of death and TB is recorded as a contributory cause. Since one third of countries with VR systems report to WHO only the underlying causes of death and not contributory causes, VR data usually cannot be used to estimate the number of TB deaths in HIV-positive people.

TB mortality data obtained from VR systems are essential to understanding trends in TB disease burden where case notifications have incomplete coverage or their coverage is not documented through an inventory study. An updated description of the global coverage and quality of VR data is available in *World Health Statistics 2012*.[3]

As of May 2012, 122 countries had reported mortality data to WHO (including data from sample VR systems and mortality surveys), among 217 countries and territories from which TB data were requested. These 122 countries included 8 of the 22 high TB-burden countries (HBCs): Brazil, China, India, the Philippines, the Russian Federation, Thailand, South Africa and Zimbabwe. However, the VR data on TB deaths from South Africa and Zimbabwe were not used for this report because large numbers of HIV deaths were miscoded as TB deaths. Improved empirical adjustment procedures have recently been published,[4] and specific post-hoc adjustments for misclassification errors in the measurement of TB mortality will be attempted before preparing the 2013 WHO report on global TB care and control.

Among the countries for which VR data could be used (see **Figure 2.11** in **Chapter 2**), there were 1928 country-year data points 1990–2011. Of these data points, 30 outliers and points obtained from systems with very low coverage were excluded for analytical purposes. Outliers were detected visually by plotting country-specific time series of reported TB mortality rates. As of May 2012, only 29 data points were available for 2010 and none for

[1] High-income countries are defined by the World Bank as countries with a per capita gross national income (GNI) of ≥US$ 12 475 in 2011.

[2] **http://esa.un.org/unpd/wpp/unpp/panel_population.htm**; accessed May 2012.

[3] **www.who.int/gho/publications/world_health_statistics/2012/en/**; accessed July 2012 (see particularly pages 44–45).

[4] Birnbaum JK, Murray CJL, Lozano R. Exposing misclassified HIV/AIDS deaths in South Africa. *Bulletin of the World Health Organization*, 2011, 89:278–285.

2011. On average, 15 data points were retained for analysis per country (standard deviation (SD) of 6.5) from a total of 1898 usable data points.

Reports of TB mortality were adjusted upwards to account for incomplete coverage (estimated deaths with no cause documented) and ill-defined causes of death (ICD-9 code B46, ICD-10 codes R00–R99).[1]

It was assumed that the proportion of TB deaths among deaths not recorded by the VR system was the same as the proportion of TB deaths in VR-recorded deaths. For VR-recorded deaths with ill-defined causes, it was assumed that the proportion of deaths attributable to TB was the same as the observed proportion in recorded deaths.

The adjusted number of TB deaths d_a was obtained from the VR report d as follows:

$$d_a = \frac{d}{c(1-g)}$$

where c denotes coverage (i.e. the number of deaths with a documented cause divided by the total number of estimated deaths) and g denotes the proportion of ill-defined causes.

The uncertainty related to the adjustment was estimated with standard deviation $SD = d/4[1/(c/(1-g)) - 1]$. The uncertainty calculation does not account for miscoding, such as HIV deaths miscoded as deaths due to TB.

Missing data between existing adjusted data points were imputed using log-linear interpolation (or simple interpolation in small countries with reports of zero mortality). Trailing missing values were predicted using exponential smoothing models for time-series.[2] A penalized likelihood method based on the in-sample fit was used for country-specific model selection. Leading missing values were similarly predicted backwards to 1990. A total of 813 country-year data points were thus imputed.

Results from mortality surveys were used to estimate TB mortality in India. Further details are available in the 2011 edition of the WHO report on global TB control.

3.2 Estimating TB mortality from an ecological model

An out-of-sample, goodness-of-fit, stepwise selection approach was used to select an ecological model that could predict TB mortality in countries without VR data. The model was based on the time series of VR data reported to WHO as described above, expressed as counts of TB deaths and corrected for ill-defined causes of deaths and VR coverage.

A population-averaged negative binomial model, with total population as the offset converting model outputs to rates, was used to account for the longitudinal structure of the data as well as the observed over-dispersion of counts of TB deaths.

Ten variables were investigated for inclusion in the model. These were: the infant mortality rate per 1000 live births; gross domestic product per capita; HIV prevalence among the general population; the percentage of the total population aged <15 and ≥65 years; the TB treatment success rate; the total number of newly notified TB cases per year; whether or not a country had a high or low burden of MDR-TB; whether a country was among the 22 HBCs or not; and a categorical variable classifying countries in nine groups with similar TB epidemiology (see **Appendix 1**).

At the univariate level, all risk factors were associated with the outcome of TB mortality. The final multivariate model included the infant mortality rate per 1000 live births, HIV prevalence among the general population, gross domestic product per capita, the percentage of the total population aged <15 and ≥65 years, whether a country was in the list of 22 HBCs or not; and the categorical variable that defined country groups with similar TB epidemiology.

Out of a total 4686 country-year observations in the time series for 1990–2011, 802 could not be predicted due to data not being available for any of the ten variables included in the model.

Estimates of TB mortality predicted by the model were used for 28 countries in which VR or mortality survey data of sufficient quality and coverage were not available and where estimates of TB incidence were judged too uncertain. In the remaining 64 countries lacking VR data of the necessary coverage and quality, TB mortality was estimated using the methods described in **Section 3.3**.

3.3 Estimating TB mortality from estimates of case-fatality rates and TB incidence

For 64 countries in which VR or mortality survey data of sufficient quality and coverage were not available (as of May 2012), mortality was estimated as the product of TB incidence (see **Section 4**) and the CFR.

CFRs were estimated separately for TB cases notified to NTPs and non-notified cases and, within these two groups, separate estimates were made for HIV-negative TB cases in high-income and other countries (**Table A1.1**).

TABLE A1.1 Estimates of TB case-fatality rates (HIV-negative) by case type and country

CASE TYPE AND COUNTRY GROUP	MEAN (STANDARD DEVIATION)
Non-notified: high-income countries	0.12 (0.042)
Non-notified: other countries	0.32 (0.13)
Notified: high income countries	0.039 (0.042)
Notified: other countries	0.074 (0.03)

[1] Mathers CD et al. Counting the dead and what they died from: an assessment of the global status of cause of death data. *Bulletin of the World Health Organization*, 2005, 83:171–177.

[2] Hyndman R et al. *Forecasting with exponential smoothing: the state space approach*. Springer Series in Statistics, 2008.

For consistency with VR- or survey-based mortality estimates, CFRs were estimated such that they gave the best fit to the directly measured TB death rates (within their uncertainty ranges) in the 125 countries with VR data that were retained for analysis, in conjunction with WHO estimates of distributions of TB incidence in those countries. This statistical fitting used Bayesian linear models and was done separately for two groups of countries (high-income and all other countries), to account for differences in the ratio of reported TB mortality to TB notification rates among these two groups (data not shown).

The models used normal errors and Gibbs sampling:

$$y = (I - N)\beta_1 + N\beta_2 + \varepsilon,\ \varepsilon \sim N(0,\sigma^2)$$

where y is TB mortality from VR, I denotes TB incidence excluding people living with HIV, N denotes TB notifications excluding people living with HIV, and parameters $\beta 1$ and $\beta 2$ denote the CFR in non-notified and notified cases respectively. Semi-conjugate priors were set with an uninformative inverse Gamma prior on the conditional error variance:

$$b \sim N(b_i, B_i^{-2}),\ \sigma^2 \sim IG(5.10^{-4}, 5.10^{-4})$$

For low- and middle-income countries, priors b and their precision B were defined based on literature reviews[1] and the country-year CFR parameters used by WHO for the years 1999–2008. For high-income countries, non-informative priors were used. Convergence of Markov Chains was assessed graphically and using convergence diagnostic tests. Within each case category 1990–2011, mortality estimates were computed by taking the product of posterior distributions of the CFR, assumed to be time-independent (**Table A1.1**), and country-year specific distributions of estimated incidence.

3.4 Estimating HIV-associated TB mortality

No nationally representative measurements of HIV-associated TB mortality were available from VR systems for use in this report. In the absence of direct measurements, HIV-associated TB mortality was estimated indirectly using a Bayesian model. It should be highlighted that there was a significant level of sensitivity to changes in model parameters and distributions, leading to considerable and incompletely documented uncertainty surrounding estimates.

A prior belief P about the proportion of AIDS deaths with TB as the contributory cause of death was defined using evidence from a literature review[2] and the assumption of a beta distribution with parameters a and b. The proportion was defined as 37% (SD 3.8%). The number of AIDS deaths was obtained from data published by UNAIDS.[3] The prior distribution's mean of AIDS deaths with TB as a contributory cause of death was thus 37% of 1.75 million AIDS deaths i.e. about 648 000 AIDS deaths with TB as a contributory cause in 2011.

The likelihood for the estimated number of TB deaths among AIDS cases was based on an assumed CFR of 50% (SD 5%) in low- and middle-income countries and a CFR of 20% (SD 2%) in high-income countries, using methods as described above and from literature reviews.[4]

People with TB on antiretroviral therapy (ART) were assumed to benefit from the protective effect of ART. To a significant extent, the protective effect depends on the timing of ART initiation.[5] While ART increases the odds of survival when introduced early, it also shortens the time for subclinical TB to become symptomatic, a phenomenon often referred to as "unmasking".[6] In the absence of reported data on the timing of ART initiation and average CD4 cell-count, we estimated the overall protective effect of ART at 50% (SD 5%). Incident cases of HIV-positive TB were disaggregated by ART status to calculate the likelihood for the estimated number of TB deaths among AIDS cases, noted D.

The likelihood D is a beta density with parameters s+1 and f+1 obtained using the method of moments described in **Section 4.1**.

By combining the beta prior P with D, the posterior is also distributed beta, with parameters a+s and b+f. Posterior distributions were determined for each country-year data point.

On average, when the number of TB deaths among AIDS cases from D is less than in the prior distribution P, then the posterior distribution will be pulled away from P towards lower values of HIV-associated TB deaths. In countries with a high coverage of ART, D will pull the posterior distribution more strongly away from P, towards lower values.

In the absence of country-specific direct measurements of HIV-associated TB mortality reported to WHO, the Bayesian model described above was used to generate estimates of HIV-associated TB mortality. Since the prior P is based on autopsy studies in a limited number of countries in sub-Saharan Africa (where most TB cases among HIV-positive people occur) and based on UNAIDS estimates of AIDS deaths (most of which occur in sub-Saharan Africa), country-specific estimates for other countries

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[1] Straetemans M et al. Assessing tuberculosis case fatality ratio: a meta-analysis. *PLoS One*. 2011, 6(6):e20755.

[2] Cox JA et al. Autopsy causes of deaths in HIV-positive individuals in Sub-Saharan Africa and correlation with clinical diagnosis. *AIDS*, 2010, 12:183–194.

[3] **www.unaids.org/en/dataanalysis/epidemiology/**; accessed 15 July 2011.

[4] Straetemans M et al. The effect of tuberculosis on mortality in HIV positive people: a meta-analysis. *PLoS One*, 2010, 5(12):e15241.

[5] Piggott DA, Petros C. Karakousis PC. Timing of Antiretroviral therapy for HIV in the setting of TB treatment. *Clinical and Developmental Immunology*, 2011 (doi:10.1155/2011/103917).

[6] Lawn DS et al. Immune reconstitution and ''unmasking'' of tuberculosis during antiretroviral therapy. *American Journal of Respiratory and Critical Care Medicine*, 2008, 177:680–685.

may suffer from biases. These biases are difficult to predict. However, the influence of countries outside the African Region on global estimates of HIV-associated TB deaths is relatively small due to their comparatively small numbers of HIV-positive TB cases.

It is worth noting that at the global level, the posterior distribution is heavily influenced by *D* and by the effect of the increasing coverage of ART in recent years, leading to an estimated 430 000 HIV-associated TB deaths in 2011 (range 400 000–460 000).

In the absence of direct measurements, it was not possible to validate country-specific estimates of HIV-associated TB mortality; as such, country-specific estimates are not included in this report.

Direct measurements of HIV-associated TB mortality are urgently needed. This is especially the case for countries such as South Africa and Zimbabwe, where national VR systems are already in place. In other countries, more efforts are needed to initiate the implementation of sample VR systems as an interim measure.

3.5 TB mortality disaggregated by age and sex

For countries with VR data, it was possible to estimate TB deaths among children (aged <15 years) and adults (aged ≥ 15 years) separately. It was also possible to disaggregate TB deaths by sex. For these countries, male:female and child:adult ratios of TB death rates per 100 000 population were calculated (after correction for ill-defined causes of deaths and VR coverage). Using data from the latest available year for each of the countries with VR data, global ratios weighted according to a country's total population were then applied to the global number of estimated TB deaths among HIV-negative TB cases to produce age and sex-disaggregated estimates. An ecological model (described in **Section 3.2**) was used to predict ratios for countries with no VR data.

HIV-positive TB deaths were disaggregated by sex based on the assumption that the male:female sex ratio is similar to the sex ratio of AIDS deaths estimated by UNAIDS. Further details are provided in **Chapter 2**.

4. Estimates of TB incidence, 1990–2011

No country has ever undertaken a nationwide survey of TB incidence because of the large sample sizes required and associated major logistic and financial challenges. As a result, there are no direct measurements of the incidence of TB. Theoretically, data from TB surveillance systems that are linked to health systems of high coverage and performance may capture all (or almost all) incident cases of TB. The WHO Global Task Force on TB Impact Measurement is working on the development of TB surveillance standards and benchmarks that, if met, would allow direct measurement of TB cases and deaths from surveillance data (**Chapter 2**).

In the absence of direct measurements, estimates of TB incidence for almost all countries rely on methods described in **sections 4.1–4.3**.

It should be emphasized that incidence estimates are no longer derived from surveys of the prevalence of TB infection as measured in tuberculin surveys. The WHO Global Task Force on TB Impact Measurement has agreed that methods for deriving incidence from the prevalence of infection are unreliable. The Task Force has also stated that, with a few exceptions, repeat tuberculin surveys do not provide a reliable estimate of the trend in TB incidence.[1]

4.1 Estimating TB incidence from estimates of the proportion of cases detected

Notification data for new and recurrent cases have been analysed in combination with evidence about the coverage of the TB surveillance system and expert opinion in six regional workshops and country missions held during the period 2009–2012, according to a framework developed by the WHO Global Task Force on TB Impact Measurement (**Figure 2.2**, **Chapter 2**). By May 2012, these workshops and country missions had covered 96 countries (**Figure 2.1**, **Chapter 2**).

For the 96 countries covered by these regional workshops and country missions, incidence was estimated according to the following equation:

$$\text{incidence} = \frac{\text{case notifications}}{1 - \text{underreporting}}$$

Expert opinion about the proportion of TB cases[2] that were not reported was elicited for three reference years (1997, 2003 and, depending on when the workshop was held, 2008, 2009, 2010 or 2011). This was done following in-depth analysis of notification data (including data from sub-national administrative levels), programmatic data reflecting efforts in TB control (for example, data on infrastructure, staffing, the performance of services and funding) and (where available) data from inventory studies.[3] In addition, data on access to health care from Demographic and Health Surveys and the overall performance of health systems (using indicators such as the infant mortality rate) were used to substantiate opinion on the proportion of cases with no or very limited access to health care (**Table A1.2**). Results from inventory studies combined with capture-recapture modelling were used to estimate the gap between notified cases and TB

[1] *TB impact measurement: policy and recommendations for how to assess the epidemiological burden of TB and the impact of TB control*. Geneva, World Health Organization, 2009 (Stop TB policy paper, no. 2 (WHO/HTM/TB/2009.416).

[2] Defined as cases of all forms of TB, including sputum smear-positive pulmonary cases, sputum smear-negative pulmonary cases and extrapulmonary cases.

[3] Measurements from "inventory" studies can be used to quantify the number of cases that are diagnosed but not reported to national surveillance systems.

TABLE A1.2 **Sources of information and data on TB incidence used in regional workshops and country missions**

POSSIBLE CATEGORIES OF INCIDENT CASES	SOURCES OF DATA	
Do not have physical or financial access to health care	Demographic and health surveys, KABP[a] surveys	Capture–recapture modelling
Seek care, but TB not diagnosed	Survey	
TB diagnosed, but not reported	"Inventory" survey	
Reported cases	TB surveillance	

[a] KABP = knowledge, attitudes, behaviour and practices.

incidence in three countries that participated in regional workshops: Egypt, Iraq and Yemen.

A full description of the methods used in these workshops is available in a report of the workshop held for countries in the African Region (in Harare, Zimbabwe, December 2010).[1]

Distributions of the proportion of cases that were not reported in the three reference years were assumed to follow a Beta distribution (Table A1.3). Reasons for using Beta distributions include the following:

- They are continuous and defined on the interval (0, 1). Since the variance of the proportions of cases that were not reported tend to be large as a result of high uncertainty, random draws of numbers from a normal distribution would yield numbers outside the interval (0, 1). The use of truncated normal distributions may result in excess density towards one of the bounds.
- They are not necessarily symmetrical.
- They are defined with two parameters that can be estimated from available data using the method of moments.[2]

The shape and scale parameters necessary to define the Beta distribution were computed using the method of moments, as follows:

First, the variance for the distribution was taken as:

$$V = \frac{u - l}{4}$$

where l and u are the lower and upper bounds of the plausible range for the proportion of incident cases that were reported (also referred to as the case detection rate in Chapter 3).

Shape 1 (noted α) and 2 (noted β) follow from:

$$s = \frac{E(1 - E)}{V} - 1$$

$$\alpha = sE$$

$$\beta = s(1 - E)$$

where E is the expected value of the distribution.

Time series for the period 1990–2011 were built according to the characteristics of the levels of underreporting that were estimated for the three reference years. A cubic spline extrapolation of V and E, with knots set at the reference years, was used for countries with low-level or concentrated HIV epidemics. In countries with a generalized HIV epidemic, the trajectory of incidence from 1990 to the first reference year (usually 1997) was based on the annual rate of change in HIV prevalence. Incidence trajectories were derived from the series of notified TB cases using Monte Carlo simulations from which expected values, 2.5th and 97.5th centiles were extracted. All computations were conducted in the R statistical environment.[3]

In two countries, incidence rates were estimated to be similar to those in a neighbouring country because information from surveillance systems was insufficient: estimates for West Bank and Gaza Strip were extrapolated from estimates for Jordan and estimates for South Sudan were extrapolated from estimates for Sudan. The estimates for West Bank and Gaza Strip and South Sudan should therefore be considered as preliminary.

Trends in incidence were derived from repeat tuberculin survey results in Bhutan, India and Yemen and for 40 countries (including countries in Eastern Europe) from trends in mortality.

If there were insufficient data to determine the factors leading to time-changes in case notifications, incidence was assumed to follow a horizontal trend going through the most recent estimate of incidence.

4.2 Estimating TB incidence from data on case notifications and expert opinion for high-income countries

For high-income countries, the level of TB incidence was assumed to be distributed between the notification rate for new and recurrent cases combined (lower uncertainty bound, noted l) and 1.3 times the notification rate (upper uncertainty bound, noted u), as informed by expert opinion. The distribution of incidence was assumed to follow a Beta distribution with shape and scale parameters computed using the method of moments, as described above.

In the absence of country-specific data on the quality and coverage of TB surveillance systems, it was assumed that TB surveillance systems from countries in the high-income group performed similarly well, although the model does allow for stochastic fluctuations. The excep-

[1] See www.who.int/tb/advisory_bodies/impact_measurement_taskforce.
The tools (called TISAT and the Workbook) used in regional workshops and country missions are also available on the Task Force's web site.

[2] Rényi A. *Probability theory*. New York, Dover Publications Inc., 2007.

[3] R Development Core Team. R: a language and environment for statistical computing. Vienna, R Foundation for Statistical Computing, 2009 (www.R-project.org).

TABLE A1.3 **Parameter estimates used to produce estimates of TB incidence, prevalence and mortality**

MODEL PARAMETER	DISTRIBUTION	DISTRIBUTION PARAMETERS[b]
Incidence, high-income countries	Beta[a]	$\alpha = \bar{I} \cdot \left[\frac{\bar{I}(1-\bar{I})}{V} - 1 \right]$ $\beta = (1-\bar{I}) \cdot \left[\frac{\bar{I}(1-\bar{I})}{V} - 1 \right]$ *where $\bar{I}$ was set at 1.3 times the notification rate, noted N, and V is defined by:* $V = \left[\frac{0.3}{4} N \right]^2$
HIV prevalence among incident TB	Beta[a]	$\alpha = \bar{x} \cdot \left[\frac{\bar{x}(1-\bar{x})}{V} - 1 \right]$ $\beta = (1-\bar{x}) \cdot \left[\frac{\bar{x}(1-\bar{x})}{V} - 1 \right]$ *Where $\bar{x}$ is the expected value and V is given by:* $V = \left[\frac{u-l}{4} \right]^2$
Duration of disease, non-notified HIV-negative cases of TB	Uniform	l = 1, u = 4 (years)
Duration of disease, non-notified HIV-positive cases of TB	Uniform	l = 0.01, u = 0.2 (years)
Duration of disease, notified HIV-negative cases of TB	Uniform	l = 0.2, u = 2 (years)
Duration of disease, notified HIV-positive cases of TB	Uniform	l = 0.01, u = 1 (years)

[a] The probability density function of the Beta distribution is: $f(x; \alpha, \beta) = \frac{x^{\alpha-1}(1-x)^{\beta-1}}{\int_0^1 t^{\alpha-1}(1-t)^{\beta-1} dt}$

[b] u and l denote upper and lower bounds.

tions were the United Kingdom of Great Britain and Northern Ireland and the Netherlands, where the under-reporting of TB cases has been measured using inventory studies and capture-recapture modelling.[1,2] For these two countries, the results from these studies were used to measure TB incidence directly.

4.3 Estimating TB incidence from empirical measurements of disease prevalence

Incidence can be estimated using measurements from national surveys of the prevalence of TB disease combined with estimates of the duration of disease. Incidence is estimated as the prevalence of TB divided by the average duration of disease.

In practice, the duration of disease cannot be directly measured. For example, measurements of the duration of symptoms in prevalent TB cases that are detected during a prevalence survey are systematically biased towards lower values, since active case-finding truncates the natural history of undiagnosed disease. Measurements of the duration of disease in notified cases ignore the duration of disease among non-notified and untreated cases.

Literature reviews commissioned by the WHO Global Task Force on TB Impact Measurement have provided estimates of the duration of disease in untreated TB cases from the pre-chemotherapy era (before the 1950s). The best estimate of the mean duration of disease (for smear-positive cases and smear-negative cases combined) in HIV-negative individuals is about three years. However, the proportion of incident cases that remain untreated is unknown. There are few data on the duration of disease in HIV-positive individuals.

When measurements from two prevalence surveys were available, trends in TB prevalence were derived by fitting a log-linear model to available measurements. When three or more prevalence measurements were available, the prevalence trajectory was built using cubic

[1] *Tuberculosis in the UK: annual report on tuberculosis surveillance in the UK 2010. London, Health Protection Agency Centre for Infections, 2010* (also available at: **www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1287143581697**; accessed July 2011).

[2] van Hest NA et al. Completeness of notification of tuberculosis in The Netherlands: how reliable is record-linkage and capture–recapture analysis? *Epidemiology and Infection*, 2007, 135(6):1021–1029.

spline interpolation. If only one prevalence survey measurement was available, time-trends were assessed using in-depth analysis of surveillance data, as described above.

In this report, the prevalence to incidence method was used for three countries: Ethiopia, Laos and Viet Nam.

4.4 Disaggregations of TB incidence

In this report, TB incidence is only disaggregated by HIV-infection status (see following section). The estimation of smear-positive TB incidence was discontinued in 2010, for reasons explained in detail in the global report published in 2010.

4.5 Estimates of HIV prevalence among incident TB cases, 1990–2011

The prevalence of HIV among incident cases of TB was directly estimated from country-specific and empirical data wherever possible, with missing data imputed to complete time series using methods similar to those described in Section 3.1. For the estimates published in this report, suitable data (as defined in Table A1.4) were available for a total of 639 country-year data points. When data from several data sources were available for the same country-year, one source was retained based on knowledge about the underlying quality of data, consistency with adjacent time points or with expectations. In general, national surveys of HIV prevalence in newly detected TB cases took precedence over the other two sources unless the reported numbers were judged not plausible (in general due to data entry errors that could not be corrected in time for use in this report). The least reliable data source was considered to be HIV sentinel surveillance systems as these do not generally provide nationally representative data on TB cases.

TABLE A1.4 Sources of data on HIV prevalence among incident TB cases

DIRECT MEASUREMENT OF THE PREVALENCE OF HIV IN TB PATIENTS	NUMBER OF COUNTRY-YEARS
National surveys	20
HIV sentinel surveillance	26
Provider-initiated testing and counselling with at least 50% coverage of testing	593
Total	**639**

Provider-initiated testing and counselling with at least 50% HIV testing coverage is the most widely available source of information on the prevalence of HIV in TB patients. However, this source of data is affected by biases, particularly when coverage is closer to 50% than to 100%. In all countries with repeat data from testing, the relationship between the prevalence of HIV in TB patients and the coverage of HIV testing was examined graphically. In some countries, the prevalence of HIV in TB patients was found to decrease with increasing HIV testing coverage while in others it increased with increasing HIV testing coverage; in most countries, the prevalence of HIV followed highly inconsistent patterns (with repeat changes in direction) as HIV testing coverage increased. Therefore, it was not possible to adjust for the effect of incomplete coverage of HIV testing on estimates of the prevalence of HIV among TB patients. The assumption was thus made that TB patients with an HIV test result were statistically representative of all TB cases. As coverage of HIV testing continues to increase globally, biases will decrease.

For the 4047 country-year data points for which surveillance data were either not available or for which the percentage of TB patients tested for HIV was below 50%, the prevalence of HIV was estimated indirectly according to the following equation:

$$t = \frac{h\rho}{1 + h(\rho - 1)}$$

In this equation, t is HIV prevalence among incident TB cases, h is HIV prevalence among the general population (from the latest time-series provided by UNAIDS) and ρ is the incidence rate ratio (IRR) (defined as the incidence rate of TB in HIV-positive people divided by the incidence rate of TB in HIV-negative people). We then let logit(t) be log(t/(1-t)) and logit(h) be log(h/(1-h)). Using data from countries where HIV prevalence has been estimated by UNAIDS as an independent variable, a linear model of logit-transformed t was fitted using logit-transformed h according to the following equation, written in matrix notation:

$$\hat{T} = X\beta$$

where $\hat{T}$ is a vector of predicted logit(t), X is an n x 2 matrix in which the first column holds 1s, and the second column holds logit(h). The vector β holds estimated model parameters. Models were tested with lags set for logit(h) ranging from no lag to a lag of 8 years. The best fit was obtained with a lag of one year.

Models were run using Monte Carlo simulations in which h was drawn randomly from a Beta distribution with shape parameters computed as described in Section 4.1, (low and high uncertainty bounds are provided by UNAIDS – also see Table A1.3). The model was run 50 000 times using country-specific distributions for H and T (noted in capital letters to denote vectors or matrices) based on their uncertainty intervals. The uncertainty bounds for β were chosen as the 2.5th and 97.5th centiles.

The source of data used for each country is available upon request from tbdata@who.int.

5. Estimates of TB prevalence, 1990–2011

The best way to measure the prevalence of TB is through national population-based surveys of TB disease.[1,2] Data from such surveys are available for an increasing number of countries (Chapter 2). It should be noted, however, that measurements of prevalence are typically confined to the adult population. Furthermore, prevalence surveys exclude extrapulmonary cases and do not allow the diagnosis of cases of culture-negative pulmonary TB.

When there is no direct measurement from a national survey of the prevalence of TB disease, prevalence is the most uncertain of the three TB indicators used to measure disease burden. This is because prevalence is the product of two uncertain quantities: (i) incidence and (ii) disease duration. The duration of disease is very difficult to quantify because it cannot be measured during surveys of the prevalence of TB disease (surveys truncate the natural history of disease). Duration can be assessed in self-presenting patients, but there is no practical way to measure the duration of disease in patients who are not notified to NTPs.

Indirect estimates of prevalence were calculated according to the following equation:

$$P = \sum I_{i,j} d_{i,j},\ i \in \{1,2\},\ j \in \{1,2\}$$

where the index variable i denotes HIV+ and HIV–, the index variable j denotes notified and non-notified cases, d denotes the duration of disease in notified cases and I is total incidence. In the absence of measurements, we did not allow duration in notified cases to vary among countries. Given their underlying uncertainty, prevalence estimates should be used with great caution in the absence of direct measurements from a prevalence survey. Unless measurements were available from national programmes (for example, Turkey), assumptions of the duration of disease were used as shown in the last four rows of Table A1.3.

6. Estimates of the number of cases of MDR-TB

6.1 Proportion of notified cases of TB that have MDR-TB, 2011

Global and regional estimates of the proportion of new and retreatment cases of TB that had MDR-TB in 2011 were calculated using country-level information. If countries had reported data on the proportion of new and retreatment cases of TB that have MDR-TB from routine surveillance or a survey of drug resistance the latest available information was used. For countries that have not reported such data, estimates of the proportion of new and retreatment cases of TB that have MDR-TB were produced using modelling (including multiple imputation) that was based on data from countries for which data do exist. Estimates for countries without data were based on countries that were considered to be similar in terms of TB epidemiology (for country groups see Appendix 1). The observed and imputed estimates of the proportion of new and retreatment cases of TB that have MDR-TB were then pooled to give a global estimate, with countries weighted according to their share of global notifications of new and retreatment cases.

6.2 Numbers of prevalent cases of MDR-TB, 2011

The global estimate of the number of prevalent cases of MDR-TB in 2011 was derived in two steps. First, the weighted average of the proportion of new and retreatment notified cases that had MDR-TB was computed, to give an estimate of the proportion of all notified cases that had MDR-TB. This combined proportion was then multiplied by the estimated global prevalence of TB in the general population, under the assumption that the proportion of all cases that have MDR-TB was the same as the proportion of notified cases that have MDR-TB.

Country-specific estimates of the number of prevalent cases of MDR-TB in 2011 were not computed because only a few countries have directly measured the prevalence of TB in a population-based survey, and even among these countries data on the proportion of culture-positive pulmonary cases that had MDR-TB were not always available. To date, direct measurements of the number of prevalent cases of MDR-TB are available only for China, although several upcoming surveys will include assessments of drug resistance. In the absence of direct measurements at country level, country-specific estimates of the prevalence of MDR-TB suffer from much greater uncertainty compared with the uncertainty that surrounds global averages.

6.3 XDR-TB or fluoroquinolone resistance among patients with MDR-TB

Using data from 67 countries, global estimates were calculated for the following proportions: (i) patients with MDR-TB who had XDR-TB; (ii) patients with MDR-TB who had fluoroquinolone resistance; and (iii) patients with MDR-TB who had fluoroquinolone resistance but not XDR-TB. Proportion of second-line drug and fluoroquinolone resistance testing of MDR-TB cases among these countries has a median of 1 and an interquartile range of (0.97–1). The latest available national and subnational data from each country were analysed using logistic regression models with robust standard errors to account for the clustering effect at the level of the country or territory.

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[1] Glaziou P et al. Tuberculosis prevalence surveys: rationale and cost. *International Journal of Tuberculosis and Lung Disease*, 2008, 12(9):1003–1008.

[2] *TB prevalence surveys: a handbook*. Geneva, World Health Organization, 2011 (WHO/HTM/TB/2010.17).

7. Projections of incidence, prevalence and mortality up to 2015

Projections of TB incidence, prevalence and mortality rates up to 2015 enable assessment of whether global targets set for 2015 are likely to be achieved at global, regional and country levels. Projections for the years 2011–2015 were made using exponential smoothing models fitted to data from 2005–2011.

8. Estimation of uncertainty

There are many potential sources of uncertainty associated with estimates of TB incidence, prevalence and mortality, as well as estimates of the burden of HIV-associated TB and MDR-TB. These include uncertainties in input data, in parameter values, in extrapolations used to impute missing data, and in the models used.

We used fixed population values from the UNPD. We did not account for any uncertainty in these values.

Notification data are of uneven quality. Cases may be underreported (for example, missing quarterly reports from remote administrative areas are not uncommon), misclassified (in particular, misclassification of recurrent cases in the category of new cases is common), or overreported as a result of duplicated entries in TB information systems. The latter two issues can only be addressed efficiently in countries with case-based nationwide TB databases that include patient identifiers. Sudden changes in notifications over time are often the result of errors or inconsistencies in reporting, but may sometimes reflect abrupt changes in TB epidemiology (for example, resulting from a rapid influx of migrants from countries with a high burden of TB, or from rapid improvement in case-finding efforts).

Missing national aggregates of new and recurrent cases were imputed by interpolation. Notification trajectories were smoothed using a penalized cubic splines function with parameters based on the data. Attempts to obtain corrections for historical data are made every year, but only rarely do countries provide appropriate data corrections.

Mortality estimates incorporated the following sources of uncertainty: sampling uncertainty in the underlying measurements of TB mortality rates from data sources, uncertainty in estimates of incidence rates and rates of HIV prevalence among both incident and notified TB cases, and parameter uncertainty in the Bayesian model. Time-series of TB mortality were generated for each country through Monte Carlo simulations.

Unless otherwise specified, uncertainty bounds and ranges were defined as the 2.5th and 97.5th centiles of outcome distributions. Throughout this report, ranges with upper and lower bounds defined by these centiles are provided for all estimates established with the use of simulations. When uncertainty was established with the use of observed or other empirical data, 95% confidence intervals are reported.

The model used the following sequence: (1) cleaning and adjustment of raw mortality data from VR systems, followed by imputation of missing values in countries with VR data; (2) cleaning and adjustment of measurements of HIV prevalence among TB patients followed by imputation of missing values in countries with measurements of HIV prevalence in TB patients; (3) estimation of HIV prevalence among incident cases of TB through modelling in countries with no measurements; (4) TB incidence estimation; (5) estimation of TB mortality in countries with no VR data; (6) estimation of HIV-associated TB mortality; (7) estimation of prevalence.

The general approach to uncertainty analyses was to draw values from specified distributions for every parameter (except for notifications and population values) in Monte Carlo simulations, with the number of simulation runs set so that they were sufficient to ensure stability in the outcome distributions. For each country, the same random generator seed was used for every year, and errors were assumed to be time-dependent within countries (thus generating autocorrelation in time-series). Regional parameters were used in some instances (for example, for CFRs). Summaries of quantities of interest were obtained by extracting the 2.5th, 50th and 97.5th centiles of posterior distributions. Wherever possible, uncertainty was propagated analytically by approximating the moments of functions of random variables using Taylor expansions – such as when taking the product or the ratio of two random variables – rather than through Monte Carlo simulations.

Appendix 1. Epidemiological regions used for analyses

Africa – countries with high HIV prevalence: Botswana, Burundi, Cameroon, the Central African Republic, the Congo, Côte d'Ivoire, the Democratic Republic of the Congo, Ethiopia, Gabon, Kenya, Lesotho, Malawi, Mozambique, Namibia, Nigeria, Rwanda, South Africa, South Sudan, Swaziland, Uganda, the United Republic of Tanzania, Zambia, Zimbabwe.

Africa – countries with low HIV prevalence: Algeria, Angola, Benin, Burkina Faso, Cape Verde, Chad, the Comoros, Djibouti, Eritrea, the Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Madagascar, Mali, Mauritania, Mauritius, the Niger, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, Sudan, Togo.

Central Europe: Albania, Bosnia and Herzegovina, Montenegro, Serbia, the former Yugoslav Republic of Macedonia, Turkey.

Eastern Europe: Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania,

the Republic of Moldova, Romania, the Russian Federation, Tajikistan, Turkmenistan, Ukraine, Uzbekistan.

High-income countries: Andorra, Aruba, Australia, Austria, the Bahamas, Bahrain, Barbados, Belgium, Bermuda, Brunei Darussalam, Canada, the Cayman Islands, China, Hong Kong SAR, China Macao SAR, Croatia, Cyprus, the Czech Republic, Denmark, Equatorial Guinea, Estonia, Finland, France, French Polynesia, Germany, Greece, Greenland, Guam, Hungary, Iceland, Ireland, Israel, Italy, Japan, Kuwait, Luxembourg, Malta, Monaco, the Netherlands, the Netherlands Antilles, New Caledonia, New Zealand, Northern Mariana Islands, Norway, Oman, Poland, Portugal, Puerto Rico, Qatar, the Republic of Korea, Saint Kitts and Nevis, San Marino, Saudi Arabia, Singapore, Slovakia, Slovenia, Spain, Sweden, Switzerland, Trinidad and Tobago, the Turks and Caicos Islands, US Virgin Islands, United Arab Emirates, the United Kingdom, the United States.

Eastern Mediterranean: Afghanistan, Egypt, Iran (Islamic Republic of), Iraq, Jordan, Lebanon, Libya, Morocco, Pakistan, Syrian Arab Republic, Tunisia, West Bank and the Gaza Strip, Yemen,

Latin America: Anguilla, Antigua and Barbuda, Argentina, Belize, Bolivia (Plurinational State of), Bonaire, Saint Eustatius and Saba, Brazil, British Virgin Islands, Chile, Colombia, Costa Rica, Cuba, Curaçao, Dominica, the Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Montserrat, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Sint Maarten (Dutch part), Suriname, Uruguay, Venezuela (Bolivarian Republic of).

South East Asia: Bangladesh, Bhutan, Democratic People's Republic of Korea, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand, Timor-Leste.

West Pacific: American Samoa, Cambodia, China, Cook Islands, Fiji, Kiribati, Lao People's Democratic Republic, Malaysia, Marshall Islands, Micronesia (Federated State of), Mongolia, Nauru, Niue, Palau, Papua New Guinea, the Philippines, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, Viet Nam, Wallis and Futuna Islands.

ANNEX 2

Country profiles

AFGHANISTAN

Population 2011 **32 million**

HIGH TB BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	13 (5.3–23)	39 (16–71)
Prevalence (includes HIV+TB)	110 (55–190)	351 (169–597)
Incidence (includes HIV+TB)	61 (51–73)	189 (156–225)
Incidence (HIV+TB)	0.30 (0.18–0.45)	0.93 (0.56–1.4)
Case detection, all forms (%)	46 (38–55)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	13 789	(51)	Relapse	1 130	(86)
Smear-negative	4 166	(16)	Treatment after failure	136	(10)
Smear-unknown/not done	1 989	(7)	Treatment after default	48	(4)
Extrapulmonary	6 286	(23)	Other		
Other	623	(2)			
Total new	26 853		Total retreatment	1 314	
Other (history unknown)					
Total new and relapse	27 983		Total cases notified	28 167	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	0.5	1.1	
Age < 15	669	1 753	

Laboratories

	2011
Smear (per 100 000 population)	1.9
Culture (per 5 million population)	0.5
Drug susceptibility testing (per 5 million population)	
Is second-line drug susceptibility testing available?	Yes, outside country
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	90	Is rifampicin used throughout treatment for new patients?	No
New smear-negative/extrapulmonary	82		
Retreatment	79		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	6 445	(23)
HIV-positive TB patients	5	(<1)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	4	(80)
HIV-positive TB patients on antiretroviral therapy (ART)	4	(80)
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	3.4 (0.10–11)	29 (2.6–56)
MDR-TB cases among notified pulmonary TB cases	700 (21–2 300)	380 (34–730)

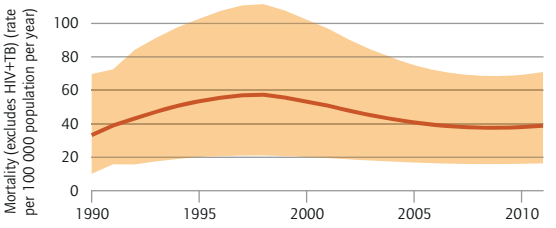
Reported cases of MDR-TB 2011

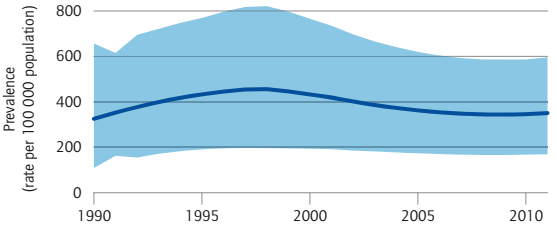
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB			268
Laboratory-confirmed MDR-TB cases			19
Patients started on MDR-TB treatment			21

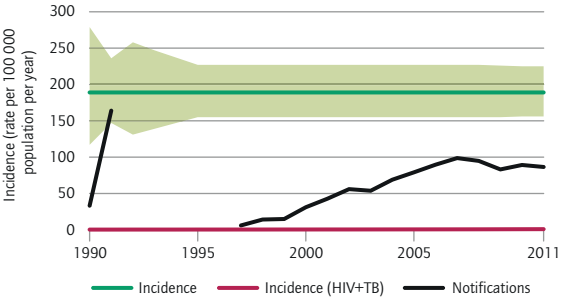
Financing TB control

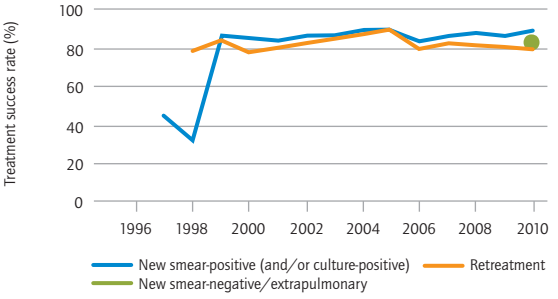
	2012	2013
Total budget (US$ millions)	11	11
Available funding (US$ millions)	5.9	3.7
% of budget funded	53	34
% available funding from domestic sources	6	10
% available funding from the Global Fund	48	60

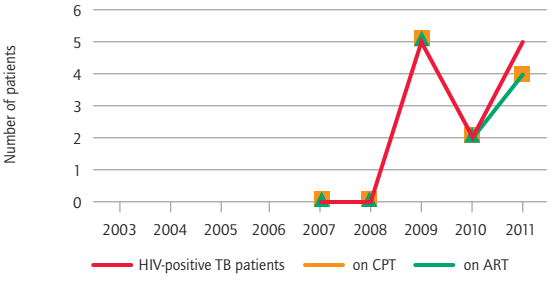
[a] Ranges represent uncertainty intervals.

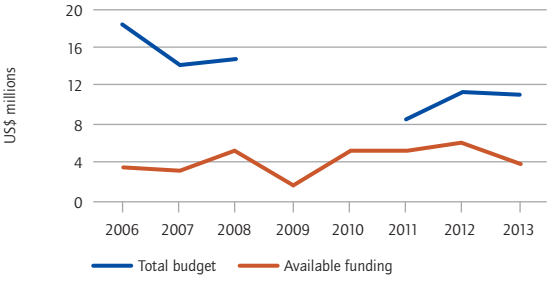












BANGLADESH

Population 2011 **150 million**

HIGH TB BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	68 (29–120)	45 (19–82)
Prevalence (includes HIV+TB)	620 (300–1 100)	411 (199–698)
Incidence (includes HIV+TB)	340 (280–400)	225 (185–268)
Incidence (HIV+TB)	0.63 (0.34–1.0)	0.42 (0.23–0.67)
Case detection, all forms (%)	45 (37–54)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	98 948	(67)	Relapse	2 701	(37)
Smear-negative	21 921	(15)	Treatment after failure	886	(12)
Smear-unknown/not done	0	(0)	Treatment after default	320	(4)
Extrapulmonary	27 329	(18)	Other	3 459	(47)
Other	0	(0)			
Total new	148 198		Total retreatment	7 366	
Other (history unknown)	3 459				
Total new and relapse	150 899		Total cases notified	159 023	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	2.0	1.9	1.0
Age < 15	932	1 152	2 583

Laboratories

	2011
Smear (per 100 000 population)	0.7
Culture (per 5 million population)	<0.1
Drug susceptibility testing (per 5 million population)	<0.1
Is second-line drug susceptibility testing available?	Yes, outside country
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	92	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary	89		
Retreatment	80		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	1 900	(1)
HIV-positive TB patients	81	(4)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	81	(100)
HIV-positive TB patients on antiretroviral therapy (ART)	81	(100)
HIV-positive people screened for TB	69	
HIV-positive people provided with IPT	0	

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	1.4 (0.70–2.5)	29 (24–34)
MDR-TB cases among notified pulmonary TB cases	1 700 (850–3 000)	2 100 (1 700–2 500)

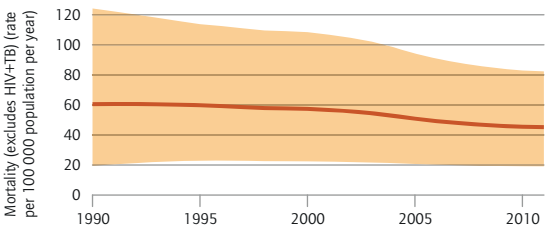
Reported cases of MDR-TB 2011

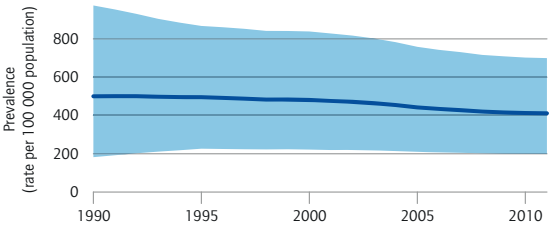
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	71 (<1%)	761 (10%)	856
Laboratory-confirmed MDR-TB cases	12	437	509
Patients started on MDR-TB treatment			390

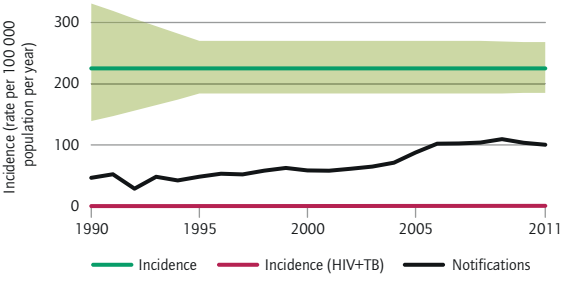
Financing TB control

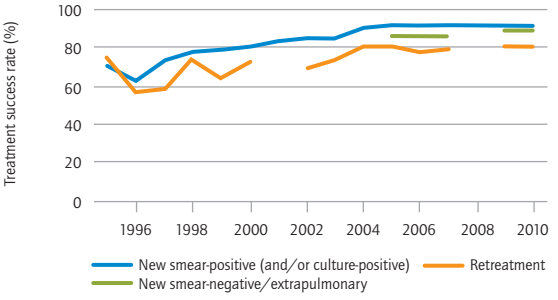
	2012	2013
Total budget (US$ millions)	48	50
Available funding (US$ millions)	16	16
% of budget funded	33	33
% available funding from domestic sources	7	7
% available funding from the Global Fund	93	93

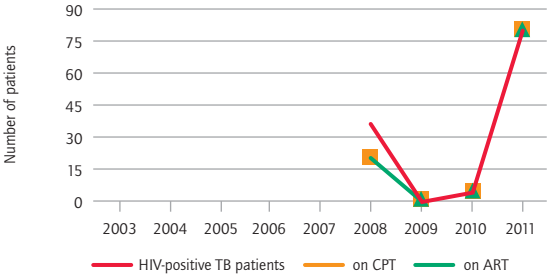
[a] Ranges represent uncertainty intervals.

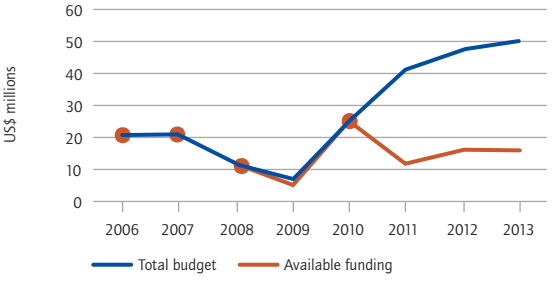












HIGH TB BURDEN | HIGH HIV BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	5.6 (4.6–6.8)	2.9 (2.3–3.4)
Prevalence (includes HIV+TB)	91 (36–170)	46 (18–87)
Incidence (includes HIV+TB)	83 (69–97)	42 (35–50)
Incidence (HIV+TB)	16 (13–19)	8.2 (6.8–9.7)
Case detection, all forms (%)	91 (77–110)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	40 294	(56)	Relapse	3 555	(35)
Smear-negative	12 683	(18)	Treatment after failure	199	(2)
Smear-unknown/not done	8 278	(12)	Treatment after default	3 344	(33)
Extrapulmonary	10 067	(14)	Other	2 947	(29)
Other	15	(<1)			
Total new	71 337		Total retreatment	10 045	
Other (history unknown)	2 755				
Total new and relapse	74 892		Total cases notified	84 137	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	2.2	1.9	1.5
Age < 15	692	1 243	580

Laboratories

	2011
Smear (per 100 000 population)	2.0
Culture (per 5 million population)	7.8
Drug susceptibility testing (per 5 million population)	1.1
Is second-line drug susceptibility testing available?	Yes, in country
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	74	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary	69		
Retreatment	46		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	49 091	(58)
HIV-positive TB patients	9 575	(20)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)		
HIV-positive TB patients on antiretroviral therapy (ART)	8 850	(92)
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	0.91 (0.55–1.4)	5.4 (4.0–7.2)
MDR-TB cases among notified pulmonary TB cases	560 (340–870)	540 (400–730)

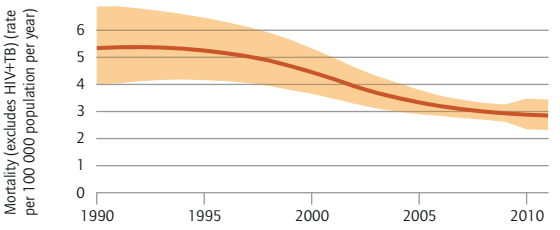
Reported cases of MDR-TB 2011

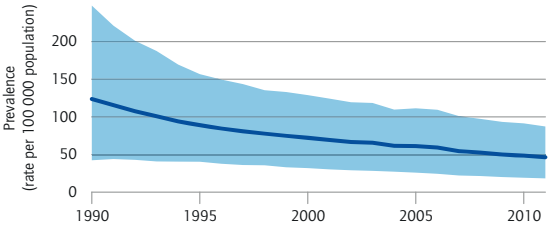
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	21 (<1%)	604 (6%)	625
Laboratory-confirmed MDR-TB cases	18	548	566
Patients started on MDR-TB treatment			630

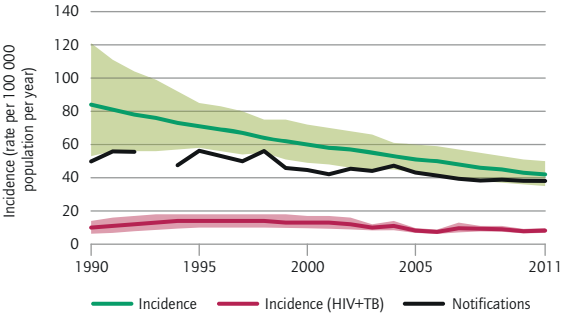
Financing TB control

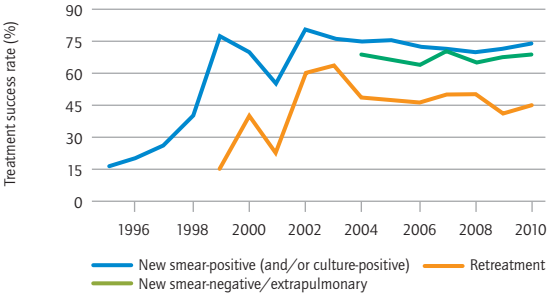
	2012	2013
Total budget (US$ millions)	86	86
Available funding (US$ millions)	77	70
% of budget funded	91	82
% available funding from domestic sources	91	
% available funding from the Global Fund	1	

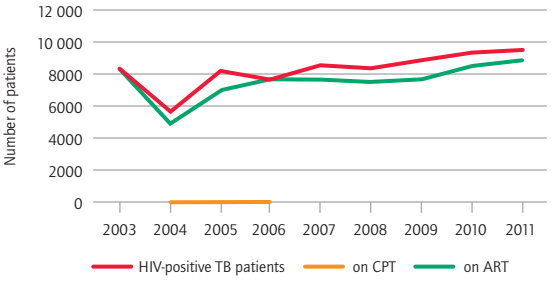
[a] Ranges represent uncertainty intervals.

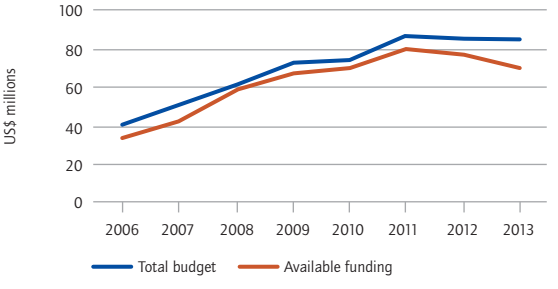












HIGH TB BURDEN | HIGH HIV BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	9.1 (4.2–16)	63 (29–111)
Prevalence (includes HIV+TB)	120 (99–140)	817 (690–954)
Incidence (includes HIV+TB)	61 (52–70)	424 (364–489)
Incidence (HIV+TB)	3.1 (2.6–3.6)	22 (18–25)
Case detection, all forms (%)	64 (55–74)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	15 812	(41)	Relapse	367	(25)
Smear-negative	7 686	(20)	Treatment after failure	49	(3)
Smear-unknown/not done	0	(0)	Treatment after default	30	(2)
Extrapulmonary	14 690	(38)	Other	1 036	(70)
Other	0	(0)			
Total new	38 188		Total retreatment	1 482	
Other (history unknown)	0				
Total new and relapse	38 555		Total cases notified	39 670	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	1.2		
Age < 15	73		

Laboratories

	2011
Smear (per 100 000 population)	1.5
Culture (per 5 million population)	1.0
Drug susceptibility testing (per 5 million population)	0.3
Is second-line drug susceptibility testing available?	Yes, outside country
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	94	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary	85		
Retreatment	75		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	32 544	(82)
HIV-positive TB patients	1 650	(5)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	1 456	(88)
HIV-positive TB patients on antiretroviral therapy (ART)	1 306	(79)
HIV-positive people screened for TB	4 747	
HIV-positive people provided with IPT	1 305	

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	1.4 (0.71–2.5)	11 (4.0–22)
MDR-TB cases among notified pulmonary TB cases	330 (170–590)	160 (60–320)

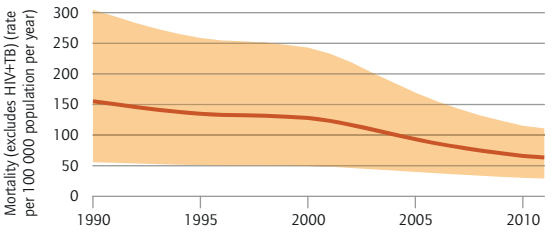
Reported cases of MDR-TB 2011

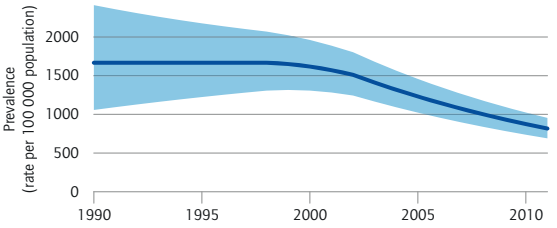
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	18 (<1%)	190 (13%)	208
Laboratory-confirmed MDR-TB cases	0	56	56
Patients started on MDR-TB treatment			57

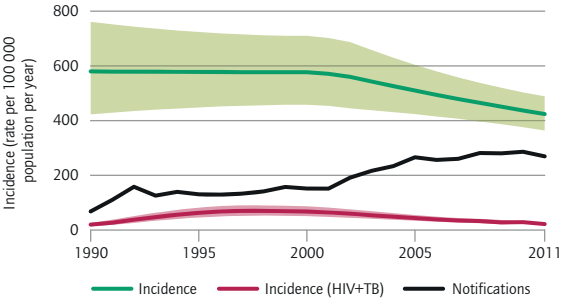
Financing TB control

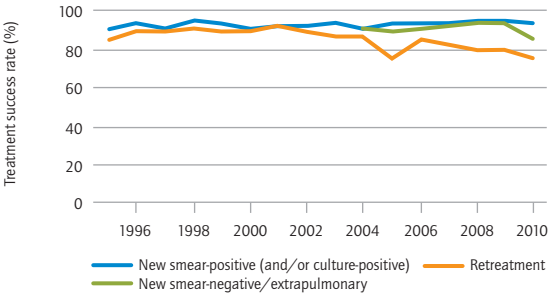
	2012	2013
Total budget (US$ millions)	25	25
Available funding (US$ millions)	10	8.8
% of budget funded	42	35
% available funding from domestic sources	9	12
% available funding from the Global Fund	55	33

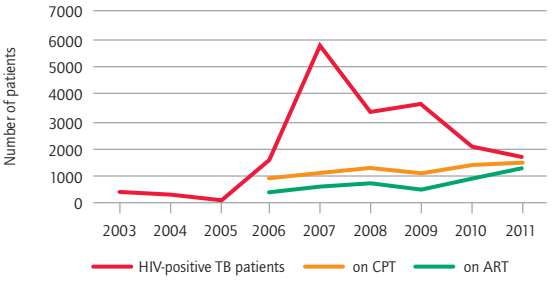
[a] Ranges represent uncertainty intervals.

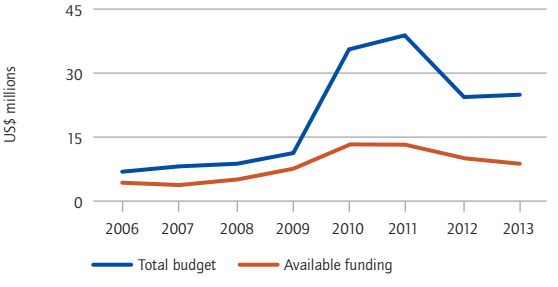












HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	47 (45–49)	3.5 (3.4–3.6)
Prevalence (includes HIV+TB)	1 400 (1 200–1 600)	104 (91–119)
Incidence (includes HIV+TB)	1 000 (890–1 100)	75 (66–85)
Incidence (HIV+TB)	13 (8.6–17)	0.93 (0.63–1.3)
Case detection, all forms (%)	89 (79–100)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	377 005	(44)	Relapse	34 610	(74)
Smear-negative	479 486	(55)	Treatment after failure	2 499	(5)
Smear-unknown/not done	2 028	(<1)	Treatment after default	886	(2)
Extrapulmonary	6 540	(<1)	Other	8 830	(19)
Other	0	(0)			
Total new	865 059		Total retreatment	46 825	
Other (history unknown)	0				
Total new and relapse	899 669		Total cases notified	911 884	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	2.6	2.1	0.8
Age < 15	1 378	4 165	256

Laboratories

	2011
Smear (per 100 000 population)	0.2
Culture (per 5 million population)	2.2
Drug susceptibility testing (per 5 million population)	0.7
Is second-line drug susceptibility testing available?	Yes, in country
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	96	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary	94		
Retreatment	90		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	208 681	(23)
HIV-positive TB patients	4 715	(2)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)		
HIV-positive TB patients on antiretroviral therapy (ART)	1 677	(36)
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	5.7 (4.6–7.1)	26 (22–30)
MDR-TB cases among notified pulmonary TB cases	49 000 (39 000–61 000)	12 000 (10 000–14 000)

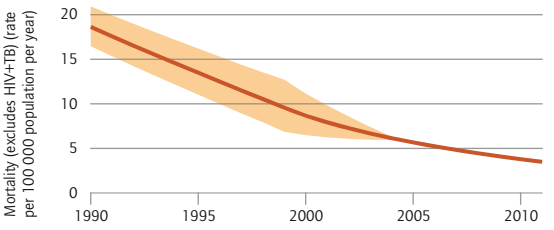
Reported cases of MDR-TB 2011

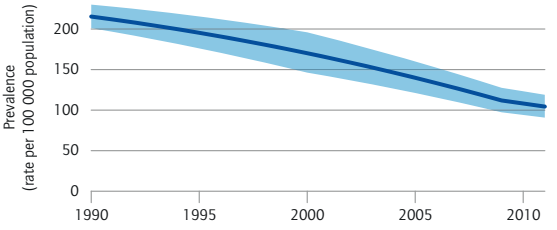
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	9 940 (3%)		13 349
Laboratory-confirmed MDR-TB cases	382	577	1 601
Patients started on MDR-TB treatment			1 155

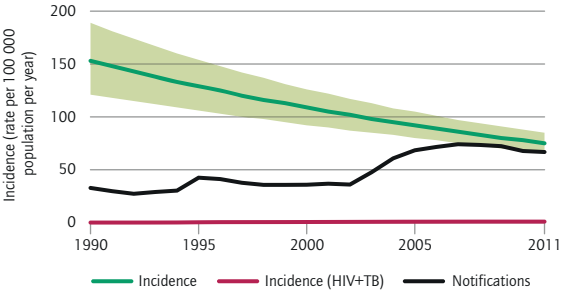
Financing TB control

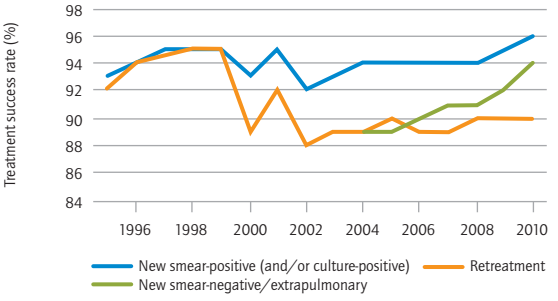
	2012	2013
Total budget (US$ millions)	367	341
Available funding (US$ millions)	313	286
% of budget funded	85	84
% available funding from domestic sources	67	83
% available funding from the Global Fund	33	17

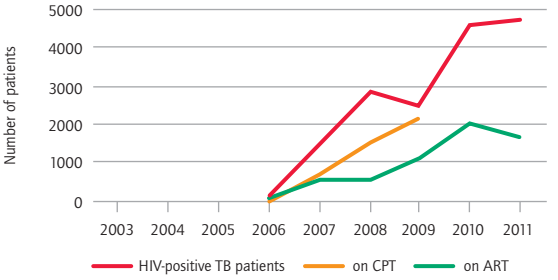
[a] Ranges represent uncertainty intervals.

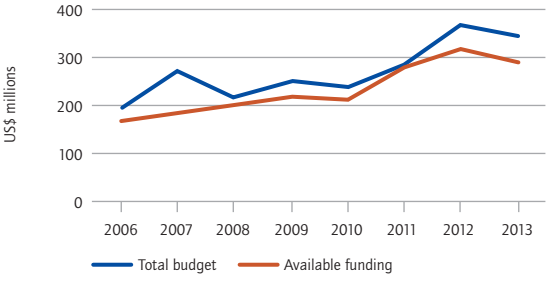












DEMOCRATIC REPUBLIC OF THE CONGO

Population 2011 **68 million**

HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	36 (16–65)	54 (24–96)
Prevalence (includes HIV+TB)	350 (180–570)	512 (263–842)
Incidence (includes HIV+TB)	220 (190–250)	327 (282–375)
Incidence (HIV+TB)	34 (27–41)	49 (40–60)
Case detection, all forms (%)	50 (43–58)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	71 321	(67)	Relapse	3 761	(47)
Smear-negative	13 471	(13)	Treatment after failure	573	(7)
Smear-unknown/not done			Treatment after default	587	(7)
Extrapulmonary	21 579	(20)	Other	2 998	(38)
Other					
Total new	106 371		Total retreatment	7 919	
Other (history unknown)					
Total new and relapse	110 132		Total cases notified	114 290	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	1.2		
Age < 15	3 379	3 280	7 667

Laboratories

	2011
Smear (per 100 000 population)	2.2
Culture (per 5 million population)	<0.1
Drug susceptibility testing (per 5 million population)	<0.1
Is second-line drug susceptibility testing available?	Yes, in country
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	90	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary	87		
Retreatment	76		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	30 636	(27)
HIV-positive TB patients	4 942	(16)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	2 645	(54)
HIV-positive TB patients on antiretroviral therapy (ART)	1 118	(23)
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	3.1 (0.10–7.1)	10 (2.1–18)
MDR-TB cases among notified pulmonary TB cases	2 600 (85–6 000)	800 (170–1 400)

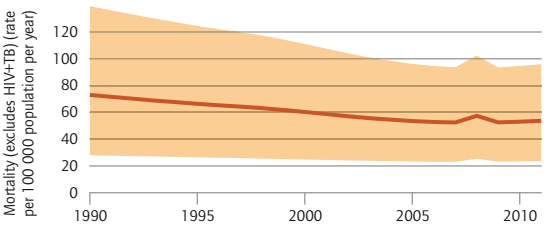
Reported cases of MDR-TB 2011

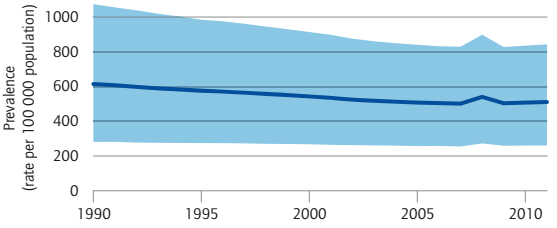
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	22 (<1%)	160 (2%)	185
Laboratory-confirmed MDR-TB cases	8	111	121
Patients started on MDR-TB treatment			128

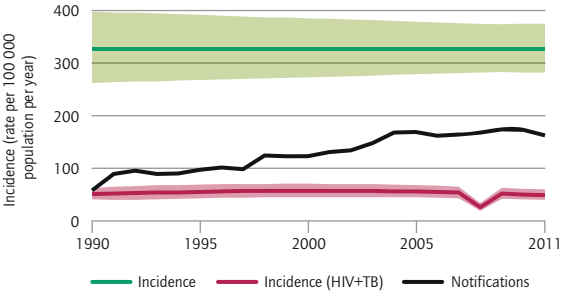
Financing TB control

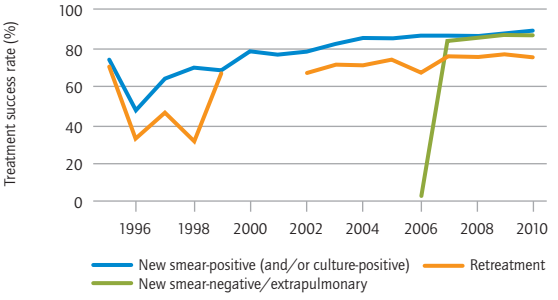
	2012	2013
Total budget (US$ millions)	15	14
Available funding (US$ millions)	3.5	8.6
% of budget funded	23	62
% available funding from domestic sources	3	
% available funding from the Global Fund	64	100

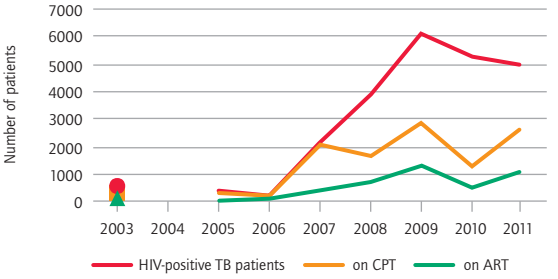
[a] Ranges represent uncertainty intervals.

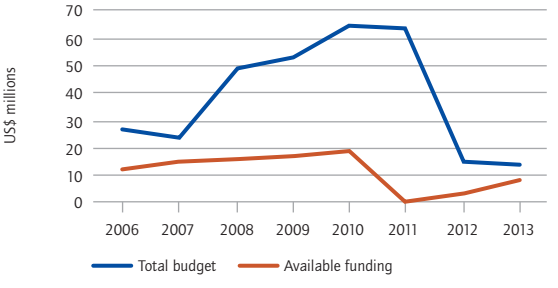












HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	15 (11–20)	18 (14–24)
Prevalence (includes HIV+TB)	200 (160–240)	237 (191–288)
Incidence (includes HIV+TB)	220 (160–280)	258 (191–335)
Incidence (HIV+TB)	38 (28–49)	45 (33–58)
Case detection, all forms (%)	72 (55–96)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	49 594	(32)	Relapse	2 143	(46)
Smear-negative	52 967	(34)	Treatment after failure	658	(14)
Smear-unknown/not done	2 530	(2)	Treatment after default	492	(11)
Extrapulmonary	49 305	(32)	Other	1 328	(29)
Other	0	(0)			
Total new	154 396		Total retreatment	4 621	
Other (history unknown)	0				
Total new and relapse	156 539		Total cases notified	159 017	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	1.2		
Age < 15	3 830	6 025	6 617

Laboratories

	2011
Smear (per 100 000 population)	2.3
Culture (per 5 million population)	0.1
Drug susceptibility testing (per 5 million population)	<0.1
Is second-line drug susceptibility testing available?	Yes, in country
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	83	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary	75		
Retreatment	83		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	65 140	(41)
HIV-positive TB patients	5 442	(8)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	3 348	(62)
HIV-positive TB patients on antiretroviral therapy (ART)	2 123	(39)
HIV-positive people screened for TB	174 146	
HIV-positive people provided with IPT	30 816	

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	1.6 (0.86–2.7)	12 (5.6–21)
MDR-TB cases among notified pulmonary TB cases	1 700 (910–2 900)	550 (260–980)

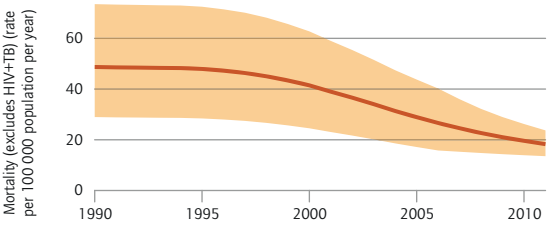
Reported cases of MDR-TB 2011

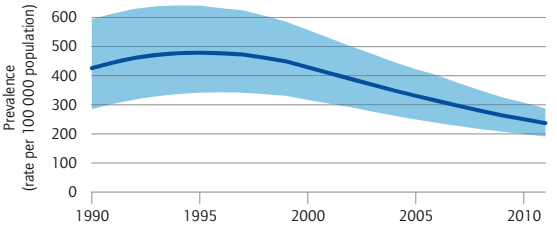
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	73 (<1%)	139 (3%)	212
Laboratory-confirmed MDR-TB cases	35	85	212
Patients started on MDR-TB treatment			199

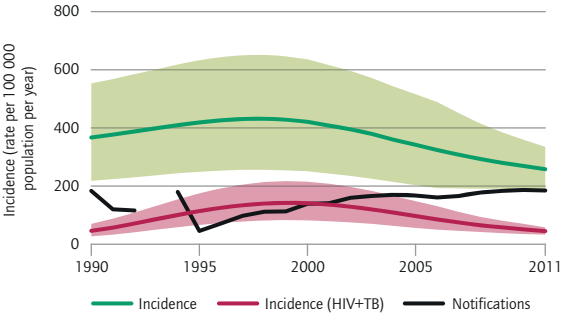
Financing TB control

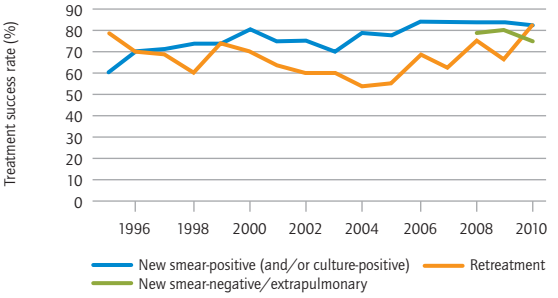
	2012	2013
Total budget (US$ millions)	50	52
Available funding (US$ millions)	42	13
% of budget funded	83	25
% available funding from domestic sources	20	
% available funding from the Global Fund	48	100

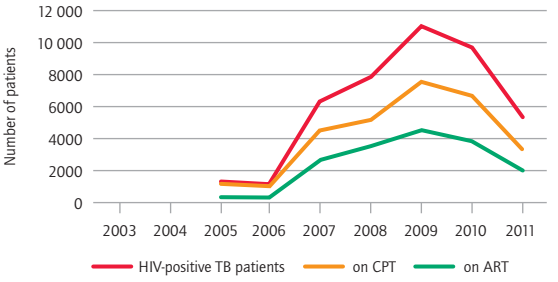
[a] Ranges represent uncertainty intervals.

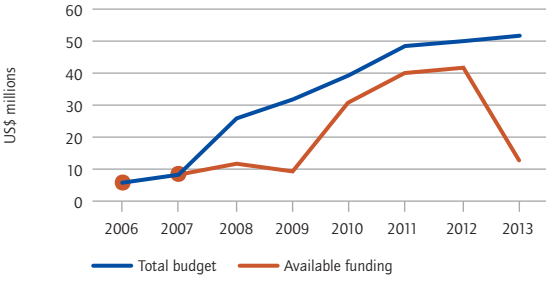












HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	300 (190–430)	24 (15–35)
Prevalence (includes HIV+TB)	3 100 (2 100–4 300)	249 (168–346)
Incidence (includes HIV+TB)	2 200 (2 000–2 500)	181 (163–199)
Incidence (HIV+TB)	94 (72–120)	7.6 (5.8–9.6)
Case detection, all forms (%)	59 (54–65)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	642 321	(53)	Relapse	112 508	(37)
Smear-negative	340 203	(28)	Treatment after failure	17 304	(6)
Smear-unknown/not done			Treatment after default	72 787	(24)
Extrapulmonary	226 965	(19)	Other	101 832	(33)
Other	1 952	(<1)			
Total new	1 211 441		Total retreatment	304 431	
Other (history unknown)					
Total new and relapse	1 323 949		Total cases notified	1 515 872	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	2.2		
Age < 15	12 985	36 673	34 026

Laboratories

	2011
Smear (per 100 000 population)	1.0
Culture (per 5 million population)	0.1
Drug susceptibility testing (per 5 million population)	0.1
Is second-line drug susceptibility testing available?	Yes, in country
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	88	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary	90		
Retreatment	74		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	688 530	(45)
HIV-positive TB patients	44 702	(6)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	40 583	(91)
HIV-positive TB patients on antiretroviral therapy (ART)	26 165	(59)
HIV-positive people screened for TB	386 081	
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	2.1 (1.5–2.7)	15 (13–16)
MDR-TB cases among notified pulmonary TB cases	21 000 (15 000–27 000)	45 000 (40 000–50 000)

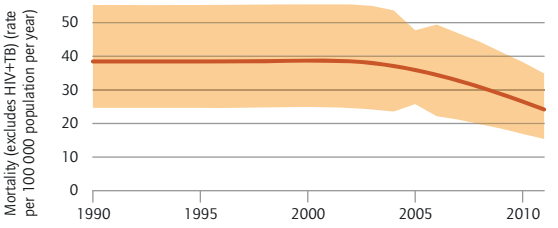
Reported cases of MDR-TB 2011

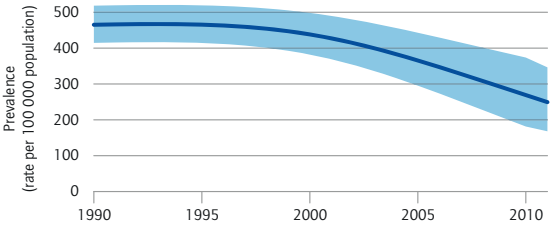
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB			
Confirmed MDR-TB cases			4 237
Patients started on MDR-TB treatment			3 384

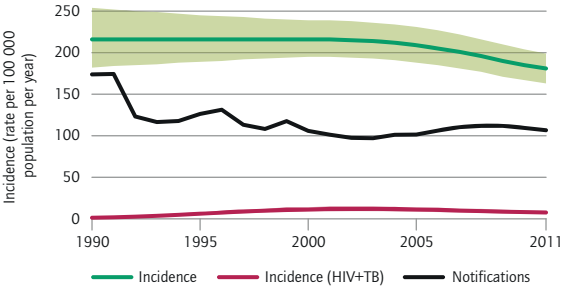
Financing TB control

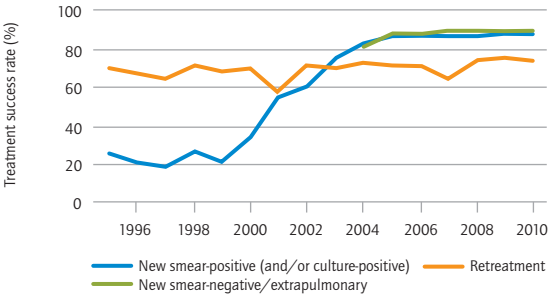
	2012	2013
Total budget (US$ millions)	219	207
Available funding (US$ millions)	219	207
% of budget funded	100	100
% available funding from domestic sources	54	58
% available funding from Global Fund	42	39

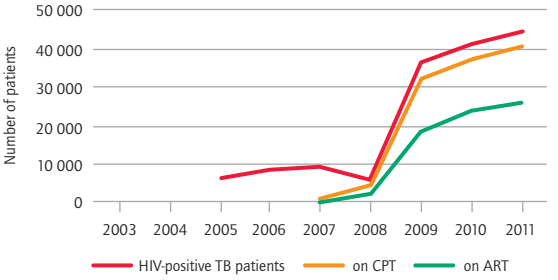
[a] Ranges represent uncertainty intervals. Estimates for India have not yet been officially approved by the Ministry of Health & Family Welfare, Government of India and should therefore be considered provisional.

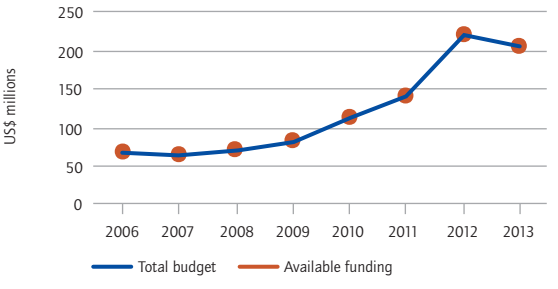












HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	65 (29–120)	27 (12–48)
Prevalence (includes HIV+TB)	680 (310–1 200)	281 (130–489)
Incidence (includes HIV+TB)	450 (370–540)	187 (155–222)
Incidence (HIV+TB)	15 (11–20)	6.2 (4.4–8.3)
Case detection, all forms (%)	70 (59–85)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	197 797	(63)	Relapse	5 348	(69)
Smear-negative	101 750	(32)	Treatment after failure	432	(6)
Smear-unknown/not done			Treatment after default	933	(12)
Extrapulmonary	14 054	(4)	Other	994	(13)
Other					
Total new	313 601		Total retreatment	7 707	
Other (history unknown)					
Total new and relapse	318 949		Total cases notified	321 308	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	1.5	1.3	0.9
Age < 15	1 714	23 469	2 776

Laboratories

	2011
Smear (per 100 000 population)	2.3
Culture (per 5 million population)	0.9
Drug susceptibility testing (per 5 million population)	0.1
Is second-line drug susceptibility testing available?	Yes, in country
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	90	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary	86		
Retreatment	73		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	3 511	(1)
HIV-positive TB patients	1 280	(36)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	1 182	(92)
HIV-positive TB patients on antiretroviral therapy (ART)	544	(43)
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	1.9 (1.4–2.5)	12 (8.1–17)
MDR-TB cases among notified pulmonary TB cases	5 700 (4 200–7 500)	920 (620–1 300)

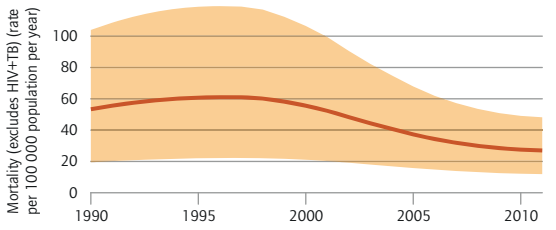
Reported cases of MDR-TB 2011

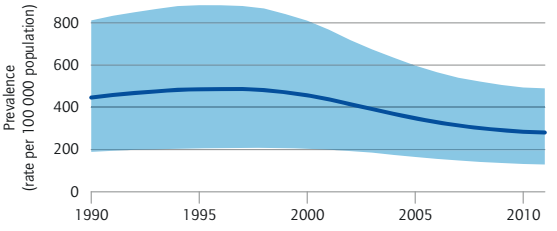
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	5 (<1%)	695 (9%)	700
Laboratory-confirmed MDR-TB cases	3	380	383
Patients started on MDR-TB treatment			260

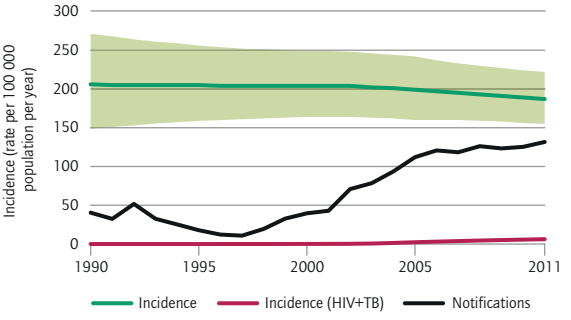
Financing TB control

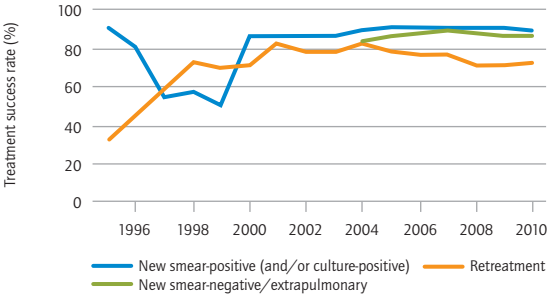
	2012	2013
Total budget (US$ millions)	104	117
Available funding (US$ millions)	49	31
% of budget funded	47	27
% available funding from domestic sources	21	8
% available funding from the Global Fund	65	92

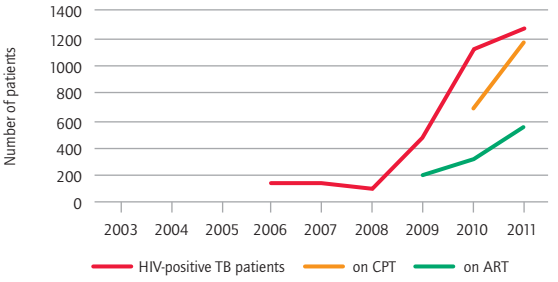
[a] Ranges represent uncertainty intervals.

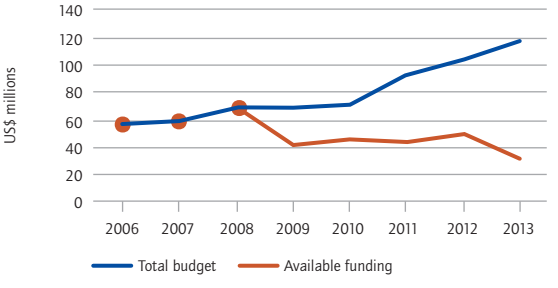












HIGH TB BURDEN | HIGH HIV BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	9.2 (4.7–15)	22 (11–36)
Prevalence (includes HIV+TB)	120 (63–200)	291 (152–475)
Incidence (includes HIV+TB)	120 (110–120)	288 (276–300)
Incidence (HIV+TB)	47 (45–49)	113 (109–118)
Case detection, all forms (%)	81 (78–85)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	37 085	(39)	Relapse	3 356	(34)
Smear-negative	30 394	(32)	Treatment after failure	263	(3)
Smear-unknown/not done	9 416	(10)	Treatment after default		
Extrapulmonary	17 069	(18)	Other	6 398	(64)
Other	0	(0)			
Total new	93 964		Total retreatment	10 017	
Other (history unknown)	0				
Total new and relapse	97 320		Total cases notified	103 981	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	1.6	1.2	1.2
Age < 15	985	2 008	2 795

Laboratories

	2011
Smear (per 100 000 population)	3.8
Culture (per 5 million population)	0.7
Drug susceptibility testing (per 5 million population)	0.1
Is second-line drug susceptibility testing available?	Yes, outside country
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	87	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary	85		
Retreatment	79		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	97 136	(93)
HIV-positive TB patients	38 172	(39)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	37 147	(97)
HIV-positive TB patients on antiretroviral therapy (ART)	24 497	(64)
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	3.1 (0.10–7.1)	10 (2.1–18)
MDR-TB cases among notified pulmonary TB cases	2 400 (77–5 500)	1 000 (210–1 800)

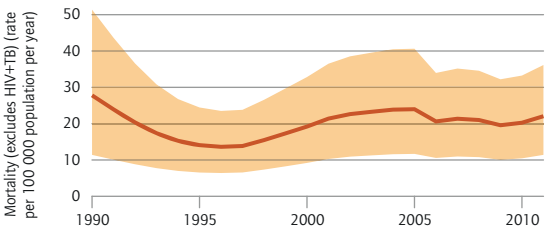
Reported cases of MDR-TB 2011

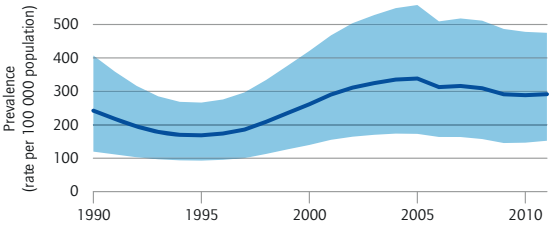
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	92 (<1%)	1 195 (12%)	1 393
Laboratory-confirmed MDR-TB cases	17	149	166
Patients started on MDR-TB treatment			156

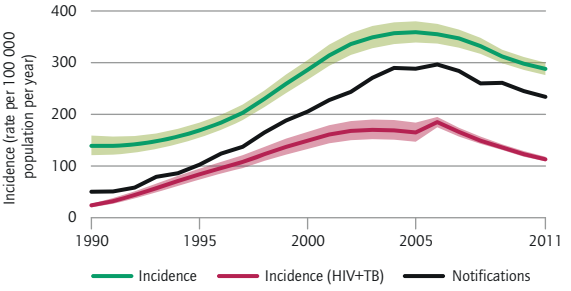
Financing TB control

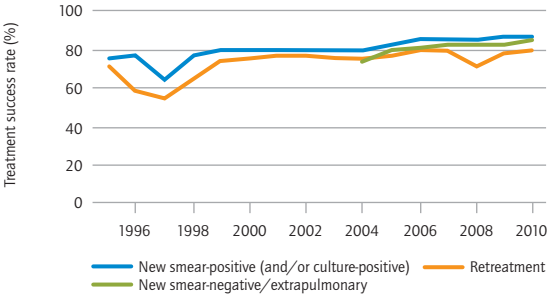
	2012	2013
Total budget (US$ millions)	53	51
Available funding (US$ millions)	21	16
% of budget funded	41	31
% available funding from domestic sources	46	55
% available funding from the Global Fund	51	23

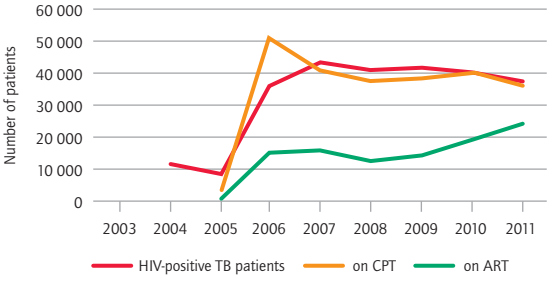
[a] Ranges represent uncertainty intervals.

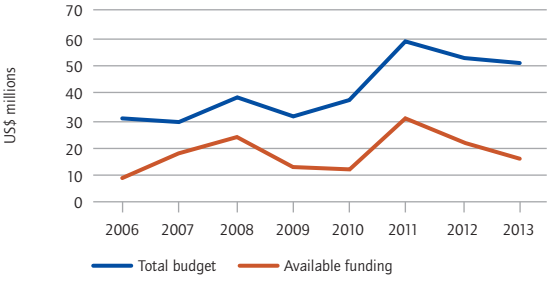












HIGH TB BURDEN | HIGH HIV BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	11 (4.0–22)	47 (17–91)
Prevalence (includes HIV+TB)	120 (56–200)	490 (235–837)
Incidence (includes HIV+TB)	130 (91–180)	548 (380–747)
Incidence (HIV+TB)	83 (58–110)	347 (241–473)
Case detection, all forms (%)	34 (25–49)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	19 537	(45)	Relapse	1 427	(34)
Smear-negative	18 159	(42)	Treatment after failure	238	(6)
Smear-unknown/not done	0	(0)	Treatment after default	242	(6)
Extrapulmonary	5 504	(13)	Other	2 345	(55)
Other	0	(0)			
Total new	43 200		Total retreatment	4 252	
Other (history unknown)	0				
Total new and relapse	44 627		Total cases notified	47 452	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio			
Age < 15	324	2 180	710

Laboratories

	2011
Smear (per 100 000 population)	1.8
Culture (per 5 million population)	0.4
Drug susceptibility testing (per 5 million population)	0.4
Is second-line drug susceptibility testing available?	Yes, in and outside country
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	85	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary			
Retreatment			

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	41 896	(88)
HIV-positive TB patients	26 538	(63)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	24 095	(91)
HIV-positive TB patients on antiretroviral therapy (ART)	7 661	(29)
HIV-positive people screened for TB		
HIV-positive people provided with IPT	17 064	

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	3.5 (2.2–4.8)	12 (0.0–25)
MDR-TB cases among notified pulmonary TB cases	1 300 (830–1 800)	510 (0–1 100)

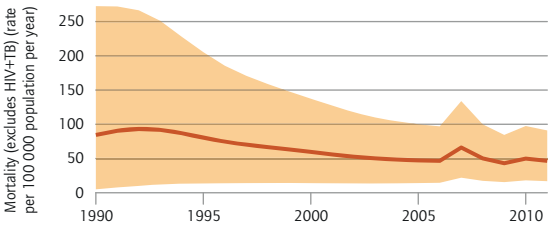
Reported cases of MDR-TB 2011

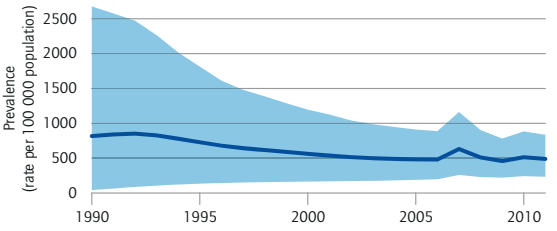
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	206 (1%)	443 (10%)	663
Laboratory-confirmed MDR-TB cases	76	202	283
Patients started on MDR-TB treatment			146

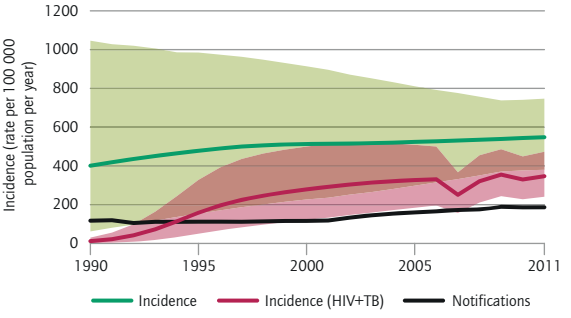
Financing TB control

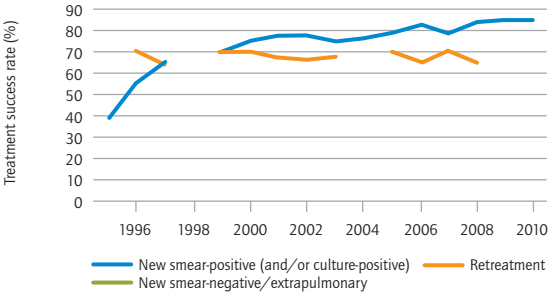
	2012	2013
Total budget (US$ millions)	37	35
Available funding (US$ millions)	8.5	8.1
% of budget funded	23	23
% available funding from domestic sources	29	24
% available funding from the Global Fund	42	46

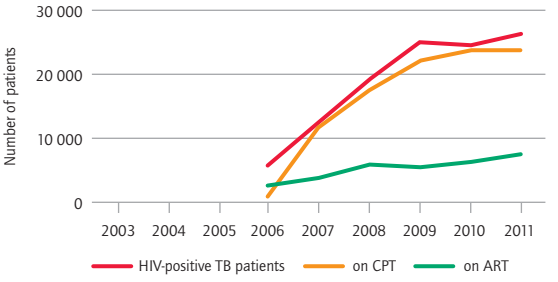
[a] Ranges represent uncertainty intervals.

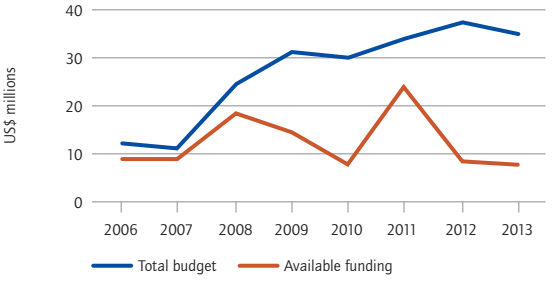












HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	23 (11–40)	48 (22–84)
Prevalence (includes HIV+TB)	240 (190–310)	506 (390–637)
Incidence (includes HIV+TB)	180 (160–210)	381 (326–439)
Incidence (HIV+TB)	18 (15–22)	38 (31–45)
Case detection, all forms (%)	74 (64–87)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	42 324	(32)	Relapse	4 606	(42)
Smear-negative	62 038	(47)	Treatment after failure	1 525	(14)
Smear-unknown/not done			Treatment after default	542	(5)
Extrapulmonary	27 769	(21)	Other	4 336	(39)
Other					
Total new	132 131		Total retreatment	11 009	
Other (history unknown)					
Total new and relapse	136 737		Total cases notified	143 140	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	1.9		
Age < 15	307		

Laboratories

	2011
Smear (per 100 000 population)	0.9
Culture (per 5 million population)	0.2
Drug susceptibility testing (per 5 million population)	0.2
Is second-line drug susceptibility testing available?	Yes, outside country
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	86	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary	89		
Retreatment	73		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	4 496	(3)
HIV-positive TB patients	900	(20)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	900	(100)
HIV-positive TB patients on antiretroviral therapy (ART)	724	(80)
HIV-positive people screened for TB	12 120	
HIV-positive people provided with IPT	361	

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	4.2 (3.1–5.6)	10 (6.9–14)
MDR-TB cases among notified pulmonary TB cases	4 400 (3 200–5 800)	1 100 (760–1 500)

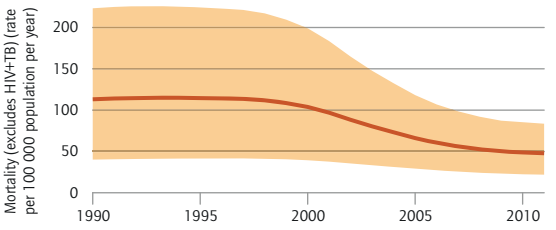
Reported cases of MDR-TB 2011

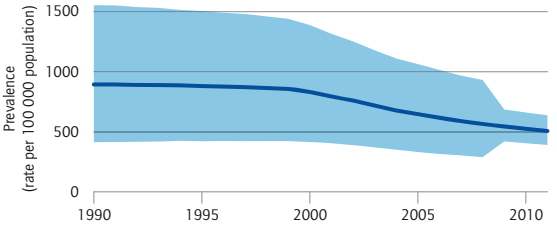
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB			
Laboratory-confirmed MDR-TB cases			690
Patients started on MDR-TB treatment			163

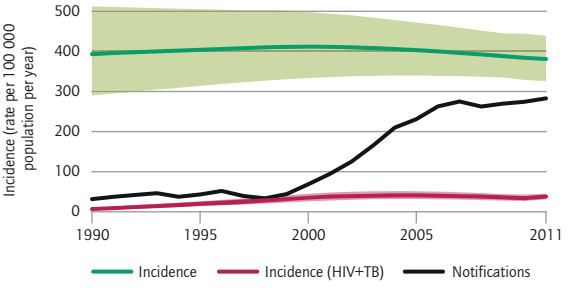
Financing TB control

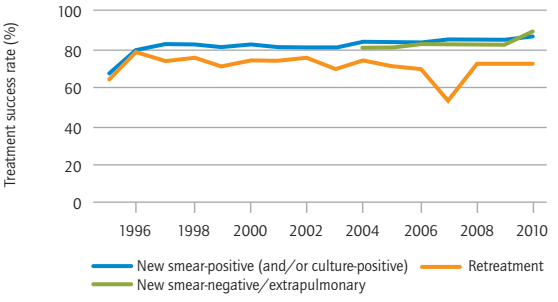
	2012	2013
Total budget (US$ millions)	29	31
Available funding (US$ millions)	10	9.3
% of budget funded	34	30
% available funding from domestic sources	7	
% available funding from the Global Fund	79	89

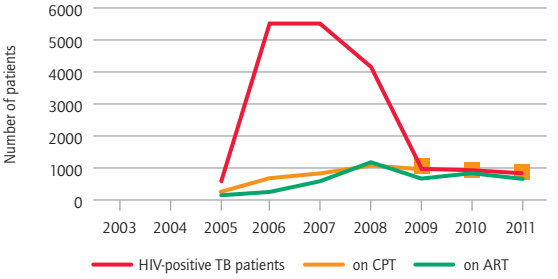
[a] Ranges represent uncertainty intervals.

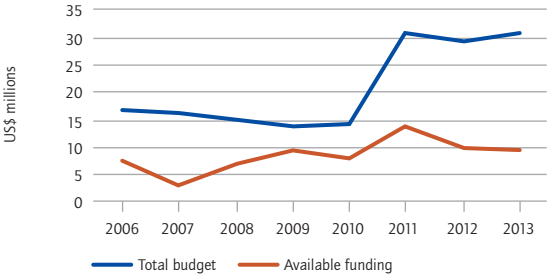












HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	27 (6.1–64)	17 (3.7–40)
Prevalence (includes HIV+TB)	280 (71–620)	171 (44–382)
Incidence (includes HIV+TB)	190 (90–330)	118 (55–204)
Incidence (HIV+TB)	50 (23–86)	30 (14–53)
Case detection, all forms (%)	45 (26–96)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	47 436	(56)	Relapse	2 515	(29)
Smear-negative	33 034	(39)	Treatment after failure	719	(8)
Smear-unknown/not done	0	(0)	Treatment after default	1 587	(18)
Extrapulmonary	3 793	(5)	Other	3 966	(45)
Other	0	(0)			
Total new	84 263		Total retreatment	8 787	
Other (history unknown)	0				
Total new and relapse	86 778		Total cases notified	93 050	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	1.6		
Age < 15	1 107		

Laboratories

	2011
Smear (per 100 000 population)	0.8
Culture (per 5 million population)	0.2
Drug susceptibility testing (per 5 million population)	0.1
Is second-line drug susceptibility testing available?	Yes, outside country
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	84	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary	77		
Retreatment	82		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	75 772	(81)
HIV-positive TB patients	19 553	(26)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	13 301	(68)
HIV-positive TB patients on antiretroviral therapy (ART)	8 410	(43)
HIV-positive people screened for TB	223 933	
HIV-positive people provided with IPT	969	

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	3.1 (0.10–7.1)	10 (2.1–18)
MDR-TB cases among notified pulmonary TB cases	2 500 (80–5 700)	890 (180–1 600)

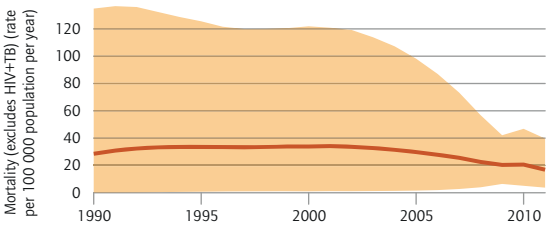
Reported cases of MDR-TB 2011

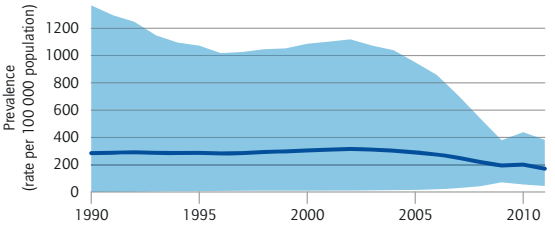
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	12 (<1%)	76 (<1%)	139
Laboratory-confirmed MDR-TB cases	6	56	95
Patients started on MDR-TB treatment			38

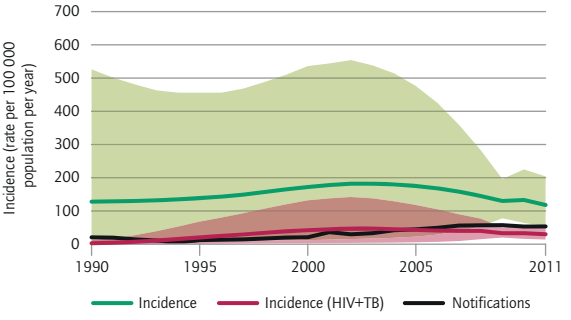
Financing TB control

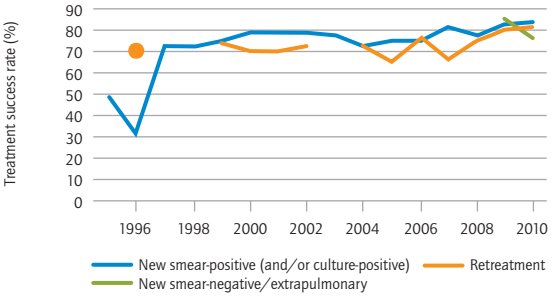
	2012	2013
Total budget (US$ millions)	41	39
Available funding (US$ millions)	29	29
% of budget funded	71	74
% available funding from domestic sources	28	30
% available funding from the Global Fund	48	42

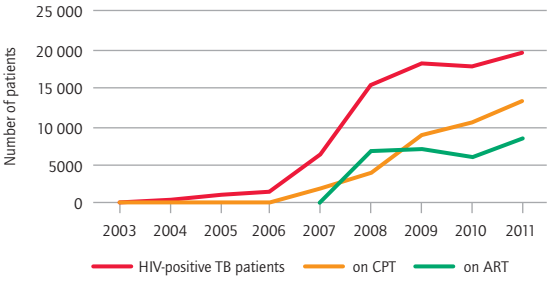
[a] Ranges represent uncertainty intervals.

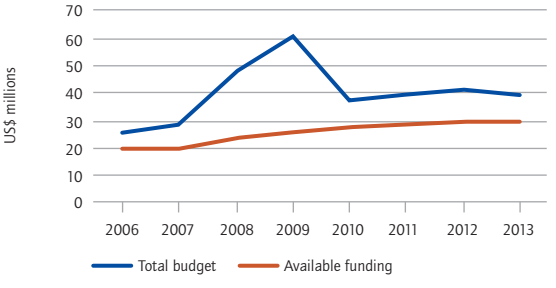












HIGH TB BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	59 (26–110)	33 (15–60)
Prevalence (includes HIV+TB)	620 (280–1 100)	350 (158–618)
Incidence (includes HIV+TB)	410 (340–490)	231 (190–276)
Incidence (HIV+TB)	1.5 (0.99–2.1)	0.84 (0.56–1.2)
Case detection, all forms (%)	64 (54–78)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	105 733	(41)	Relapse	5 947	(52)
Smear-negative	103 824	(41)	Treatment after failure	896	(8)
Smear-unknown/not done	0	(0)	Treatment after default	1 282	(11)
Extrapulmonary	45 537	(18)	Other	3 282	(29)
Other	0	(0)			
Total new	255 094		Total retreatment	11 407	
Other (history unknown)	3 893				
Total new and relapse	261 041		Total cases notified	270 394	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	1.1	1.0	0.8
Age < 15	3 895	14 142	7 696

Laboratories

	2011
Smear (per 100 000 population)	0.7
Culture (per 5 million population)	0.3
Drug susceptibility testing (per 5 million population)	0.3
Is second-line drug susceptibility testing available?	Yes, in country
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	91	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary	90		
Retreatment	84		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	8 322	(3)
HIV-positive TB patients	33	(<1)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	11	(33)
HIV-positive TB patients on antiretroviral therapy (ART)	28	(85)
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	3.4 (0.10–11)	29 (2.6–56)
MDR-TB cases among notified pulmonary TB cases	7 100 (210–23 000)	3 300 (300–6 300)

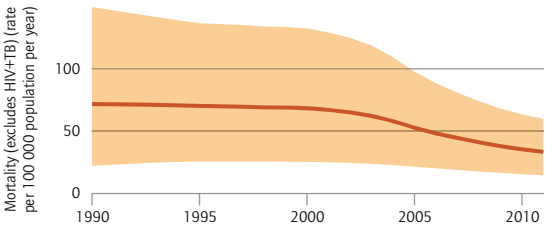
Reported cases of MDR-TB 2011

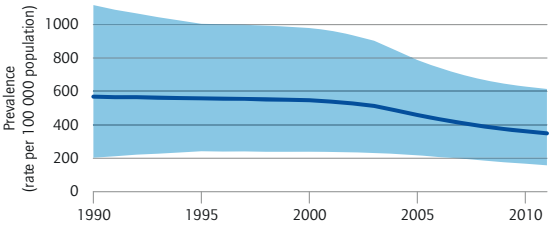
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB			
Laboratory-confirmed MDR-TB cases			344
Patients started on MDR-TB treatment			344

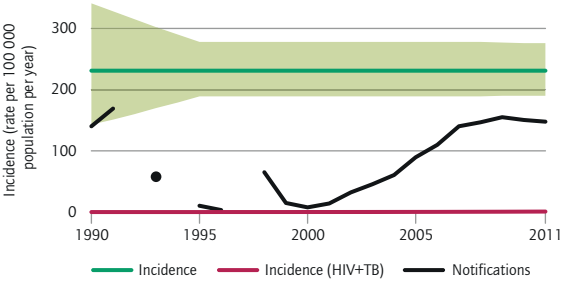
Financing TB control

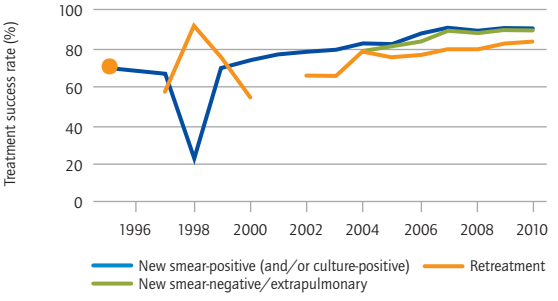
	2012	2013
Total budget (US$ millions)	61	52
Available funding (US$ millions)	28	17
% of budget funded	46	32
% available funding from domestic sources	1	0
% available funding from the Global Fund	95	100

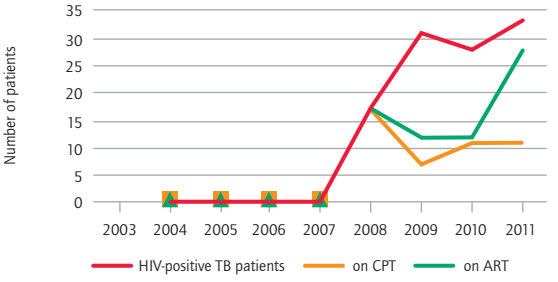
[a] Ranges represent uncertainty intervals.

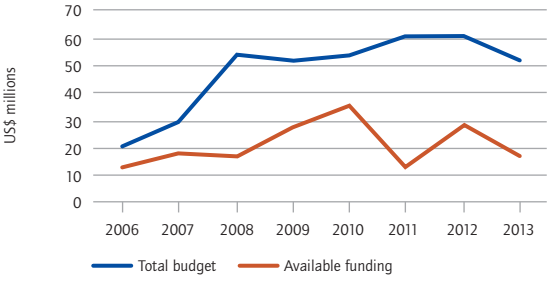












HIGH TB BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	28 (25–31)	29 (26–33)
Prevalence (includes HIV+TB)	460 (400–520)	484 (425–546)
Incidence (includes HIV+TB)	260 (210–310)	270 (223–322)
Incidence (HIV+TB)	1.1 (0.65–1.6)	1.1 (0.68–1.7)
Case detection, all forms (%)	75 (63–91)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	90 876	(48)	Relapse	3 190	(23)
Smear-negative	95 297	(51)	Treatment after failure	468	(3)
Smear-unknown/not done			Treatment after default	896	(7)
Extrapulmonary	2 202	(1)	Other	9 104	(67)
Other	0	(0)			
Total new	188 375		Total retreatment	13 658	
Other (history unknown)	0				
Total new and relapse	191 565		Total cases notified	202 033	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	2.4		
Age < 15	953		

Laboratories

	2011
Smear (per 100 000 population)	2.1
Culture (per 5 million population)	0.5
Drug susceptibility testing (per 5 million population)	0.1
Is second-line drug susceptibility testing available?	Yes, in country
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	91	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary	88		
Retreatment	69		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	3 917	(2)
HIV-positive TB patients	9	(<1)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)		
HIV-positive TB patients on antiretroviral therapy (ART)		
HIV-positive people screened for TB	815	
HIV-positive people provided with IPT	226	

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	4.0 (2.9–5.5)	21 (14–29)
MDR-TB cases among notified pulmonary TB cases	7 500 (5 400–10 000)	2 900 (1 900–4 000)

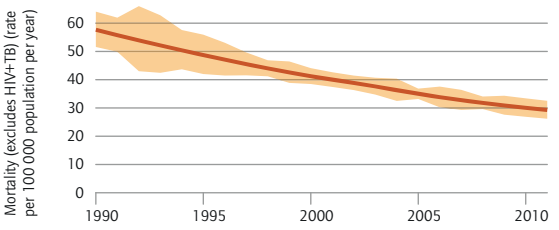
Reported cases of MDR-TB 2011

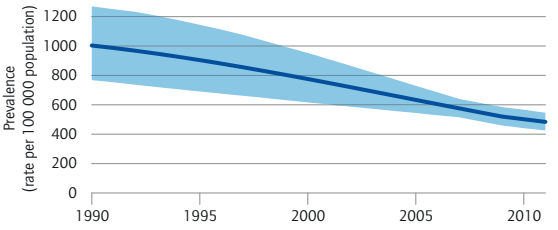
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	25 (<1%)	2 325 (17%)	2 544
Laboratory-confirmed MDR-TB cases	4	1 055	1 148
Patients started on MDR-TB treatment			2 397

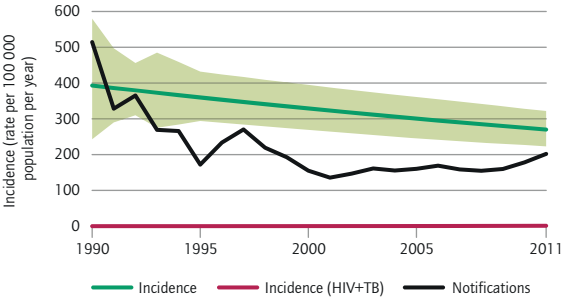
Financing TB control

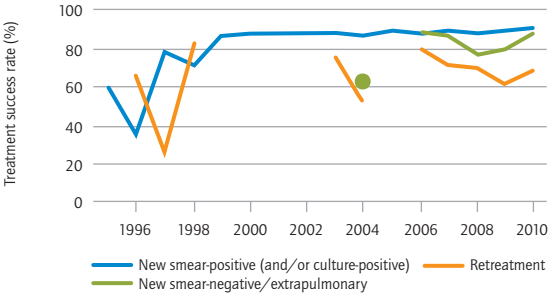
	2012	2013
Total budget (US$ millions)	79	78
Available funding (US$ millions)	50	28
% of budget funded	64	36
% available funding from domestic sources	44	
% available funding from the Global Fund	56	

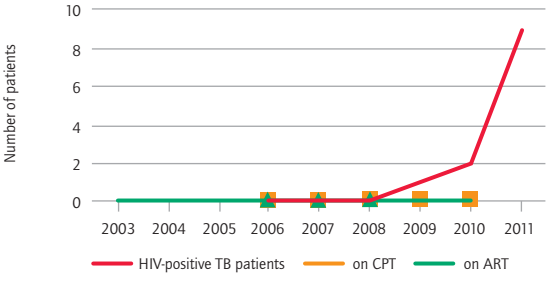
[a] Ranges represent uncertainty intervals.

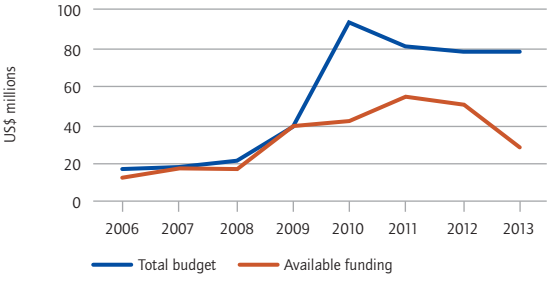












RUSSIAN FEDERATION

Population 2011 **143 million**

HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	22 (22–23)	16 (15–16)
Prevalence (includes HIV+TB)	180 (72–330)	124 (50–229)
Incidence (includes HIV+TB)	140 (120–160)	97 (82–114)
Incidence (HIV+TB)	9.3 (7.4–11)	6.5 (5.1–8.0)
Case detection, all forms (%)	81 (70–96)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	29 191	(28)	Relapse	8 590	(16)
Smear-negative	63 917	(61)	Treatment after failure	9 879	(18)
Smear-unknown/not done	1 189	(1)	Treatment after default	2 745	(5)
Extrapulmonary	10 023	(10)	Other	33 945	(62)
Other					
Total new	104 320		Total retreatment	55 159	
Other (history unknown)					
Total new and relapse	112 910		Total cases notified	159 479	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	2.7	2.2	1.3
Age < 15	51	593	2 901

Laboratories

	2011
Smear (per 100 000 population)	2.6
Culture (per 5 million population)	4.1
Drug susceptibility testing (per 5 million population)	
Is second-line drug susceptibility testing available?	Yes, in country
Is there a national reference laboratory?	No

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	53	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary	73		
Retreatment	34		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status[b]	79 494	
HIV-positive TB patients	4 104	

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	20 (18–22)	46 (41–52)
MDR-TB cases among notified pulmonary TB cases	19 000 (17 000–21 000)	25 000 (23 000–29 000)

Reported cases of MDR-TB 2011

	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	34 007 (78%)	13 620 (25%)	47 627
Laboratory-confirmed MDR-TB cases	6 596	7 189	13 785
Patients started on MDR-TB treatment			18 902

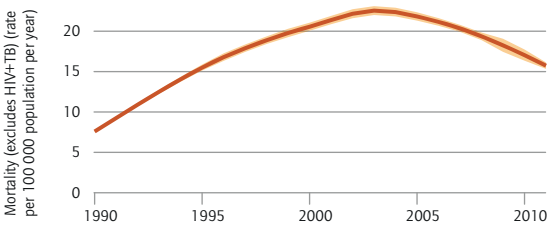
Financing TB control[c]

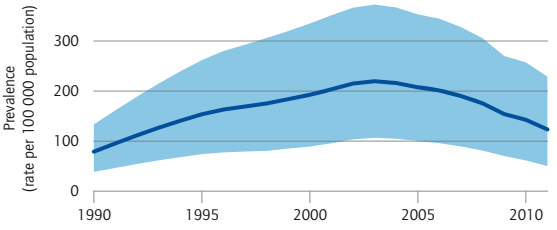
	2012	2013
Total budget (US$ millions)	1 204	
Available funding (US$ millions)	1 204	
% of budget funded	100	
% available funding from domestic sources	100	
% available funding from the Global Fund	0	

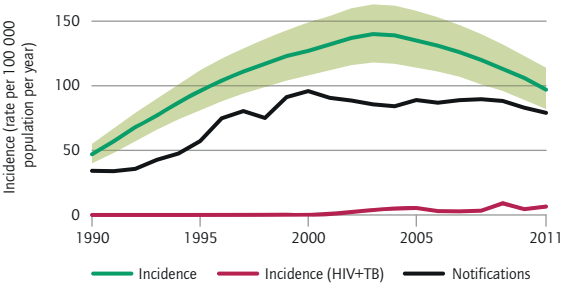
[a] Ranges represent uncertainty intervals.

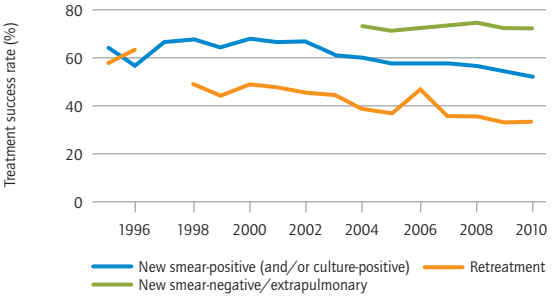
[b] The reported number of TB patients with known HIV status is for new TB patients only. It was not possible to calculate the percentage of all TB patients with known HIV status.

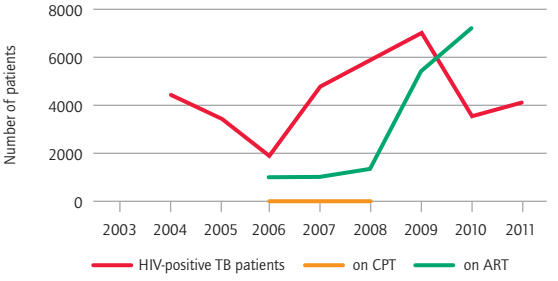
[c] Funding of US$ 340 million is available from the budgets of the Federal Targeted Program and National Project "Health" in 2012. The remaining funding is from local (oblast) and other budgets and was estimated using data reported to WHO in previous years. Estimates of non-federal and other sources of funding will be reviewed in 2013.

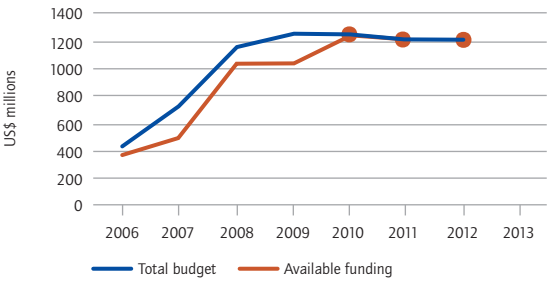












HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	25 (11–44)	49 (21–87)
Prevalence (includes HIV+TB)	390 (200–630)	768 (399–1 250)
Incidence (includes HIV+TB)	500 (410–600)	993 (819–1 180)
Incidence (HIV+TB)	330 (270–390)	650 (536–774)
Case detection, all forms (%)	69 (58–83)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	129 770	(40)	Relapse	18 394	(40)
Smear-negative	70 341	(22)	Treatment after failure	2 578	(6)
Smear-unknown/not done	77 925	(24)	Treatment after default	4 642	(10)
Extrapulmonary	47 285	(15)	Other	20 301	(44)
Other	0	(0)			
Total new	325 321		Total retreatment	45 915	
Other (history unknown)	18 738				
Total new and relapse	343 715		Total cases notified	389 974	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	1.2	1.0	1.0
Age < 15	3 404	32 080	2 399

Laboratories

	2011
Smear (per 100 000 population)	0.5
Culture (per 5 million population)	1.5
Drug susceptibility testing (per 5 million population)	1.5
Is second-line drug susceptibility testing available?	Yes, in country
Is there a national reference laboratory?	Yes

Treatment success rate 2010[b] (%)

New smear-positive (and/or culture-positive)	79	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary	37		
Retreatment	35		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	323 440	(83)
HIV-positive TB patients	211 800	(65)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	161 298	(76)
HIV-positive TB patients on antiretroviral therapy (ART)	92 376	(44)
HIV-positive people screened for TB	1 256 212	
HIV-positive people provided with IPT	372 994	

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	1.8 (1.4–2.3)	6.7 (5.5–8.1)
MDR-TB cases among notified pulmonary TB cases	5 000 (4 000–6 300)	3 100 (2 500–3 700)

Reported cases of MDR-TB 2011

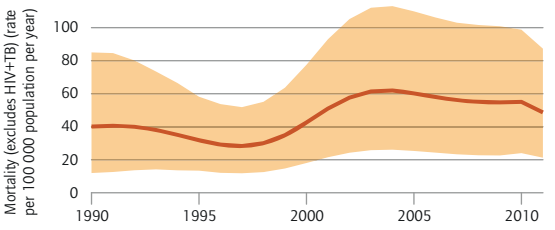
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB			33 576
Laboratory-confirmed MDR-TB cases			10 085
Patients started on MDR-TB treatment			5 643

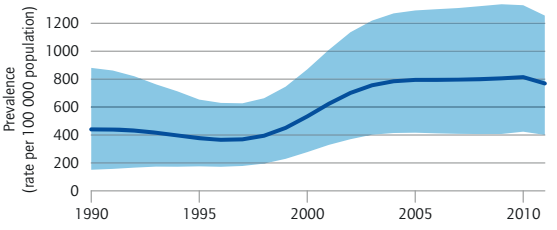
Financing TB control

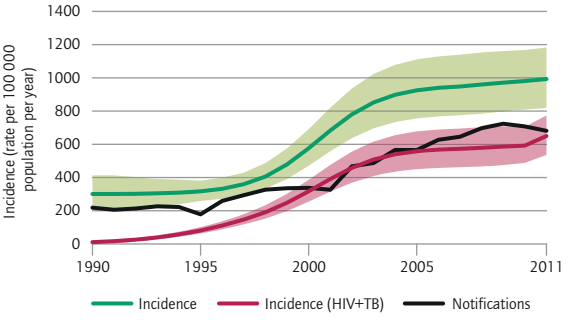
	2012	2013
Total budget (US$ millions)		
Available funding (US$ millions)		
% of budget funded		
% available funding from domestic sources		
% available funding from the Global Fund		

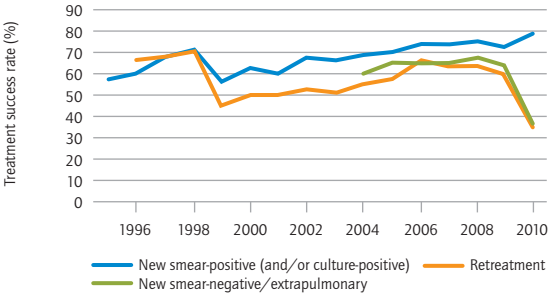
[a] Ranges represent uncertainty intervals.

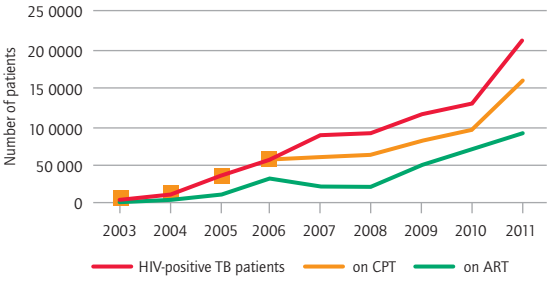
[b] Treatment success rates are based on incomplete data.

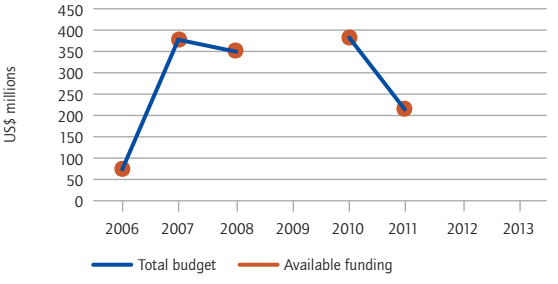












HIGH TB BURDEN | HIGH HIV BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	9.8 (4.2–18)	14 (6.1–25)
Prevalence (includes HIV+TB)	110 (51–200)	161 (73–282)
Incidence (includes HIV+TB)	86 (71–100)	124 (102–147)
Incidence (HIV+TB)	13 (10–15)	18 (15–22)
Case detection, all forms (%)	76 (64–93)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	33 169	(52)	Relapse	1 915	(51)
Smear-negative	20 726	(32)	Treatment after failure	406	(11)
Smear-unknown/not done			Treatment after default	556	(15)
Extrapulmonary	10 014	(16)	Other	890	(24)
Other	0	(0)			
Total new	63 909		Total retreatment	3 767	
Other (history unknown)	0				
Total new and relapse	65 824		Total cases notified	67 676	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	2.4		
Age < 15	114		

Laboratories

	2011
Smear (per 100 000 population)	1.6
Culture (per 5 million population)	4.7
Drug susceptibility testing (per 5 million population)	1.1
Is second-line drug susceptibility testing available?	Yes, in and outside country
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	85	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary	79		
Retreatment	66		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	49 770	(74)
HIV-positive TB patients	7 326	(15)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	5 509	(75)
HIV-positive TB patients on antiretroviral therapy (ART)	4 348	(59)
HIV-positive people screened for TB	41 131	
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	1.7 (1.0–2.6)	35 (28–42)
MDR-TB cases among notified pulmonary TB cases	890 (540–1 400)	1 300 (1 000–1 600)

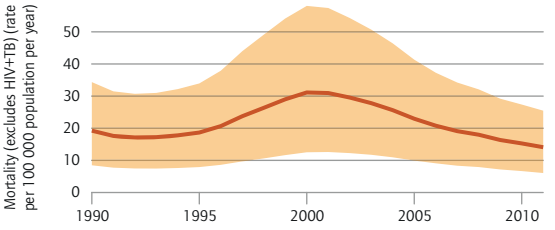
Reported cases of MDR-TB 2011

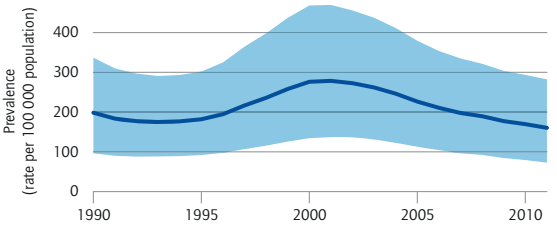
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB			4 939
Laboratory-confirmed MDR-TB cases			510
Patients started on MDR-TB treatment			123

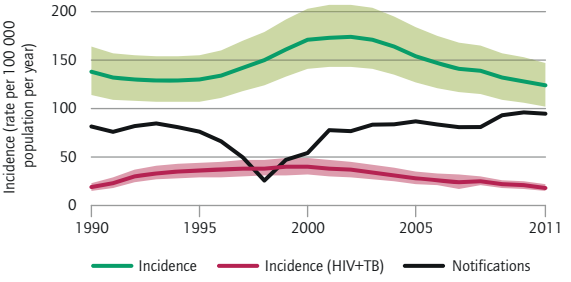
Financing TB control

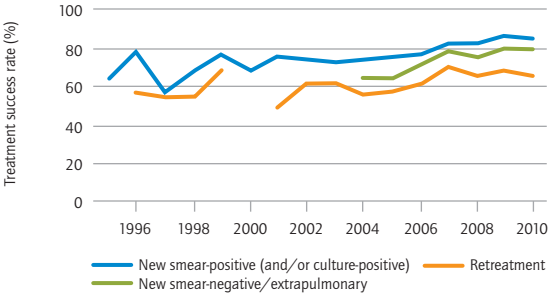
	2012	2013
Total budget (US$ millions)	44	44
Available funding (US$ millions)	41	41
% of budget funded	94	94
% available funding from domestic sources	98	98
% available funding from the Global Fund	2	2

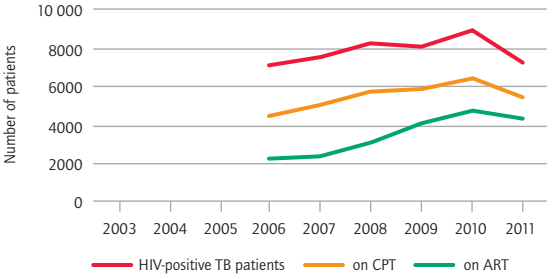
[a] Ranges represent uncertainty intervals.

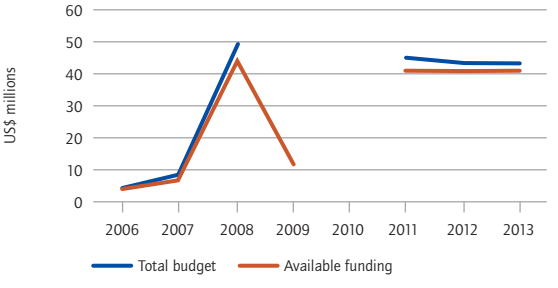












HIGH TB BURDEN | HIGH HIV BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	5.0 (2.1–9.0)	14 (6.2–26)
Prevalence (includes HIV+TB)	63 (33–100)	183 (95–298)
Incidence (includes HIV+TB)	67 (54–81)	193 (156–234)
Incidence (HIV+TB)	35 (28–42)	102 (82–123)
Case detection, all forms (%)	69 (57–86)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	25 614	(57)	Relapse	1 302	(32)
Smear-negative	12 830	(29)	Treatment after failure	306	(8)
Smear-unknown/not done	1 559	(3)	Treatment after default	1 206	(30)
Extrapulmonary	5 001	(11)	Other	1 198	(30)
Other					
Total new	45 004		Total retreatment	4 012	
Other (history unknown)					
Total new and relapse	46 306		Total cases notified	49 016	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	1.8		
Age < 15	695		

Laboratories

	2011
Smear (per 100 000 population)	3.1
Culture (per 5 million population)	1.0
Drug susceptibility testing (per 5 million population)	1.2
Is second-line drug susceptibility testing available?	Yes, in country
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	71	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary	62		
Retreatment	65		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	39 394	(80)
HIV-positive TB patients	20 725	(53)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	19 258	(93)
HIV-positive TB patients on antiretroviral therapy (ART)	6 720	(32)
HIV-positive people screened for TB	553 057	
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	1.4 (0.60–2.2)	12 (6.8–19)
MDR-TB cases among notified pulmonary TB cases	560 (240–900)	480 (270–780)

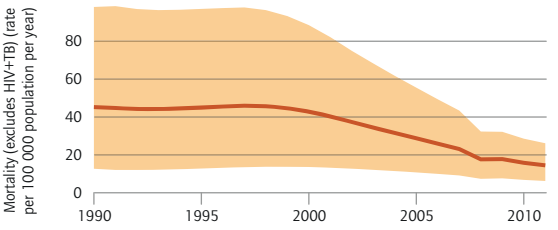
Reported cases of MDR-TB 2011

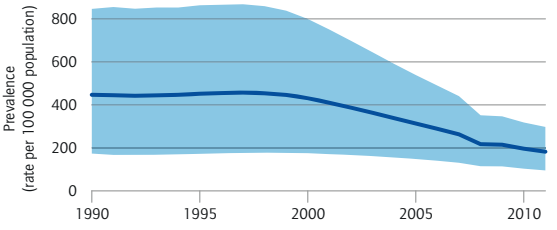
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	316 (1%)	360 (9%)	797
Laboratory-confirmed MDR-TB cases	7	43	71
Patients started on MDR-TB treatment			7

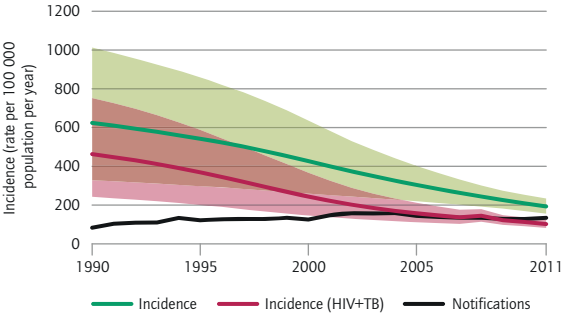
Financing TB control

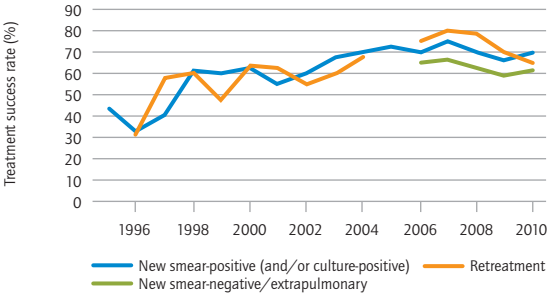
	2012	2013
Total budget (US$ millions)	20	
Available funding (US$ millions)	6.2	
% of budget funded	31	
% available funding from domestic sources	5	
% available funding from the Global Fund	56	

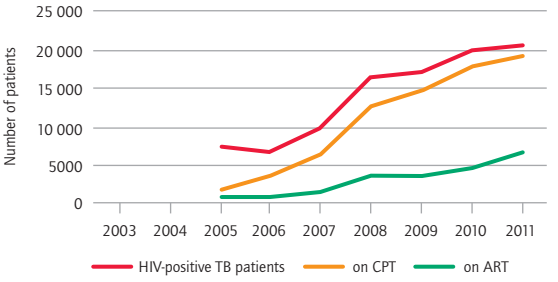
[a] Ranges represent uncertainty intervals.

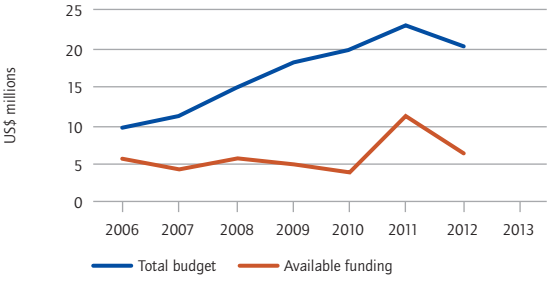












HIGH TB BURDEN | HIGH HIV BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	6.4 (3.3–11)	14 (7.1–23)
Prevalence (includes HIV+TB)	82 (43–130)	177 (93–286)
Incidence (includes HIV+TB)	78 (73–83)	169 (159–180)
Incidence (HIV+TB)	30 (28–32)	65 (61–69)
Case detection, all forms (%)	76 (71–81)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	24 115	(41)	Relapse	1 079	(38)
Smear-negative	20 438	(35)	Treatment after failure	144	(5)
Smear-unknown/not done	0	(0)	Treatment after default	212	(7)
Extrapulmonary	13 725	(24)	Other	1 435	(50)
Other	0	(0)			
Total new	58 278		Total retreatment	2 870	
Other (history unknown)	0				
Total new and relapse	59 357		Total cases notified	61 148	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	1.8	1.3	1.1
Age < 15	411	2 317	2 155

Laboratories

	2011
Smear (per 100 000 population)	2.0
Culture (per 5 million population)	0.5
Drug susceptibility testing (per 5 million population)	0.1
Is second-line drug susceptibility testing available?	Yes, in and outside country
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	90	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary	89		
Retreatment	84		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	53 531	(88)
HIV-positive TB patients	20 525	(38)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	19 499	(95)
HIV-positive TB patients on antiretroviral therapy (ART)	7 706	(38)
HIV-positive people screened for TB	148 177	
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	1.1 (0.30–2.8)	0.0 (0.0–7.3)
MDR-TB cases among notified pulmonary TB cases	480 (130–1 200)	0 (0–210)

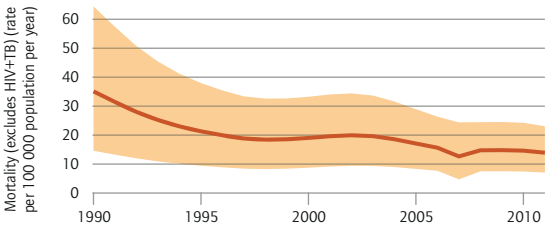
Reported cases of MDR-TB 2011

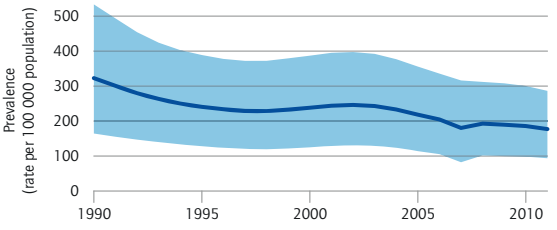
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	83 (<1%)	17 (<1%)	582
Laboratory-confirmed MDR-TB cases	6	6	68
Patients started on MDR-TB treatment			68

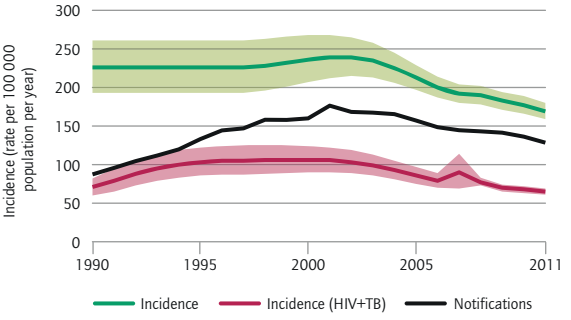
Financing TB control

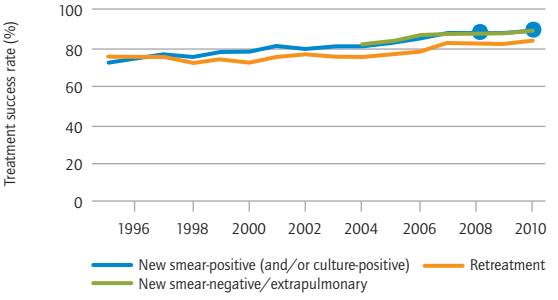
	2012	2013
Total budget (US$ millions)	43	57
Available funding (US$ millions)	16	15
% of budget funded	39	27
% available funding from domestic sources	47	51
% available funding from the Global Fund	23	31

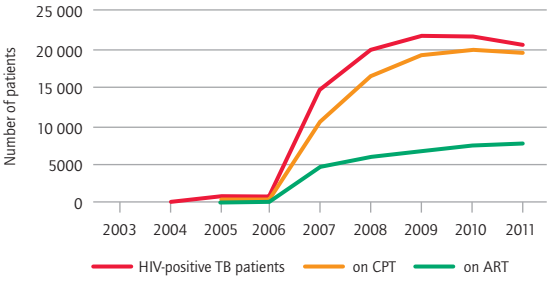
[a] Ranges represent uncertainty intervals.

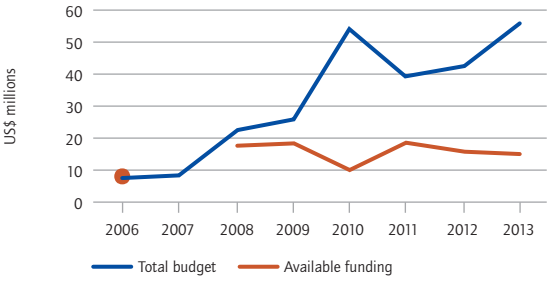












HIGH TB BURDEN | HIGH HIV BURDEN | HIGH MDR-TB BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	30 (12–55)	33 (14–62)
Prevalence (includes HIV+TB)	290 (130–500)	323 (148–563)
Incidence (includes HIV+TB)	180 (140–220)	199 (153–250)
Incidence (HIV+TB)	14 (11–18)	16 (12–20)
Case detection, all forms (%)	56 (44–73)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	50 719	(55)	Relapse	6 925	(80)
Smear-negative	20 205	(22)	Treatment after failure	621	(7)
Smear-unknown/not done			Treatment after default	376	(4)
Extrapulmonary	17 934	(20)	Other	717	(8)
Other	2 679	(3)			
Total new	91 537		Total retreatment	8 639	
Other (history unknown)					
Total new and relapse	98 462		Total cases notified	100 176	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	3.0		
Age < 15	95		

Laboratories

	2011
Smear (per 100 000 population)	0.9
Culture (per 5 million population)	1.4
Drug susceptibility testing (per 5 million population)	0.1
Is second-line drug susceptibility testing available?	Yes, in country
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	92	Is rifampicin used throughout treatment for new patients?	No
New smear-negative/extrapulmonary	92		
Retreatment	69		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	59 094	(59)
HIV-positive TB patients	4 713	(8)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	3 396	(72)
HIV-positive TB patients on antiretroviral therapy (ART)	2 258	(48)
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	2.7 (2.0–3.6)	19 (14–25)
MDR-TB cases among notified pulmonary TB cases	2 000 (1 500–2 700)	1 700 (1 200–2 200)

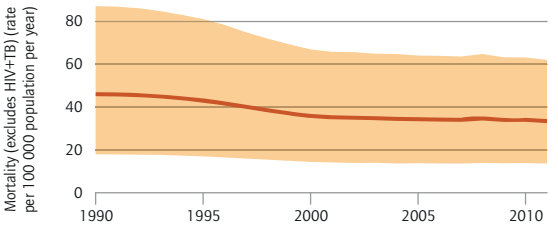
Reported cases of MDR-TB 2011

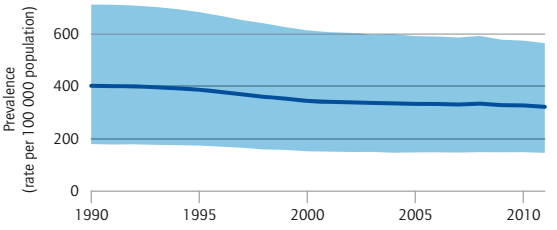
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB			
Laboratory-confirmed MDR-TB cases			601
Patients started on MDR-TB treatment			578

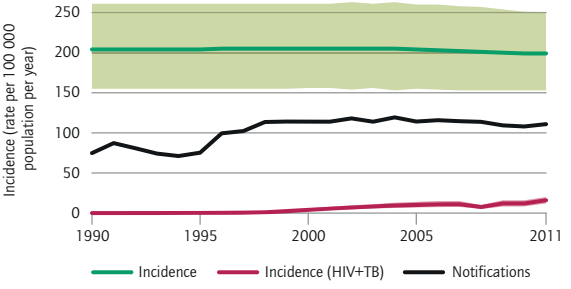
Financing TB control

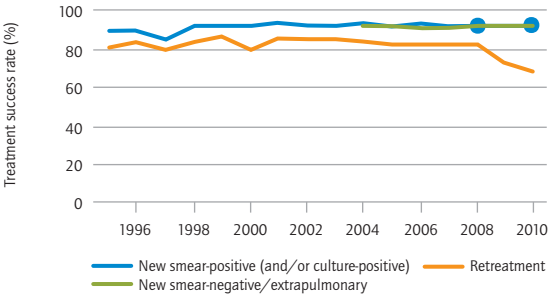
	2012	2013
Total budget (US$ millions)	73	63
Available funding (US$ millions)	16	18
% of budget funded	22	29
% available funding from domestic sources	32	
% available funding from the Global Fund	68	69

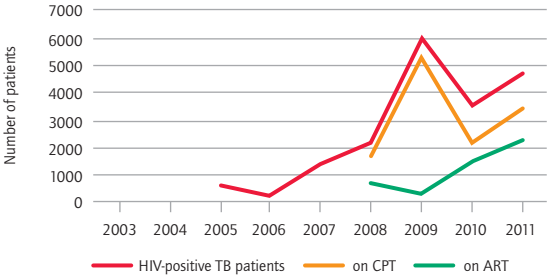
[a] Ranges represent uncertainty intervals.

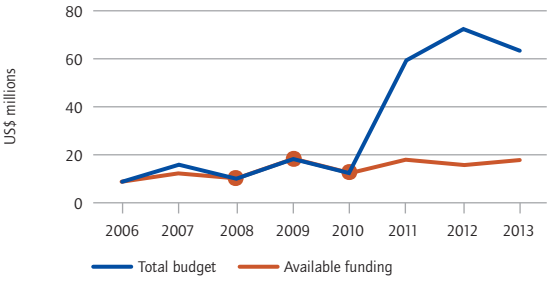












HIGH TB BURDEN | HIGH HIV BURDEN

Estimates of TB burden[a] 2011

	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	6.0 (2.4–11)	47 (19–88)
Prevalence (includes HIV+TB)	70 (37–110)	547 (287–889)
Incidence (includes HIV+TB)	77 (59–96)	603 (466–757)
Incidence (HIV+TB)	46 (36–58)	360 (279–452)
Case detection, all forms (%)	50 (40–65)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	12 596	(34)	Relapse	1 444	(33)
Smear-negative	15 303	(41)	Treatment after failure	176	(4)
Smear-unknown/not done	3 869	(10)	Treatment after default	152	(3)
Extrapulmonary	5 192	(14)	Other	2 573	(59)
Other	0	(0)			
Total new	36 960		Total retreatment	4 345	
Other (history unknown)	0				
Total new and relapse	38 404		Total cases notified	41 305	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	1.2	1.1	1.1
Age < 15	326	2 635	459

Laboratories

	2011
Smear (per 100 000 population)	1.2
Culture (per 5 million population)	0.8
Drug susceptibility testing (per 5 million population)	0.8
Is second-line drug susceptibility testing available?	No
Is there a national reference laboratory?	Yes

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	81	Is rifampicin used throughout treatment for new patients?	Yes
New smear-negative/extrapulmonary	75		
Retreatment	74		

TB/HIV 2011

	NUMBER	(%)
TB patients with known HIV status	35 361	(86)
HIV-positive TB patients	21 125	(60)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	6 203	(29)
HIV-positive TB patients on antiretroviral therapy (ART)	14 090	(67)
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Estimates of MDR-TB burden 2011[a]

	NEW	RETREATMENT
% of TB cases with MDR-TB	1.9 (1.0–3.3)	8.3 (1.8–22)
MDR-TB cases among notified pulmonary TB cases	610 (330–1 000)	360 (76–980)

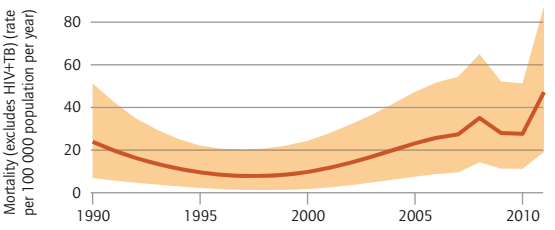
Reported cases of MDR-TB 2011

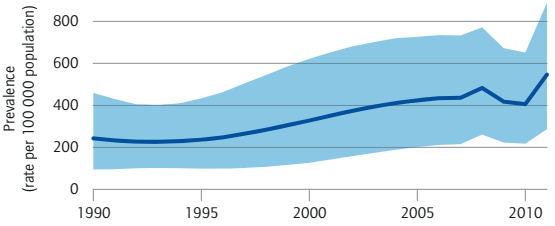
	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	0 (0%)	0 (0%)	1 197
Laboratory-confirmed MDR-TB cases	0	0	118
Patients started on MDR-TB treatment			64

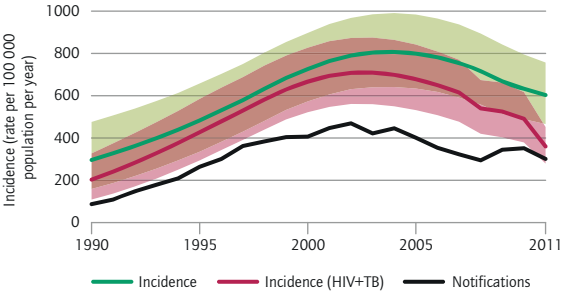
Financing TB control

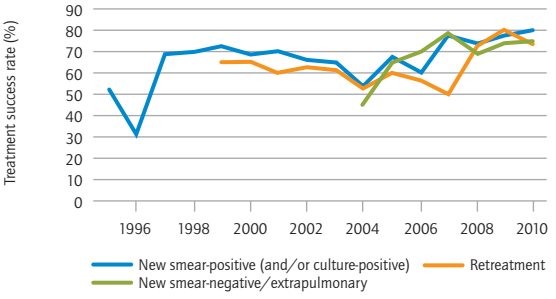
	2012	2013
Total budget (US$ millions)	40	38
Available funding (US$ millions)	14	14
% of budget funded	36	37
% available funding from domestic sources	17	20
% available funding from the Global Fund	58	55

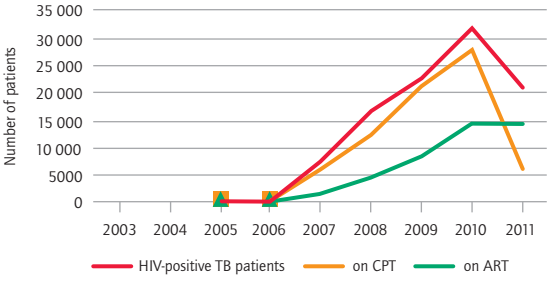
[a] Ranges represent uncertainty intervals.

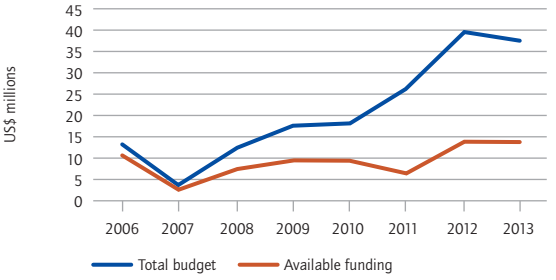












ANNEX 3

Regional profiles

WHO MEMBER STATES 46

Estimates of TB burden[a] 2011	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	220 (180–270)	26 (21–31)
Prevalence (includes HIV+TB)	2 500 (2 100–3 000)	293 (243–347)
Incidence (includes HIV+TB)	2 300 (2 100–2 400)	262 (242–283)
Incidence (HIV+TB)	870 (800–950)	102 (93–111)
Case detection, all forms (%)	61 (56–66)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	605 929	(46)	Relapse	52 283	(41)
Smear-negative	357 811	(27)	Treatment after failure	9 271	(7.3)
Smear-unknown/not done	109 258	(8.3)	Treatment after default	13 498	(11)
Extrapulmonary	240 843	(18)	Other	51 853	(41)
Other	1 069	(<1)			
Total new	1 314 910		Total retreatment	126 905	
Other (history unknown)	18 951				
Total new and relapse	1 367 193		Total cases notified	1 460 766	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	1.4	1.2	1.2
age < 15	19 183	43 845	12 615

Laboratories 2011	NUMBER OF MEMBER STATES[b]
Smear (per 100 000 population) ≥ 1	28 out of 43
Culture (per 5 million population) ≥ 1	15 out of 43
Drug susceptibility testing (per 5 million population) ≥ 1	10 out of 43

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	82
New smear-negative/extrapulmonary	64
Retreament	54
MDR-TB (2009 cohort)	45

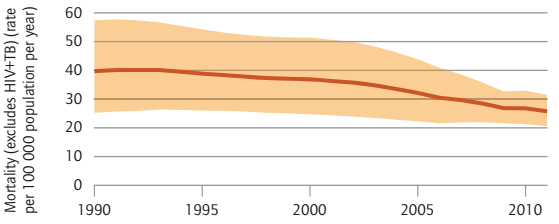
TB/HIV 2011	NUMBER	(%)[c]
TB patients with known HIV status	1 001 972	(69)
HIV-positive TB patients	458 608	(46)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	353 306	(79)
HIV-positive TB patients on antiretroviral therapy (ART)	203 851	(46)
HIV-positive people screened for TB	2 770 295	
HIV-positive people provided with IPT	437 983	

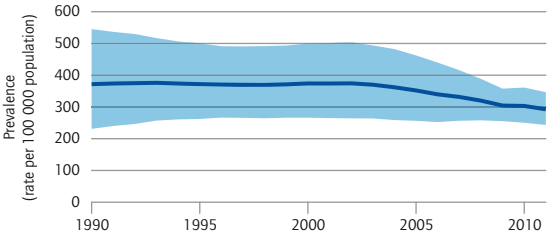
Estimates of MDR-TB burden 2011[a]	NEW	RETREATMENT
% of TB cases with MDR-TB	2.9 (0.1–6.2)	11 (3.4–18)
MDR-TB cases among notified pulmonary TB cases	31 000 (1 100–67 000)	14 000 (4 300–23 000)

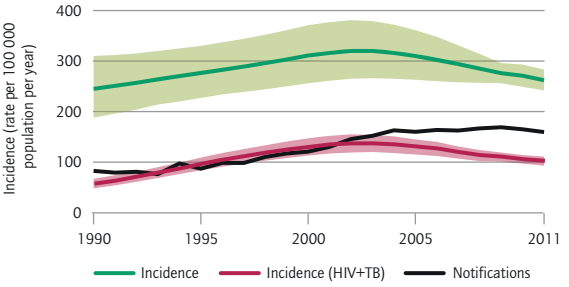
Reported cases of MDR-TB 2011	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	1 311 (<1%)	3 707 (2.9%)	41 629
Laboratory-confirmed MDR-TB cases	183	986	12 384
Patients started on MDR-TB treatment			7 467

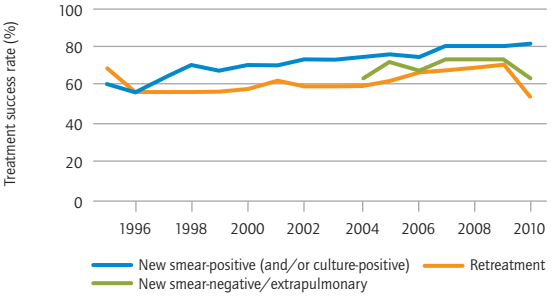
Financing TB control (low- and middle-income countries)[d]	2012	2013
Total budget (US$ millions)	506	500
Available funding (US$ millions)	277	234
% of budget funded	55	47
% available funding from domestic sources	31	30
% available funding from Global Fund	51	54

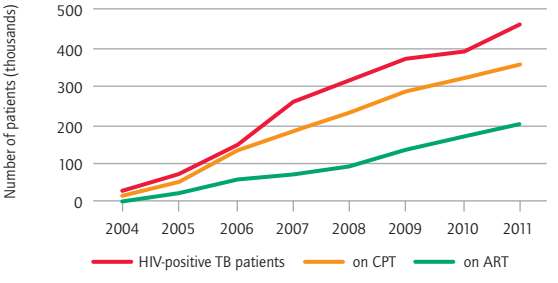
[a] Ranges represent uncertainty intervals.
[b] Data are not collected from all Member States.
[c] Calculations exclude countries with missing numerators or denominators.
[d] Financing indicators exclude funding for general healthcare services provided outside NTPs. South Africa has been excluded due to lack of data.

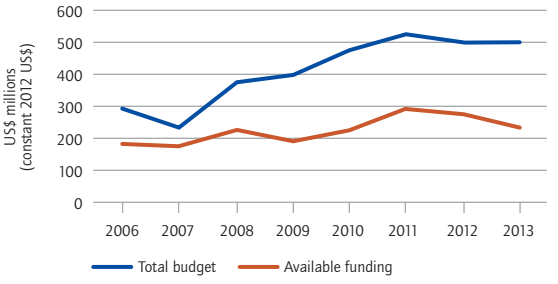












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Estimates of TB burden[a] 2011	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	21 (18–24)	2.2 (1.9–2.5)
Prevalence (includes HIV+TB)	330 (250–420)	35 (26–44)
Incidence (includes HIV+TB)	260 (240–280)	28 (26–29)
Incidence (HIV+TB)	37 (34–40)	3.9 (3.6–4.2)
Case detection, all forms (%)	84 (79–89)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	121 130	(59)	Relapse	10 004	(46)
Smear-negative	36 371	(18)	Treatment after failure	1 066	(4.9)
Smear-unknown/not done	14 254	(6.9)	Treatment after default	6 506	(30)
Extrapulmonary	33 757	(16)	Other	4 041	(19)
Other	1 315	(<1)			
Total new	206 827		Total retreatment	21 617	
Other (history unknown)	3 436				
Total new and relapse	216 831		Total cases notified	231 880	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	1.8	1.6	1.4
age < 15	2 337	5 255	2 127

Laboratories 2011	NUMBER OF MEMBER STATES[b]
Smear (per 100 000 population) ≥ 1	17 out of 23
Culture (per 5 million population) ≥ 1	22 out of 23
Drug susceptibility testing (per 5 million population) ≥ 1	9 out of 23

Treatment success rate 2010 (%)	
New smear-positive (and/or culture-positive)	77
New smear-negative/extrapulmonary	70
Retreament	49
MDR-TB (2009 cohort)	49

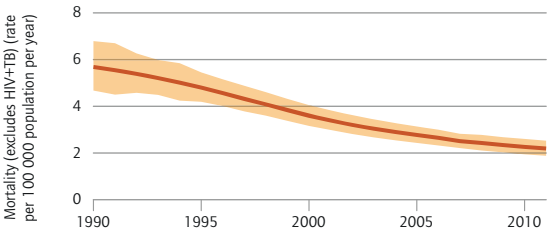
TB/HIV 2011	NUMBER	(%)[c]
TB patients with known HIV status	124 035	(53)
HIV-positive TB patients	20 828	(17)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	2 738	(43)
HIV-positive TB patients on antiretroviral therapy (ART)	12 130	(64)
HIV-positive people screened for TB	2 653	
HIV-positive people provided with IPT	1 705	

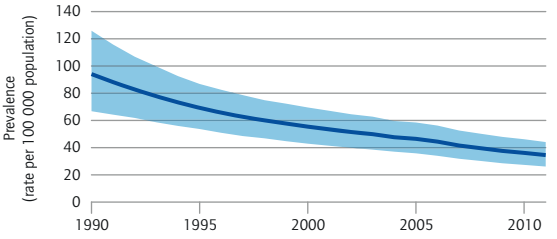
Estimates of MDR-TB burden 2011[a]	NEW	RETREATMENT
% of TB cases with MDR-TB	2 (0.8–3.3)	11 (4.5–17)
MDR-TB cases among notified pulmonary TB cases	3 500 (1 400–5 700)	2 400 (970–3 800)

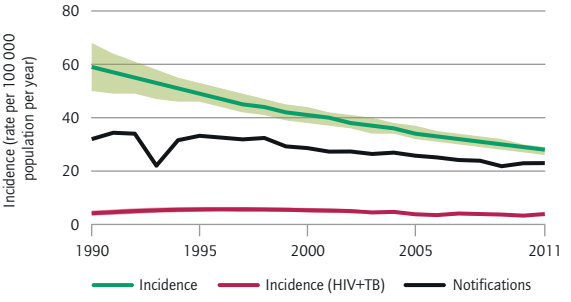
Reported cases of MDR-TB 2011	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	13 334 (10%)	4 234 (20%)	19 277
Laboratory-confirmed MDR-TB cases	1 065	1 468	2 969
Patients started on MDR-TB treatment			3 087

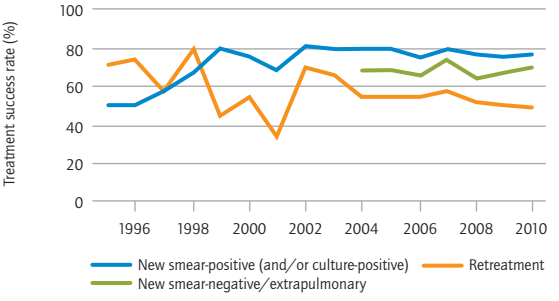
Financing TB control (low- and middle-income countries)[d]	2012	2013
Total budget (US$ millions)	174	174
Available funding (US$ millions)	146	138
% of budget funded	84	79
% available funding from domestic sources	85	88
% available funding from Global Fund	10	11

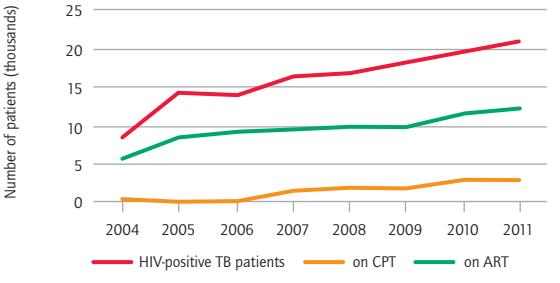
[a] Ranges represent uncertainty intervals.
[b] Data are not collected from all Member States.
[c] Calculations exclude countries with missing numerators or denominators.
[d] Financing indicators exclude funding for general healthcare services provided outside NTPs.

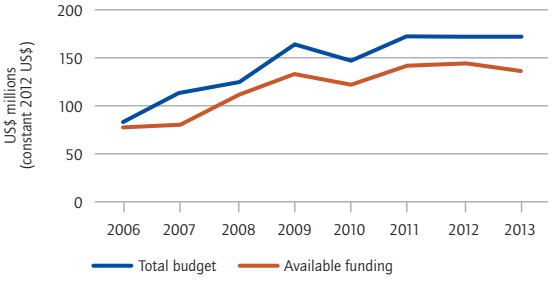












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Estimates of TB burden[a] 2011	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	99 (61–150)	16 (10–24)
Prevalence (includes HIV+TB)	1 000 (660–1 500)	170 (108–246)
Incidence (includes HIV+TB)	660 (590–740)	109 (97–122)
Incidence (HIV+TB)	9 (8–10)	1.4 (1.3–1.6)
Case detection, all forms (%)	62 (55–70)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	170 748	(43)	Relapse	11 223	(53)
Smear-negative	128 182	(32)	Treatment after failure	1 977	(9.3)
Smear-unknown/not done	7 206	(1.8)	Treatment after default	2 867	(13)
Extrapulmonary	93 605	(23)	Other	5 258	(25)
Other	623	(<1)			
Total new	400 364		Total retreatment	21 325	
Other (history unknown)	4 132				
Total new and relapse	411 587		Total cases notified	425 821	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	1.2	1.2	0.9
age < 15	5 763	18 251	12 153

Laboratories 2011	NUMBER OF MEMBER STATES[b]
Smear (per 100 000 population) ≥ 1	8 out of 22
Culture (per 5 million population) ≥ 1	12 out of 22
Drug susceptibility testing (per 5 million population) ≥ 1	7 out of 22

Treatment success rate 2010 (%)	
New smear-positive (and/or culture-positive)	88
New smear-negative/extrapulmonary	87
Retreament	75
MDR-TB (2009 cohort)	44

TB/HIV 2011	NUMBER	(%)[c]
TB patients with known HIV status	44 973	(11)
HIV-positive TB patients	1 781	(4.0)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	733	(59)
HIV-positive TB patients on antiretroviral therapy (ART)	678	(48)
HIV-positive people screened for TB	974	
HIV-positive people provided with IPT	52	

Estimates of MDR-TB burden 2011[a]	NEW	RETREATMENT
% of TB cases with MDR-TB	3.4 (0.1–10)	30 (6.9–53)
MDR-TB cases among notified pulmonary TB cases	10 000 (310–32 000)	6 400 (1 500–11 000)

Reported cases of MDR-TB 2011	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	2 264 (1.2%)	1 466 (6.9%)	4 019
Laboratory-confirmed MDR-TB cases	93	375	841
Patients started on MDR-TB treatment			756

Financing TB control (low- and middle-income countries)[d]	2012	2013
Total budget (US$ millions)	131	123
Available funding (US$ millions)	90	76
% of budget funded	69	62
% available funding from domestic sources	34	40
% available funding from Global Fund	61	57

[a] Ranges represent uncertainty intervals.
[b] Data are not collected from all Member States.
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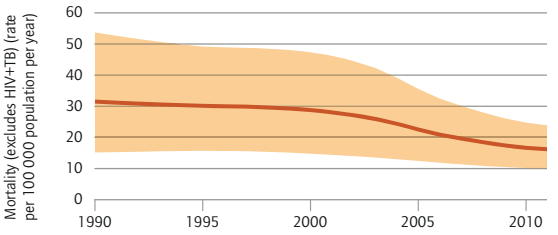
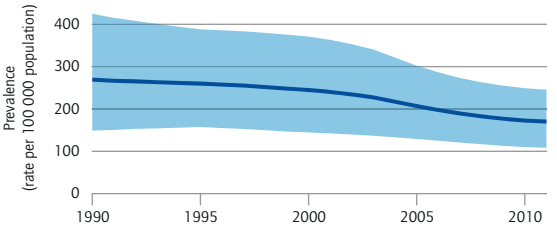
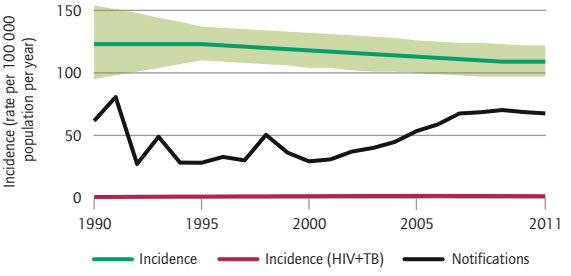
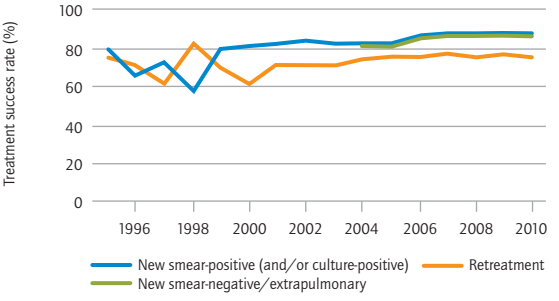
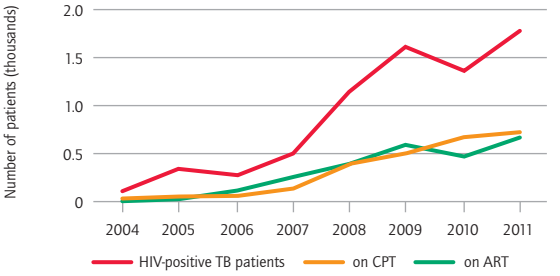
[d] Financing indicators exclude funding for general healthcare services provided outside NTPs.

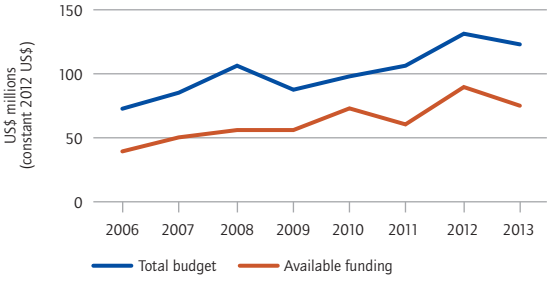












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Estimates of TB burden[a] 2011	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	45 (44–46)	5 (4.9–5.1)
Prevalence (includes HIV+TB)	500 (370–650)	56 (41–73)
Incidence (includes HIV+TB)	380 (350–400)	42 (39–45)
Incidence (HIV+TB)	23 (20–25)	2.5 (2.2–2.8)
Case detection, all forms (%)	73 (69–78)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	79 831	(31)	Relapse	22 838	(24)
Smear-negative	121 362	(48)	Treatment after failure	12 140	(13)
Smear-unknown/not done	6 896	(2.7)	Treatment after default	4 625	(4.8)
Extrapulmonary	42 489	(17)	Other	56 531	(59)
Other	3 191	(1.3)			
Total new	253 769		Total retreatment	96 134	
Other (history unknown)	7 502				
Total new and relapse	275 872		Total cases notified	356 670	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	2.3	1.9	1.2
age < 15	391	2 850	6 638

Laboratories 2011	NUMBER OF MEMBER STATES[b]
Smear (per 100 000 population) ≥ 1	8 out of 53
Culture (per 5 million population) ≥ 1	30 out of 53
Drug susceptibility testing (per 5 million population) ≥ 1	25 out of 53

Treatment success rate 2010 (%)	
New smear-positive (and/or culture-positive)	67
New smear-negative/extrapulmonary	78
Retreament	51
MDR-TB (2009 cohort)	48

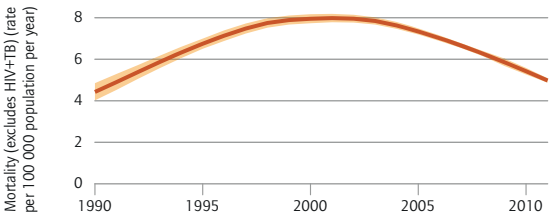
TB/HIV 2011	NUMBER	(%)[c]
TB patients with known HIV status	187 233	(52)
HIV-positive TB patients	12 317	(6.5)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	828	(64)
HIV-positive TB patients on antiretroviral therapy (ART)	3 487	(47)
HIV-positive people screened for TB	9 173	
HIV-positive people provided with IPT	4 565	

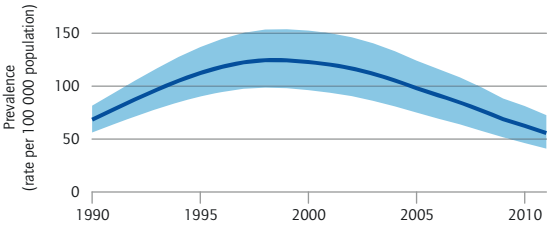
Estimates of MDR-TB burden 2011[a]	NEW	RETREATMENT
% of TB cases with MDR-TB	15 (10–20)	44 (40–49)
MDR-TB cases among notified pulmonary TB cases	32 000 (21 000–42 000)	42 000 (38 000–47 000)

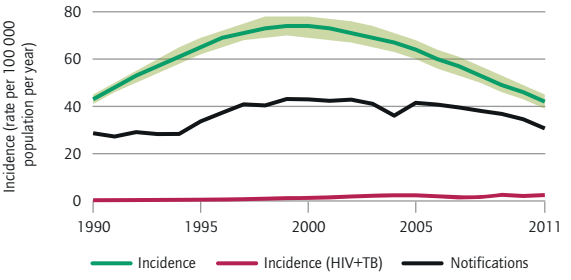
Reported cases of MDR-TB 2011	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	69 467 (56%)	25 561 (27%)	99 470
Laboratory-confirmed MDR-TB cases	10 290	12 097	32 348
Patients started on MDR-TB treatment			34 769

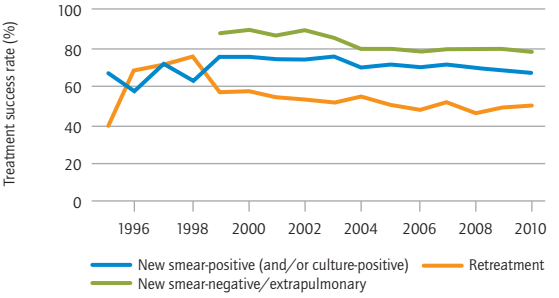
Financing TB control (low- and middle-income countries)[d]	2012	2013
Total budget (US$ millions)	1 380	1 670
Available funding (US$ millions)	1 350	1 550
% of budget funded	98	92
% available funding from domestic sources	96	98
% available funding from Global Fund	3.7	1.9

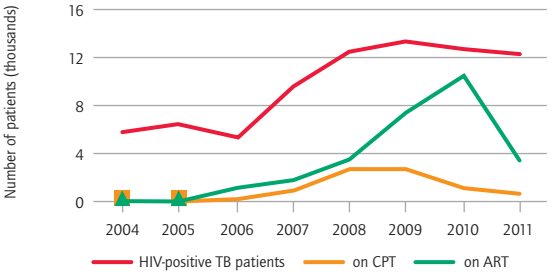
[a] Ranges represent uncertainty intervals.
[b] Data are not collected from all Member States.
[c] Calculations exclude countries with missing numerators or denominators.
[d] Financing indicators exclude funding for general healthcare services provided outside NTPs.

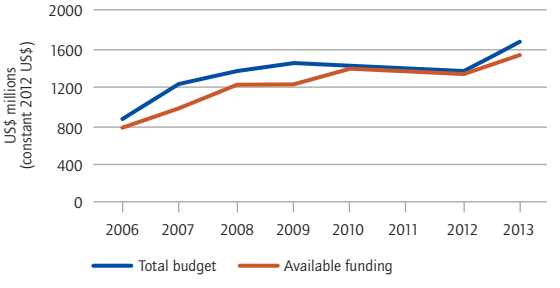












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Estimates of TB burden[a] 2011	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	480 (350–630)	26 (19–34)
Prevalence (includes HIV+TB)	5 000 (3 800–6 300)	271 (206–344)
Incidence (includes HIV+TB)	3 500 (3 200–3 700)	189 (176–203)
Incidence (HIV+TB)	140 (120–170)	7.7 (6.4–9.1)
Case detection, all forms (%)	62 (58–66)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	1 067 367	(53)	Relapse	135 650	(39)
Smear-negative	598 800	(30)	Treatment after failure	23 252	(6.6)
Smear-unknown/not done	0	(0)	Treatment after default	76 666	(22)
Extrapulmonary	333 993	(17)	Other	115 636	(33)
Other	2 878	(<1)			
Total new	2 003 038		Total retreatment	351 204	
Other (history unknown)	3 885				
Total new and relapse	2 138 688		Total cases notified	2 358 127	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	2.0	1.4	1.1
age < 15	17 144	26 816	7 567

Laboratories 2011	NUMBER OF MEMBER STATES[b]
Smear (per 100 000 population) ≥ 1	9 out of 11
Culture (per 5 million population) ≥ 1	3 out of 11
Drug susceptibility testing (per 5 million population) ≥ 1	2 out of 11

Treatment success rate 2010 (%)

New smear-positive (and/or culture-positive)	88
New smear-negative/extrapulmonary	89
Retreament	75
MDR-TB (2009 cohort)	58

TB/HIV 2011	NUMBER	(%)[c]
TB patients with known HIV status	750 315	(32)
HIV-positive TB patients	54 314	(7.2)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	48 270	(89)
HIV-positive TB patients on antiretroviral therapy (ART)	31 883	(59)
HIV-positive people screened for TB	439 521	
HIV-positive people provided with IPT	368	

Estimates of MDR-TB burden 2011[a]	NEW	RETREATMENT
% of TB cases with MDR-TB	2.1 (1.8–2.5)	16 (12–19)
MDR-TB cases among notified pulmonary TB cases	35 000 (30 000–42 000)	54 000 (42 000–66 000)

Reported cases of MDR-TB 2011	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	1 200 (<1%)	1 925 (<1%)	8 091
Laboratory-confirmed MDR-TB cases	22	869	6 615
Patients started on MDR-TB treatment			4 572

Financing TB control (low- and middle-income countries)[d]	2012	2013
Total budget (US$ millions)	469	429
Available funding (US$ millions)	358	288
% of budget funded	76	67
% available funding from domestic sources	49	48
% available funding from Global Fund	44	50

[a] Ranges represent uncertainty intervals.
[b] Data are not collected from all Member States.
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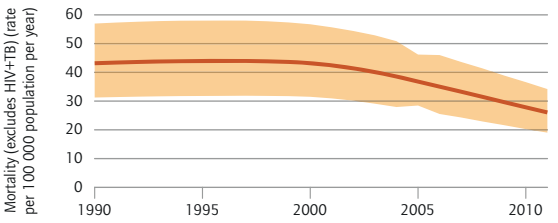
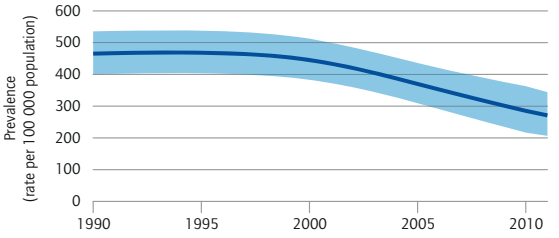
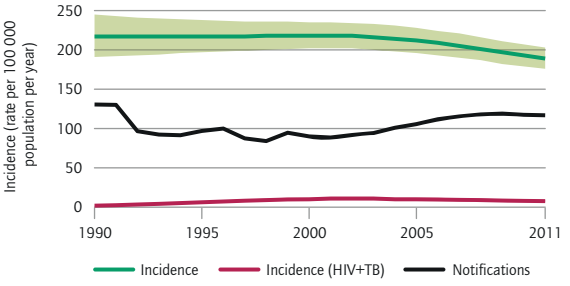
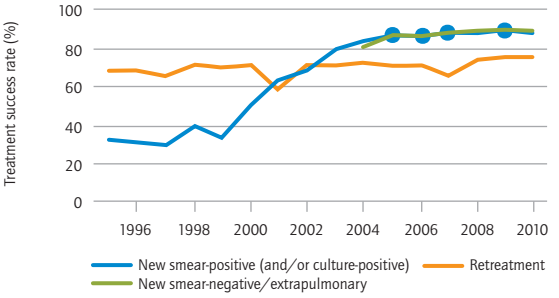
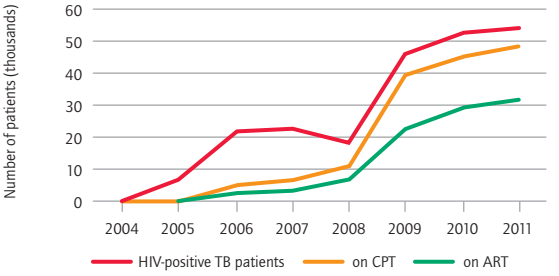
[d] Financing indicators exclude funding for general healthcare services provided outside NTPs.

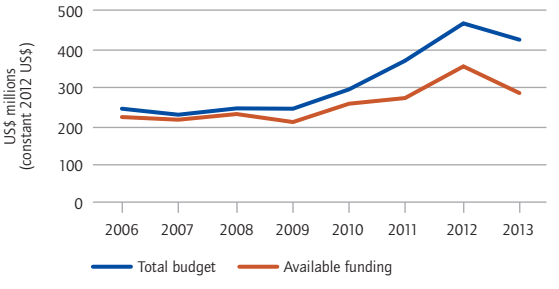












WHO MEMBER STATES 27
OTHER COUNTRIES AND TERRITORIES 9

Estimates of TB burden[a] 2011	NUMBER (thousands)	RATE (per 100 000 population)
Mortality (excludes HIV+TB)	130 (100–150)	6.9 (5.7–8.3)
Prevalence (includes HIV+TB)	2 500 (2 200–2 800)	138 (123–154)
Incidence (includes HIV+TB)	1 700 (1 500–1 800)	92 (84–100)
Incidence (HIV+TB)	36 (31–42)	2 (1.7–2.3)
Case detection, all forms (%)	81 (75–89)	

TB case notifications 2011

NEW CASES		(%)	RETREATMENT CASES		(%)
Smear-positive	576 044	(44)	Relapse	50 841	(60)
Smear-negative	630 219	(49)	Treatment after failure	3 967	(4.7)
Smear-unknown/not done	17 435	(1.3)	Treatment after default	3 371	(4.0)
Extrapulmonary	68 949	(5.3)	Other	25 919	(31)
Other	2 708	(<1)			
Total new	1 295 355		Total retreatment	84 098	
Other (history unknown)	3 796				
Total new and relapse	1 346 196		Total cases notified	1 383 249	

New cases

	SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN/NOT DONE	EXTRAPULMONARY
M:F ratio	2.4	2.1	1.0
age < 15	2 880	5 049	979

Laboratories 2011	NUMBER OF MEMBER STATES[b]
Smear (per 100 000 population) ≥ 1	13 out of 17
Culture (per 5 million population) ≥ 1	11 out of 17
Drug susceptibility testing (per 5 million population) ≥ 1	5 out of 17

Treatment success rate 2010 (%)	
New smear-positive (and/or culture-positive)	93
New smear-negative/extrapulmonary	91
Retreament	86
MDR-TB (2009 cohort)	57

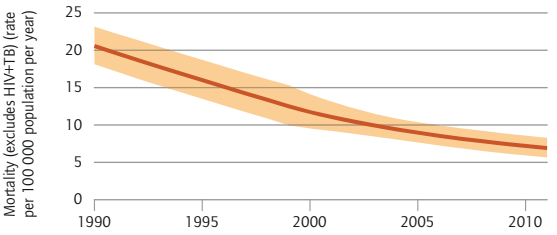
TB/HIV 2011	NUMBER	(%)[c]
TB patients with known HIV status	351 901	(25)
HIV-positive TB patients	13 794	(3.9)
HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	5 876	(71)
HIV-positive TB patients on antiretroviral therapy (ART)	6 005	(47)
HIV-positive people screened for TB	11 203	
HIV-positive people provided with IPT	1 787	

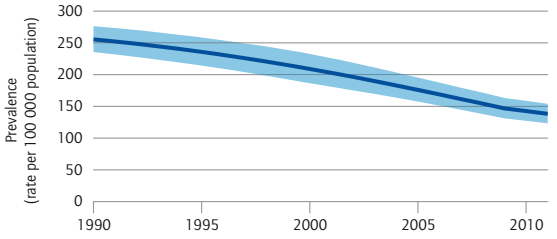
Estimates of MDR-TB burden 2011[a]	NEW	RETREATMENT
% of TB cases with MDR-TB	4.8 (3.4–6.1)	22 (18–26)
MDR-TB cases among notified pulmonary TB cases	59 000 (42 000–75 000)	19 000 (15 000–22 000)

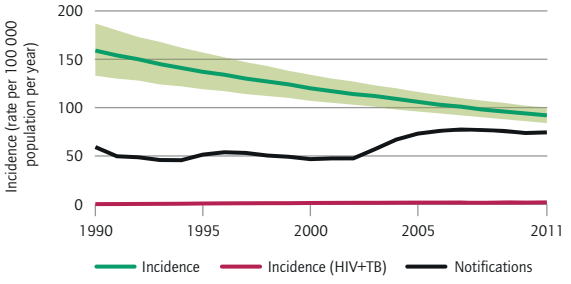
Reported cases of MDR-TB 2011	NEW	RETREATMENT	TOTAL
Cases tested for MDR-TB	25 284 (4.2%)	5 131 (6.1%)	44 787
Laboratory-confirmed MDR-TB cases	572	2 112	4 392
Patients started on MDR-TB treatment			4 946

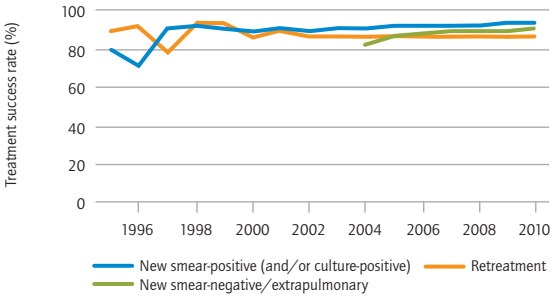
Financing TB control (low- and middle-income countries)[d]	2012	2013
Total budget (US$ millions)	580	532
Available funding (US$ millions)	425	362
% of budget funded	73	68
% available funding from domestic sources	60	80
% available funding from Global Fund	39	19

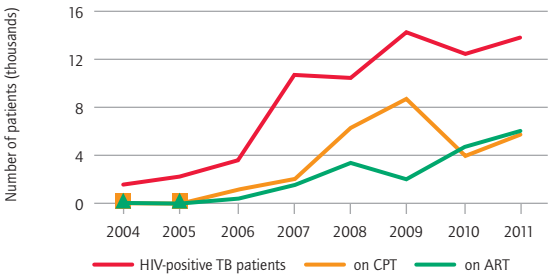
[a] Ranges represent uncertainty intervals.
[b] Data are not collected from all Member States.
[c] Calculations exclude countries with missing numerators or denominators.
[d] Financing indicators exclude funding for general healthcare services provided outside NTPs.

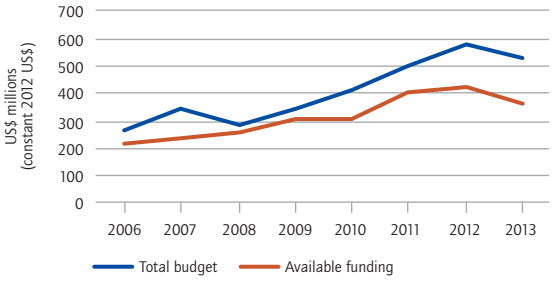












ANNEX 4

Global, regional and country-specific data for key indicators

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Estimates of mortality, prevalence and incidence

Estimated values are shown as best estimates followed by lower and upper bounds. The lower and upper bounds are defined as the 2.5th and 97.5th centiles of outcome distributions produced in simulations. See Annex 1 for further details.

Estimated numbers are shown rounded to two significant figures. Estimated rates are shown rounded to three significant figures unless the value is under 100, in which case rates are shown rounded to two significant figures. Blank cells indicate that estimates are not available.

Estimates for all years are recalculated as new information becomes available and techniques are refined, so they may differ from those published in previous reports in this series. Estimates published in previous global TB control reports should no longer be used.

Data source

Data shown in this annex are taken from the WHO global TB database on 25 September 2012. Data shown in the main part of the report were taken from the database in July 2012. As a result, data in this annex may differ slightly from those in the main part of the report.

Data can be downloaded from **www.who.int/tb/data**.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2011**

			MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
Global	1990	5 283	1 300 (1 100–1 500)	24 (20–28)	14 000 (13 000–16 000)	268 (243–294)	7 800 (7 100–8 400)	147 (135–159)
	1995	5 702	1 300 (1 100–1 600)	24 (20–28)	15 000 (14 000–17 000)	269 (246–293)	8 400 (7 900–8 900)	148 (139–157)
	2000	6 097	1 400 (1 100–1 600)	22 (19–26)	16 000 (14 000–17 000)	257 (234–282)	9 100 (8 500–9 600)	148 (140–157)
	2005	6 481	1 200 (1 100–1 400)	19 (16–22)	14 000 (13 000–16 000)	221 (199–244)	9 200 (8 700–9 700)	142 (135–150)
	2009	6 792	1 100 (900–1 200)	16 (13–18)	12 000 (11 000–14 000)	184 (163–206)	8 800 (8 500–9 200)	130 (125–135)
	2010	6 870	1 000 (870–1 200)	15 (13–17)	12 000 (11 000–14 000)	177 (156–200)	8 800 (8 400–9 100)	128 (123–133)
	2011	6 948	990 (840–1 100)	14 (12–17)	12 000 (10 000–13 000)	170 (150–192)	8 700 (8 300–9 000)	125 (120–130)
Africa	1990	507	200 (130–290)	40 (25–57)	1 900 (1 200–2 800)	372 (231–545)	1 200 (950–1 600)	245 (188–310)
	1995	580	230 (150–310)	39 (26–54)	2 200 (1 500–2 900)	372 (262–500)	1 600 (1 300–1 900)	276 (227–330)
	2000	656	240 (160–340)	37 (25–51)	2 500 (1 700–3 300)	374 (266–500)	2 000 (1 700–2 400)	311 (256–371)
	2005	742	240 (170–330)	32 (22–44)	2 600 (1 900–3 400)	352 (256–462)	2 300 (1 900–2 700)	310 (263–361)
	2009	817	220 (180–270)	27 (22–33)	2 500 (2 100–2 900)	304 (255–358)	2 300 (2 100–2 400)	276 (256–296)
	2010	837	220 (180–280)	27 (21–33)	2 500 (2 100–3 000)	303 (250–361)	2 300 (2 100–2 500)	271 (249–293)
	2011	857	220 (180–270)	26 (21–31)	2 500 (2 100–3 000)	293 (243–347)	2 300 (2 100–2 400)	262 (242–283)
The Americas	1990	723	41 (34–49)	5.7 (4.7–6.8)	680 (480–910)	94 (67–126)	430 (360–490)	59 (50–68)
	1995	777	37 (33–42)	4.8 (4.2–5.5)	540 (420–670)	69 (54–87)	380 (350–410)	49 (46–53)
	2000	834	30 (26–34)	3.6 (3.2–4.0)	460 (360–580)	55 (43–70)	340 (320–370)	41 (38–44)
	2005	885	25 (22–28)	2.8 (2.4–3.1)	410 (320–520)	46 (36–59)	310 (290–330)	34 (32–37)
	2009	924	22 (19–25)	2.3 (2.0–2.7)	350 (260–440)	38 (29–48)	270 (260–290)	30 (28–32)
	2010	933	21 (18–24)	2.3 (1.9–2.6)	340 (260–430)	36 (27–46)	270 (250–280)	29 (27–30)
	2011	943	21 (18–24)	2.2 (1.9–2.5)	330 (250–420)	35 (26–44)	260 (240–280)	28 (26–29)
Eastern Mediterranean	1990	381	120 (58–200)	32 (15–54)	1 000 (570–1 600)	269 (149–425)	470 (360–590)	123 (95–154)
	1995	433	130 (68–210)	30 (16–49)	1 100 (680–1 700)	260 (158–388)	530 (480–590)	123 (110–137)
	2000	484	140 (71–230)	29 (15–47)	1 200 (700–1 800)	245 (145–371)	570 (510–640)	118 (104–132)
	2005	538	120 (67–190)	23 (12–36)	1 100 (700–1 600)	207 (130–302)	610 (540–680)	113 (100–126)
	2009	585	100 (61–150)	17 (10–26)	1 000 (660–1 500)	177 (113–255)	640 (570–720)	109 (97–123)
	2010	597	99 (61–150)	17 (10–25)	1 000 (660–1 500)	173 (110–249)	650 (580–730)	109 (97–122)
	2011	609	99 (61–150)	16 (10–24)	1 000 (660–1 500)	170 (108–246)	660 (590–740)	109 (97–122)
Europe	1990	846	37 (34–41)	4.4 (4.0–4.8)	580 (480–690)	68 (56–82)	360 (350–380)	43 (41–45)
	1995	862	58 (56–60)	6.7 (6.5–7.0)	970 (780–1 200)	112 (90–137)	560 (530–590)	65 (62–69)
	2000	868	69 (67–71)	8 (7.7–8.2)	1 100 (840–1 300)	123 (96–153)	640 (600–680)	74 (69–78)
	2005	880	65 (63–66)	7.3 (7.2–7.5)	860 (660–1 100)	98 (75–124)	560 (520–600)	64 (60–68)
	2009	893	52 (51–54)	5.9 (5.7–6.0)	610 (460–790)	69 (52–88)	440 (410–470)	49 (46–53)
	2010	897	49 (47–50)	5.4 (5.3–5.6)	560 (410–730)	63 (46–81)	410 (380–440)	46 (43–49)
	2011	899	45 (44–46)	5 (4.9–5.1)	500 (370–650)	56 (41–73)	380 (350–400)	42 (39–45)
South-East Asia	1990	1 317	570 (410–750)	43 (31–57)	6 100 (5 300–7 100)	465 (400–536)	2 900 (2 500–3 200)	217 (191–245)
	1995	1 446	630 (460–840)	44 (32–58)	6 800 (5 800–7 800)	468 (404–538)	3 100 (2 800–3 400)	217 (197–238)
	2000	1 572	680 (500–890)	43 (31–57)	7 000 (6 000–8 100)	445 (383–513)	3 400 (3 200–3 700)	218 (202–235)
	2005	1 694	620 (480–780)	37 (28–46)	6 300 (5 200–7 400)	370 (309–436)	3 600 (3 300–3 900)	212 (196–228)
	2009	1 785	530 (390–690)	30 (22–39)	5 400 (4 200–6 700)	301 (235–376)	3 500 (3 300–3 800)	197 (182–211)
	2010	1 808	500 (370–660)	28 (20–37)	5 200 (3 900–6 600)	285 (217–363)	3 500 (3 200–3 700)	193 (179–207)
	2011	1 830	480 (350–630)	26 (19–34)	5 000 (3 800–6 300)	271 (206–344)	3 500 (3 200–3 700)	189 (176–203)
Western Pacific	1990	1 510	310 (270–350)	21 (18–23)	3 900 (3 600–4 200)	255 (236–276)	2 400 (2 000–2 800)	159 (133–187)
	1995	1 605	260 (220–300)	16 (14–19)	3 800 (3 400–4 100)	236 (214–258)	2 200 (1 900–2 500)	137 (119–157)
	2000	1 683	200 (160–240)	12 (9.5–14)	3 500 (3 100–3 900)	209 (186–233)	2 000 (1 800–2 300)	120 (107–134)
	2005	1 743	160 (130–180)	9 (7.7–10)	3 100 (2 700–3 400)	176 (157–195)	1 800 (1 700–2 000)	106 (96–116)
	2009	1 788	130 (110–160)	7.5 (6.2–8.9)	2 600 (2 300–2 900)	147 (131–163)	1 700 (1 600–1 900)	96 (88–105)
	2010	1 798	130 (110–150)	7.2 (5.9–8.6)	2 600 (2 300–2 900)	143 (127–159)	1 700 (1 500–1 800)	94 (86–102)
	2011	1 809	130 (100–150)	6.9 (5.7–8.3)	2 500 (2 200–2 800)	138 (123–154)	1 700 (1 500–1 800)	92 (84–100)

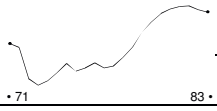
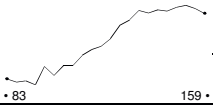
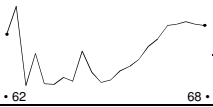
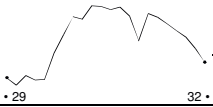
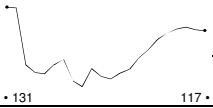
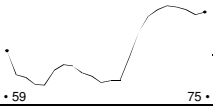
[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2011**

			INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE		CASE DETECTION
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
Global	1990	5 283	7 800 (7 100–8 400)	147 (135–159)	350 (310–410)	6.7 (5.8–7.7)	3 740 193	71	48 (45–52)
	1995	5 702	8 400 (7 900–8 900)	148 (139–157)	710 (640–790)	12 (11–14)	3 400 234	60	40 (38–43)
	2000	6 097	9 100 (8 500–9 600)	148 (140–157)	1 100 (990–1 200)	18 (16–20)	3 746 673	61	41 (39–44)
	2005	6 481	9 200 (8 700–9 700)	142 (135–150)	1 200 (1 100–1 300)	19 (17–21)	5 130 170	79	56 (53–59)
	2009	6 792	8 800 (8 500–9 200)	130 (125–135)	1 100 (1 100–1 200)	17 (16–18)	5 803 251	85	66 (63–68)
	2010	6 870	8 800 (8 400–9 100)	128 (123–133)	1 100 (1 000–1 200)	16 (15–17)	5 763 310	84	66 (63–68)
	2011	6 948	8 700 (8 300–9 000)	125 (120–130)	1 100 (1 000–1 200)	16 (15–17)	5 772 224	83	67 (64–69)
Africa	1990	507	1 200 (950–1 600)	245 (188–310)	290 (240–340)	57 (48–67)	418 520	83	34 (27–44)
	1995	580	1 600 (1 300–1 900)	276 (227–330)	560 (490–630)	96 (84–109)	504 377	87	31 (26–38)
	2000	656	2 000 (1 700–2 400)	311 (256–371)	850 (740–960)	129 (113–147)	792 911	121	39 (33–47)
	2005	742	2 300 (1 900–2 700)	310 (263–361)	960 (850–1 100)	130 (115–145)	1 186 801	160	52 (44–61)
	2009	817	2 300 (2 100–2 400)	276 (256–296)	900 (830–980)	110 (101–119)	1 380 577	169	61 (57–66)
	2010	837	2 300 (2 100–2 500)	271 (249–293)	880 (810–960)	105 (97–114)	1 380 294	165	61 (56–66)
	2011	857	2 300 (2 100–2 400)	262 (242–283)	870 (800–950)	102 (93–111)	1 367 193	159	61 (56–66)
The Americas	1990	723	430 (360–490)	59 (50–68)	30 (24–37)	4.2 (3.3–5.2)	231 186	32	54 (47–64)
	1995	777	380 (350–410)	49 (46–53)	44 (37–51)	5.6 (4.8–6.5)	258 188	33	68 (63–73)
	2000	834	340 (320–370)	41 (38–44)	45 (38–52)	5.3 (4.6–6.2)	238 580	29	70 (65–75)
	2005	885	310 (290–330)	34 (32–37)	33 (30–36)	3.8 (3.4–4.1)	228 018	26	75 (70–80)
	2009	924	270 (260–290)	30 (28–32)	34 (30–37)	3.7 (3.3–4.0)	201 608	22	73 (69–78)
	2010	933	270 (250–280)	29 (27–30)	31 (28–34)	3.3 (3.0–3.6)	214 045	23	80 (75–86)
	2011	943	260 (240–280)	28 (26–29)	37 (34–40)	3.9 (3.6–4.2)	218 328	23	84 (79–90)
Eastern Mediterranean	1990	381	470 (360–590)	123 (95–154)	3 (2.5–3.5)	0.8 (0.65–0.93)	234 620	62	50 (40–65)
	1995	433	530 (480–590)	123 (110–137)	4.9 (4.2–5.8)	1.1 (0.96–1.3)	121 745	28	23 (21–26)
	2000	484	570 (510–640)	118 (104–132)	6.9 (5.9–7.9)	1.4 (1.2–1.6)	141 748	29	25 (22–28)
	2005	538	610 (540–680)	113 (100–126)	8 (6.9–9.2)	1.5 (1.3–1.7)	287 158	53	47 (42–54)
	2009	585	640 (570–720)	109 (97–123)	8.6 (7.4–9.9)	1.5 (1.3–1.7)	411 172	70	64 (57–73)
	2010	597	650 (580–730)	109 (97–122)	9.1 (7.9–10)	1.5 (1.3–1.7)	409 834	69	63 (56–71)
	2011	609	660 (590–740)	109 (97–122)	8.7 (7.6–9.9)	1.4 (1.3–1.6)	411 587	68	62 (55–70)
Europe	1990	846	360 (350–380)	43 (41–45)	2.7 (2.6–2.8)	0.3 (0.31–0.34)	242 429	29	67 (64–70)
	1995	862	560 (530–590)	65 (62–69)	4.6 (4.2–5.1)	0.5 (0.49–0.59)	289 874	34	52 (49–54)
	2000	868	640 (600–680)	74 (69–78)	12 (10–13)	1.3 (1.2–1.5)	372 921	43	58 (55–62)
	2005	880	560 (520–600)	64 (60–68)	21 (19–24)	2.4 (2.1–2.7)	364 961	41	65 (61–70)
	2009	893	440 (410–470)	49 (46–53)	24 (21–26)	2.6 (2.3–3.0)	328 862	37	75 (70–80)
	2010	897	410 (380–440)	46 (43–49)	19 (17–21)	2.1 (1.9–2.3)	309 727	35	76 (71–81)
	2011	899	380 (350–400)	42 (39–45)	23 (20–25)	2.5 (2.2–2.8)	285 789	32	76 (71–81)
South-East Asia	1990	1 317	2 900 (2 500–3 200)	217 (191–245)	25 (22–28)	1.9 (1.7–2.1)	1 719 365	131	60 (53–68)
	1995	1 446	3 100 (2 800–3 400)	217 (197–238)	90 (72–110)	6.2 (5.0–7.5)	1 401 096	97	45 (41–49)
	2000	1 572	3 400 (3 200–3 700)	218 (202–235)	160 (130–190)	10 (8.5–12)	1 414 228	90	41 (38–44)
	2005	1 694	3 600 (3 300–3 900)	212 (196–228)	170 (140–200)	10 (8.4–12)	1 789 186	106	50 (46–54)
	2009	1 785	3 500 (3 300–3 800)	197 (182–211)	150 (120–180)	8.4 (7.0–10)	2 124 371	119	61 (56–65)
	2010	1 808	3 500 (3 200–3 700)	193 (179–207)	140 (120–170)	8 (6.7–9.5)	2 123 119	117	61 (57–66)
	2011	1 830	3 500 (3 200–3 700)	189 (176–203)	140 (120–170)	7.7 (6.4–9.1)	2 138 688	117	62 (58–66)
Western Pacific	1990	1 510	2 400 (2 000–2 800)	159 (133–187)	3.3 (2.7–3.9)	0.2 (0.18–0.26)	894 073	59	37 (32–45)
	1995	1 605	2 200 (1 900–2 500)	137 (119–157)	14 (11–17)	0.9 (0.69–1.0)	824 954	51	37 (33–43)
	2000	1 683	2 000 (1 800–2 300)	120 (107–134)	23 (19–27)	1.4 (1.1–1.6)	786 285	47	39 (35–43)
	2005	1 743	1 800 (1 700–2 000)	106 (96–116)	32 (26–37)	1.8 (1.5–2.1)	1 274 046	73	69 (63–76)
	2009	1 788	1 700 (1 600–1 900)	96 (88–105)	33 (28–39)	1.9 (1.5–2.2)	1 356 661	76	79 (72–87)
	2010	1 798	1 700 (1 500–1 800)	94 (86–102)	33 (28–39)	1.8 (1.5–2.2)	1 326 291	74	79 (72–86)
	2011	1 809	1 700 (1 500–1 800)	92 (84–100)	36 (31–42)	2 (1.7–2.3)	1 350 639	75	81 (75–89)

[a] Rates are per 100 000 population.

TABLE A4.3 **Case notifications, 1990–2011**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2011	YEAR	NEW AND RELAPSE	NEW CASES				RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
				SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN	EXTRA-PULMONARY	OTHER					
Global		1990	3 740 193	30 046	22 393	4 237	0	734	49	783	29	57
		1995	3 400 234	1 175 290	1 811 850	262 728	5	59 240	0	59 240	44	39
		2000	3 746 673	1 540 688	1 614 748	399 578	37	115 314	236 074	351 388	229	49
		2005	5 130 170	2 413 708	1 722 281	686 525	8 111	259 937	406 355	666 292	18 172	58
		2009	5 803 251	2 662 591	2 010 641	831 391	9 998	288 630	385 232	673 862	36 641	57
		2010	5 763 310	2 655 557	2 002 463	806 373	12 951	285 966	418 071	704 037	28 846	57
	• 71 83 •	2011	5 772 224	2 627 059	2 033 911	815 756	11 913	283 585	418 016	701 601	39 409	56
Africa		1990	418 520	24 064	6 137	2 067	0	554	49	603	0	80
		1995	504 377	212 910	191 477	72 689	0	15 133	0	15 133	0	53
		2000	792 911	367 831	221 715	141 156	0	19 153	68 085	87 238	0	62
		2005	1 186 801	550 004	364 785	208 979	2 941	60 092	66 449	126 541	2 075	60
		2009	1 380 577	607 257	473 217	244 806	346	54 951	89 377	144 328	305	56
		2010	1 380 294	601 149	477 516	247 020	642	53 967	94 506	148 473	317	56
	• 83 159 •	2011	1 367 193	605 929	467 069	240 843	1 069	52 283	74 624	126 907	18 951	56
The Americas		1990	231 186	1 542	516	723	0	180	0	180	29	75
		1995	258 188	138 932	72 312	32 991	5	1 723	0	1 723	44	66
		2000	238 580	131 294	60 392	32 037	37	10 834	14 344	25 178	56	68
		2005	228 018	124 840	56 056	33 285	3 685	10 152	12 481	22 633	2 106	69
		2009	201 608	110 614	45 034	31 422	4 363	10 175	11 317	21 492	3 829	71
		2010	214 045	116 994	52 265	32 240	2 133	10 413	12 133	22 546	885	69
	• 32 23 •	2011	218 328	121 572	51 089	34 235	1 364	10 068	11 694	21 762	3 165	70
Eastern Mediterranean		1990	234 620	1 587	12 394	754	0	0	0	0	0	11
		1995	121 745	46 851	51 823	33 382	0	2 407	0	2 407	0	47
		2000	141 748	60 959	34 289	40 754	0	5 568	0	5 568	0	64
		2005	287 158	113 765	102 274	64 612	12	6 495	5 334	11 829	20	53
		2009	411 172	168 013	143 633	87 726	76	11 724	6 240	17 964	737	54
		2010	409 834	168 627	137 301	92 070	633	11 203	8 713	19 916	3 079	55
	• 62 68 •	2011	411 587	170 748	135 388	93 605	623	11 223	10 102	21 325	4 132	56
Europe		1990	242 429	0	0	0	0	0	0	0	0	
		1995	289 874	104 444	146 592	29 866	0	7 927	0	7 927	0	42
		2000	372 921	94 442	208 147	35 081	0	21 607	19 127	40 734	173	31
		2005	364 961	96 121	157 237	49 747	0	22 248	64 831	87 079	3 663	38
		2009	328 862	100 493	152 468	47 202	3 393	25 306	41 884	67 190	24 937	40
		2010	309 727	91 324	145 140	40 951	8 008	24 304	60 736	85 040	18 527	39
	• 29 32 •	2011	285 789	82 641	132 474	43 912	3 272	23 490	72 722	96 212	5 501	38
South-East Asia		1990	1 719 365	2 769	3 241	656	0	0	0	0	0	46
		1995	1 401 096	357 882	939 945	76 865	0	5 546	0	5 546	0	28
		2000	1 414 228	510 053	741 471	120 708	0	27 095	80 444	107 539	0	41
		2005	1 789 186	857 371	594 185	242 332	1 439	93 859	158 215	252 074	202	59
		2009	2 124 371	1 028 656	636 755	329 338	1 796	127 826	203 598	331 424	261	62
		2010	2 123 119	1 047 013	615 463	328 421	1 508	130 714	208 542	339 256	1 118	63
	• 131 117 •	2011	2 138 688	1 067 367	598 800	333 993	2 878	135 650	215 554	351 204	3 885	64
Western Pacific		1990	894 073	84	105	37	0	0	0	0	0	44
		1995	824 954	314 271	409 701	16 935	0	26 504	0	26 504	0	43
		2000	786 285	376 109	348 734	29 842	0	31 057	54 074	85 131	0	52
		2005	1 274 046	671 607	447 744	87 570	34	67 091	99 045	166 136	10 106	60
		2009	1 356 661	647 558	559 534	90 897	24	58 648	32 816	91 464	6 572	54
		2010	1 326 291	630 450	574 778	65 671	27	55 365	33 441	88 806	4 920	52
	• 59 75 •	2011	1 350 639	578 802	649 091	69 168	2 707	50 871	33 320	84 191	3 775	47

[a] Rates are per 100 000 population.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2010**

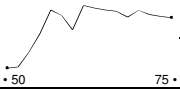
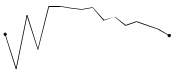
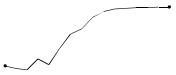
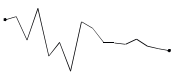
	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Global		1995	1 175 290	1 000 581	85	40	17	3	1	5	34
		2000	1 540 688	1 452 991	94	60	9	4	1	7	19
		2005	2 413 708	2 396 387	99	77	7	4	2	5	4
		2008	2 656 276	2 648 749	100	79	7	4	2	5	4
		2009	2 662 591	2 664 704	100	80	7	4	2	4	4
	• 57 87 •	2010	2 655 557	2 694 992	101	79	8	4	2	4	3
Africa		1995	212 910	177 567	83	46	14	6	2	12	20
		2000	367 831	364 804	99	59	12	7	1	11	10
		2005	550 004	563 750	102	62	13	7	1	9	7
		2008	595 394	590 866	99	70	11	6	2	7	6
		2009	607 257	605 932	100	70	10	5	1	6	7
	• 60 82 •	2010	601 149	634 962	106	68	13	5	1	6	6
The Americas		1995	138 932	128 531	93	37	14	3	1	6	39
		2000	131 294	110 642	84	60	17	5	1	8	11
		2005	124 840	118 840	95	55	24	5	1	7	9
		2008	119 863	109 007	91	56	21	5	1	7	10
		2009	110 614	122 534	111	53	23	5	1	8	11
	• 50 75 •	2010	116 994	126 450	108	53	22	5	1	8	11
Eastern Mediterranean		1995	46 851	46 318	99	60	19	2	3	13	4
		2000	60 959	63 749	105	69	12	4	2	8	6
		2005	113 765	113 742	100	72	11	3	1	8	5
		2008	166 558	166 719	100	74	13	2	1	5	4
		2009	168 013	167 317	100	74	14	3	1	5	3
	• 79 88 •	2010	168 627	169 872	101	74	14	2	1	5	3
Europe		1995	104 444	33 823	32	58	10	6	6	4	16
		2000	94 442	41 480	44	47	28	5	6	6	7
		2005	96 121	81 410	85	59	13	8	7	7	5
		2008	105 160	114 234	109	54	15	8	10	6	6
		2009	100 493	105 441	105	56	13	8	12	6	5
	• 67 67 •	2010	91 324	96 051	105	54	13	8	12	6	7
South-East Asia		1995	357 882	318 410	89	9	23	1	0	2	64
		2000	510 053	512 286	100	44	6	2	1	7	40
		2005	857 371	855 962	100	83	4	4	2	6	1
		2008	1 007 382	1 011 353	100	84	4	4	2	5	1
		2009	1 028 656	1 022 380	99	85	3	4	2	5	1
	• 33 88 •	2010	1 047 013	1 045 179	100	85	4	4	2	5	1
Western Pacific		1995	314 271	295 932	94	67	13	2	1	4	13
		2000	376 109	360 030	96	85	5	2	1	2	4
		2005	671 607	662 683	99	89	3	2	1	1	3
		2008	661 919	656 570	99	89	3	2	1	1	4
		2009	647 558	641 100	99	90	3	2	1	1	3
	• 80 93 •	2010	630 450	622 478	99	90	3	2	1	1	3

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Global		1995	59 240	71 395	121	82	4	3	3	3	4
		2000	351 388	188 509	54	60	10	6	4	11	10
		2005	666 292	546 182	82	51	19	7	4	12	6
		2008	776 099	594 939	77	50	22	7	5	11	5
		2009	673 862	594 019	88	49	23	7	6	10	5
	• 86 69 •	2010	704 037	603 489	86	47	22	6	4	10	10
Africa		1995	15 133	5 756	38	57	12	9	3	12	6
		2000	87 238	44 147	51	47	11	9	3	16	14
		2005	126 541	114 838	91	35	27	11	3	13	12
		2008	136 263	98 414	72	48	21	9	3	10	9
		2009	144 328	94 342	65	50	20	9	3	9	10
	• 69 54 •	2010	148 473	113 405	76	41	13	6	3	7	31
The Americas		1995	1 723	1 104	64	61	11	6	4	11	8
		2000	25 178	15 302	61	47	8	5	3	12	25
		2005	22 633	18 603	82	38	16	6	2	15	21
		2008	23 201	15 483	67	29	23	8	2	20	17
		2009	21 492	19 158	89	29	22	8	3	19	21
	• 72 49 •	2010	22 546	17 499	78	26	23	7	2	20	21
Eastern Mediterranean		1995	2 407	1 860	77	61	14	3	4	12	5
		2000	5 568	4 217	76	51	11	6	7	15	11
		2005	11 829	12 860	109	60	15	5	4	10	6
		2008	16 441	14 990	91	57	19	4	3	11	6
		2009	17 964	16 332	91	56	21	4	3	10	6
	• 75 75 •	2010	19 916	18 326	92	54	21	4	3	10	8
Europe		1995	7 927	480	6	20	20	11	8	32	8
		2000	40 734	10 739	26	39	19	9	14	11	8
		2005	87 079	39 497	45	32	18	11	13	14	10
		2008	135 384	60 077	44	30	18	11	20	12	9
		2009	67 190	58 966	88	27	22	11	22	11	7
	• 40 51 •	2010	85 040	48 292	57	26	24	10	15	10	14
South-East Asia		1995	5 546	3 271	59	62	6	4	5	15	8
		2000	107 539	59 337	55	57	14	6	5	15	3
		2005	252 074	254 378	101	49	22	7	5	15	2
		2008	332 296	323 436	97	47	28	7	4	12	2
		2009	331 424	332 286	100	48	27	7	4	12	2
	• 68 75 •	2010	339 256	338 748	100	47	28	7	4	12	2
Western Pacific		1995	26 504	58 924	222	88	2	3	3	1	3
		2000	85 131	54 767	64	83	3	2	2	1	9
		2005	166 136	106 006	64	81	6	3	3	2	6
		2008	132 514	82 539	62	80	6	3	2	2	7
		2009	91 464	72 935	80	79	7	3	2	2	7
	• 90 86 •	2010	88 806	67 219	76	79	7	3	2	2	7

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2011**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2011	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Global		2005	8	463 027	5 554 697	103 683	22	76	35	25 938
		2009	28	1 736 632	6 225 124	463 826	27	77	39	89 083
		2010	33	2 074 510	6 210 227	493 138	24	81	46	204 802
	• 8 40 •	2011	40	2 468 364	6 229 649	562 026	23	79	48	446 598
Africa		2005	11	140 713	1 255 325	73 332	52	78	29	22 211
		2009	56	816 338	1 470 259	370 245	45	77	36	63 290
		2010	60	888 765	1 475 117	394 332	44	81	44	182 524
	• 11 69 •	2011	69	1 001 512	1 460 768	458 657	46	79	46	438 121
The Americas		2005	35	84 032	242 605	14 232	17	10	81	3 727
		2009	50	107 980	216 754	18 143	17	36	61	5 390
		2010	53	121 421	227 063	19 615	16	50	63	12 906
	• 35 53 •	2011	53	124 576	233 187	20 906	17	43	64	1 705
Eastern Mediterranean		2005	1	2 582	292 512	330	13	18	16	0
		2009	11	45 408	418 149	1 625	4	41	41	464
		2010	11	44 596	421 626	1 360	3	50	44	253
	• 1 11 •	2011	11	44 973	425 821	1 781	4	59	48	52
Europe		2005	40	171 248	433 455	6 543	3	25	16	0
		2009	71	280 985	395 683	13 496	5	54	60	17 826
		2010	53	206 391	388 990	12 810	6	58	61	6 575
	• 40 54 •	2011	54	195 306	364 012	12 583	6	59	44	4 565
South-East Asia		2005	2	31 847	1 947 603	7 025	22	50	31	0
		2009	14	318 237	2 328 230	46 089	14	86	50	467
		2010	23	546 350	2 332 779	52 519	10	86	56	581
	• 2 32 •	2011	32	750 315	2 358 127	54 314	7	89	59	368
Western Pacific		2005	2	32 605	1 383 197	2 221	7	31	33	0
		2009	12	167 684	1 396 049	14 228	8	64	16	1 646
		2010	20	266 987	1 364 652	12 502	5	55	41	1 963
	• 2 25 •	2011	25	351 682	1 387 734	13 785	4	71	47	1 787

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2011**

				NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
Global	2005	11988			72870	2.9		24002	3.6
	2009	46897			111226	4		42307	6.3
	2010	54987			119428	4		47584	6.8
	2011	61690	310 000 (220 000–400 000)	170 000 (98 000–240 000)	127537	4.3	140 000 (92 000–180 000)	47568	6.8
Africa	2005	2445			1826	0.32		3922	3.1
	2009	10741			3878	0.61		4340	3
	2010	9340			2732	0.36		4294	2.9
	2011	12384	45 000 (7 900–82 000)	31 000 (1 100–67 000)	1311	0.18	14 000 (4 300–23 000)	3707	2.9
The Americas	2005	4427			14568	11		11003	49
	2009	2884			11638	9.2		3069	14
	2010	2661			11309	8.6		4234	19
	2011	3474	5 900 (3 400–8 400)	3 500 (1 400–5 700)	13334	10	2 400 (980–3 800)	4234	19
Eastern Mediterranean	2005	350			1442	1.3		94	0.79
	2009	496			1760	0.97		1274	7.1
	2010	886			2397	1.4		1257	6.3
	2011	841	17 000 (0–38 000)	10 000 (310–32 000)	2264	1.2	6 400 (1 500–11 000)	1466	6.9
Europe	2005	4347			34527	27		7024	8.1
	2009	28157			87815	66		27618	41
	2010	33863			89841	69		34491	41
	2011	33984	76 000 (64 000–87 000)	33 000 (22 000–44 000)	84140	66	43 000 (38 000–47 000)	31095	32
South-East Asia	2005	68			661	<0.1		420	0.17
	2009	2560			950	<0.1		5069	1.5
	2010	3942			1073	0.1		1264	0.37
	2011	6615	89 000 (76 000–100 000)	35 000 (30 000–42 000)	1204	0.1	54 000 (42 000–66 000)	1935	0.55
Western Pacific	2005	351			19846	2.9		1539	0.93
	2009	2059			5185	0.76		937	1
	2010	4295			12076	1.7		2044	2.3
	2011	4392	78 000 (60 000–95 000)	59 000 (42 000–75 000)	25284	4.1	19 000 (15 000–22 000)	5131	6.1

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).
[b] BACT+VE = bacteriologically-positive cases.

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2011**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Global	1995	7 491	48 816	76 799	65 678	49 514	41 756	34 776	0	7 730	41 378	50 102	32 741	22 688	17 816	16 686	0	1.7
	2000	12 387	115 250	172 896	156 274	121 277	82 844	75 156	0	14 749	94 641	110 306	74 705	49 823	33 696	33 829	0	1.8
	2005	18 415	242 356	329 720	312 526	261 233	184 836	166 858	42	26 178	199 700	220 530	153 503	106 029	72 022	65 717	15	1.8
	2010	20 239	268 884	345 937	336 981	298 715	227 530	186 815	7 502	28 825	210 729	225 986	163 260	118 565	86 264	75 368	2 601	1.9
	2011	19 689	265 246	349 403	333 327	300 208	229 464	183 477	575	28 124	209 651	224 345	162 737	119 546	87 605	73 843	311	1.9
Africa	1995	2 910	16 754	28 172	20 240	12 017	7 008	4 104	0	3 167	15 873	19 005	11 339	6 643	3 655	1 734	0	1.5
	2000	3 625	29 522	47 654	34 435	17 923	8 970	5 751	0	4 315	29 530	35 386	20 037	9 402	4 581	2 578	0	1.4
	2005	7 635	54 066	94 388	71 072	40 974	18 931	12 143	0	10 023	57 115	75 056	43 213	22 855	11 047	7 163	0	1.3
	2010	8 393	57 146	98 636	78 660	48 543	24 094	14 478	17	10 287	55 537	76 051	47 070	26 299	13 522	8 685	9	1.4
	2011	8 551	59 072	105 549	81 247	49 967	24 393	14 732	516	10 632	57 027	76 968	47 873	26 401	13 543	8 843	301	1.4
The Americas	1995	437	2 888	3 443	3 157	2 448	1 866	2 251	0	431	2 293	2 434	1 654	1 109	912	1 311	0	1.6
	2000	3 464	18 564	21 869	19 787	15 138	9 899	9 717	0	3 535	15 305	14 961	10 323	7 294	5 038	5 894	0	1.6
	2005	1 520	16 410	16 671	14 369	12 340	7 801	7 951	0	1 718	12 405	11 563	7 891	5 933	3 788	4 751	0	1.6
	2010	1 050	11 461	14 267	11 332	10 627	7 433	7 084	59	1 137	8 405	8 496	5 818	4 880	3 467	4 068	22	1.7
	2011	1 103	12 436	15 023	11 704	11 234	7 709	7 198	56	1 241	8 517	8 766	5 875	4 973	3 690	4 243	9	1.8
Eastern Mediterranean	1995	2 010	6 796	8 673	5 475	3 731	3 732	2 604	0	1 881	5 035	5 797	3 679	3 047	2 742	1 902	0	1.4
	2000	1 339	8 135	9 002	6 525	4 409	2 990	3 036	0	1 711	6 710	5 780	3 922	2 851	2 039	1 893	0	1.4
	2005	1 546	13 558	14 609	10 798	8 729	6 581	5 595	0	2 766	13 529	12 098	8 386	6 245	4 383	3 399	0	1.2
	2010	2 316	19 526	19 993	14 908	13 086	10 596	9 521	0	4 377	21 108	17 151	12 183	9 776	7 532	7 032	0	1.1
	2011	1 924	19 630	20 303	14 984	13 857	11 049	9 871	0	3 839	21 322	17 214	12 380	10 060	7 770	6 432	0	1.2
Europe	1995	553	3 588	7 046	10 157	7 625	5 716	4 842	0	548	2 906	3 636	2 594	1 549	1 560	3 289	0	2.5
	2000	201	4 636	8 322	9 862	8 065	4 313	3 321	0	290	3 506	4 405	2 945	1 798	1 243	2 490	0	2.3
	2005	299	6 170	9 151	9 150	8 704	4 443	4 089	42	422	4 667	5 101	3 161	2 242	1 336	3 176	15	2.1
	2010	156	7 319	13 259	12 447	12 270	6 916	4 125	7 423	301	4 958	6 559	4 218	3 051	2 033	3 398	2 567	2.4
	2011	152	6 279	13 304	13 033	12 508	7 277	4 024	3	248	4 564	6 560	4 360	3 097	2 229	3 532	1	2.3
South-East Asia	1995	165	3 179	6 467	6 508	5 241	4 682	3 523	0	250	2 187	2 834	2 404	2 003	1 866	1 480	0	2.3
	2000	2 453	30 093	45 720	47 107	38 058	25 080	16 208	0	3 222	21 518	25 653	19 241	13 019	8 142	5 468	0	2.1
	2005	5 064	94 638	120 560	122 256	107 228	74 084	45 533	0	8 591	71 923	76 779	54 000	37 709	24 289	12 975	0	2.0
	2010	6 737	114 806	136 683	142 080	132 411	101 728	67 131	0	10 923	84 006	84 704	63 272	48 470	34 052	20 004	0	2.0
	2011	6 490	114 254	136 142	141 636	135 592	106 420	72 264	0	10 654	85 376	84 383	64 868	50 920	36 755	21 593	0	2.0
Western Pacific	1995	1 416	15 611	22 998	20 141	18 452	18 752	17 452	0	1 453	13 084	16 396	11 071	8 337	7 081	6 970	0	1.8
	2000	1 305	24 300	40 329	38 558	37 684	31 592	37 123	0	1 676	18 072	24 121	18 237	15 459	12 653	15 506	0	2.0
	2005	2 351	57 514	74 341	84 881	83 258	72 996	91 547	0	2 658	40 061	39 933	36 852	31 045	27 179	34 253	0	2.2
	2010	1 587	58 626	63 099	77 554	81 778	76 763	84 476	3	1 800	36 715	33 025	30 699	26 089	25 658	32 181	3	2.4
	2011	1 469	53 575	59 082	70 723	77 050	72 616	75 388	0	1 510	32 845	30 454	27 381	24 095	23 618	29 200	0	2.4

AFRICAN REGION

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Estimates of mortality, prevalence and incidence

Estimated values are shown as best estimates followed by lower and upper bounds. The lower and upper bounds are defined as the 2.5th and 97.5th centiles of outcome distributions produced in simulations. See Annex 1 for further details.

Estimated numbers are shown rounded to two significant figures. Estimated rates are shown rounded to three significant figures unless the value is under 100, in which case rates are shown rounded to two significant figures. Blank cells indicate that estimates are not available.

Estimates for all years are recalculated as new information becomes available and techniques are refined, so they may differ from those published in previous reports in this series. Estimates published in previous global TB control reports should no longer be used.

Data source

Data shown in this annex are taken from the WHO global TB database on 25 September 2012. Data shown in the main part of the report were taken from the database in July 2012. As a result, data in this annex may differ slightly from those in the main part of the report.

Data can be downloaded from **www.who.int/tb/data**.

Country notes

South Africa

Treatment outcomes in Table A4.5 for 2010 are based on incomplete data.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2011**

			MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
Algeria	1990	25	2.5 (0.930–4.9)	9.9 (3.7–19)	26 (10–49)	102 (41–192)	17 (12–22)	66 (48–86)
	1995	28	2.6 (0.890–5.2)	9.2 (3.1–18)	28 (11–55)	100 (37–193)	19 (14–25)	68 (50–89)
	2000	31	4 (1.5–7.8)	13 (4.8–26)	41 (16–78)	136 (54–254)	27 (19–35)	87 (64–114)
	2005	33	4.5 (1.7–8.8)	14 (5.0–27)	47 (19–88)	143 (57–268)	30 (22–40)	93 (68–121)
	2009	35	4.4 (1.6–8.7)	13 (4.5–25)	47 (18–89)	134 (53–254)	31 (23–41)	89 (65–116)
	2010	35	4.7 (1.7–9.2)	13 (4.8–26)	49 (19–92)	138 (55–259)	32 (23–42)	90 (66–118)
	2011	36	4.8 (1.8–9.3)	13 (4.9–26)	50 (20–93)	139 (55–260)	32 (24–42)	90 (66–117)
Angola	1990	10	3.7 (1.2–7.6)	35 (11–73)	35 (12–70)	342 (119–680)	21 (13–31)	205 (127–303)
	1995	12	5.5 (2.2–10)	46 (19–85)	49 (23–84)	404 (194–690)	27 (22–33)	226 (185–272)
	2000	14	5.1 (2.2–9.3)	37 (16–67)	51 (25–86)	366 (180–617)	35 (28–42)	250 (204–300)
	2005	16	3.7 (1.3–7.4)	22 (7.9–45)	50 (20–95)	305 (120–574)	45 (37–54)	276 (227–329)
	2009	19	5 (2.0–9.2)	27 (11–49)	63 (27–110)	340 (147–613)	55 (46–65)	298 (250–349)
	2010	19	5.7 (2.5–10)	30 (13–54)	69 (31–120)	361 (165–632)	58 (49–68)	304 (256–355)
	2011	20	7.3 (3.3–13)	37 (17–66)	81 (38–140)	413 (195–712)	61 (51–71)	310 (261–362)
Benin	1990	5	0.91 (0.370–1.7)	19 (7.8–35)	8.4 (4.2–14)	176 (89–293)	6.1 (5.1–7.3)	128 (106–153)
	1995	6	0.88 (0.370–1.6)	16 (6.5–29)	8.2 (4.1–14)	146 (73–244)	5.6 (4.7–6.7)	100 (82–119)
	2000	7	0.88 (0.370–1.6)	13 (5.7–25)	8.3 (4.2–14)	128 (64–214)	5.6 (4.6–6.7)	86 (71–102)
	2005	8	0.8 (0.350–1.4)	11 (4.6–19)	8.1 (4.0–14)	106 (52–178)	5.6 (4.6–6.7)	74 (61–88)
	2009	9	0.8 (0.350–1.4)	9.3 (4.1–17)	8.4 (4.1–14)	97 (48–165)	6 (5.0–7.1)	70 (58–83)
	2010	9	0.81 (0.360–1.4)	9.1 (4.0–16)	8.5 (4.1–14)	96 (46–163)	6.1 (5.0–7.2)	69 (57–82)
	2011	9	0.83 (0.370–1.5)	9.2 (4.0–16)	8.8 (4.3–15)	96 (47–163)	6.3 (5.2–7.5)	70 (58–83)
Botswana	1990	1	1.1 (0.210–2.6)	77 (15–189)	10 (2.3–25)	757 (168–1 780)	7.4 (2.9–14)	533 (212–997)
	1995	2	1.2 (0.400–2.4)	74 (25–149)	13 (5.7–23)	813 (357–1 450)	14 (8.8–19)	855 (553–1 220)
	2000	2	0.95 (0.390–1.8)	54 (22–100)	13 (6.7–21)	724 (382–1 170)	16 (13–20)	918 (736–1 120)
	2005	2	0.67 (0.310–1.2)	36 (17–62)	10 (5.6–17)	560 (298–901)	14 (13–15)	733 (667–802)
	2009	2	0.52 (0.250–0.900)	26 (13–45)	8.4 (4.4–13)	422 (224–681)	11 (9.6–12)	545 (486–608)
	2010	2	0.5 (0.240–0.850)	25 (12–42)	7.8 (4.2–13)	389 (209–624)	10 (9.0–11)	503 (449–560)
	2011	2	0.49 (0.230–0.830)	24 (11–41)	7.3 (4.0–12)	360 (196–574)	9.2 (8.3–10)	455 (406–507)
Burkina Faso	1990	9	1.3 (0.490–2.4)	14 (5.2–26)	11 (5.3–19)	117 (56–200)	8.1 (6.9–9.4)	87 (74–101)
	1995	11	1.5 (0.560–2.8)	14 (5.3–26)	13 (6.1–22)	118 (57–201)	8.8 (7.5–10)	82 (70–96)
	2000	12	1.5 (0.610–2.9)	13 (5.0–24)	13 (6.5–23)	109 (53–186)	8.8 (7.4–10)	71 (60–83)
	2005	14	1.5 (0.640–2.8)	11 (4.5–20)	14 (7.0–23)	98 (49–164)	8.9 (7.5–10)	63 (53–73)
	2009	16	1.5 (0.660–2.7)	9.5 (4.1–17)	14 (7.4–24)	90 (46–149)	9.5 (8.1–11)	59 (50–69)
	2010	16	1.5 (0.650–2.7)	9.1 (4.0–16)	14 (7.3–24)	87 (44–144)	9.5 (8.1–11)	58 (49–67)
	2011	17	1.5 (0.650–2.6)	8.7 (3.8–15)	14 (7.4–24)	85 (43–141)	9.7 (8.2–11)	57 (48–66)
Burundi	1990	6	1.3 (0.560–2.2)	23 (10–40)	12 (6.6–20)	223 (119–359)	9.1 (8.0–10)	162 (143–183)
	1995	6	2.9 (1.1–5.4)	48 (19–89)	26 (13–43)	422 (209–710)	20 (17–22)	323 (284–364)
	2000	6	2.5 (1.0–4.6)	39 (16–72)	23 (12–38)	368 (190–604)	18 (16–21)	289 (255–326)
	2005	7	2 (0.880–3.7)	28 (12–50)	20 (10–32)	271 (143–439)	14 (13–16)	198 (174–223)
	2009	8	1.7 (0.760–2.9)	20 (9.3–36)	17 (8.9–27)	206 (109–334)	12 (11–14)	150 (132–169)
	2010	8	1.6 (0.750–2.9)	20 (9.0–34)	17 (8.7–27)	199 (104–323)	12 (11–14)	144 (127–163)
	2011	9	1.6 (0.740–2.8)	19 (8.6–33)	16 (8.6–27)	192 (100–313)	12 (10–13)	139 (122–157)
Cameroon	1990	12	2.3 (0.980–4.1)	19 (8.0–33)	22 (11–37)	178 (88–300)	14 (11–16)	112 (92–133)
	1995	14	5.7 (2.2–11)	41 (16–79)	48 (22–84)	345 (159–602)	29 (24–34)	206 (170–246)
	2000	16	7.9 (3.0–15)	50 (19–97)	68 (32–120)	433 (202–749)	49 (40–58)	310 (255–369)
	2005	18	7 (2.8–13)	40 (16–74)	67 (34–110)	381 (193–633)	55 (45–65)	313 (258–373)
	2009	19	6.1 (2.6–11)	32 (13–58)	62 (32–100)	323 (169–527)	51 (42–61)	268 (221–319)
	2010	20	6.2 (2.6–11)	32 (13–58)	63 (33–100)	321 (168–522)	54 (44–64)	274 (226–327)
	2011	20	5.9 (2.5–11)	29 (13–53)	60 (31–98)	299 (155–490)	49 (40–58)	243 (200–290)
Cape Verde	1990	< 1	0.12 (0.040–0.250)	35 (11–71)	1.1 (0.400–2.1)	313 (114–609)	0.61 (0.380–0.900)	175 (108–259)
	1995	< 1	0.13 (0.055–0.250)	34 (14–63)	1.2 (0.570–2.0)	302 (145–513)	0.66 (0.540–0.800)	168 (137–201)
	2000	< 1	0.15 (0.058–0.270)	33 (13–62)	1.3 (0.610–2.2)	291 (139–498)	0.7 (0.570–0.840)	160 (131–193)
	2005	< 1	0.15 (0.063–0.280)	32 (13–60)	1.4 (0.650–2.3)	286 (137–489)	0.72 (0.590–0.870)	153 (125–184)
	2009	< 1	0.13 (0.055–0.240)	27 (11–49)	1.2 (0.600–2.0)	247 (121–416)	0.73 (0.600–0.870)	148 (121–177)
	2010	< 1	0.13 (0.054–0.230)	26 (11–47)	1.2 (0.590–2.0)	241 (119–405)	0.73 (0.600–0.870)	147 (121–175)
	2011	< 1	0.12 (0.052–0.220)	24 (10–44)	1.1 (0.560–1.9)	230 (113–387)	0.73 (0.600–0.870)	145 (120–173)
Central African Republic	1990	3	3.5 (1.3–6.9)	121 (45–234)	30 (14–52)	1 020 (472–1 780)	25 (21–30)	864 (712–1 030)
	1995	3	5.1 (1.9–10)	154 (56–300)	44 (20–77)	1 330 (610–2 320)	40 (33–48)	1 200 (990–1 430)
	2000	4	5.2 (1.9–10)	142 (52–275)	45 (21–79)	1 220 (566–2 130)	40 (33–47)	1 070 (885–1 280)
	2005	4	3.9 (1.5–7.6)	98 (37–189)	35 (16–59)	859 (408–1 480)	28 (23–33)	690 (569–823)
	2009	4	2.8 (1.1–5.2)	65 (26–121)	26 (13–43)	601 (300–1 010)	20 (17–24)	469 (387–559)
	2010	4	2.6 (1.0–4.8)	59 (24–109)	24 (12–41)	553 (277–922)	19 (16–23)	433 (357–516)
	2011	4	2.4 (0.980–4.4)	53 (22–98)	23 (12–38)	510 (259–844)	18 (15–21)	400 (330–477)
Chad	1990	6	0.85 (0.370–1.5)	14 (6.1–26)	8.3 (4.2–14)	138 (69–229)	5.7 (4.7–6.8)	94 (78–112)
	1995	7	1.5 (0.610–2.9)	22 (8.7–41)	14 (6.6–23)	194 (95–329)	9 (7.4–11)	128 (106–153)
	2000	8	1.9 (0.780–3.6)	24 (9.5–44)	18 (8.8–30)	216 (107–363)	12 (10–15)	151 (125–180)
	2005	10	2.2 (0.910–4.1)	23 (9.3–42)	21 (10–34)	211 (106–353)	15 (12–17)	150 (124–178)
	2009	11	2.3 (0.960–4.1)	21 (8.8–38)	22 (11–37)	204 (104–338)	17 (14–20)	151 (125–180)
	2010	11	2.2 (0.940–3.9)	19 (8.4–35)	22 (11–37)	198 (100–327)	17 (14–20)	151 (125–179)
	2011	12	2.1 (0.910–3.7)	18 (7.9–32)	22 (11–36)	191 (97–316)	17 (14–21)	151 (125–179)
Comoros	1990	< 1	0.045 (0.019–0.080)	10 (4.4–18)	0.42 (0.200–0.710)	95 (46–161)	0.24 (0.190–0.280)	54 (44–64)
	1995	< 1	0.04 (0.018–0.072)	8.1 (3.5–15)	0.38 (0.180–0.660)	78 (37–133)	0.23 (0.190–0.270)	46 (38–55)
	2000	< 1	0.038 (0.017–0.069)	6.8 (3.0–12)	0.37 (0.180–0.630)	66 (31–112)	0.22 (0.180–0.260)	39 (32–46)
	2005	< 1	0.048 (0.020–0.088)	7.5 (3.1–14)	0.43 (0.210–0.740)	67 (33–115)	0.23 (0.190–0.280)	36 (30–43)
	2009	< 1	0.048 (0.020–0.086)	6.6 (2.8–12)	0.43 (0.210–0.740)	61 (29–104)	0.24 (0.200–0.290)	33 (28–40)
	2010	< 1	0.048 (0.020–0.087)	6.5 (2.8–12)	0.44 (0.210–0.750)	60 (29–102)	0.25 (0.200–0.290)	33 (28–40)
	2011	< 1	0.048 (0.021–0.088)	6.4 (2.7–12)	0.45 (0.220–0.760)	60 (29–101)	0.26 (0.210–0.310)	34 (28–41)
Congo	1990	2	0.7 (0.220–1.4)	29 (9.3–60)	5.9 (2.3–11)	246 (95–469)	4 (2.5–6.0)	169 (104–250)
	1995	3	0.82 (0.340–1.5)	30 (12–55)	8.2 (4.2–14)	299 (152–495)	6.7 (5.5–8.0)	245 (200–294)
	2000	3	1.1 (0.490–2.0)	35 (16–62)	13 (6.4–21)	403 (205–665)	11 (9.3–13)	353 (298–412)
	2005	4	1.7 (0.710–3.0)	47 (20–84)	18 (9.0–30)	513 (256–858)	15 (12–18)	425 (347–510)
	2009	4	1.7 (0.750–3.1)	44 (19–80)	19 (9.5–32)	484 (242–809)	16 (13–19)	395 (323–474)
	2010	4	1.8 (0.760–3.2)	44 (19–79)	19 (9.6–33)	480 (238–806)	16 (13–19)	391 (320–470)
	2011	4	1.8 (0.770–3.2)	43 (19–77)	20 (9.7–33)	473 (235–794)	16 (13–19)	387 (317–465)
Côte d'Ivoire	1990	13	4.9 (2.0–9.2)	39 (16–73)	43 (21–72)	345 (170–579)	30 (26–34)	238 (206–272)
	1995	15	8.4 (3.3–16)	57 (23–108)	74 (37–130)	506 (249–853)	56 (48–64)	380 (329–434)
	2000	17	9.2 (3.6–17)	55 (22–104)	82 (41–140)	493 (244–828)	61 (53–70)	370 (321–423)
	2005	18	6.8 (2.9–12)	38 (16–69)	65 (34–110)	359 (187–585)	48 (42–55)	268 (232–306)
	2009	19	5.2 (2.4–9.3)	27 (12–48)	53 (28–86)	276 (146–447)	41 (36–47)	212 (184–242)
	2010	20	4.8 (2.2–8.4)	24 (11–42)	50 (26–82)	253 (131–414)	38 (33–43)	190 (165–217)
	2011	20	4.8 (2.2–8.5)	24 (11–42)	50 (26–82)	250 (131–407)	38 (33–44)	191 (165–218)
Democratic Republic of the Congo	1990	36	27 (10–51)	73 (28–139)	220 (100–390)	616 (281–1 080)	120 (95–150)	327 (262–398)
	1995	44	29 (12–55)	66 (26–125)	250 (120–440)	576 (274–987)	140 (120–170)	327 (268–392)
	2000	50	30 (12–55)	60 (25–111)	270 (130–450)	543 (267–914)	160 (140–190)	327 (273–385)
	2005	57	31 (13–55)	54 (23–96)	290 (150–480)	507 (259–838)	190 (160–220)	327 (279–379)
	2009	64	34 (15–60)	53 (23–94)	320 (170–530)	503 (258–828)	210 (180–240)	327 (283–374)
	2010	66	35 (15–62)	53 (23–95)	330 (170–550)	506 (259–834)	220 (190–250)	327 (282–375)
	2011	68	36 (16–65)	54 (24–96)	350 (180–570)	512 (263–842)	220 (190–250)	327 (282–375)
Equatorial Guinea	1990	< 1	0.076 (0–0.540)	20 (0–145)	1.7 (0.850–2.9)	463 (227–780)	0.9 (0.790–1.0)	241 (211–273)
	1995	< 1	0.1 (0–0.740)	23 (0–168)	2.3 (1.1–4.0)	527 (257–893)	1.2 (1.1–1.4)	279 (245–316)
	2000	< 1	0.1 (0–0.740)	20 (0–143)	2.4 (1.2–4.1)	465 (231–780)	1.4 (1.2–1.6)	268 (235–304)
	2005	< 1	0.077 (0–0.500)	13 (0–82)	1.9 (0.970–3.1)	307 (160–502)	1.3 (1.1–1.4)	206 (181–234)
	2009	< 1	0.073 (0–0.440)	11 (0–65)	1.9 (0.980–3.0)	272 (144–440)	1.4 (1.2–1.6)	202 (177–229)
	2010	< 1	0.08 (0–0.490)	11 (0–70)	2 (1.1–3.3)	288 (152–466)	1.5 (1.3–1.7)	215 (189–244)
	2011	< 1	0.075 (<0.01–0.430)	10 (0–60)	1.9 (1.0–3.1)	267 (140–435)	1.5 (1.3–1.6)	202 (177–229)
Eritrea	1990	3	0.38 (0.250–0.530)	12 (7.9–17)	15 (5.9–28)	478 (188–902)	7.7 (5.1–11)	243 (162–341)
	1995	3	0.31 (0.210–0.440)	9.7 (6.4–14)	12 (3.8–25)	375 (117–781)	6.4 (4.2–8.9)	198 (132–278)
	2000	4	0.28 (0.190–0.390)	7.7 (5.1–11)	7 (2.0–15)	190 (54–410)	5.8 (3.8–8.1)	157 (104–220)
	2005	4	0.26 (0.180–0.370)	5.9 (3.9–8.3)	8.1 (3.0–16)	182 (68–351)	5.4 (3.6–7.6)	121 (80–169)
	2009	5	0.26 (0.170–0.360)	5 (3.4–7.1)	8.3 (3.2–16)	164 (62–313)	5.3 (3.5–7.4)	103 (69–145)
	2010	5	0.26 (0.170–0.360)	4.9 (3.2–6.9)	8.3 (3.2–16)	159 (60–304)	5.3 (3.5–7.4)	100 (67–140)
	2011	5	0.26 (0.170–0.360)	4.7 (3.1–6.6)	8.2 (3.1–16)	151 (57–291)	5.2 (3.5–7.4)	97 (64–136)

[a] Rates are per 100 000 population.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2011**

			MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
Ethiopia	1990	48	24 (14–36)	49 (29–73)	210 (140–290)	425 (285–593)	180 (110–270)	367 (218–553)
	1995	57	27 (16–41)	48 (28–72)	270 (200–370)	480 (342–642)	240 (140–360)	419 (249–633)
	2000	66	27 (16–41)	41 (25–63)	280 (210–370)	430 (318–560)	280 (160–420)	421 (251–636)
	2005	74	21 (13–32)	29 (17–44)	250 (190–320)	333 (251–425)	250 (150–380)	342 (203–516)
	2009	81	17 (12–24)	21 (14–29)	220 (170–270)	265 (208–329)	230 (160–310)	280 (191–385)
	2010	83	16 (12–22)	20 (14–26)	210 (170–250)	251 (200–307)	220 (160–300)	269 (191–359)
	2011	85	15 (11–20)	18 (14–24)	200 (160–240)	237 (191–288)	220 (160–280)	258 (191–335)
Gabon	1990	< 1	0.37 (0.160–0.680)	40 (17–74)	3.4 (1.7–5.8)	370 (182–623)	2 (1.7–2.4)	220 (182–262)
	1995	1	0.62 (0.250–1.2)	57 (23–106)	5.5 (2.7–9.3)	502 (244–851)	3.4 (2.8–4.1)	314 (259–374)
	2000	1	0.99 (0.390–1.9)	80 (32–151)	8.9 (4.4–15)	722 (354–1 220)	6.5 (5.4–7.7)	527 (435–627)
	2005	1	1.1 (0.430–2.0)	77 (31–144)	10 (5.1–17)	732 (369–1 220)	8 (6.6–9.6)	586 (484–698)
	2009	1	0.86 (0.360–1.6)	58 (25–106)	8.9 (4.6–15)	602 (311–987)	7.5 (6.2–9.0)	511 (422–609)
	2010	2	0.76 (0.330–1.4)	51 (22–92)	8.2 (4.2–13)	545 (282–893)	7.2 (5.9–8.5)	475 (392–566)
	2011	2	0.69 (0.300–1.3)	45 (20–82)	7.8 (4.0–13)	505 (259–831)	6.9 (5.7–8.2)	450 (372–536)
Gambia	1990	< 1	0.35 (0.110–0.710)	36 (12–73)	3.2 (1.1–6.4)	335 (117–664)	1.8 (1.1–2.6)	185 (114–273)
	1995	1	0.44 (0.180–0.790)	39 (16–70)	4 (2.0–6.8)	358 (173–607)	2.3 (1.9–2.8)	204 (167–245)
	2000	1	0.48 (0.210–0.860)	37 (16–66)	4.6 (2.2–7.9)	357 (173–608)	2.9 (2.4–3.5)	225 (184–271)
	2005	2	0.61 (0.260–1.1)	40 (17–73)	5.8 (2.8–9.9)	388 (189–656)	3.7 (3.1–4.5)	248 (203–298)
	2009	2	0.77 (0.330–1.4)	46 (19–84)	7.2 (3.6–12)	430 (212–722)	4.5 (3.7–5.4)	269 (221–321)
	2010	2	0.82 (0.350–1.5)	48 (20–87)	7.6 (3.8–13)	442 (218–743)	4.7 (3.9–5.6)	273 (226–325)
	2011	2	0.88 (0.370–1.6)	49 (21–90)	8.1 (4.0–14)	455 (225–764)	4.9 (4.1–5.9)	279 (230–331)
Ghana	1990	15	4.8 (1.1–11)	32 (7.8–74)	42 (11–95)	286 (74–641)	23 (10–41)	155 (69–275)
	1995	17	4.6 (1.4–9.9)	27 (8.1–58)	43 (14–88)	256 (85–518)	28 (16–45)	167 (93–263)
	2000	19	4.5 (1.5–9.0)	23 (7.9–47)	42 (17–79)	219 (86–412)	29 (19–42)	152 (97–220)
	2005	22	3.6 (1.4–6.8)	17 (6.5–31)	35 (16–62)	163 (75–285)	26 (19–33)	119 (88–154)
	2009	24	2.7 (1.3–4.7)	11 (5.3–20)	29 (15–47)	121 (63–197)	22 (19–25)	92 (81–103)
	2010	24	2.2 (1.1–3.8)	9.1 (4.3–16)	25 (13–42)	104 (53–172)	21 (18–24)	86 (75–97)
	2011	25	1.9 (0.880–3.2)	7.5 (3.5–13)	23 (11–39)	92 (44–158)	20 (17–22)	79 (69–89)
Guinea	1990	6	3.5 (1.3–6.8)	62 (23–118)	29 (13–51)	503 (226–887)	14 (12–17)	247 (204–295)
	1995	8	4.1 (1.6–7.7)	54 (21–102)	34 (16–59)	450 (208–784)	19 (16–22)	249 (205–297)
	2000	8	3.7 (1.4–6.9)	44 (17–83)	32 (15–55)	383 (183–654)	20 (16–23)	234 (193–279)
	2005	9	3.1 (1.3–5.7)	34 (14–63)	28 (14–48)	315 (156–530)	19 (16–23)	211 (173–251)
	2009	10	2.6 (1.1–4.6)	26 (11–47)	26 (13–43)	262 (132–438)	18 (15–22)	187 (154–223)
	2010	10	2.5 (1.1–4.5)	25 (11–45)	25 (13–42)	255 (129–424)	19 (15–22)	188 (155–224)
	2011	10	2.4 (1.0–4.3)	23 (10–42)	25 (12–41)	242 (121–404)	19 (15–22)	183 (151–219)
Guinea-Bissau	1990	1	0.21 (0.061–0.450)	21 (6.0–44)	2.3 (0.790–4.7)	229 (78–459)	1.6 (1.1–2.2)	158 (108–217)
	1995	1	0.25 (0.110–0.460)	22 (9.5–40)	2.7 (1.2–4.9)	244 (109–432)	2 (1.6–2.3)	174 (142–209)
	2000	1	0.39 (0.170–0.700)	31 (13–57)	3.7 (1.8–6.3)	300 (147–506)	2.4 (1.9–2.9)	192 (157–230)
	2005	1	0.37 (0.160–0.660)	27 (12–48)	3.9 (1.9–6.6)	285 (137–485)	2.9 (2.4–3.5)	211 (173–254)
	2009	1	0.42 (0.180–0.760)	29 (12–51)	4.5 (2.2–7.6)	303 (149–510)	3.4 (2.8–4.1)	229 (188–274)
	2010	2	0.45 (0.200–0.810)	30 (13–54)	4.7 (2.3–7.9)	312 (155–523)	3.5 (2.9–4.2)	233 (192–278)
	2011	2	0.38 (0.160–0.680)	24 (11–44)	4.1 (2.2–6.8)	268 (139–437)	3.7 (3.0–4.4)	238 (196–283)
Kenya	1990	23	6.5 (2.7–12)	28 (11–51)	57 (28–96)	243 (120–408)	33 (28–37)	139 (121–159)
	1995	27	3.9 (1.8–6.7)	14 (6.6–24)	46 (25–73)	168 (92–266)	46 (43–50)	169 (155–184)
	2000	31	6 (2.9–10)	19 (9.2–33)	82 (44–130)	261 (140–420)	89 (84–95)	286 (267–305)
	2005	36	8.5 (4.2–14)	24 (12–41)	120 (62–200)	340 (174–559)	130 (120–140)	359 (339–380)
	2009	39	7.7 (4.0–13)	20 (10–32)	110 (57–190)	291 (145–486)	120 (120–130)	312 (299–325)
	2010	41	8.2 (4.2–13)	20 (10–33)	120 (59–190)	288 (146–477)	120 (120–130)	298 (286–311)
	2011	42	9.2 (4.7–15)	22 (11–36)	120 (63–200)	291 (152–475)	120 (110–120)	288 (276–300)
Lesotho	1990	2	0.35 (0.110–0.730)	21 (6.6–44)	4.1 (1.5–8.0)	249 (90–487)	3 (2.2–3.9)	184 (135–240)
	1995	2	0.27 (0.098–0.530)	15 (5.5–29)	4.8 (2.2–8.5)	268 (121–473)	5.8 (5.1–6.6)	323 (283–367)
	2000	2	0.3 (0.100–0.590)	15 (5.3–30)	7 (3.1–12)	357 (160–632)	11 (9.5–12)	553 (484–626)
	2005	2	0.3 (0.075–0.690)	15 (3.6–33)	8.5 (3.5–16)	412 (169–761)	13 (11–16)	639 (535–752)
	2009	2	0.32 (0.130–0.590)	15 (6.0–28)	8.8 (3.8–16)	410 (178–737)	14 (12–15)	634 (553–721)
	2010	2	0.34 (0.140–0.610)	16 (6.6–28)	8.9 (3.9–16)	408 (180–727)	14 (12–16)	633 (553–719)
	2011	2	0.38 (0.170–0.670)	17 (7.7–31)	9 (4.2–16)	411 (190–716)	14 (12–16)	632 (551–717)
Liberia	1990	2	0.75 (0.240–1.6)	35 (11–73)	7.3 (2.5–14)	341 (118–680)	4.2 (2.6–6.2)	199 (123–293)
	1995	2	1 (0.410–1.9)	49 (19–92)	8.8 (4.2–15)	421 (199–725)	4.6 (3.8–5.5)	219 (179–263)
	2000	3	1.5 (0.590–2.8)	53 (21–99)	13 (6.0–22)	449 (211–774)	6.9 (5.6–8.3)	242 (197–290)
	2005	3	1.5 (0.650–2.8)	49 (20–89)	14 (6.9–24)	447 (218–756)	8.5 (6.9–10)	266 (218–320)
	2009	4	1.8 (0.790–3.3)	48 (21–86)	18 (8.6–30)	462 (225–781)	11 (9.1–13)	288 (237–344)
	2010	4	1.9 (0.830–3.4)	48 (21–85)	19 (9.0–31)	465 (226–788)	12 (9.7–14)	293 (242–349)
	2011	4	1.9 (0.820–3.4)	45 (20–81)	19 (9.1–32)	453 (222–766)	12 (10–15)	299 (247–356)
Madagascar	1990	11	13 (4.8–25)	113 (42–218)	100 (45–180)	911 (402–1 620)	44 (36–53)	391 (322–466)
	1995	13	11 (4.3–20)	82 (33–153)	91 (43–160)	695 (327–1 200)	44 (36–52)	335 (276–400)
	2000	15	10 (4.2–19)	68 (28–126)	90 (43–150)	587 (280–1 010)	45 (37–54)	293 (241–349)
	2005	18	10 (4.2–18)	56 (23–102)	89 (43–150)	498 (240–847)	47 (39–56)	262 (216–313)
	2009	20	9.9 (4.2–18)	49 (21–89)	90 (43–150)	448 (216–762)	49 (41–59)	245 (202–293)
	2010	21	9.9 (4.2–18)	48 (20–87)	91 (44–150)	439 (212–745)	50 (41–60)	242 (199–288)
	2011	21	9.9 (4.2–18)	46 (20–84)	91 (44–160)	428 (207–729)	51 (42–61)	238 (196–284)
Malawi	1990	9	3.3 (1.2–6.3)	35 (13–67)	33 (16–58)	354 (166–613)	31 (22–41)	326 (230–438)
	1995	10	3.5 (1.4–6.5)	35 (14–66)	39 (21–63)	395 (210–638)	46 (38–54)	462 (383–548)
	2000	11	3.3 (1.3–6.1)	29 (12–54)	40 (21–65)	357 (191–575)	52 (43–62)	467 (387–554)
	2005	13	2.5 (1.0–4.6)	19 (7.9–36)	34 (18–56)	268 (140–436)	45 (37–54)	354 (292–421)
	2009	14	2 (0.980–3.4)	14 (6.8–24)	28 (16–44)	195 (110–304)	35 (33–38)	243 (227–260)
	2010	15	1.9 (0.940–3.3)	13 (6.3–22)	27 (15–42)	180 (101–281)	33 (30–35)	219 (203–236)
	2011	15	1.9 (0.910–3.2)	12 (5.9–21)	25 (14–39)	164 (93–255)	29 (27–32)	191 (177–206)
Mali	1990	9	1.2 (0.540–2.2)	14 (6.3–26)	11 (5.9–18)	129 (67–211)	6.6 (6.3–6.9)	76 (72–80)
	1995	10	1.3 (0.580–2.3)	13 (5.9–24)	12 (6.5–20)	125 (66–201)	7.9 (7.5–8.3)	80 (76–84)
	2000	11	1.3 (0.610–2.3)	12 (5.4–21)	13 (7.0–21)	114 (62–183)	8.7 (8.3–9.2)	77 (74–81)
	2005	13	1.4 (0.650–2.5)	11 (4.9–19)	14 (7.3–22)	103 (56–165)	9.1 (8.7–9.6)	69 (66–73)
	2009	15	1.4 (0.670–2.4)	9.4 (4.5–16)	14 (7.5–22)	93 (50–150)	9.5 (9.0–10)	64 (61–67)
	2010	15	1.4 (0.670–2.4)	9.2 (4.4–16)	14 (7.6–23)	92 (49–147)	9.6 (9.2–10)	63 (60–66)
	2011	16	1.4 (0.680–2.4)	9 (4.3–15)	14 (7.6–23)	90 (48–145)	9.8 (9.3–10)	62 (59–65)
Mauritania	1990	2	0.29 (<0.01–1.3)	15 (<0.1–67)	5 (0.790–13)	252 (40–656)	4.5 (2.8–6.7)	228 (140–336)
	1995	2	0.83 (0.360–1.5)	36 (16–65)	8.6 (4.0–15)	375 (174–651)	5.8 (4.7–6.9)	251 (205–302)
	2000	3	1.4 (0.580–2.5)	52 (22–96)	13 (6.2–22)	481 (233–816)	7.3 (6.0–8.8)	277 (226–333)
	2005	3	2.1 (0.820–3.9)	67 (27–126)	18 (8.4–31)	582 (275–1 000)	9.3 (7.6–11)	305 (250–367)
	2009	3	2.6 (1.0–5.0)	78 (30–148)	22 (10–38)	653 (300–1 140)	11 (9.2–13)	330 (271–395)
	2010	3	2.8 (1.1–5.3)	80 (31–153)	23 (11–40)	668 (307–1 160)	12 (9.6–14)	337 (277–402)
	2011	4	2.9 (1.1–5.6)	83 (32–159)	24 (11–43)	686 (312–1 200)	12 (10–15)	344 (283–410)
Mauritius	1990	1	0.028 (0.027–0.029)	2.6 (2.5–2.7)	0.55 (0.200–1.1)	52 (18–102)	0.29 (0.180–0.430)	28 (17–41)
	1995	1	0.016 (0.016–0.017)	1.4 (1.4–1.5)	0.55 (0.260–0.930)	48 (23–82)	0.3 (0.240–0.360)	26 (21–31)
	2000	1	0.01 (0.010–0.011)	0.87 (0.85–0.88)	0.52 (0.250–0.880)	43 (21–73)	0.29 (0.240–0.350)	24 (20–29)
	2005	1	0.012 (0.012–0.012)	0.95 (0.94–0.96)	0.54 (0.260–0.920)	43 (21–73)	0.29 (0.240–0.350)	23 (19–28)
	2009	1	0.013 (0.013–0.013)	1 (1.0–1.0)	0.51 (0.250–0.880)	40 (19–68)	0.28 (0.230–0.340)	22 (18–26)
	2010	1	0.013 (0.013–0.013)	1 (1.0–1.0)	0.51 (0.250–0.870)	39 (19–67)	0.28 (0.230–0.330)	22 (18–26)
	2011	1	0.013 (0.013–0.013)	0.98 (0.96–1.0)	0.5 (0.240–0.850)	38 (18–65)	0.28 (0.230–0.330)	21 (18–25)
Mozambique	1990	14	11 (0.680–37)	84 (5.0–273)	110 (5.9–360)	816 (44–2 670)	54 (8.4–140)	401 (62–1 050)
	1995	16	13 (2.2–33)	80 (14–205)	120 (21–290)	728 (133–1 810)	76 (24–160)	478 (153–985)
	2000	18	11 (2.6–25)	60 (14–138)	100 (30–220)	564 (165–1 200)	93 (41–170)	513 (227–914)
	2005	21	9.8 (2.9–21)	47 (14–100)	100 (39–190)	483 (190–910)	110 (62–170)	524 (298–811)
	2009	23	9.9 (3.6–19)	43 (16–84)	110 (50–180)	460 (221–786)	120 (85–170)	539 (371–738)
	2010	23	12 (4.2–23)	50 (18–97)	120 (57–210)	513 (244–881)	130 (88–170)	544 (377–741)
	2011	24	11 (4.0–22)	47 (17–91)	120 (56–200)	490 (235–837)	130 (91–180)	548 (380–747)
Namibia	1990	1	0.074 (0.058–0.091)	5.2 (4.1–6.4)	9.6 (4.5–17)	675 (315–1 170)	5.4 (4.2–6.6)	379 (300–467)
	1995	2	0.15 (0.110–0.180)	8.8 (6.9–11)	11 (5.5–19)	681 (334–1 150)	9.5 (7.5–12)	575 (455–708)
	2000	2	0.46 (0.360–0.580)	24 (19–31)	26 (13–43)	1 380 (709–2 260)	27 (21–33)	1 410 (1 110–1 730)
	2005	2	0.47 (0.360–0.590)	23 (17–28)	27 (14–44)	1 280 (662–2 100)	29 (23–36)	1 390 (1 100–1 720)
	2009	2	0.37 (0.290–0.460)	17 (13–20)	20 (11–33)	905 (477–1 460)	22 (18–27)	989 (783–1 220)
	2010	2	0.35 (0.280–0.430)	15 (12–19)	19 (9.8–30)	820 (429–1 340)	20 (16–24)	867 (686–1 070)
	2011	2	0.33 (0.260–0.410)	14 (11–18)	17 (8.7–28)	729 (374–1 200)	17 (13–21)	723 (573–891)

[a] Rates are per 100 000 population.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2011**

			MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
Niger	1990	8	7.7 (2.9–15)	98 (37–189)	62 (28–110)	795 (354–1 410)	28 (23–33)	358 (295–426)
	1995	9	6.7 (2.5–13)	73 (27–141)	54 (24–97)	591 (261–1 050)	25 (20–29)	270 (223–321)
	2000	11	4.9 (1.9–9.3)	45 (18–86)	41 (19–72)	379 (177–656)	21 (17–25)	191 (157–227)
	2005	13	3.6 (1.5–6.6)	28 (11–51)	32 (16–55)	249 (121–423)	19 (15–22)	142 (118–170)
	2009	15	2.9 (1.3–5.3)	20 (8.5–35)	28 (14–48)	189 (93–319)	18 (15–21)	119 (98–142)
	2010	16	2.8 (1.2–5.0)	18 (7.8–32)	27 (13–46)	176 (86–298)	18 (15–21)	113 (94–135)
	2011	16	2.7 (1.2–4.8)	17 (7.3–30)	27 (13–45)	166 (81–281)	17 (14–21)	108 (90–129)
Nigeria	1990	98	28 (0.063–130)	29 (<0.1–135)	280 (0.490–1 300)	282 (0.51–1 350)	130 (1.3–510)	128 (1.3–526)
	1995	110	37 (0.830–140)	34 (0.75–126)	310 (7.2–1 200)	286 (6.5–1 070)	150 (8.1–500)	139 (7.4–456)
	2000	124	42 (1.3–150)	34 (1.0–122)	380 (11–1 400)	306 (8.8–1 110)	210 (15–660)	172 (12–536)
	2005	140	42 (2.2–140)	30 (1.6–98)	410 (21–1 400)	293 (15–968)	240 (33–670)	175 (23–476)
	2009	154	31 (10–65)	20 (6.5–42)	300 (110–580)	194 (70–378)	200 (120–300)	130 (78–196)
	2010	158	33 (8.1–74)	21 (5.1–47)	320 (88–690)	200 (55–436)	210 (100–360)	133 (64–225)
	2011	162	27 (6.1–64)	17 (3.7–40)	280 (71–620)	171 (44–382)	190 (90–330)	118 (55–204)
Rwanda	1990	7	2.6 (1.1–4.9)	37 (15–69)	24 (12–40)	337 (172–556)	21 (18–23)	291 (260–324)
	1995	6	4.3 (1.6–8.2)	77 (29–147)	37 (17–63)	658 (312–1 130)	29 (26–32)	514 (459–573)
	2000	8	3.9 (1.6–7.3)	48 (19–91)	35 (17–58)	430 (214–721)	26 (24–29)	326 (291–363)
	2005	9	2 (0.840–3.5)	21 (9.2–38)	19 (11–31)	211 (115–336)	17 (15–19)	181 (162–202)
	2009	10	1.3 (0.610–2.3)	13 (5.9–22)	14 (7.7–23)	137 (74–219)	12 (11–13)	114 (102–127)
	2010	11	1.3 (0.590–2.2)	12 (5.6–21)	14 (7.3–22)	129 (69–207)	11 (10–12)	106 (94–118)
	2011	11	1.2 (0.560–2.0)	11 (5.1–19)	13 (6.8–21)	117 (62–189)	10 (9.2–11)	94 (84–105)
Sao Tome and Principe	1990	< 1	0.03 (<0.01–0.062)	26 (8.4–53)	0.28 (0.099–0.560)	243 (85–483)	0.16 (0.097–0.230)	135 (83–199)
	1995	< 1	0.032 (0.013–0.058)	25 (10–46)	0.29 (0.140–0.490)	223 (107–381)	0.16 (0.130–0.190)	124 (102–149)
	2000	< 1	0.018 (<0.01–0.033)	13 (5.0–23)	0.21 (0.086–0.380)	148 (61–271)	0.16 (0.130–0.190)	114 (93–137)
	2005	< 1	<0.01 (<0.01–0.027)	5.9 (0.47–18)	0.18 (0.056–0.380)	119 (37–250)	0.16 (0.130–0.190)	105 (88–123)
	2009	< 1	0.019 (<0.01–0.035)	12 (4.9–22)	0.21 (0.095–0.380)	131 (58–233)	0.16 (0.130–0.190)	98 (80–117)
	2010	< 1	0.023 (<0.01–0.041)	14 (5.9–25)	0.23 (0.110–0.400)	140 (66–241)	0.16 (0.130–0.190)	96 (79–115)
	2011	< 1	0.027 (0.011–0.048)	16 (6.7–28)	0.25 (0.120–0.430)	151 (73–256)	0.16 (0.130–0.190)	94 (78–113)
Senegal	1990	7	1.7 (0.760–3.1)	24 (11–43)	17 (8.1–29)	231 (111–394)	10 (8.2–12)	138 (114–164)
	1995	8	2.1 (0.930–3.8)	25 (11–45)	21 (9.9–35)	248 (119–423)	13 (11–15)	153 (126–183)
	2000	10	2.5 (1.1–4.5)	26 (11–47)	24 (12–41)	253 (123–430)	15 (12–18)	155 (128–184)
	2005	11	2.3 (1.0–4.2)	22 (9.5–38)	24 (11–40)	217 (104–371)	15 (13–18)	142 (117–169)
	2009	12	2.3 (1.0–4.1)	19 (8.3–34)	24 (11–41)	196 (92–340)	16 (13–19)	133 (110–158)
	2010	12	2.4 (1.1–4.3)	19 (8.5–35)	25 (12–43)	201 (95–344)	17 (14–20)	137 (113–163)
	2011	13	2.5 (1.1–4.4)	19 (8.5–35)	25 (12–44)	200 (95–341)	17 (14–21)	136 (112–162)
Seychelles	1990	< 1	<0.01 (<0.01–<0.01)	1.6 (1.6–1.7)	0.034 (<0.01–0.093)	49 (6.6–131)	0.031 (0.019–0.045)	43 (27–64)
	1995	< 1	<0.01 (<0.01–<0.01)	1.5 (1.5–1.5)	0.06 (0.028–0.100)	81 (38–139)	0.03 (0.024–0.036)	40 (33–48)
	2000	< 1	<0.01 (<0.01–<0.01)	1.6 (1.6–1.7)	0.044 (0.020–0.077)	56 (25–98)	0.029 (0.023–0.034)	37 (30–44)
	2005	< 1	<0.01 (<0.01–<0.01)	1 (0.98–1.0)	0.051 (0.024–0.087)	60 (29–104)	0.028 (0.023–0.034)	33 (27–40)
	2009	< 1	<0.01 (<0.01–<0.01)	1.4 (1.4–1.5)	0.04 (0.017–0.073)	47 (19–85)	0.027 (0.022–0.032)	31 (26–37)
	2010	< 1	<0.01 (<0.01–<0.01)	1.6 (1.6–1.6)	0.042 (0.019–0.074)	49 (22–86)	0.027 (0.022–0.032)	31 (25–37)
	2011	< 1	<0.01 (<0.01–<0.01)	1.9 (1.8–1.9)	0.034 (0.014–0.064)	39 (16–73)	0.026 (0.022–0.031)	30 (25–36)
Sierra Leone	1990	4	2.4 (0.760–5.0)	60 (19–124)	19 (7.0–38)	485 (176–948)	8.2 (5.1–12)	207 (128–305)
	1995	4	2.8 (1.1–5.3)	71 (28–135)	23 (11–40)	594 (273–1 040)	11 (8.9–13)	279 (228–335)
	2000	4	3.8 (1.5–7.2)	92 (36–174)	32 (15–56)	773 (357–1 340)	16 (13–19)	377 (308–453)
	2005	5	6 (2.4–11)	116 (46–220)	51 (24–88)	987 (461–1 710)	26 (21–31)	509 (416–611)
	2009	6	8 (3.2–15)	139 (55–261)	69 (33–120)	1 200 (570–2 060)	37 (30–44)	644 (529–771)
	2010	6	8.7 (3.5–16)	149 (60–279)	75 (36–130)	1 280 (611–2 200)	40 (33–48)	682 (563–813)
	2011	6	9.5 (3.8–18)	159 (64–297)	82 (39–140)	1 370 (650–2 350)	43 (36–52)	723 (596–861)
South Africa	1990	37	15 (4.4–31)	40 (12–85)	160 (55–320)	439 (150–878)	110 (76–150)	301 (206–413)
	1995	41	13 (5.5–24)	32 (13–58)	160 (72–270)	376 (174–654)	130 (110–160)	317 (259–381)
	2000	45	19 (8.1–35)	43 (18–78)	240 (130–390)	534 (279–869)	260 (210–310)	576 (471–691)
	2005	48	29 (12–53)	60 (25–110)	380 (200–620)	795 (417–1 290)	440 (360–530)	925 (756–1 110)
	2009	50	27 (11–50)	55 (23–101)	400 (200–660)	808 (412–1 330)	480 (400–580)	971 (798–1 160)
	2010	50	28 (12–50)	55 (24–99)	410 (210–670)	815 (424–1 330)	490 (410–590)	981 (809–1 170)
	2011	50	25 (11–44)	49 (21–87)	390 (200–630)	768 (399–1 250)	500 (410–600)	993 (819–1 180)
Swaziland	1990	< 1	0.27 (0.073–0.600)	31 (8.5–69)	3 (1.0–6.1)	349 (119–701)	2.3 (1.4–3.4)	267 (165–394)
	1995	< 1	0.23 (0.097–0.430)	24 (10–44)	3 (1.5–4.9)	309 (159–507)	3.2 (2.7–3.9)	337 (275–405)
	2000	1	0.34 (0.130–0.640)	32 (12–60)	5.7 (2.8–9.5)	534 (267–892)	8.5 (7.0–10)	803 (657–964)
	2005	1	0.36 (0.130–0.720)	33 (12–65)	7.5 (3.5–13)	680 (318–1 180)	13 (10–15)	1 150 (938–1 380)
	2009	1	0.41 (0.180–0.740)	35 (15–63)	8.4 (4.1–14)	721 (355–1 210)	15 (12–18)	1 260 (1 030–1 500)
	2010	1	0.47 (0.210–0.850)	40 (17–71)	9 (4.5–15)	756 (383–1 250)	15 (13–18)	1 290 (1 060–1 530)
	2011	1	0.64 (0.280–1.2)	53 (23–96)	10 (5.5–17)	854 (456–1 370)	16 (13–19)	1 320 (1 090–1 570)
Togo	1990	4	0.25 (0.110–0.440)	6.7 (3.0–12)	2.6 (1.2–4.5)	71 (33–121)	1.8 (1.5–2.2)	50 (41–59)
	1995	4	0.39 (0.170–0.700)	9.5 (4.1–17)	3.8 (1.9–6.3)	92 (46–155)	2.5 (2.1–3.0)	61 (51–73)
	2000	5	0.62 (0.260–1.2)	13 (5.4–24)	5.7 (2.8–9.6)	119 (59–200)	3.7 (3.0–4.4)	76 (63–91)
	2005	5	0.62 (0.260–1.1)	11 (4.9–21)	6.1 (3.1–10)	113 (57–189)	4.4 (3.6–5.2)	81 (67–97)
	2009	6	0.53 (0.230–0.960)	9.1 (4.0–16)	5.7 (2.8–9.8)	97 (47–166)	4.3 (3.5–5.2)	73 (60–87)
	2010	6	0.57 (0.240–1.0)	9.4 (4.0–17)	6 (2.9–10)	100 (49–169)	4.6 (3.8–5.5)	77 (63–92)
	2011	6	0.55 (0.240–0.990)	9 (3.9–16)	5.9 (2.9–10)	96 (47–162)	4.5 (3.7–5.4)	73 (60–87)
Uganda	1990	18	8 (2.2–17)	45 (13–98)	79 (31–150)	446 (174–844)	110 (58–180)	624 (328–1 010)
	1995	21	9.4 (2.7–20)	45 (13–97)	94 (36–180)	449 (172–856)	110 (62–180)	542 (297–860)
	2000	24	10 (3.3–21)	43 (14–89)	100 (43–190)	431 (176–799)	100 (63–150)	427 (259–636)
	2005	28	8.2 (3.1–16)	29 (11–55)	89 (42–150)	314 (149–539)	87 (62–110)	304 (220–402)
	2009	32	5.8 (2.5–10)	18 (7.6–32)	69 (37–110)	215 (113–348)	73 (59–89)	226 (182–274)
	2010	33	5.3 (2.3–9.5)	16 (6.8–29)	66 (35–110)	196 (103–318)	70 (56–84)	209 (169–253)
	2011	35	5 (2.1–9.0)	14 (6.2–26)	63 (33–100)	183 (95–298)	67 (54–81)	193 (156–234)
United Republic of Tanzania	1990	25	8.9 (3.7–16)	35 (15–64)	82 (42–140)	323 (165–534)	58 (49–67)	226 (193–261)
	1995	30	6.4 (2.8–11)	21 (9.4–38)	72 (38–120)	241 (128–388)	68 (58–78)	226 (193–261)
	2000	34	6.5 (3.0–11)	19 (8.7–33)	81 (43–130)	239 (125–388)	80 (70–91)	236 (207–268)
	2005	39	6.6 (3.2–11)	17 (8.3–29)	85 (44–140)	218 (114–355)	83 (76–89)	213 (197–229)
	2009	44	6.4 (3.3–11)	15 (7.5–25)	83 (43–130)	190 (99–309)	79 (75–85)	183 (171–194)
	2010	45	6.6 (3.3–11)	15 (7.4–24)	83 (44–130)	186 (98–301)	79 (75–85)	177 (166–189)
	2011	46	6.4 (3.3–11)	14 (7.1–23)	82 (43–130)	177 (93–286)	78 (73–83)	169 (159–180)
Zambia	1990	8	4.4 (1.8–8.2)	56 (23–104)	46 (26–73)	590 (326–931)	56 (49–63)	710 (624–801)
	1995	9	4 (1.7–7.3)	45 (19–82)	53 (29–84)	593 (325–938)	70 (64–77)	788 (719–861)
	2000	10	3.5 (1.5–6.2)	34 (15–60)	54 (28–87)	528 (278–856)	73 (67–78)	713 (661–767)
	2005	11	2.5 (1.1–4.7)	22 (9.2–41)	47 (23–80)	411 (200–697)	65 (59–71)	566 (519–615)
	2009	13	2.7 (1.3–4.6)	21 (10–36)	46 (24–74)	359 (190–581)	61 (55–68)	482 (434–532)
	2010	13	3 (1.5–5.1)	23 (11–39)	47 (25–75)	358 (192–573)	61 (55–67)	462 (418–509)
	2011	13	3.2 (1.5–5.4)	24 (11–40)	47 (26–75)	352 (193–558)	60 (54–66)	444 (401–489)
Zimbabwe	1990	10	2.5 (0.720–5.4)	24 (6.9–51)	25 (10–48)	242 (95–457)	31 (17–50)	296 (159–476)
	1995	12	1.1 (0.260–2.6)	9.5 (2.2–22)	28 (12–50)	237 (100–432)	56 (39–77)	483 (335–658)
	2000	13	1.2 (0.220–3.0)	9.7 (1.7–24)	41 (16–78)	328 (127–623)	91 (72–110)	726 (573–897)
	2005	13	2.9 (0.960–5.9)	23 (7.6–47)	53 (25–92)	425 (202–729)	100 (80–120)	799 (634–984)
	2009	12	3.5 (1.4–6.5)	28 (11–52)	52 (28–84)	417 (222–673)	83 (64–110)	668 (514–842)
	2010	13	3.5 (1.4–6.5)	28 (11–51)	51 (27–82)	406 (217–652)	80 (61–100)	633 (489–795)
	2011	13	6 (2.4–11)	47 (19–88)	70 (37–110)	547 (287–889)	77 (59–96)	603 (466–757)

[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2011**

			INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE		CASE DETECTION
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
Algeria	1990	25	17 (12–22)	66 (48–86)	0.012 (<0.01–0.016)	<0.1 (<0.1–<0.1)	11 607	46	70 (54–95)
	1995	28	19 (14–25)	68 (50–89)	0.028 (0.014–0.047)	0.1 (<0.1–0.17)	13 507	48	70 (54–95)
	2000	31	27 (19–35)	87 (64–114)	0.1 (0.056–0.160)	0.3 (0.18–0.53)	18 572	61	70 (54–95)
	2005	33	30 (22–40)	93 (68–121)	0.23 (0.140–0.350)	0.7 (0.41–1.1)	21 336	65	70 (54–95)
	2009	35	31 (23–41)	89 (65–116)	0.32 (0.190–0.480)	0.9 (0.55–1.4)	21 701	62	70 (54–95)
	2010	35	32 (23–42)	90 (66–118)	0.35 (0.210–0.520)	1 (0.59–1.5)	22 336	63	70 (54–95)
	2011	36	32 (24–42)	90 (66–117)	0.36 (0.220–0.540)	1 (0.61–1.5)	21 429	60	67 (51–91)
Angola	1990	10	21 (13–31)	205 (127–303)	1.5 (0.950–2.3)	15 (9.2–22)	10 271	99	48 (33–78)
	1995	12	27 (22–33)	226 (185–272)	3.5 (2.7–4.4)	29 (22–36)	5 143	42	19 (16–23)
	2000	14	35 (28–42)	250 (204–300)	6.1 (4.7–7.6)	44 (34–55)	16 062	115	46 (38–56)
	2005	16	45 (37–54)	276 (227–329)	9.4 (7.4–12)	57 (45–71)	37 175	225	82 (69–99)
	2009	19	55 (46–65)	298 (250–349)	12 (9.6–15)	65 (52–79)	41 221	222	75 (64–89)
	2010	19	58 (49–68)	304 (256–355)	13 (10–15)	66 (53–81)	44 655	234	77 (66–91)
	2011	20	61 (51–71)	310 (261–362)	8.5 (6.2–11)	43 (31–57)	47 240	241	78 (66–92)
Benin	1990	5	6.1 (5.1–7.3)	128 (106–153)	2.2 (1.8–2.6)	46 (38–55)	2 074	43	34 (28–41)
	1995	6	5.6 (4.7–6.7)	100 (82–119)	1.6 (1.2–1.9)	28 (22–34)	2 400	42	43 (36–51)
	2000	7	5.6 (4.6–6.7)	86 (71–102)	1.3 (1.0–1.6)	20 (16–25)	2 697	41	48 (40–58)
	2005	8	5.6 (4.6–6.7)	74 (61–88)	1 (0.790–1.3)	13 (10–17)	3 270	43	58 (49–70)
	2009	9	6 (5.0–7.1)	70 (58–83)	0.99 (0.810–1.2)	12 (9.4–14)	3 878	45	65 (54–78)
	2010	9	6.1 (5.0–7.2)	69 (57–82)	0.96 (0.780–1.2)	11 (8.8–13)	3 756	42	62 (52–75)
	2011	9	6.3 (5.2–7.5)	70 (58–83)	1.1 (0.870–1.3)	12 (9.6–14)	4 212	46	67 (56–80)
Botswana	1990	1	7.4 (2.9–14)	533 (212–997)	2.3 (0.920–4.3)	167 (66–313)	2 938	213	40 (21–100)
	1995	2	14 (8.8–19)	855 (553–1 220)	7.9 (5.1–11)	500 (321–717)	5 665	357	42 (29–65)
	2000	2	16 (13–20)	918 (736–1 120)	11 (8.5–13)	611 (486–749)	9 292	529	58 (47–72)
	2005	2	14 (13–15)	733 (667–802)	9.2 (8.2–10)	488 (437–541)	10 058	536	73 (67–80)
	2009	2	11 (9.6–12)	545 (486–608)	7 (6.2–7.8)	354 (315–396)	8 362	422	77 (69–87)
	2010	2	10 (9.0–11)	503 (449–560)	6.6 (5.9–7.4)	329 (293–366)	7 013	349	70 (62–78)
	2011	2	9.2 (8.3–10)	455 (406–507)	5.9 (5.3–6.6)	292 (260–325)	6 603	325	71 (64–80)
Burkina Faso	1990	9	8.1 (6.9–9.4)	87 (74–101)	3.5 (3.0–4.1)	38 (32–44)	1 497	16	18 (16–22)
	1995	11	8.8 (7.5–10)	82 (70–96)	3.4 (2.8–4.1)	32 (26–38)	2 572	24	29 (25–34)
	2000	12	8.8 (7.4–10)	71 (60–83)	2.7 (2.2–3.3)	22 (18–27)	2 331	19	27 (23–31)
	2005	14	8.9 (7.5–10)	63 (53–73)	2.1 (1.7–2.6)	15 (12–18)	3 478	24	39 (34–46)
	2009	16	9.5 (8.1–11)	59 (50–69)	1.9 (1.6–2.2)	12 (9.8–14)	4 716	30	50 (43–59)
	2010	16	9.5 (8.1–11)	58 (49–67)	1.7 (1.4–2.0)	10 (8.5–12)	4 800	29	51 (43–60)
	2011	17	9.7 (8.2–11)	57 (48–66)	1.6 (1.4–1.9)	9.5 (8.0–11)	5 286	31	55 (47–65)
Burundi	1990	6	9.1 (8.0–10)	162 (143–183)	2.5 (2.2–2.8)	44 (39–50)	4 575	82	50 (45–57)
	1995	6	20 (17–22)	323 (284–364)	8.6 (7.3–10)	142 (120–166)	3 326	55	17 (15–19)
	2000	6	18 (16–21)	289 (255–326)	7.7 (6.5–9.0)	121 (102–141)	6 421	101	35 (31–40)
	2005	7	14 (13–16)	198 (174–223)	4.5 (3.8–5.3)	62 (52–73)	6 585	91	46 (41–52)
	2009	8	12 (11–14)	150 (132–169)	3 (2.5–3.6)	37 (30–44)	7 277	89	59 (53–67)
	2010	8	12 (11–14)	144 (127–163)	2.8 (2.4–3.1)	33 (29–38)	7 611	91	63 (56–71)
	2011	9	12 (10–13)	139 (122–157)	2.6 (2.2–2.9)	30 (26–34)	6 742	79	57 (50–64)
Cameroon	1990	12	14 (11–16)	112 (92–133)	1.4 (1.1–1.7)	11 (9.4–14)	5 892	48	43 (36–52)
	1995	14	29 (24–34)	206 (170–246)	8.2 (6.5–10)	59 (47–73)	3 292	24	11 (9.6–14)
	2000	16	49 (40–58)	310 (255–369)	20 (16–25)	130 (104–159)	5 251	33	11 (9.1–13)
	2005	18	55 (45–65)	313 (258–373)	24 (19–30)	138 (110–169)	21 499	122	39 (33–48)
	2009	19	51 (42–61)	268 (221–319)	21 (17–25)	109 (89–130)	24 662	129	48 (40–58)
	2010	20	54 (44–64)	274 (226–327)	23 (19–28)	119 (98–142)	24 073	123	45 (38–54)
	2011	20	49 (40–58)	243 (200–290)	19 (15–22)	93 (76–111)	24 533	122	50 (42–61)
Cape Verde	1990	< 1	0.61 (0.380–0.900)	175 (108–259)	0.058 (0.036–0.086)	17 (10–25)	221	63	36 (25–59)
	1995	< 1	0.66 (0.540–0.800)	168 (137–201)	0.074 (0.056–0.094)	19 (14–24)	303	77	46 (38–56)
	2000	< 1	0.7 (0.570–0.840)	160 (131–193)	0.084 (0.064–0.110)	19 (15–24)			
	2005	< 1	0.72 (0.590–0.870)	153 (125–184)	0.034 (0.017–0.056)	7.2 (3.7–12)	292	62	40 (34–49)
	2009	< 1	0.73 (0.600–0.870)	148 (121–177)	0.088 (0.067–0.110)	18 (14–22)	332	68	46 (38–56)
	2010	< 1	0.73 (0.600–0.870)	147 (121–175)	0.087 (0.067–0.110)	18 (14–22)	356	72	49 (41–59)
	2011	< 1	0.73 (0.600–0.870)	145 (120–173)	0.097 (0.068–0.130)	19 (14–26)	380	76	52 (44–63)
Central African Republic	1990	3	25 (21–30)	864 (712–1 030)	14 (11–16)	463 (382–552)	2 124	72	8.4 (7.0–10)
	1995	3	40 (33–48)	1 200 (990–1 430)	23 (18–28)	681 (549–827)	3 339	100	8.4 (7.0–10)
	2000	4	40 (33–47)	1 070 (885–1 280)	22 (18–27)	591 (476–718)			
	2005	4	28 (23–33)	690 (569–823)	13 (11–16)	336 (269–409)	3 210	80	12 (9.7–14)
	2009	4	20 (17–24)	469 (387–559)	8.6 (6.9–10)	199 (159–243)	8 743	202	43 (36–52)
	2010	4	19 (16–23)	433 (357–516)	7.8 (6.2–9.5)	177 (142–217)	6 643	151	35 (29–42)
	2011	4	18 (15–21)	400 (330–477)	7.1 (5.7–8.7)	159 (127–194)	5 611	125	31 (26–38)
Chad	1990	6	5.7 (4.7–6.8)	94 (78–112)	1.3 (1.0–1.5)	21 (17–25)	2 591	43	46 (38–55)
	1995	7	9 (7.4–11)	128 (106–153)	2.7 (2.2–3.4)	39 (31–48)	3 186	46	35 (30–43)
	2000	8	12 (10–15)	151 (125–180)	4.2 (3.3–5.1)	51 (40–62)			
	2005	10	15 (12–17)	150 (124–178)	4.7 (3.8–5.8)	48 (38–59)	6 311	64	43 (36–52)
	2009	11	17 (14–20)	151 (125–180)	5 (4.0–6.2)	46 (37–56)	8 411	77	51 (43–61)
	2010	11	17 (14–20)	151 (125–179)	5.1 (4.1–6.3)	45 (36–56)	9 452	84	56 (47–67)
	2011	12	17 (14–21)	151 (125–179)	5.2 (4.1–6.4)	45 (36–56)	10 505	91	60 (51–73)
Comoros	1990	< 1	0.24 (0.190–0.280)	54 (44–64)	<0.01 (<0.01–<0.01)	0 (0–0)	140	32	59 (50–72)
	1995	< 1	0.23 (0.190–0.270)	46 (38–55)	<0.01 (0–<0.01)	0 (0–0)	123	25	54 (46–66)
	2000	< 1	0.22 (0.180–0.260)	39 (32–46)	<0.01 (0–<0.01)	0 (0–0)	120	21	55 (46–66)
	2005	< 1	0.23 (0.190–0.280)	36 (30–43)	<0.01 (<0.01–0.014)	0.7 (<0.1–2.1)	111	17	48 (40–58)
	2009	< 1	0.24 (0.200–0.290)	33 (28–40)	<0.01 (<0.01–<0.01)	<0.1 (0–<0.1)	120	17	50 (42–61)
	2010	< 1	0.25 (0.200–0.290)	33 (28–40)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.13)			
	2011	< 1	0.26 (0.210–0.310)	34 (28–41)	0.011 (<0.01–0.025)	1.4 (0.31–3.3)	117	16	45 (38–55)
Congo	1990	2	4 (2.5–6.0)	169 (104–250)	1.6 (1.0–2.4)	68 (42–100)	591	25	15 (9.9–24)
	1995	3	6.7 (5.5–8.0)	245 (200–294)	2.7 (2.1–3.3)	99 (78–122)	3 615	132	54 (45–66)
	2000	3	11 (9.3–13)	353 (298–412)	3.9 (3.2–4.7)	126 (102–151)	9 239	295	83 (71–99)
	2005	4	15 (12–18)	425 (347–510)	4.8 (3.8–5.9)	136 (107–168)	9 853	279	66 (55–80)
	2009	4	16 (13–19)	395 (323–474)	4.8 (3.8–5.9)	121 (95–150)	9 765	248	63 (52–77)
	2010	4	16 (13–19)	391 (320–470)	4.8 (3.8–6.0)	120 (94–148)	10 150	251	64 (53–79)
	2011	4	16 (13–19)	387 (317–465)	4.9 (3.9–6.1)	119 (94–147)	10 975	265	68 (57–84)
Côte d'Ivoire	1990	13	30 (26–34)	238 (206–272)	11 (9.4–12)	86 (75–99)	7 841	63	26 (23–30)
	1995	15	56 (48–64)	380 (329–434)	24 (20–28)	163 (137–192)	11 988	82	21 (19–25)
	2000	17	61 (53–70)	370 (321–423)	26 (21–30)	155 (130–182)	15 094	91	25 (22–28)
	2005	18	48 (42–55)	268 (232–306)	17 (14–20)	94 (78–111)	19 681	109	41 (36–47)
	2009	19	41 (36–47)	212 (184–242)	12 (11–14)	64 (55–73)	22 571	117	55 (48–63)
	2010	20	38 (33–43)	190 (165–217)	9.1 (7.9–10)	46 (40–53)	22 708	115	60 (53–70)
	2011	20	38 (33–44)	191 (165–218)	10 (8.7–12)	50 (43–57)	22 476	112	59 (51–68)
Democratic Republic of the Congo	1990	36	120 (95–150)	327 (262–398)	18 (15–22)	51 (41–62)	21 131	58	18 (15–22)
	1995	44	140 (120–170)	327 (268–392)	24 (19–31)	55 (43–69)	42 819	97	30 (25–36)
	2000	50	160 (140–190)	327 (273–385)	28 (22–35)	57 (45–71)	61 024	123	38 (32–45)
	2005	57	190 (160–220)	327 (279–379)	32 (26–39)	56 (45–68)	97 075	169	52 (45–61)
	2009	64	210 (180–240)	327 (283–374)	33 (27–40)	52 (42–63)	111 709	174	53 (47–61)
	2010	66	220 (190–250)	327 (282–375)	33 (27–40)	50 (41–61)	114 170	173	53 (46–61)
	2011	68	220 (190–250)	327 (282–375)	34 (27–41)	49 (40–60)	110 132	163	50 (43–58)
Equatorial Guinea	1990	< 1	0.9 (0.790–1.0)	241 (211–273)	0.072 (0.063–0.082)	19 (17–22)	260	70	29 (25–33)
	1995	< 1	1.2 (1.1–1.4)	279 (245–316)	0.15 (0.130–0.190)	35 (28–42)	306	69	25 (22–28)
	2000	< 1	1.4 (1.2–1.6)	268 (235–304)	0.25 (0.200–0.290)	47 (39–56)			
	2005	< 1	1.3 (1.1–1.4)	206 (181–234)	0.29 (0.240–0.340)	48 (40–56)			
	2009	< 1	1.4 (1.2–1.6)	202 (177–229)	0.38 (0.320–0.450)	56 (46–65)	707	104	51 (45–59)
	2010	< 1	1.5 (1.3–1.7)	215 (189–244)	0.43 (0.360–0.510)	62 (52–72)	820	117	54 (48–62)
	2011	< 1	1.5 (1.3–1.6)	202 (177–229)	0.37 (0.310–0.440)	52 (44–61)	883	123	61 (54–69)
Eritrea	1990	3	7.7 (5.1–11)	243 (162–341)	0.13 (0.087–0.190)	4.2 (2.8–5.9)	3 699	117	48 (34–72)
	1995	3	6.4 (4.2–8.9)	198 (132–278)	0.45 (0.280–0.660)	14 (8.8–20)	21 453	668	340 (240–510)
	2000	4	5.8 (3.8–8.1)	157 (104–220)	0.75 (0.480–1.1)	20 (13–30)	6 652	181	120 (82–170)
	2005	4	5.4 (3.6–7.6)	121 (80–169)	0.61 (0.390–0.880)	14 (8.6–20)	3 549	79	65 (47–98)
	2009	5	5.3 (3.5–7.4)	103 (69–145)	0.48 (0.310–0.700)	9.5 (6.0–14)	2 904	57	55 (39–83)
	2010	5	5.3 (3.5–7.4)	100 (67–140)	0.46 (0.290–0.670)	8.8 (5.6–13)	2 870	55	55 (39–82)
	2011	5	5.2 (3.5–7.4)	97 (64–136)	0.44 (0.280–0.640)	8.2 (5.2–12)	3 049	56	58 (41–87)

[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2011**

			INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE		CASE DETECTION
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
Ethiopia	1990	48	180 (110–270)	367 (218–553)	22 (13–34)	46 (27–70)	88 634	183	50 (33–84)
	1995	57	240 (140–360)	419 (249–633)	65 (38–100)	114 (66–175)	26 034	46	11 (7.2–18)
	2000	66	280 (160–420)	421 (251–636)	93 (54–140)	141 (82–215)	91 101	139	33 (22–55)
	2005	74	250 (150–380)	342 (203–516)	72 (42–110)	97 (56–148)	124 262	167	49 (32–82)
	2009	81	230 (160–310)	280 (191–385)	47 (31–66)	58 (38–81)	148 936	183	66 (48–96)
	2010	83	220 (160–300)	269 (191–359)	42 (29–58)	51 (35–70)	154 694	186	69 (52–97)
	2011	85	220 (160–280)	258 (191–335)	38 (28–49)	45 (33–58)	156 539	185	72 (55–96)
Gabon	1990	< 1	2 (1.7–2.4)	220 (182–262)	0.24 (0.200–0.290)	26 (21–31)	917	99	45 (38–54)
	1995	1	3.4 (2.8–4.1)	314 (259–374)	0.86 (0.680–1.1)	79 (63–98)	1 115	103	33 (27–40)
	2000	1	6.5 (5.4–7.7)	527 (435–627)	2.5 (2.0–3.1)	203 (162–249)			
	2005	1	8 (6.6–9.6)	586 (484–698)	3.5 (2.8–4.2)	252 (202–307)	2 512	183	31 (26–38)
	2009	1	7.5 (6.2–9.0)	511 (422–609)	3.2 (2.5–3.9)	214 (172–262)	3 073	208	41 (34–49)
	2010	2	7.2 (5.9–8.5)	475 (392–566)	3 (2.4–3.6)	197 (158–241)	3 473	231	49 (41–59)
	2011	2	6.9 (5.7–8.2)	450 (372–536)	2.8 (2.3–3.5)	185 (148–226)	4 404	287	64 (54–77)
Gambia	1990	< 1	1.8 (1.1–2.6)	185 (114–273)	0.03 (0.018–0.044)	3.1 (1.9–4.5)			
	1995	1	2.3 (1.9–2.8)	204 (167–245)	0.089 (0.064–0.120)	7.9 (5.6–10)	1 023	91	44 (37–54)
	2000	1	2.9 (2.4–3.5)	225 (184–271)	0.23 (0.170–0.300)	18 (13–23)			
	2005	2	3.7 (3.1–4.5)	248 (203–298)	0.5 (0.380–0.630)	33 (26–42)	2 031	135	54 (45–67)
	2009	2	4.5 (3.7–5.4)	269 (221–321)	0.72 (0.580–0.880)	43 (34–52)	2 145	128	48 (40–58)
	2010	2	4.7 (3.9–5.6)	273 (226–325)	0.75 (0.590–0.940)	44 (34–54)	2 070	120	44 (37–53)
	2011	2	4.9 (4.1–5.9)	279 (230–331)	0.8 (0.620–0.990)	45 (35–56)	2 248	127	45 (38–55)
Ghana	1990	15	23 (10–41)	155 (69–275)	3.4 (1.5–6.0)	23 (10–41)	6 407	43	28 (16–63)
	1995	17	28 (16–45)	167 (93–263)	7.3 (4.0–12)	43 (23–69)	8 636	51	30 (19–55)
	2000	19	29 (19–42)	152 (97–220)	9 (5.6–13)	47 (29–69)	10 933	57	37 (26–59)
	2005	22	26 (19–33)	119 (88–154)	7.6 (5.5–10)	35 (25–47)	12 124	56	47 (36–63)
	2009	24	22 (19–25)	92 (81–103)	4.9 (4.3–5.5)	21 (18–23)	14 892	63	68 (61–77)
	2010	24	21 (18–24)	86 (75–97)	5.5 (4.8–6.3)	23 (20–26)	14 607	60	70 (62–79)
	2011	25	20 (17–22)	79 (69–89)	4.6 (4.0–5.2)	18 (16–21)	15 389	62	78 (69–89)
Guinea	1990	6	14 (12–17)	247 (204–295)	1.8 (1.4–2.1)	31 (25–36)	1 988	35	14 (12–17)
	1995	8	19 (16–22)	249 (205–297)	3.8 (2.9–4.7)	50 (38–63)	3 523	47	19 (16–23)
	2000	8	20 (16–23)	234 (193–279)	4.9 (3.8–6.1)	58 (45–73)	5 440	65	28 (23–34)
	2005	9	19 (16–23)	211 (173–251)	5 (3.9–6.2)	55 (43–69)	6 863	76	36 (30–44)
	2009	10	18 (15–22)	187 (154–223)	4.3 (3.5–5.2)	44 (36–53)	8 357	86	46 (38–56)
	2010	10	19 (15–22)	188 (155–224)	4.8 (3.9–5.8)	48 (40–58)	11 038	111	59 (49–71)
	2011	10	19 (15–22)	183 (151–219)	4.8 (3.9–5.7)	47 (38–56)	11 359	111	61 (51–74)
Guinea-Bissau	1990	1	1.6 (1.1–2.2)	158 (108–217)	0.05 (0.034–0.070)	5 (3.4–6.8)	1 163	114	73 (53–110)
	1995	1	2 (1.6–2.3)	174 (142–209)	0.14 (0.100–0.180)	12 (9.0–16)	1 613	143	82 (69–100)
	2000	1	2.4 (1.9–2.9)	192 (157–230)	0.31 (0.240–0.390)	25 (19–31)	1 273	103	54 (45–65)
	2005	1	2.9 (2.4–3.5)	211 (173–254)	0.55 (0.430–0.690)	41 (32–51)	1 774	130	61 (51–75)
	2009	1	3.4 (2.8–4.1)	229 (188–274)	0.78 (0.610–0.960)	52 (41–65)	2 171	146	64 (53–78)
	2010	2	3.5 (2.9–4.2)	233 (192–278)	0.84 (0.660–1.0)	56 (44–69)	2 183	144	62 (52–75)
	2011	2	3.7 (3.0–4.4)	238 (196–283)	1.5 (1.2–1.9)	99 (81–120)	2 063	133	56 (47–68)
Kenya	1990	23	33 (28–37)	139 (121–159)	5.5 (4.8–6.4)	24 (20–27)	11 788	50	36 (32–41)
	1995	27	46 (43–50)	169 (155–184)	23 (20–26)	84 (74–95)	28 142	103	61 (56–66)
	2000	31	89 (84–95)	286 (267–305)	47 (42–52)	149 (133–166)	64 159	205	72 (67–77)
	2005	36	130 (120–140)	359 (339–380)	59 (52–66)	165 (147–184)	102 680	288	80 (76–85)
	2009	39	120 (120–130)	312 (299–325)	54 (52–56)	136 (131–142)	102 997	261	84 (80–87)
	2010	41	120 (120–130)	298 (286–311)	50 (48–52)	123 (118–129)	99 272	245	82 (79–86)
	2011	42	120 (110–120)	288 (276–300)	47 (45–49)	113 (109–118)	97 320	234	81 (78–85)
Lesotho	1990	2	3 (2.2–3.9)	184 (135–240)	0.16 (0.120–0.210)	9.8 (7.1–13)	2 525	154	84 (64–110)
	1995	2	5.8 (5.1–6.6)	323 (283–367)	3.1 (2.6–3.6)	172 (146–201)	5 181	289	89 (79–100)
	2000	2	11 (9.5–12)	553 (484–626)	8.3 (7.2–9.5)	425 (367–486)	9 746	496	90 (79–100)
	2005	2	13 (11–16)	639 (535–752)	10 (8.4–12)	490 (406–581)	10 802	523	82 (70–98)
	2009	2	14 (12–15)	634 (553–721)	10 (9.1–12)	485 (423–552)	12 213	568	90 (79–100)
	2010	2	14 (12–16)	633 (553–719)	11 (9.2–12)	487 (425–553)	11 674	538	85 (75–97)
	2011	2	14 (12–16)	632 (551–717)	11 (9.2–12)	481 (420–547)	11 432	521	82 (73–94)
Liberia	1990	2	4.2 (2.6–6.2)	199 (123–293)	0.16 (0.098–0.240)	7.5 (4.6–11)			
	1995	2	4.6 (3.8–5.5)	219 (179–263)	0.43 (0.330–0.540)	20 (16–26)	1 393	67	30 (25–37)
	2000	3	6.9 (5.6–8.3)	242 (197–290)	0.94 (0.740–1.2)	33 (26–41)	1 500	53	22 (18–27)
	2005	3	8.5 (6.9–10)	266 (218–320)	1.1 (0.830–1.3)	33 (26–41)	3 432	108	40 (34–50)
	2009	4	11 (9.1–13)	288 (237–344)	0.98 (0.760–1.2)	25 (20–32)	5 918	154	54 (45–65)
	2010	4	12 (9.7–14)	293 (242–349)	0.94 (0.750–1.1)	23 (19–29)	6 597	165	56 (47–68)
	2011	4	12 (10–15)	299 (247–356)	1.3 (1.0–1.6)	31 (25–38)	7 906	191	64 (54–78)
Madagascar	1990	11	44 (36–53)	391 (322–466)	0.062 (0.051–0.074)	0.6 (0.45–0.66)	6 261	56	14 (12–17)
	1995	13	44 (36–52)	335 (276–400)	0.097 (0.071–0.130)	0.7 (0.54–0.97)	21 616	165	49 (41–60)
	2000	15	45 (37–54)	293 (241–349)	0.12 (0.092–0.160)	0.8 (0.60–1.0)			
	2005	18	47 (39–56)	262 (216–313)	0.13 (0.097–0.170)	0.7 (0.54–0.95)	18 993	106	41 (34–49)
	2009	20	49 (41–59)	245 (202–293)	0.12 (0.090–0.160)	0.6 (0.45–0.79)	22 758	113	46 (39–56)
	2010	21	50 (41–60)	242 (199–288)	0.12 (0.079–0.170)	0.6 (0.38–0.80)	24 432	118	49 (41–59)
	2011	21	51 (42–61)	238 (196–284)	0.13 (0.087–0.180)	0.6 (0.41–0.86)	26 019	122	51 (43–62)
Malawi	1990	9	31 (22–41)	326 (230–438)	16 (11–21)	166 (117–223)	12 395	132	41 (30–57)
	1995	10	46 (38–54)	462 (383–548)	29 (24–36)	298 (242–360)	19 155	194	42 (35–51)
	2000	11	52 (43–62)	467 (387–554)	36 (30–44)	324 (264–390)	23 604	210	45 (38–54)
	2005	13	45 (37–54)	354 (292–421)	31 (25–38)	244 (198–295)	25 491	199	56 (47–68)
	2009	14	35 (33–38)	243 (227–260)	23 (21–24)	157 (146–168)	22 674	157	65 (60–69)
	2010	15	33 (30–35)	219 (203–236)	21 (19–22)	138 (128–149)	21 092	142	65 (60–70)
	2011	15	29 (27–32)	191 (177–206)	18 (16–19)	114 (105–123)	19 361	126	66 (61–71)
Mali	1990	9	6.6 (6.3–6.9)	76 (72–80)	0.88 (0.830–0.920)	10 (9.6–11)	2 933	34	45 (42–47)
	1995	10	7.9 (7.5–8.3)	80 (76–84)	1.6 (1.3–1.8)	16 (14–18)	3 087	31	39 (37–41)
	2000	11	8.7 (8.3–9.2)	77 (74–81)	1.8 (1.6–2.1)	16 (14–19)	4 216	37	48 (46–51)
	2005	13	9.1 (8.7–9.6)	69 (66–73)	1.7 (1.4–1.9)	13 (11–15)	4 704	36	52 (49–54)
	2009	15	9.5 (9.0–10)	64 (61–67)	1.5 (1.3–1.6)	9.9 (9.0–11)	6 611	44	70 (66–73)
	2010	15	9.6 (9.2–10)	63 (60–66)	1.5 (1.3–1.8)	9.8 (8.3–11)	5 291	34	55 (52–58)
	2011	16	9.8 (9.3–10)	62 (59–65)	1.5 (1.3–1.7)	9.4 (7.9–11)	5 428	34	56 (53–58)
Mauritania	1990	2	4.5 (2.8–6.7)	228 (140–336)	0.18 (0.110–0.260)	9 (5.5–13)	5 284	265	120 (79–190)
	1995	2	5.8 (4.7–6.9)	251 (205–302)	0.35 (0.250–0.450)	15 (11–20)	3 849	168	67 (56–82)
	2000	3	7.3 (6.0–8.8)	277 (226–333)	0.55 (0.410–0.710)	21 (16–27)	3 067	116	42 (35–51)
	2005	3	9.3 (7.6–11)	305 (250–367)	0.83 (0.630–1.1)	27 (21–35)	2 162	71	23 (19–28)
	2009	3	11 (9.2–13)	330 (271–395)	1.2 (0.940–1.6)	37 (28–46)	2 640	78	24 (20–29)
	2010	3	12 (9.6–14)	337 (277–402)	1.4 (1.1–1.7)	40 (31–50)	2 461	71	21 (18–26)
	2011	4	12 (10–15)	344 (283–410)	1.5 (1.2–1.9)	43 (33–55)	1 776	50	15 (12–18)
Mauritius	1990	1	0.29 (0.180–0.430)	28 (17–41)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.13)	119	11	41 (28–66)
	1995	1	0.3 (0.240–0.360)	26 (21–31)	<0.01 (<0.01–<0.01)	0.4 (0.26–0.51)	131	12	44 (37–54)
	2000	1	0.29 (0.240–0.350)	24 (20–29)	0.013 (0.010–0.017)	1.1 (0.84–1.4)	160	13	55 (46–67)
	2005	1	0.29 (0.240–0.350)	23 (19–28)	<0.01 (<0.01–0.016)	0.4 (<0.1–1.3)	125	9.9	43 (36–53)
	2009	1	0.28 (0.230–0.340)	22 (18–26)	0.018 (<0.01–0.035)	1.4 (0.51–2.7)	115	8.9	41 (34–50)
	2010	1	0.28 (0.230–0.330)	22 (18–26)	0.019 (<0.01–0.036)	1.5 (0.59–2.8)	122	9.4	44 (37–53)
	2011	1	0.28 (0.230–0.330)	21 (18–25)	0.021 (<0.01–0.038)	1.6 (0.63–2.9)	114	8.7	41 (34–50)
Mozambique	1990	14	54 (8.4–140)	401 (62–1 050)	1.6 (0.240–4.1)	12 (1.8–30)	15 899	117	29 (11–190)
	1995	16	76 (24–160)	478 (153–985)	25 (7.9–52)	158 (50–328)	17 882	112	23 (11–73)
	2000	18	93 (41–170)	513 (227–914)	51 (22–91)	279 (122–500)	21 158	116	23 (13–51)
	2005	21	110 (62–170)	524 (298–811)	68 (38–110)	327 (184–509)	33 231	160	31 (20–54)
	2009	23	120 (85–170)	539 (371–738)	81 (56–110)	355 (244–486)	43 221	189	35 (26–51)
	2010	23	130 (88–170)	544 (377–741)	77 (53–110)	330 (228–449)	43 558	186	34 (25–49)
	2011	24	130 (91–180)	548 (380–747)	83 (58–110)	347 (241–473)	44 627	186	34 (25–49)
Namibia	1990	1	5.4 (4.2–6.6)	379 (300–467)	0.7 (0.550–0.860)	49 (39–61)	2 671	189	50 (40–63)
	1995	2	9.5 (7.5–12)	575 (455–708)	3.4 (2.6–4.2)	204 (157–257)	1 540	93	16 (13–20)
	2000	2	27 (21–33)	1 410 (1 110–1 730)	15 (12–19)	787 (614–981)	10 799	570	40 (33–51)
	2005	2	29 (23–36)	1 390 (1 100–1 720)	17 (13–21)	821 (642–1 020)	14 920	717	52 (42–65)
	2009	2	22 (18–27)	989 (783–1 220)	13 (10–16)	570 (451–703)	11 980	534	54 (44–68)
	2010	2	20 (16–24)	867 (686–1 070)	11 (8.6–13)	477 (377–588)	11 281	494	57 (46–72)
	2011	2	17 (13–21)	723 (573–891)	8.4 (6.6–10)	359 (284–443)	10 806	465	64 (52–81)

[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2011**

			INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE		CASE DETECTION
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
Niger	1990	8	28 (23–33)	358 (295–426)	1.3 (1.0–1.5)	16 (13–19)	5 200	67	19 (16–23)
	1995	9	25 (20–29)	270 (223–321)	1.8 (1.3–2.3)	19 (15–25)	1 980	22	8 (6.7–9.7)
	2000	11	21 (17–25)	191 (157–227)	2 (1.5–2.5)	18 (14–23)	4 701	43	23 (19–27)
	2005	13	19 (15–22)	142 (118–170)	1.9 (1.5–2.4)	15 (11–19)	7 873	61	43 (36–52)
	2009	15	18 (15–21)	119 (98–142)	1.8 (1.3–2.4)	12 (8.5–16)	9 904	66	56 (47–67)
	2010	16	18 (15–21)	113 (94–135)	1.8 (1.3–2.2)	11 (8.7–14)	10 130	65	58 (48–70)
	2011	16	17 (14–21)	108 (90–129)	1.7 (1.3–2.2)	11 (8.2–14)	10 325	64	59 (50–72)
Nigeria	1990	98	130 (1.3–510)	128 (1.3–526)	2.7 (0.029–11)	2.8 (<0.1–12)	20 122	21	16 (3.9–1 500)
	1995	110	150 (8.1–500)	139 (7.4–456)	23 (1.2–74)	20 (1.1–68)	13 423	12	8.8 (2.7–160)
	2000	124	210 (15–660)	172 (12–536)	52 (3.7–160)	42 (3.0–132)	25 821	21	12 (3.9–170)
	2005	140	240 (33–670)	175 (23–476)	60 (8.0–160)	43 (5.7–118)	62 598	45	26 (9.4–190)
	2009	154	200 (120–300)	130 (78–196)	51 (31–77)	33 (20–50)	88 589	57	44 (29–74)
	2010	158	210 (100–360)	133 (64–225)	52 (25–88)	33 (16–56)	84 121	53	40 (24–83)
	2011	162	190 (90–330)	118 (55–204)	50 (23–86)	30 (14–53)	86 778	53	45 (26–96)
Rwanda	1990	7	21 (18–23)	291 (260–324)	11 (9.6–12)	151 (134–168)	6 387	90	31 (28–35)
	1995	6	29 (26–32)	514 (459–573)	14 (12–16)	248 (212–288)	3 054	55	11 (9.6–12)
	2000	8	26 (24–29)	326 (291–363)	11 (9.7–13)	141 (120–164)	6 093	75	23 (21–26)
	2005	9	17 (15–19)	181 (162–202)	7.6 (6.7–8.5)	82 (73–92)	7 220	78	43 (39–49)
	2009	10	12 (11–13)	114 (102–127)	4 (3.6–4.5)	39 (34–43)	7 251	70	62 (55–69)
	2010	11	11 (10–12)	106 (94–118)	3.6 (3.2–4.0)	34 (30–38)	6 703	63	60 (54–67)
	2011	11	10 (9.2–11)	94 (84–105)	2.9 (2.6–3.3)	27 (24–30)	6 623	61	64 (58–72)
Sao Tome and Principe	1990	< 1	0.16 (0.097–0.230)	135 (83–199)	<0.01 (<0.01–<0.01)	3.8 (2.4–5.6)	17	15	11 (7.3–18)
	1995	< 1	0.16 (0.130–0.190)	124 (102–149)	<0.01 (<0.01–0.011)	6.6 (4.9–8.7)			
	2000	< 1	0.16 (0.130–0.190)	114 (93–137)	0.014 (0.010–0.018)	9.7 (7.3–12)	97	69	60 (50–74)
	2005	< 1	0.16 (0.130–0.190)	105 (88–123)	<0.01 (<0.01–0.011)	3.4 (0.94–7.5)	136	89	85 (73–100)
	2009	< 1	0.16 (0.130–0.190)	98 (80–117)	0.02 (<0.01–0.035)	12 (5.7–22)	78	48	49 (41–60)
	2010	< 1	0.16 (0.130–0.190)	96 (79–115)	0.018 (<0.01–0.030)	11 (5.7–18)	121	73	76 (64–93)
	2011	< 1	0.16 (0.130–0.190)	94 (78–113)	0.015 (<0.01–0.025)	9 (4.7–15)	136	81	86 (72–100)
Senegal	1990	7	10 (8.2–12)	138 (114–164)	0.18 (0.150–0.210)	2.4 (2.0–2.9)	4 977	69	50 (42–61)
	1995	8	13 (11–15)	153 (126–183)	0.4 (0.290–0.520)	4.7 (3.4–6.2)	7 561	90	59 (49–71)
	2000	10	15 (12–18)	155 (128–184)	0.75 (0.560–0.970)	7.9 (5.9–10)	8 508	90	58 (49–70)
	2005	11	15 (13–18)	142 (117–169)	1.1 (0.850–1.4)	10 (7.8–13)	9 765	90	63 (53–77)
	2009	12	16 (13–19)	133 (110–158)	1.1 (0.860–1.3)	8.8 (7.1–11)	11 139	92	69 (58–84)
	2010	12	17 (14–20)	137 (113–163)	1.6 (1.3–2.0)	13 (11–16)	11 061	89	65 (55–79)
	2011	13	17 (14–21)	136 (112–162)	1.7 (1.4–2.1)	14 (11–16)	11 022	86	63 (53–77)
Seychelles	1990	< 1	0.031 (0.019–0.045)	43 (27–64)			41	58	130 (90–220)
	1995	< 1	0.03 (0.024–0.036)	40 (33–48)			8	11	27 (22–33)
	2000	< 1	0.029 (0.023–0.034)	37 (30–44)			20	25	70 (58–85)
	2005	< 1	0.028 (0.023–0.034)	33 (27–40)			14	17	50 (42–61)
	2009	< 1	0.027 (0.022–0.032)	31 (26–37)	<0.01 (<0.01–0.013)	6.3 (1.4–15)	15	17	56 (47–68)
	2010	< 1	0.027 (0.022–0.032)	31 (25–37)	<0.01 (<0.01–<0.01)	1.8 (<0.1–8.0)	17	20	64 (54–78)
	2011	< 1	0.026 (0.022–0.031)	30 (25–36)	<0.01 (<0.01–0.011)	5.8 (1.6–12)	21	24	80 (67–97)
Sierra Leone	1990	4	8.2 (5.1–12)	207 (128–305)	0.018 (0.011–0.027)	0.5 (0.28–0.67)	632	16	7.7 (5.2–12)
	1995	4	11 (8.9–13)	279 (228–335)	0.17 (0.120–0.230)	4.4 (3.0–5.9)	1 955	50	18 (15–22)
	2000	4	16 (13–19)	377 (308–453)	0.81 (0.610–1.0)	20 (15–25)	3 760	91	24 (20–29)
	2005	5	26 (21–31)	509 (416–611)	2.4 (1.9–3.1)	47 (37–60)	6 737	131	26 (21–31)
	2009	6	37 (30–44)	644 (529–771)	4.2 (3.4–5.1)	74 (60–89)	11 524	201	31 (26–38)
	2010	6	40 (33–48)	682 (563–813)	4 (3.3–4.8)	69 (56–82)	12 859	219	32 (27–39)
	2011	6	43 (36–52)	723 (596–861)	3.8 (3.1–4.6)	64 (52–77)	12 734	212	29 (25–36)
South Africa	1990	37	110 (76–150)	301 (206–413)	3.9 (2.7–5.4)	11 (7.3–15)	80 400	219	73 (53–110)
	1995	41	130 (110–160)	317 (259–381)	34 (27–42)	81 (64–101)	73 917	179	56 (47–69)
	2000	45	260 (210–310)	576 (471–691)	140 (110–170)	317 (255–386)	151 239	338	59 (49–72)
	2005	48	440 (360–530)	925 (756–1 110)	270 (220–320)	558 (450–678)	270 178	565	61 (51–75)
	2009	50	480 (400–580)	971 (798–1 160)	290 (240–350)	586 (475–708)	360 183	724	75 (62–91)
	2010	50	490 (410–590)	981 (809–1 170)	300 (240–350)	592 (488–705)	354 786	708	72 (61–87)
	2011	50	500 (410–600)	993 (819–1 180)	330 (270–390)	650 (536–774)	343 715	681	69 (58–83)
Swaziland	1990	< 1	2.3 (1.4–3.4)	267 (165–394)	0.54 (0.330–0.800)	63 (39–93)			
	1995	< 1	3.2 (2.7–3.9)	337 (275–405)	1.8 (1.4–2.2)	186 (149–228)	2 050	213	63 (53–77)
	2000	1	8.5 (7.0–10)	803 (657–964)	6.5 (5.2–7.8)	607 (491–736)	5 877	552	69 (57–84)
	2005	1	13 (10–15)	1 150 (938–1 380)	10 (8.4–12)	934 (757–1 130)	8 062	730	64 (53–78)
	2009	1	15 (12–18)	1 260 (1 030–1 500)	12 (10–15)	1 040 (855–1 240)	10 038	859	68 (57–83)
	2010	1	15 (13–18)	1 290 (1 060–1 530)	12 (10–15)	1 050 (868–1 250)	10 101	852	66 (56–80)
	2011	1	16 (13–19)	1 320 (1 090–1 570)	12 (10–15)	1 010 (836–1 210)	8 337	693	53 (44–64)
Togo	1990	4	1.8 (1.5–2.2)	50 (41–59)	0.21 (0.170–0.250)	5.8 (4.7–6.9)	1 324	36	73 (61–88)
	1995	4	2.5 (2.1–3.0)	61 (51–73)	0.44 (0.350–0.550)	11 (8.6–13)	1 520	37	61 (51–74)
	2000	5	3.7 (3.0–4.4)	76 (63–91)	0.84 (0.670–1.0)	18 (14–22)	1 409	29	38 (32–47)
	2005	5	4.4 (3.6–5.2)	81 (67–97)	1.1 (0.850–1.3)	20 (16–24)	2 537	47	58 (49–70)
	2009	6	4.3 (3.5–5.2)	73 (60–87)	0.85 (0.680–1.0)	14 (12–18)	2 986	51	69 (58–84)
	2010	6	4.6 (3.8–5.5)	77 (63–92)	1.2 (0.830–1.5)	19 (14–26)	2 791	46	60 (50–73)
	2011	6	4.5 (3.7–5.4)	73 (60–87)	1 (0.810–1.2)	16 (13–20)	2 888	47	64 (54–78)
Uganda	1990	18	110 (58–180)	624 (328–1 010)	82 (43–130)	463 (243–752)	14 740	83	13 (8.2–25)
	1995	21	110 (62–180)	542 (297–860)	77 (42–120)	369 (200–588)	25 316	122	22 (14–41)
	2000	24	100 (63–150)	427 (259–636)	59 (35–89)	244 (146–367)	30 372	125	29 (20–48)
	2005	28	87 (62–110)	304 (220–402)	45 (32–60)	158 (112–212)	41 040	144	47 (36–66)
	2009	32	73 (59–89)	226 (182–274)	39 (32–48)	122 (98–148)	41 703	129	57 (47–71)
	2010	33	70 (56–84)	209 (169–253)	38 (30–46)	113 (91–136)	42 885	128	61 (51–76)
	2011	35	67 (54–81)	193 (156–234)	35 (28–42)	102 (82–123)	46 306	134	69 (57–86)
United Republic of Tanzania	1990	25	58 (49–67)	226 (193–261)	18 (15–21)	71 (60–82)	22 249	87	39 (33–45)
	1995	30	68 (58–78)	226 (193–261)	31 (26–37)	103 (86–122)	39 847	133	59 (51–69)
	2000	34	80 (70–91)	236 (207–268)	36 (31–42)	106 (90–124)	54 442	160	68 (60–77)
	2005	39	83 (76–89)	213 (197–229)	33 (29–38)	86 (75–97)	61 022	157	74 (69–80)
	2009	44	79 (75–85)	183 (171–194)	30 (28–32)	70 (65–74)	61 537	141	77 (73–83)
	2010	45	79 (75–85)	177 (166–189)	30 (28–32)	68 (63–72)	61 098	136	77 (72–82)
	2011	46	78 (73–83)	169 (159–180)	30 (28–32)	65 (61–69)	59 357	128	76 (71–81)
Zambia	1990	8	56 (49–63)	710 (624–801)	37 (33–42)	476 (418–537)	16 863	215	30 (27–34)
	1995	9	70 (64–77)	788 (719–861)	49 (44–55)	551 (489–617)	35 958	403	51 (47–56)
	2000	10	73 (67–78)	713 (661–767)	50 (45–56)	493 (443–547)	49 806	488	68 (64–74)
	2005	11	65 (59–71)	566 (519–615)	45 (40–50)	389 (346–434)	49 576	433	76 (70–83)
	2009	13	61 (55–68)	482 (434–532)	41 (37–46)	325 (292–358)	44 879	353	73 (66–81)
	2010	13	61 (55–67)	462 (418–509)	40 (36–44)	302 (273–333)	44 154	337	73 (66–81)
	2011	13	60 (54–66)	444 (401–489)	38 (35–42)	285 (257–314)	43 583	323	73 (66–81)
Zimbabwe	1990	10	31 (17–50)	296 (159–476)	21 (11–34)	203 (109–327)	9 132	87	29 (18–55)
	1995	12	56 (39–77)	483 (335–658)	50 (34–68)	427 (294–585)	30 831	264	55 (40–79)
	2000	13	91 (72–110)	726 (573–897)	83 (65–100)	666 (522–827)	50 855	407	56 (45–71)
	2005	13	100 (80–120)	799 (634–984)	85 (67–110)	678 (532–842)	50 454	401	50 (41–63)
	2009	12	83 (64–110)	668 (514–842)	65 (50–83)	525 (403–662)	42 971	344	52 (41–67)
	2010	13	80 (61–100)	633 (489–795)	62 (48–78)	491 (379–617)	44 209	352	56 (44–72)
	2011	13	77 (59–96)	603 (466–757)	46 (36–58)	360 (279–452)	38 404	301	50 (40–65)

[a] Rates are per 100 000 population.

TABLE A4.3 **Case notifications, 1990–2011**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2011	YEAR	NEW AND RELAPSE	NEW CASES				RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
				SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN	EXTRA-PULMONARY	OTHER					
Algeria		1990	11 607									–
		1995	13 507	5 735	2 256	5 065		451		451		72
		2000	18 572	8 328	2 019	7 758		467	80	547		80
		2005	21 336	8 654	1 651	10 216	267	548	165	713		84
		2009	21 701	8 402	1 691	10 888	230	490	122	612	0	83
		2010	22 336	8 299	1 770	11 770	0	497	194	691	0	82
	• 46 60 •	2011	21 429	7 790	1 753	11 444	0	442	168	610	0	82
Angola		1990	10 271									–
		1995	5 143	3 804	1 631	266		134		134		70
		2000	16 062	9 053	5 367	1 102		540		540		63
		2005	37 175	20 410	12 467	2 569		1 729	1 142	2 871		62
		2009	41 221	22 488	13 755	2 580	0	2 398	1 465	3 863	0	62
		2010	44 655	21 146	17 285	3 780		2 444	5 332	7 776		55
	• 99 241 •	2011	47 240	21 703	18 380	4 399	0	2 758	1 686	4 444	0	54
Benin		1990	2 074	1 410	310	182		172	49	221		82
		1995	2 400	1 839	281	212		68		68		87
		2000	2 697	2 277	130	199		91	189	280		95
		2005	3 270	2 739	96	285		150	187	337		97
		2009	3 878	2 960	338	418	0	162	109	271	0	90
		2010	3 756	2 973	296	367	0	120	85	205	0	91
	• 43 46 •	2011	4 212	3 331	329	398	0	154	108	262	0	91
Botswana		1990	2 938									–
		1995	5 665	1 903	2 885	720		147		147		40
		2000	9 292	3 091	4 789	1 231		181	1 058	1 239		39
		2005	10 058	3 170	5 166	1 220		502	46	548		38
		2009	8 362	3 144	3 393	1 429	0	396	726	1 122	0	48
		2010	7 013	3 295	2 055	1 210	0	453	619	1 072	0	62
	• 213 325 •	2011	6 603	2 669	1 983	1 213	0	738	130	868	0	57
Burkina Faso		1990	1 497									–
		1995	2 572	1 028	195	195		45		45		84
		2000	2 331	1 545	196	502		88	90	178	0	89
		2005	3 478	2 290	367	571	90	160	167	327	0	86
		2009	4 716	3 061	679	671	92	213	395	608	0	82
		2010	4 800	3 041	736	729	77	217	335	552	0	81
	• 16 31 •	2011	5 286	3 450	692	742	175	227	257	484	0	83
Burundi		1990	4 575									–
		1995	3 326	1 121	908	1 116		181		181		55
		2000	6 421	3 159	1 489	1 568	0	205	20	225	0	68
		2005	6 585	3 262	1 160	2 089	0	74	42	116	0	74
		2009	7 277	3 974	1 207	1 880	24	192	46	238	0	77
		2010	7 611	4 590	963	1 826	8	224	108	332	0	83
	• 82 79 •	2011	6 742	4 060	799	1 649	5	229	86	315	0	84
Cameroon		1990	5 892									–
		1995	3 292	2 896	142	18		236		236		95
		2000	5 251	3 960	625	415		251		251		86
		2005	21 499	13 001	5 021	2 461	0	1 016	574	1 590	0	72
		2009	24 662	14 635	5 780	3 190	0	1 057	512	1 569	0	72
		2010	24 073	14 464	5 437	3 157	0	1 015	479	1 494	0	73
	• 48 122 •	2011	24 533	14 927	4 941	3 597	0	1 068	593	1 661	0	75
Cape Verde		1990	221									–
		1995	303	111	150	12		30		30		43
		2000										–
		2005	292	135	93	43	0	21	13	34	0	59
		2009	332	172	94	53	0	13	20	33	0	65
		2010	356	186	98	54		18	9	27		65
	• 63 76 •	2011	380	182	127	54	0	17	10	27	0	59
Central African Republic		1990	2 124									–
		1995	3 339	1 794	964	393		188		188		65
		2000										–
		2005	3 210	2 153	608	286	0	163	128	291	0	78
		2009	8 743	5 132	1 841	1 394		376	253	629		74
		2010	6 643	3 638	1 598	1 079	24	304	117	421	0	69
	• 72 125 •	2011	5 611	3 479	964	876	60	232	113	345	0	78
Chad		1990	2 591									–
		1995	3 186	2 002	518	463		203		203		79
		2000										–
		2005	6 311	2 516	2 419	1 055		321	194	515		51
		2009	8 411	3 820	2 949	1 206	0	436	240	676	0	56
		2010	9 452	3 833	3 746	1 217	193	463	245	708	0	51
	• 43 91 •	2011	10 505	4 434	4 211	1 033	249	578	269	847	0	51
Comoros		1990	140									–
		1995	123	103	10	7		7		7		91
		2000	120	87	14	15		4	1	5		86
		2005	111	79	14	16	0	2	1	3	0	85
		2009	120	76	15	24	0	5	1	6	8	84
		2010										–
	• 32 16 •	2011	117	62	13	28	5	9	2	11	0	83
Congo		1990	591									–
		1995	3 615	2 013	849	675		78		78		70
		2000	9 239	4 218	2 016	2 810		169	650	819		68
		2005	9 853	3 640	3 249	2 665		299	108	407		53
		2009	9 765	3 433	3 398	2 653	0	281	170	451	0	50
		2010	10 150	3 568	3 545	2 692		345	171	516		50
	• 25 265 •	2011	10 975	3 716	3 930	2 990	0	339	168	507	0	49
Côte d'Ivoire		1990	7 841									–
		1995	11 988	8 254	1 508	1 577		649		649		85
		2000	15 094	10 276	1 616	2 756	0	446	447	893	0	86
		2005	19 681	12 496	2 315	4 235	0	635	345	980	0	84
		2009	22 571	14 300	2 321	4 952	0	998	438	1 436	0	86
		2010	22 708	14 131	2 381	5 179	0	1 017	502	1 519	0	86
	• 63 112 •	2011	22 476	14 416	2 316	4 729	0	1 015	444	1 459	0	86
Democratic Republic of the Congo		1990	21 131									–
		1995	42 819	20 914	7 953	9 112		2 891		2 891		72
		2000	61 024	36 513	8 089	13 785		2 637		2 637		82
		2005	97 075	65 040	9 959	18 494		3 582	2 483	6 065		87
		2009	111 709	73 078	12 968	21 313		4 350	4 316	8 666		85
		2010	114 170	73 653	14 039	22 340	0	4 138	4 466	8 604	0	84
	• 58 163 •	2011	110 132	71 321	13 471	21 579		3 761	4 158	7 919		84
Equatorial Guinea		1990	260									–
		1995	306	219	45	41		1		1		83
		2000										–
		2005										–
		2009	707	490	109	77	0	31	13	44	0	82
		2010	820	579	98	109	0	34	33	67	0	86
	• 70 123 •	2011	883	611	118	131	0	23	30	53	0	84

[a] Rates are per 100 000 population.

TABLE A4.3 **Case notifications, 1990–2011**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2011	YEAR	NEW AND RELAPSE	NEW CASES				RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
				SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN	EXTRA-PULMONARY	OTHER					
Eritrea		1990	3 699									–
		1995	21 453		18 205	3 248						–
		2000	6 652	590	5 332	683		47	20	67		10
		2005	3 549	687	1 764	1 001		97	27	124	36	28
		2009	2 904	802	1 123	890	0	89	118	207	0	42
		2010	2 870	832	1 115	836	0	87	121	208	0	43
	• 117 56 •	2011	3 049	835	1 163	888	60	103	44	147	0	42
Ethiopia		1990	88 634									–
		1995	26 034	9 040	8 888	7 763		343		343		50
		2000	91 101	30 510	30 565	28 907		1 119	1 658	2 777		50
		2005	124 262	38 525	39 816	43 675		2 246	873	3 119		49
		2009	148 936	44 396	52 053	50 228		2 259	1 285	3 544		46
		2010	154 694	46 634	54 979	50 417	0	2 664	2 234	4 898		46
	• 183 185 •	2011	156 539	49 594	55 497	49 305	0	2 143	2 478	4 621	0	47
Gabon		1990	917									–
		1995	1 115	486	517	68		44		44		48
		2000										–
		2005	2 512	1 042	1 071	241		158	99	257		49
		2009	3 073	1 244	1 414	246	0	169	486	655	0	47
		2010	3 473	1 560	1 366	379	0	168	390	558	317	53
	• 99 287 •	2011	4 404	1 740	1 959	384	0	321	512	833	0	47
Gambia		1990										–
		1995	1 023	778	171	68		6		6		82
		2000										–
		2005	2 031	1 127	749	78	0	77	89	166	0	60
		2009	2 145	1 316	622	141	0	66	41	107		68
		2010	2 070	1 344	462	143	81	40	41	81	0	74
	• 0 127 •	2011	2 248	1 375	673	199		1	138	139	0	67
Ghana		1990	6 407									–
		1995	8 636	2 638	1 225	109		159		159		68
		2000	10 933	7 316	2 500	615		502		502		75
		2005	12 124	7 505	3 068	1 019		532		532		71
		2009	14 892	8 255	4 734	1 437	0	466	394	860	0	64
		2010	14 607	7 656	5 068	1 400	0	483	538	1 021	0	60
	• 43 62 •	2011	15 389	7 616	5 875	1 471		427	451	878		56
Guinea		1990	1 988									–
		1995	3 523	2 263	527	620		55		55		81
		2000	5 440	3 920	430	938		152	294	446		90
		2005	6 863	5 479	524	629		231	227	458		91
		2009	8 357	5 377	1 021	1 611	0	348	241	589	16	84
		2010	11 038	7 041	1 472	2 077	86	362	286	648	0	83
	• 35 111 •	2011	11 359	6 934	1 446	2 284	273	422	247	669		83
Guinea-Bissau		1990	1 163									–
		1995	1 613	956	714	19		59		59		57
		2000	1 273	526	600	57		90		90		47
		2005	1 774	1 132	522	24	0	96	42	138	0	68
		2009	2 171	1 310	786	16	0	59	17	76	0	62
		2010	2 183	1 409	636	22	0	116	76	192	0	69
	• 114 133 •	2011	2 063	1 230	644	63	0	126	7	133	0	66
Kenya		1990	11 788	6 800								100
		1995	28 142	13 934	9 676	3 468		1 064		1 064		59
		2000	64 159	28 773	24 143	9 118		1 773	704	2 477		54
		2005	102 680	40 389	43 772	15 265		3 254	5 721	8 975		48
		2009	102 997	37 402	44 514	17 438		3 643	7 068	10 711		46
		2010	99 272	36 260	41 962	17 382	0	3 668	6 811	10 479	0	46
	• 50 234 •	2011	97 320	37 085	39 810	17 069	0	3 356	6 661	10 017	0	48
Lesotho		1990	2 525									–
		1995	5 181	1 361	2 685	653		147		147		34
		2000	9 746	3 041	2 838	2 520		385	1 096	1 481		52
		2005	10 802	4 280	4 063	2 020		439	602	1 041		51
		2009	12 213	3 976	5 083	2 486		668	1 302	1 970		44
		2010	11 674	3 600	5 331	2 222		521	1 464	1 985		40
	• 154 521 •	2011	11 432	3 510	5 343	2 099		480	1 196	1 676		40
Liberia		1990										–
		1995	1 393	1 154	119	120						91
		2000	1 500	1 021	285	187		7	25	32		78
		2005	3 432	2 167	575	657		33	24	57		79
		2009	5 918	3 796	1 022	1 023	0	77	46	123	0	79
		2010	6 597	3 750	1 385	1 363	0	99	71	170	0	73
	• 0 191 •	2011	7 906	4 261	1 967	1 612	0	66	59	125	0	68
Madagascar		1990	6 261									–
		1995	21 616	8 026	987	2 219		596		596		89
		2000										–
		2005	18 993	13 056	1 287	3 634	0	1 016	482	1 498	0	91
		2009	22 758	15 729	1 639	3 990	0	1 400	689	2 089	0	91
		2010	24 432	16 795	1 657	4 545	0	1 435	674	2 109	0	91
	• 56 122 •	2011	26 019	17 927	1 726	4 851		1 515	703	2 218		91
Malawi		1990	12 395	4 301	5 827	1 885		382		382		42
		1995	19 155	6 285	7 054	5 257		551		551		47
		2000	23 604	8 260	8 846	5 734		764	0	764		48
		2005	25 491	8 443	10 132	5 823		1 093	2 119	3 212		45
		2009	22 674	7 623	9 297	4 966	0	788	1 682	2 470	0	45
		2010	21 092	7 240	8 245	4 857	0	750	1 444	2 194		47
	• 132 126 •	2011	19 361	7 003	6 612	5 076		670	1 493	2 163		51
Mali		1990	2 933									–
		1995	3 087	1 866	609	459		153		153		75
		2000	4 216	2 527	797	653		239		239		76
		2005	4 704	3 530	482	492		200	180	380	0	88
		2009	6 611	5 163	429	818	0	201	224	425	0	92
		2010	5 291	3 686	481	926	0	198	157	355	0	88
	• 34 34 •	2011	5 428	3 777	491	984		176	145	321		88
Mauritania		1990	5 284									–
		1995	3 849	2 074	800	455		520		520		72
		2000	3 067	1 583	687	580		580	358	938		70
		2005	2 162	1 155	454	403	0	150	56	206	0	72
		2009	2 640	1 555	444	483	0	158	24	182	0	78
		2010	2 461	1 422	390	524	0	125	28	153		78
	• 265 50 •	2011	1 776	1 009	222	458	0	87	16	103	28	82
Mauritius		1990	119									–
		1995	131	113	8	12		2		2		93
		2000	160	115	14	23		8	4	12		89
		2005	125	110	4	8		3	2	5		96
		2009	115	98	7	6	0	4	1	5	0	93
		2010	122	105	5	6	0	6	1	7	0	95
	• 11 9 •	2011	114	100	3	8	0	3	2	5	0	97

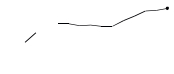
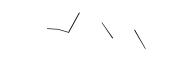
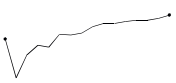
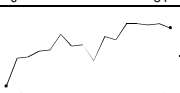
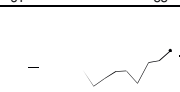
[a] Rates are per 100 000 population.

TABLE A4.3 **Case notifications, 1990–2011**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2011	YEAR	NEW AND RELAPSE	NEW CASES				RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
				SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN	EXTRA-PULMONARY	OTHER					
Mozambique		1990	15 899									–
		1995	17 882	10 566	5 054	1 363		899		899		68
		2000	21 158	13 257	4 037	2 262		917	546	1 463		77
		2005	33 231	17 877	9 184	4 771		1 399	487	1 886		66
		2009	43 221	19 579	17 019	5 301	0	1 322	2 308	3 630	0	53
		2010	43 558	20 097	16 408	5 621	0	1 432	2 616	4 048	0	55
• 117	186 •	2011	44 627	19 537	18 159	5 504	0	1 427	2 825	4 252	0	52
Namibia		1990	2 671									–
		1995	1 540	697	507	248		88		88		58
		2000	10 799	4 012	4 724	1 459		604	930	1 534		46
		2005	14 920	5 222	4 455	1 907	2 487	849	974	1 823		54
		2009	11 980	4 608	3 628	2 538	0	1 206	1 352	2 558	0	56
		2010	11 281	4 464	3 309	2 330		1 178	1 344	2 522		57
• 189	465 •	2011	10 806	4 503	3 034	2 039	0	1 230	1 132	2 362	0	60
Niger		1990	5 200									–
		1995	1 980	1 492	116	372						93
		2000	4 701	3 045	699	702		255		255		81
		2005	7 873	5 050	1 193	1 227		403	351	754	0	81
		2009	9 904	6 347	1 689	1 385	0	483	207	690	117	79
		2010	10 130	6 283	1 730	1 492	173	452	215	667	0	78
• 67	64 •	2011	10 325	6 604	1 856	1 489		376	204	580	185	78
Nigeria		1990	20 122									–
		1995	13 423	9 476	3 364	280		303		303		74
		2000	25 821	17 423	6 613	1 069		716	1 640	2 356		72
		2005	62 598	35 048	22 705	2 836	0	2 009	2 858	4 867	1 392	61
		2009	88 589	44 863	37 540	3 560	0	2 626	5 525	8 151	0	54
		2010	84 121	45 416	32 616	3 422	0	2 667	6 326	8 993	0	58
• 21	53 •	2011	86 778	47 436	33 034	3 793	0	2 515	6 272	8 787	0	59
Rwanda		1990	6 387									–
		1995	3 054	1 840	676	338		200		200		73
		2000	6 093	3 681	845	1 289		278	96	374		81
		2005	7 220	4 166	859	1 727	97	371	460	831		83
		2009	7 251	4 184	1 239	1 582	0	246	229	475	164	77
		2010	6 703	3 785	1 072	1 577		269	362	631		78
• 90	61 •	2011	6 623	3 811	1 017	1 300	242	253	161	414	0	79
Sao Tome and Principe		1990	17									–
		1995										–
		2000	97	30	56	7		4		4		35
		2005	136	49	75	1	0	11	16	27		40
		2009	78	52	20	4	0	2	1	3	0	72
		2010	121	47	63	10	0	1	1	2	0	43
• 15	81 •	2011	136	53	49	28	0	6	10	16	0	52
Senegal		1990	4 977									–
		1995	7 561	5 421	1 073	504		563		563		83
		2000	8 508	5 823	1 370	800	0	515	541	1 056		81
		2005	9 765	6 722	1 557	921		565	355	920		81
		2009	11 139	7 883	1 504	1 233	0	519	593	1 112	0	84
		2010	11 061	7 688	1 470	1 404	0	499	530	1 029	0	84
• 69	86 •	2011	11 022	7 765	1 389	1 315	0	553	566	1 119	0	85
Seychelles		1990	41									–
		1995	8	6	2	1		0		0		75
		2000	20	11	7	2		0		0		61
		2005	14	8	3	1	0	2	0	2		73
		2009	15	11	2	2	0	0	0	0	0	85
		2010	17	9	8	0	0	0	0	0	0	53
• 58	24 •	2011	21	2	13	6	0	0	0	0	0	13
Sierra Leone		1990	632									–
		1995	1 955	1 454	339	121		41		41		81
		2000	3 760	2 472	821	400		67	374	441		75
		2005	6 737	4 370	1 679	551		137	193	330		72
		2009	11 524	6 092	4 491	776	0	165	302	467	0	58
		2010	12 859	6 898	4 919	831		211	336	547		58
• 16	212 •	2011	12 734	7 435	4 358	775		166	209	375		63
South Africa		1990	80 400									–
		1995	73 917	23 112	74 399	10 636		179		179		24
		2000	151 239	75 967	16 392	17 486			56 202	56 202		82
		2005	270 178	125 460	76 680	39 739	0	28 299	32 289	60 588	0	62
		2009	360 183	139 468	147 187	53 411	0	20 117	45 799	65 916	0	49
		2010	354 786	132 107	151 772	52 095	0	18 812	41 768	60 580	0	47
• 219	681 •	2011	343 715	129 770	148 266	47 285	0	18 394	27 521	45 915	18 738	47
Swaziland		1990										–
		1995	2 050	660	687	219		489		489		49
		2000	5 877	1 823	3 198	583		273	976	1 249		36
		2005	8 062	2 187	4 106	1 458		311	159	470	643	35
		2009	10 038	3 498	4 157	1 903	0	480	994	1 474	0	46
		2010	10 101	3 011	5 064	1 631		395	1 045	1 440		37
• 0	693 •	2011	8 337	2 408	4 228	1 395	0	306	843	1 149	0	36
Togo		1990	1 324									–
		1995	1 520	887	304	236		93		93		74
		2000	1 409	984	91	287		47	86	133		92
		2005	2 537	1 798	170	484		85	94	179	4	91
		2009	2 986	2 267	235	377	0	107	107	214	0	91
		2010	2 791	2 096	164	397	0	134	106	240	0	93
• 36	47 •	2011	2 888	2 087	205	475	0	121	92	213	0	91
Uganda		1990	14 740									–
		1995	25 316	13 631	5 912	2 070		955		955		70
		2000	30 372	17 246	9 003	2 618		1 505	0	1 505		66
		2005	41 040	20 559	15 040	3 780	0	1 661	769	2 430		58
		2009	41 703	23 113	12 315	4 893	0	1 382	2 632	4 014		65
		2010	42 885	23 456	13 567	4 571	0	1 291	2 661	3 952	0	63
• 83	134 •	2011	46 306	25 614	14 389	5 001		1 302	2 712	4 014		64
United Republic of Tanzania		1990	22 249	11 553								100
		1995	39 847	19 955	12 362	6 195		1 335		1 335		62
		2000	54 442	24 049	17 624	10 997		1 772		1 772		58
		2005	61 022	25 264	20 810	13 094		1 854	3 178	5 032		55
		2009	61 537	24 895	21 750	13 405		1 487	2 730	4 217		53
		2010	61 098	24 769	21 184	13 715		1 430	2 355	3 785		54
• 87	128 •	2011	59 357	24 115	20 438	13 725	0	1 079	1 791	2 870	0	54
Zambia		1990	16 863									–
		1995	35 958	10 038	3 268	656		243		243		75
		2000	49 806	12 927	25 222	10 202		1 455		1 455		34
		2005	49 576	14 857	24 327	8 587		1 805	3 691	5 496		38
		2009	44 879	12 995	20 825	9 246	0	1 813	672	2 485	0	38
		2010	44 154	12 639	20 412	9 255	0	1 848	4 462	6 310	0	38
• 215	323 •	2011	43 583	12 046	20 004	9 908		1 625	5 011	6 636		38
Zimbabwe		1990	9 132									–
		1995	30 831	8 965	10 934	5 040		737		737		45
		2000	50 855	14 392	27 626	8 837						34
		2005	50 454	13 155	29 074	6 721	0	1 504	4 437	5 941		31
		2009	42 971	10 195	24 890	6 683	0	1 203	3 482	4 685		29
		2010	44 209	11 654	25 157	6 061	0	1 337	3 348	4 685	0	32
• 87	301 •	2011	38 404	12 596	19 172	5 192	0	1 444	2 901	4 345	0	40

[a] Rates are per 100 000 population.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Algeria		1995	5 735		–						
		2000	8 328	8 328	100	80	7	1	2	5	5
		2005	8 654	8 379	97	74	13	2	0	3	8
		2008	8 643	8 190	95	80	10	2	0	3	4
		2009	8 402	8 438	100	81	10	2	1	3	3
	• 0 89 •	2010	8 299	7 894	95	79	10	2	1	4	4
Angola		1995	3 804		–						
		2000	9 053	6 392	71	68		3	2	26	2
		2005	20 410	20 113	99	45	28	3	3	19	3
		2008	22 562	22 562	100	45	24	4	2	18	6
		2009	22 488	21 627	96	47	25	4	2	18	5
	• 0 48 •	2010	21 146	21 145	100	30	18	8	1	8	35
Benin		1995	1 839	1 839	100	50	21	6	1	17	5
		2000	2 277	2 277	100	57	20	6	2	11	3
		2005	2 739	2 766	101	74	13	7	2	3	1
		2008	2 966	2 979	100	81	8	6	2	2	1
		2009	2 960	2 963	100	82	9	5	2	1	0
	• 71 91 •	2010	2 973	2 987	100	84	7	5	2	1	1
Botswana		1995	1 903	2 060	108	13	54	5	1	12	15
		2000	3 091	3 991	129	22	55	6	0	7	10
		2005	3 170	3 335	105	37	33	7	1	8	15
		2008	3 217	3 289	102	46	18	5	2	4	24
		2009	3 144	3 492	111	57	22	5	3	4	9
	• 67 81 •	2010	3 295	3 314	101	50	32	5	2	3	8
Burkina Faso		1995	1 028	1 200	117	22	2	5	1	3	67
		2000	1 545	1 574	102	53	7	13	2	16	9
		2005	2 290	2 290	100	66	5	14	7	6	1
		2008	2 757	2 757	100	73	3	11	8	4	1
		2009	3 061	3 061	100	72	4	10	9	4	2
	• 25 77 •	2010	3 041	3 057	101	74	3	9	7	6	1
Burundi		1995	1 121	1 798	160	25	20	3	0	14	38
		2000	3 159	3 465	110	42	39	4	0	13	1
		2005	3 262	3 424	105	52	27	4	0	17	1
		2008	3 610	3 635	101	76	14	4	0	6	0
		2009	3 974	3 974	100	83	7	3	1	5	0
	• 45 92 •	2010	4 590	4 590	100	87	4	4	1	3	0
Cameroon		1995	2 896	2 740	95	45	8	7	1	35	4
		2000	3 960	3 164	80	67	10	7	2	13	1
		2005	13 001	13 169	101	66	7	6	1	14	5
		2008	14 232	14 091	99	62	15	6	1	10	5
		2009	14 635	14 428	99	65	13	6	1	10	5
	• 53 78 •	2010	14 464	14 464	100	64	14	6	1	10	5
Cape Verde		1995	111		–						
		2000		14	–	64	0	7	0	0	29
		2005	135	135	100	56	8	3	2	19	12
		2008	197	197	100	57	17	4	2	11	11
		2009	172		–						
	• 0 0 •	2010	186		–						
Central African Republic		1995	1 794	692	39	16	21	7	0	53	3
		2000		1 366	–	36	21	0	3	34	5
		2005	2 153	3 217	149	38	28	6	2	8	19
		2008	4 232	3 571	84	43	29	7	2	12	9
		2009	5 132	5 132	100	33	20	3	1	13	30
	• 37 68 •	2010	3 638	3 569	98	45	23	6	1	19	7
Chad		1995	2 002	529	26	17	30	6	1	43	3
		2000			–						
		2005	2 516		–						
		2008	3 309		–						
		2009	3 820	3 820	100	55	22	4	2	15	3
	• 47 68 •	2010	3 833	3 780	99	39	28	4	2	21	5
Comoros		1995	103	113	110	90	0	4	0	6	0
		2000	87	85	98	91	2	4	4	0	0
		2005	79	70	89	91	0	3	4	0	1
		2008	77	77	100	90	0	4	0	4	3
		2009	76		–						
	• 90 91 •	2010		87	–	91	0	3	2	1	2
Congo		1995	2 013		–						
		2000	4 218	3 114	74	57	12	4	0	22	5
		2005	3 640	4 121	113	24	4	0	1	13	58
		2008	3 371	3 263	97	63	13	1	0	21	1
		2009	3 433	3 634	106	66	12	1	0	13	7
	• 0 77 •	2010	3 568	3 447	97	63	13	2	1	12	8
Côte d'Ivoire		1995	8 254	7 221	87	63	6	4	1	17	9
		2000	10 276	10 631	103	47	10	5	2	16	20
		2005	12 496	12 496	100	62	11	8	2	10	6
		2008	15 294	15 294	100	67	9	9	2	9	4
		2009	14 300	14 300	100	69	10	8	3	7	4
	• 68 77 •	2010	14 131	14 131	100	66	12	7	2	8	5
Democratic Republic of the Congo		1995	20 914	16 247	78	55	20	5	1	10	9
		2000	36 513	36 123	99	69	8	6	1	8	7
		2005	65 040	65 066	100	80	5	6	1	4	4
		2008	69 720	65 962	95	83	4	4	1	3	4
		2009	73 078	72 367	99	85	3	4	1	3	4
	• 74 90 •	2010	73 653	73 448	100	86	4	4	1	3	3
Equatorial Guinea		1995	219	219	100	89	0	3	0	8	0
		2000			–						
		2005			–						
		2008	541	541	100	42	14	4	1	31	7
		2009	490	490	100	47	19	3	1	16	14
	• 89 70 •	2010	579	590	102	50	20	5	1	17	7
Eritrea		1995			–						
		2000	590	765	130	64	12	8	1	9	6
		2005	687	688	100	83	5	7	1	2	1
		2008	839	839	100	72	3	4	1	1	18
		2009	802	804	100	83	2	5	3	2	5
	• 0 84 •	2010	832	804	97	81	4	7	3	1	5
Ethiopia		1995	9 040	5 087	56	56	5	5	2	13	19
		2000	30 510	29 662	97	63	17	6	1	9	4
		2005	38 525	39 430	102	64	14	5	1	4	12
		2008	40 794	40 794	100	67	17	3	1	3	10
		2009	44 396	44 807	101	65	19	3	1	3	10
	• 61 83 •	2010	46 634	46 634	100	66	17	3	1	3	10
Gabon		1995	486	249	51	63	22	1	2	9	2
		2000			–						
		2005	1 042	1 165	112	35	12	10	1	42	1
		2008	1 502	1 502	100	30	24	1	0	19	27
		2009	1 244	1 163	93	37	18	1	1	25	18
	• 86 63 •	2010	1 560	1 671	107	34	29	2	3	26	6

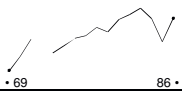
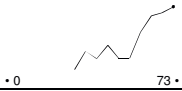
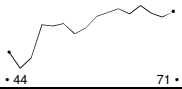
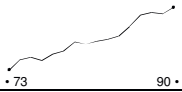
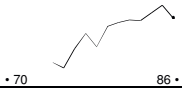
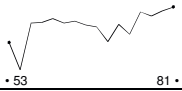
[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Gambia		1995	778	686	88	69	7	5	1	13	5
		2000			–						
		2005	1 127	1 127	100	81	6	7	1	3	2
		2008	1 300	1 318	101	80	4	9	2	2	3
		2009	1 316	1 296	98	88	1	6	1	2	1
	• 76 88 •	2010	1 344	1 344	100	86	2	5	1	3	3
Ghana		1995	2 638	361	14	41	13	11	2	11	22
		2000	7 316	7 316	100	45	5	6	3	14	27
		2005	7 505	7 584	101	68	5	9	2	11	5
		2008	7 904	7 904	100	78	8	8	1	2	3
		2009	8 255	8 255	100	79	8	7	1	3	3
	• 54 86 •	2010	7 656	7 656	100	76	10	7	1	3	3
Guinea		1995	2 263	2 263	100	62	17	6	2	9	5
		2000	3 920	3 920	100	59	9	7	1	15	9
		2005	5 479	5 811	106	65	7	6	2	10	10
		2008	6 561	4 984	76	70	8	5	2	7	8
		2009	5 377	5 597	104	72	6	5	2	7	8
	• 78 80 •	2010	7 041	7 250	103	76	4	4	2	6	9
Guinea-Bissau		1995	956	959	100	42	23	6	0	23	6
		2000	526		–						
		2005	1 132	1 167	103	51	18	12	1	11	7
		2008	1 223	1 242	102	59	11	4	0	17	9
		2009	1 310	1 498	114	51	17	6	1	21	5
	• 65 73 •	2010	1 409	1 271	90	54	18	6	0	14	7
Kenya		1995	13 934	6 470	46	60	14	9	1	9	7
		2000	28 773	28 376	99	66	14	5	0	9	6
		2005	40 389	40 436	100	71	11	5	0	8	5
		2008	36 811	36 811	100	76	9	4	0	7	4
		2009	37 402	37 402	100	78	8	4	1	6	4
	• 75 87 •	2010	36 260	36 260	100	81	6	3	1	5	4
Lesotho		1995	1 361	1 788	131	32	14	7	0	9	36
		2000	3 041		–						
		2005	4 280	5 542	129		73	8	1	4	14
		2008	3 862	3 858	100	64	9	11	2	4	9
		2009	3 976	4 070	102	59	11	11	2	5	12
	• 47 69 •	2010	3 600	3 852	107	58	10	10	2	8	12
Liberia		1995	1 154	1 595	138	79		5	5	12	0
		2000	1 021	924	90	71	9	2	6	10	3
		2005	2 167	2 167	100	60	16	3	0	12	8
		2008	3 038	3 042	100	64	15	4	2	10	5
		2009	3 796	3 796	100	57	26	5	1	9	3
	• 79 0 •	2010	3 750		–						
Madagascar		1995	8 026	9 101	113	47	8	6	2	16	20
		2000		10 506	–	61	9	7	1	17	5
		2005	13 056	15 298	117	67	7	6	1	13	5
		2008	15 391	15 376	100	77	4	5	1	9	5
		2009	15 729	15 709	100	78	3	4	1	9	5
	• 55 82 •	2010	16 795	16 789	100	78	4	4	1	9	4
Malawi		1995	6 285	6 293	100	65	6	19	1	0	10
		2000	8 260	8 296	100	70	3	19	1	4	3
		2005	8 443	8 443	100	72	2	15	1	3	7
		2008	7 627	7 632	100	85	2	8	1	2	2
		2009	7 623	7 624	100	87	2	7	1	2	1
	• 71 87 •	2010	7 240	7 240	100	86	2	7	1	2	2
Mali		1995	1 866	1 290	69	41	18	5	0	22	14
		2000	2 527		–						
		2005	3 530	3 530	100	69	6	11	4	7	3
		2008	4 734	4 734	100	75	6	9	4	4	2
		2009	5 163	4 454	86	66	12	10	4	7	2
	• 59 76 •	2010	3 686	3 778	102	76	0	8	3	9	4
Mauritania		1995	2 074		–						
		2000	1 583		–						
		2005	1 155	1 761	152	44	11	2	1	19	24
		2008	1 605	1 605	100	54	14	2	1	12	17
		2009	1 555	1 563	101	51	12	3	1	10	23
	• 0 69 •	2010	1 422	1 422	100	55	14	2	1	13	15
Mauritius		1995	113		–						
		2000	115	160	139	0	92	2	2	3	0
		2005	110	110	100	86		3		6	5
		2008	85	85	100	87	0	6	0	5	2
		2009	98	98	100	88	0	4	0	4	4
	• 0 90 •	2010	105	105	100	90	0	4	1	5	0
Mozambique		1995	10 566	10 566	100	34	5	3	1	9	48
		2000	13 257	13 296	100	73	2	10	1	11	3
		2005	17 877	17 877	100	78	1	12	1	5	2
		2008	18 824	18 824	100	83	1	10	1	4	1
		2009	19 579	19 579	100	84	1	9	1	3	2
	• 39 85 •	2010	20 097	20 097	100	83	2	8	1	4	1
Namibia		1995	697		–						
		2000	4 012	4 012	100	41	15	6	2	15	21
		2005	5 222	5 222	100	59	16	7	2	10	7
		2008	4 928	4 928	100	72	10	6	4	4	4
		2009	4 608	4 702	102	74	11	5	4	4	2
	• 0 85 •	2010	4 464	4 538	102	74	11	5	4	3	2
Niger		1995	1 492		–						
		2000	3 045	3 193	105	42	22	8	4	12	11
		2005	5 050	5 050	100	49	25	5	2	14	5
		2008	5 853	5 860	100	71	10	6	2	7	4
		2009	6 347	6 313	99	66	13	7	2	7	5
	• 0 82 •	2010	6 283	6 266	100	69	13	7	2	6	3
Nigeria		1995	9 476	9 476	100	34	15	5	2	9	35
		2000	17 423	16 372	94	65	14	6	2	11	2
		2005	35 048	35 080	100	50	25	9	4	11	1
		2008	46 026	46 026	100	68	11	2	5	9	6
		2009	44 863	44 863	100	73	10	5	1	8	4
	• 49 84 •	2010	45 416	45 416	100	73	10	5	1	8	2
Rwanda		1995	1 840		–						
		2000	3 681	3 776	103	52	9	6	1	4	28
		2005	4 166	4 175	100	73	10	6	2	3	6
		2008	4 173	4 173	100	79	8	5	4	2	3
		2009	4 184	4 165	100	77	8	5	4	3	3
	• 0 88 •	2010	3 785	3 806	101	80	8	5	4	2	1
Sao Tome and Principe		1995			–						
		2000	30	97	323	52	27	9	5	7	0
		2005	49	49	100	98	0	2	0	0	0
		2008	52	52	100	94	0	4	2	0	0
		2009	52	50	96	98	0	0	2	0	0
	• 0 78 •	2010	47	45	96	20	58	9	0	13	0

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Senegal		1995	5 421	5 421	100	35	9	4	6	16	31
		2000	5 823	5 823	100	43	9	3	1	21	22
		2005	6 722	6 722	100	70	6	4	2	11	8
		2008	7 584	7 584	100	79	5	4	2	7	4
		2009	7 883	7 883	100	81	3	4	2	5	5
	• 44 85 •	2010	7 688	7 855	102	81	4	4	2	6	4
Seychelles		1995	6	9	150	89	0	11	0	0	0
		2000	11	11	100	82	0	0	0	9	9
		2005	8		–						
		2008	4	6	150	33	67	0	0	0	0
		2009	11	11	100	55	9	18	0	0	18
	• 89 100 •	2010	9	7	78	100	0	0	0	0	0
Sierra Leone		1995	1 454	1 315	90	55	15	5	7	16	2
		2000	2 472	2 296	93	70	7	6	2	13	2
		2005	4 370	4 370	100	77	8	6	1	6	2
		2008	5 826	5 847	100	73	13	4	1	7	2
		2009	6 092	6 083	100	68	10	6	1	11	4
	• 69 86 •	2010	6 898	6 897	100	77	9	4	1	6	3
South Africa		1995	23 112	28 209	122	40	18	4	4	15	19
		2000	75 967	86 276	114	54	9	6	1	13	17
		2005	125 460	134 782	107	58	13	7	2	10	10
		2008	138 803	143 510	103	67	9	8	2	8	7
		2009	139 468	139 458	100	67	6	7	2	7	12
	• 58 79 •	2010	132 107	134 250	102	73	6	6	2	7	6
Swaziland		1995	660		–						
		2000	1 823		–						
		2005	2 187	2 187	100	22	20	6	2	5	45
		2008	3 105	3 213	103	50	18	10	7	8	7
		2009	3 498	3 498	100	51	19	10	7	7	7
	• 0 73 •	2010	3 011	3 011	100	51	22	11	9	6	2
Togo		1995	887	856	97	42	18	9	3	17	11
		2000	984		–						
		2005	1 798	1 796	100	66	5	12	4	11	2
		2008	2 234	2 229	100	76	3	11	3	3	3
		2009	2 267	2 267	100	77	4	10	4	3	2
	• 60 84 •	2010	2 096	2 096	100	81	3	8	3	4	1
Uganda		1995	13 631	15 301	112	26	18	7	1	13	36
		2000	17 246	13 874	80	33	30	7	0	17	12
		2005	20 559	20 559	100	32	41	6	0	16	5
		2008	22 766	22 766	100	28	42	5	1	11	14
		2009	23 113	23 113	100	30	38	5	1	12	16
	• 44 71 •	2010	23 456	23 456	100	35	36	5	1	11	13
United Republic of Tanzania		1995	19 955	19 955	100	69	5	9	1	6	11
		2000	24 049	23 923	99	72	6	10	0	6	5
		2005	25 264	25 324	100	79	4	9	0	4	4
		2008	24 171	24 171	100	84	5	5	0	2	4
		2009	24 895	24 895	100	82	6	5	0	2	5
	• 73 90 •	2010	24 769	24 373	98	84	6	5	0	2	3
Zambia		1995	10 038	5 957	59	47	23	7	2	14	8
		2000	12 927	7 014	54	48	19	7	6	6	14
		2005	14 857	14 857	100	76	8	8	1	2	5
		2008	13 211	13 173	100	83	5	5	1	3	4
		2009	12 995	12 995	100	85	6	6	1	3	0
	• 70 86 •	2010	12 639	48 616	385	25	61	6	0	4	4
Zimbabwe		1995	8 965	9 702	108	32	21	10	0	10	26
		2000	14 392	14 392	100	61	8	12	0	7	13
		2005	13 155	12 860	98	59	9	12	2	7	12
		2008	9 830	10 370	105	67	7	9	0	7	9
		2009	10 195	10 195	100	70	9	8	1	7	6
	• 53 81 •	2010	11 654	11 654	100	72	10	8	1	5	5

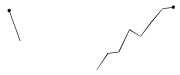
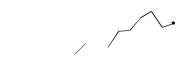
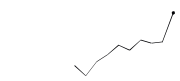
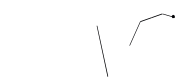
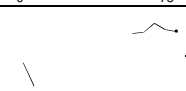
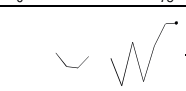
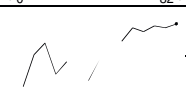
[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Algeria		1995	451		–						
		2000	547	512	94	61	16	5	4	5	10
		2005	713	713	100	48	24	2	1	6	19
		2008	651	620	95	72	11	4	2	6	6
		2009	612	553	90	72	12	4	2	5	5
	• 0 83 •	2010	691	598	87	69	14	4	2	5	6
Angola		1995	134		–						
		2000	540		–						
		2005	2 871	1 613	56	23	24	5	17	26	4
		2008	3 584	3 584	100	39	18	4	4	18	18
		2009	3 863	3 044	79	45	21	5	4	21	3
	• 0 64 •	2010	7 776	2 272	29	42	23	8	4	16	7
Benin		1995	68	139	204	48	19	9	4	19	1
		2000	280	282	101	61	21	5	1	11	0
		2005	337	341	101	60	21	10	3	6	1
		2008	236	230	97	65	12	13	7	3	0
		2009	271	270	100	70	11	11	6	1	1
	• 67 85 •	2010	205	203	99	76	9	6	6	1	1
Botswana		1995	147		–						
		2000	1 239	395	32	21	54	8	1	11	6
		2005	548	219	40	33	28	11	5	12	11
		2008	1 095	1 067	97	15	30	11	3	11	30
		2009	1 122	1 126	100	22	43	13	4	8	10
	• 0 66 •	2010	1 072	1 027	96	20	46	14	3	7	10
Burkina Faso		1995	45	26	58	65	12	8	12	0	4
		2000	178	166	93	57	4	13	5	15	7
		2005	327	272	83	71	4	6	10	6	4
		2008	500	427	85	72	5	10	9	4	1
		2009	608	509	84	70	5	9	8	5	3
	• 77 76 •	2010	552	475	86	72	4	9	8	6	1
Burundi		1995	181	265	146	25	21	6	2	28	18
		2000	225	92	41	50	13	15	3	17	1
		2005	116		–						
		2008	205	205	100	67	9	7	1	10	5
		2009	238	238	100	81	3	6	3	4	2
	• 46 82 •	2010	332	332	100	78	4	7	5	6	0
Cameroon		1995	236		–						
		2000	251	347	138	50	10	9	5	26	2
		2005	1 590	1 611	101	49	7	6	3	16	19
		2008	1 420	1 431	101	51	16	9	2	15	8
		2009	1 569	1 516	97	51	18	9	2	13	7
	• 0 71 •	2010	1 494	1 489	100	55	16	9	3	12	6
Cape Verde		1995	30		–						
		2000			–						
		2005	34	34	100	41	15	0	0	24	21
		2008	31	31	100	32	16	6	3	29	13
		2009	33		–						
	• 0 0 •	2010	27		–						
Central African Republic		1995	188		–						
		2000		353	–	33	16	1	4	39	8
		2005	291	291	100	53	30	9	0	8	1
		2008	373	1 139	305	41	41	3	3	6	6
		2009	629	629	100	19	12	5	2	8	53
	• 0 58 •	2010	421	284	67	35	24	7	4	25	6
Chad		1995	203	92	45	29	18	5	2	40	4
		2000			–						
		2005	515		–						
		2008	631		–						
		2009	676	676	100	49	21	4	3	15	8
	• 48 73 •	2010	708	704	99	38	35	4	2	18	3
Comoros		1995	7	7	100	43	0	29	0	29	0
		2000	5	5	100	100	0	0	0	0	0
		2005	3	5	167	100	0	0	0	0	0
		2008	6	6	100	100	0	0	0	0	0
		2009	6		–						
	• 43 80 •	2010		5	–	80	0	0	20	0	0
Congo		1995	78		–						
		2000	819	187	23	49	13	3	3	28	4
		2005	407	477	117	12	2	0	0	3	83
		2008	473	524	111	49	22	3	4	21	0
		2009	451	418	93	59	22	2	1	14	2
	• 0 57 •	2010	516	235	46	40	17	3	2	21	18
Côte d'Ivoire		1995	649		–						
		2000	893	507	57	45	10	8	9	21	7
		2005	980	980	100	43	14	8	7	13	15
		2008	1 429	1 429	100	55	12	7	12	9	4
		2009	1 436	1 436	100	50	14	13	11	9	3
	• 0 65 •	2010	1 519	1 519	100	51	14	12	8	11	3
Democratic Republic of the Congo		1995	2 891	1 202	42	56	16	8	2	12	6
		2000	2 637		–						
		2005	6 065	5 448	90	71	4	10	4	6	5
		2008	7 738	5 399	70	70	5	9	3	5	8
		2009	8 666	7 193	83	54	23	8	2	4	8
	• 72 76 •	2010	8 604	5 583	65	72	5	7	3	6	8
Equatorial Guinea		1995	1	6	600	83	0	0	17	0	0
		2000			–						
		2005			–						
		2008	50	50	100	26	10	14	4	38	8
		2009	44	44	100	36	14	14	2	16	18
	• 83 46 •	2010	67	41	61	32	15	22	0	27	5
Eritrea		1995			–						
		2000	67		–						
		2005	124		–						
		2008	145	145	100	66	2	7	7	1	17
		2009	207	157	76	70	12	7	6	2	3
	• 0 88 •	2010	208	120	58	81	8	9	2	1	0
Ethiopia		1995	343	193	56	71	8	3	5	8	5
		2000	2 777	1 556	56	60	11	10	4	8	7
		2005	3 119	3 116	100	41	15	9	2	5	28
		2008	2 949	2 949	100	46	29	6	2	4	13
		2009	3 544	2 942	83	47	21	5	2	3	23
	• 79 83 •	2010	4 898	3 934	80	56	27	4	3	5	6
Gabon		1995	44		–						
		2000			–						
		2005	257	150	58	18	12	5	3	60	3
		2008	296	158	53	10	21	18	2	11	39
		2009	655	611	93	12	67	2	1	17	1
	• 0 65 •	2010	558	147	26	32	33	3	3	26	2

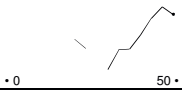
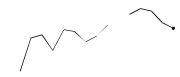
[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Gambia		1995	6	45	750	69	0	11	2	11	7
		2000			–						
		2005	166		–						
		2008	143	118	83	68	6	15	3	3	6
		2009	107	100	93	67	5	17	2	7	2
	• 69 36 •	2010	81	81	100	30	6	6	1	0	57
Ghana		1995	159	47	30	68	6	6	9	9	2
		2000	502		–						
		2005	532	540	102	40	8	6	3	11	32
		2008	764	764	100	40	27	8	2	2	21
		2009	860	717	83	50	26	10	2	3	10
	• 74 77 •	2010	1 021	1 021	100	38	39	12	2	2	7
Guinea		1995	55	112	204	44	23	3	9	13	8
		2000	446	299	67	63	8	5	3	8	13
		2005	458	458	100	45	16	10	7	13	11
		2008	671	414	62	60	11	7	4	10	8
		2009	589		–						
	• 67 68 •	2010	648	111	17	55	14	8	5	13	6
Guinea-Bissau		1995	59		–						
		2000	90		–						
		2005	138	146	106	44	34	8	0	8	7
		2008	82	92	112	53	13	9	0	13	12
		2009	76	89	117	30	34	2	0	29	4
	• 0 54 •	2010	192	140	73	23	31	10	0	27	9
Kenya		1995	1 064	879	83	61	11	9	1	10	8
		2000	2 477	1 964	79	65	11	2	8	10	4
		2005	8 975	3 794	42	68	9	10	1	7	5
		2008	10 444	10 444	100	25	47	7	0	7	14
		2009	10 711	4 859	45	70	8	8	4	7	4
	• 72 79 •	2010	10 479	4 333	41	73	6	6	3	8	4
Lesotho		1995	147		–						
		2000	1 481		–						
		2005	1 041	597	57		71	11	2	2	14
		2008	1 786	1 746	98	23	39	18	2	3	14
		2009	1 970	1 931	98	20	42	17	2	4	15
	• 0 58 •	2010	1 985	2 091	105	16	42	16	2	8	16
Liberia		1995			–						
		2000	32	41	128	39	22	12	7	20	0
		2005	57	57	100	75	9	2		9	5
		2008	132	112	85	72	15	8	2	3	0
		2009	123	123	100	70	15	8	4	2	0
	• 0 0 •	2010	170		–						
Madagascar		1995	596		–						
		2000			–						
		2005	1 498	1 825	122	65	7	7	2	12	6
		2008	1 962	1 676	85	74	3	6	1	10	7
		2009	2 089	2 073	99	62	11	7	2	8	10
	• 0 74 •	2010	2 109	1 800	85	71	3	8	2	9	8
Malawi		1995	551	492	89	65	4	22	2	1	6
		2000	764	797	104	61	5	23	1	6	3
		2005	3 212	1 093	34	74	1	19	1	3	3
		2008	2 533	779	31	80	4	10	1	1	4
		2009	2 470	788	32	83	2	9	2	2	1
	• 69 77 •	2010	2 194	750	34	77	1	10	3	1	9
Mali		1995	153		–						
		2000	239		–						
		2005	380	379	100	67	6	10	5	10	3
		2008	411	407	99	69	5	12	7	5	2
		2009	425	390	92	67	8	9	6	7	3
	• 0 99 •	2010	355	345	97	87	12	1	0	0	0
Mauritania		1995	520		–						
		2000	938		–						
		2005	206		–						
		2008	194	216	111	44	13	3	1	22	15
		2009	182	182	100	48	13	3	1	20	14
	• 0 59 •	2010	153	153	100	46	13	5	2	15	20
Mauritius		1995	2		–						
		2000	12	2	17	0	0	50	50	0	0
		2005	5	5	100	60	20			20	0
		2008	4	4	100	50	0	25	0	25	0
		2009	5	5	100	60	0	20	0	20	0
	• 0 86 •	2010	7	7	100	86	0	0	0	14	0
Mozambique		1995	899		–						
		2000	1 463	1 594	109	69	3	11	4	11	2
		2005	1 886	1 855	98	69	1	15	2	10	3
		2008	1 782	1 782	100	63	2	10	6	5	14
		2009	3 630		–						
	• 0 0 •	2010	4 048		–						
Namibia		1995	88		–						
		2000	1 534	604	39	41	14	8	6	13	17
		2005	1 823	2 009	110	24	29	11	3	13	22
		2008	1 439	1 439	100	58	15	9	10	5	2
		2009	2 558	1 546	60	58	15	9	9	6	3
	• 0 78 •	2010	2 522	2 548	101	63	15	6	10	5	2
Niger		1995			–						
		2000	255		–						
		2005	754		–						
		2008	617	616	100	67	12	8	5	6	3
		2009	690	667	97	64	12	9	4	5	6
	• 0 75 •	2010	667	661	99	64	11	10	3	5	7
Nigeria		1995	303		–						
		2000	2 356	1 848	78	58	13	7	7	11	4
		2005	4 867	3 662	75	48	18	2	11	20	1
		2008	7 048	5 488	78	61	15	3	7	8	6
		2009	8 151	8 151	100	48	33	6	2	7	4
	• 0 82 •	2010	8 993	8 993	100	43	39	4	4	7	3
Rwanda		1995	200		–						
		2000	374	296	79	49	5	14	1	5	25
		2005	831	506	61	56	9	15	3	4	13
		2008	397	397	100	64	9	7	7	5	8
		2009	475	448	94	62	10	11	7	4	6
	• 0 74 •	2010	631	446	71	65	9	9	6	4	6
Sao Tome and Principe		1995			–						
		2000	4		–						
		2005	27	0	0						
		2008	6	3	50	67	0	0	33	0	0
		2009	3	3	100	33	33	0	33	0	0
	• 0 50 •	2010	2	12	600	0	50	8	17	8	17

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Senegal		1995	563	634	113	45	11	5	10	25	4
		2000	1 056	931	88	40	8	4	3	23	23
		2005	920	920	100	58	5	8	5	13	11
		2008	1 144	972	85	70	5	7	4	10	5
		2009	1 112	889	80	67	4	7	5	10	8
	• 56 60 •	2010	1 029	1 029	100	56	4	6	3	7	24
Seychelles		1995	0		–						
		2000	0		–						
		2005	2		–						
		2008	0	0	–						
		2009	0	0	–						
	• 0 0 •	2010	0	0	–						
Sierra Leone		1995	41	69	168	72	14	3	4	4	1
		2000	441		–						
		2005	330	328	99	68	7	6	3	15	1
		2008	389	153	39	78	7	5	1	6	3
		2009	467	466	100	56	13	10	3	15	4
	• 87 75 •	2010	547	543	99	65	11	5	2	15	2
South Africa		1995	179		–						
		2000	56 202	24 847	44	43	8	8	3	19	19
		2005	60 588	64 923	107	29	29	11	2	16	13
		2008	64 470	38 754	60	53	11	11	3	13	9
		2009	65 916	34 122	52	53	8	10	3	12	15
	• 0 35 •	2010	60 580	60 580	100	31	4	5	2	7	52
Swaziland		1995	489		–						
		2000	1 249		–						
		2005	470	1 113	237	7	21	11	3	5	54
		2008	1 319	1 418	108	14	34	15	11	9	17
		2009	1 474	1 474	100	14	41	17	9	10	8
	• 0 50 •	2010	1 440	446	31	32	18	17	21	7	6
Togo		1995	93	93	100	16	17	5	4	19	38
		2000	133		–						
		2005	179	128	72	73	2	14	4	7	0
		2008	196	194	99	73	2	14	4	7	0
		2009	214	237	111	68	3	18	3	4	5
	• 33 82 •	2010	240	240	100	78	4	6	4	8	1
Uganda		1995	955		–						
		2000	1 505	1 209	80	34	30	13	0	13	10
		2005	2 430		–						
		2008	3 177	2 491	78	31	48	8	1	12	0
		2009	4 014	2 856	71	31	39	7	1	15	7
	• 0 65 •	2010	3 952	2 764	70	31	34	8	1	12	13
United Republic of Tanzania		1995	1 335	1 455	109	66	10	11	1	8	4
		2000	1 772	3 356	189	49	24	14	1	6	6
		2005	5 032	5 067	101	37	39	13	1	4	6
		2008	4 474	4 474	100	34	47	10	1	3	4
		2009	4 217	4 217	100	34	49	8	1	3	5
	• 76 84 •	2010	3 785	3 714	98	37	47	9	1	3	4
Zambia		1995	243		–						
		2000	1 455	894	61	52	15	11	4	5	12
		2005	5 496	5 496	100	24	60	9	1	3	4
		2008	5 236	2 958	56	0	80	9	0	4	6
		2009	2 485	5 444	219	33	53	9	1	4	0
	• 0 0 •	2010	6 310		–						
Zimbabwe		1995	737		–						
		2000		1 063	–	51	14	17	1	8	9
		2005	5 941	4 667	79	13	46	16	0	13	11
		2008	3 631	1 109	31	63	10	12	1	7	7
		2009	4 685	1 203	26	72	8	11	0	5	4
	• 0 74 •	2010	4 685	1 629	35	63	11	13	3	5	5

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2011**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2011	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Algeria		2005			21 501					
		2009			21 823					
		2010			22 530					
	–	2011			21 597					
Angola		2005			38 317					
		2009	5	2 023	42 686	306	15	14	9	
		2010	5	2 434	49 987	1 620	67	43	43	
	– 10	2011	10	5 107	48 926	987	19	80	80	
Benin		2005	15	503	3 457	57	11			
		2009	96	3 845	3 987	633	16	98	44	
		2010	98	3 774	3 841	592	16	97	57	
	15 99	2011	99	4 259	4 320	721	17			339
Botswana		2005	23	2 291	10 104	1 829	80			18 762
		2009	75	6 795	9 088	4 415	65	31	36	11 732
		2010	81	6 147	7 632	4 018	65	79	43	738
	23 80	2011	80	5 369	6 733	3 441	64	82	45	
Burkina Faso		2005	33	1 213	3 645	559	46	68	32	
		2009	90	4 602	5 111	903	20	97	53	
		2010	93	4 761	5 135	839	18	98	60	
	33 82	2011	82	4 572	5 543	765	17	94		
Burundi		2005			6 627					0
		2009	50	3 625	7 323	1 305	36	47	32	617
		2010	71	5 511	7 719	1 260	23	95	40	
	– 71	2011	71	4 817	6 828	1 036	22	95	48	0
Cameroon		2005	0	0	22 073	0				0
		2009	72	18 218	25 174	7 383	41	86	50	674
		2010	78	19 117	24 552	8 314	43	81	51	
	0 81	2011	81	20 280	25 126	7 731	38			1 373
Cape Verde		2005	98	298	305	14	5		100	
		2009	80	282	352	57	20			0
		2010			365					
	98 90	2011	90	352	390	47	13			
Central African		2005			3 338					
Republic		2009	42	3 749	8 996	1 230	33	66	35	0
		2010	39	2 638	6 760	862	33	0	62	
	– 33	2011	33	1 890	5 724	733	39	12	9	
Chad		2005			6 505					
		2009			8 651					
		2010	39	3 801	9 697	663	17	53	45	
	– 38	2011	38	4 124	10 774	959	23			
Comoros		2005	100	112	112	2	2	100	100	
		2009	91	117	129	0	0			0
		2010		119		0	0			0
	100 82	2011	82	98	119	4	4	25	25	
Congo		2005			9 961					
		2009	24	2 357	9 935	99	4	2	2	
		2010	40	4 106	10 321	757	18	3	3	
	– 20	2011	20	2 247	11 143	687	31	24	26	
Côte d'Ivoire		2005	20	4 079	20 026	1 551	38	38	14	
		2009	75	17 253	23 009	5 207	30	71	31	0
		2010	73	16 991	23 210	4 112	24	80	27	
	20 80	2011	80	18 297	22 920	4 820	26	80	36	
Democratic		2005	2	1 885	99 558	386	20	74	1	
Republic		2009	27	31 312	116 025	6 126	20	45	21	0
of the Congo		2010	24	28 997	118 636	5 273	18	24	9	
	2 27	2011	27	30 636	114 290	4 942	16	54	23	
Equatorial		2005								
Guinea		2009	46	331	720	121	37	14	55	
		2010	92	786	853	225	29	85	31	
	– 100	2011	100	911	913	234	26		21	
Eritrea		2005			3 612					
		2009			3 022					
		2010			2 991					
	–	2011			3 093					0
Ethiopia		2005	3	3 211	125 135	1 321	41	88	29	1 983
		2009	37	56 040	150 221	11 098	20	68	41	2 403
		2010	43	66 955	156 928	9 809	15	69	39	6 636
	3 41	2011	41	65 140	159 017	5 442	8	62	39	30 816
Gabon		2005	7	185	2 611	185	100	100		0
		2009	32	1 130	3 559	667	59	52	52	
		2010	27	1 130	4 180	667	59	52	52	
	7 46	2011	46	2 252	4 916	578	26			
Gambia		2005			2 120					
		2009	94	2 045	2 186	326	16		11	
		2010	93	1 962	2 111	224	11	93	46	
	– 72	2011	72	1 726	2 386					
Ghana		2005	7	844	12 124	340	40	100	37	
		2009	65	9 870	15 286	2 218	22	72	24	0
		2010	67	10 147	15 145	2 676	26	77	18	
	7 79	2011	79	12 587	15 840	2 919	23	71	28	
Guinea		2005			7 090					
		2009	63	5 444	8 614	1 288	24	40	7	
		2010	51	5 776	11 324	1 483	26	87	41	
	– 56	2011	56	6 548	11 606	1 670	26	72	63	
Guinea-Bissau		2005	11	200	1 816	110	55	100	30	0
		2009	30	664	2 188	268	40			
		2010	46	1 046	2 259	396	38			
	11 51	2011	51	1 053	2 070	439	42			
Kenya		2005	14	15 658	108 401	8 954	57	44	17	
		2009	88	96 676	110 065	42 294	44	92	34	
		2010	91	96 930	106 083	40 069	41	100	48	
	14 93	2011	93	97 136	103 981	38 172	39	97	64	
Lesotho		2005	1	156	11 404	127	81	79		
		2009	78	10 563	13 515	8 084	77	94	28	
		2010	84	11 005	13 138	8 459	77	96	27	
	1 82	2011	82	10 380	12 628	7 909	76	90	40	
Liberia		2005	3	114	3 456	14	12	0		
		2009	100	5 964	5 964	72	1	42	49	0
		2010	53	3 533	6 668	283	8	8	0	
	3 55	2011	55	4 355	7 965	454	10	55	100	
Madagascar		2005	9	1 759	19 475	16	1			
		2009	9	2 176	23 447	7	0		71	
		2010	65	16 439	25 106	39	0		36	
	9 58	2011	58	15 532	26 722	40	0			

TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2011**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2011	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Malawi		2005	44	12 243	27 610	8 447	69	92	49	
		2009	86	21 041	24 356	13 558	64	94	45	0
		2010	88	19 855	22 536	12 476	63	94	46	
	• 44 83 •	2011	83	17 339	20 854	10 341	60	89	60	
Mali		2005			4 884					
		2009	55	3 760	6 835	585	16	100	10	0
		2010	42	2 303	5 448	416	18	75	52	0
	– 35 •	2011	35	1 963	5 573	440	22	66	63	
Mauritania		2005	0	10	2 218	0	0			
		2009	11	281	2 664	27	10			
		2010	24	608	2 489	90	15		61	0
	• 0 1 •	2011	1	12	1 820	12	100		100	
Mauritius		2005	91	115	127	2	2	100	50	
		2009	95	110	116	7	6	100	71	0
		2010	95	117	123	8	7	100	75	
	• 91 93 •	2011	93	108	116	8	7	100	62	
Mozambique		2005			33 718					
		2009	84	38 087	45 529	25 056	66	89	22	2 429
		2010	88	40 554	46 174	24 574	61	97	25	13 164
	– 88 •	2011	88	41 896	47 452	26 538	63	91	29	17 064
Namibia		2005	16	2 547	15 894	1 465	58			
		2009	74	9 849	13 332	5 676	58	78	35	17 737
		2010	76	9 534	12 625	5 227	55	93	44	13 989
	• 16 84 •	2011	84	10 042	11 938	4 990	50	98	54	14 428
Niger		2005			8 224	152		43	34	
		2009	24	2 424	10 228	403	17	24	0	
		2010	48	4 925	10 345	405	8	37	0	
	– 44 •	2011	44	4 710	10 714	334	7			
Nigeria		2005	10	6 897	66 848	1 241	18			
		2009	75	70 693	94 114	18 087	26	48	39	1 853
		2010	79	71 844	90 447	17 736	25	59	33	1 750
	• 10 81 •	2011	81	75 772	93 050	19 553	26	68	43	1 107
Rwanda		2005	65	5 003	7 680	2 276	45	15	13	
		2009	97	7 448	7 644	2 529	34	92	63	0
		2010	98	6 914	7 065	2 199	32	97	72	
	• 65 97 •	2011	97	6 560	6 784	1 855	28	97	80	
Sao Tome and Principe		2005	100	152	152	5	3	0	0	
		2009	100	79	79	10	13	100	30	2
		2010	92	112	122	13	12	92	54	0
	• 100 100 •	2011	100	146	146	14	10	100	100	0
Senegal		2005			10 120					
		2009	59	6 906	11 732	455	7	85	27	0
		2010	69	8 018	11 591	776	10	85	37	
	– 76 •	2011	76	8 757	11 588	877	10	85	48	
Seychelles		2005			14	2		100	100	
		2009	100	15	15	3	20	100	100	0
		2010	100	17	17	1	6	100	100	0
	– 100 •	2011	100	21	21	4	19	100	100	
Sierra Leone		2005			6 930					
		2009	73	8 625	11 826	987	11	7	13	
		2010	74	9 718	13 195	976	10	6	19	
	– 78 •	2011	78	10 159	12 943	902	9	25	28	
South Africa		2005	22	67 988	302 467	35 299	52	100	33	1 466
		2009	49	197 448	405 982	114 523	58	71	42	23 583
		2010	54	213 006	396 554	128 457	60	74	54	146 247
	• 22 83 •	2011	83	323 440	389 974	211 800	65	76	44	372 994
Swaziland		2005			8 864					
		2009	97	10 730	11 032	8 889	83	94	26	2 107
		2010	86	9 536	11 146	7 788	82	93	35	
	– 92 •	2011	92	8 419	9 180	6 480	77	95	51	
Togo		2005	0	0	2 635	0				0
		2009	56	1 734	3 093	342	20	74	36	0
		2010	77	2 242	2 897	632	28	72	49	
	• 0 84 •	2011	84	2 513	2 980	667	27	37	30	
Uganda		2005	25	10 555	41 809	7 523	71	25	10	
		2009	71	31 695	44 335	17 131	54	86	22	
		2010	81	36 742	45 546	19 836	54	90	24	
	• 25 80 •	2011	80	39 394	49 018	20 725	53	93	32	
United Republic of Tanzania		2005	3	1 613	64 200	841	52	61	22	
		2009	88	56 388	64 267	21 541	38	89	31	153
		2010	90	56 849	63 453	21 662	38	92	35	
	• 3 88 •	2011	88	53 531	61 148	20 525	38	95	38	
Zambia		2005	2	1 082	53 267	614	57		68	
		2009	77	34 992	45 551	23 584	67	64	42	
		2010	84	40 704	48 616	26 571	65	75	48	
	• 2 86 •	2011	86	41 701	48 594	26 737	64	87	53	
Zimbabwe		2005	0	0	54 891	0				
		2009	62	28 952	46 453	22 745	79	92	38	
		2010	86	41 062	47 557	31 849	78	88	45	
	• 0 86 •	2011	86	35 361	41 305	21 125	60	29	67	0

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2011**

				NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
Algeria	2005	74			809	9.1		164	23
	2009					–			–
	2010	56				–			–
	2011		190 (71–310)	130 (58–260)		–	55 (6.8–180)		–
Angola	2005					–			–
	2009					–			–
	2010	3				–			–
	2011	40	1 600 (800–2 400)	720 (200–1 200)	29	0.13	850 (290–1 400)		–
Benin	2005	28			31	1.1		107	32
	2009	14				–		94	35
	2010	15			103	3.5		6	2.9
	2011	20	53 (24–81)	18 (2.2–73)	0	0	34 (22–51)	152	58
Botswana	2005					–			–
	2009	101			268	6.5		251	22
	2010	106			488	11		286	27
	2011	46	170 (110–230)	120 (70–160)	151	4.5	57 (21–93)	90	10
Burkina Faso	2005	3				–		126	39
	2009	19			3	<0.1		52	8.6
	2010	31			1	<0.1		117	21
	2011	42	170 (86–250)	78 (22–130)	1	<0.1	93 (32–150)	68	14
Burundi	2005					–			–
	2009	0			0	0		0	0
	2010	24			22	0.48		2	0.60
	2011	6	180 (0–370)	150 (4.9–350)	0	0	32 (6.6–58)	6	1.9
Cameroon	2005					–			–
	2009	26			0	0		216	14
	2010	35			0	0		35	2.3
	2011	63	780 (0–1 600)	620 (20–1 400)		–	170 (35–300)		–
Cape Verde	2005					–			–
	2009	0			0	0		0	0
	2010	0				–			–
	2011	0	11 (5.4–16)	5.6 (1.5–9.6)	0	0	5.2 (1.8–8.6)	0	0
Central African	2005					–			–
Republic	2009	7			225	4.4		21	3.3
	2010	9			9	0.25		0	0
	2011	15	83 (23–140)	20 (0.51–110)	0	0	63 (24–120)	56	16
Chad	2005					–			–
	2009					–			–
	2010	3			0	0		0	0
	2011	0	320 (160–480)	160 (44–280)	0	0	160 (56–270)	0	0
Comoros	2005					–			–
	2009	0			0	0		0	0
	2010					–			–
	2011	0	3.6 (1.8–5.3)	1.4 (0.40–2.5)		–	2.1 (0.73–3.5)		–
Congo	2005					–			–
	2009					–			–
	2010					–			–
	2011		290 (0–590)	240 (7.6–540)		–	51 (11–93)		–
Côte d'Ivoire	2005	47			0	0		0	0
	2009	43			0	0		309	22
	2010	50			0	0		72	4.7
	2011	30	570 (260–870)	420 (180–810)	1	<0.1	150 (31–270)	29	2.0
Democratic	2005					–			–
Republic	2009	91				–		111	1.3
of the Congo	2010	87				–		100	1.2
	2011	121	3 400 (44–6 800)	2 600 (85–6 000)	22	<0.1	800 (170–1 400)	160	2.0
Equatorial	2005					–			–
Guinea	2009					–			–
	2010	0			0	0		0	0
	2011	3	20 (14–26)	13 (7.3–18)		–	6.6 (5.3–7.8)		–
Eritrea	2005					–			–
	2009					–			–
	2010					–			–
	2011	11	65 (32–99)	37 (10–64)		–	28 (9.7–47)		–
Ethiopia	2005					–			–
	2009	233			16	<0.1		298	8.4
	2010	140			42	<0.1		510	10
	2011	212	2 200 (1 300–3 200)	1 700 (910–2 900)	73	0.15	550 (260–980)	139	3.0
Gabon	2005					–			–
	2009					–			–
	2010	0				–			–
	2011		200 (39–360)	110 (3.7–260)		–	84 (17–150)		–
Gambia	2005					–			–
	2009	0			0	0		0	0
	2010	0				–			–
	2011	0	9.8 (0–29)	9.8 (0.25–54)		–	0 (0–30)		–
Ghana	2005	1			50	0.62		2	0.38
	2009					–			–
	2010	4				–		21	2.1
	2011	7	410 (200–630)	240 (67–420)	0	0	170 (58–280)	61	6.9
Guinea	2005	20			215	3.9		34	7.4
	2009	69			6	<0.1		63	11
	2010	31			5	<0.1		26	4.0
	2011	78	240 (120–350)	48 (9.9–140)	8	0.12	190 (92–310)	26	3.9
Guinea-Bissau	2005					–			–
	2009					–			–
	2010					–			–
	2011	2	59 (29–90)	34 (9.4–58)		–	26 (8.8–42)		–
Kenya	2005	44			0	0		1829	20
	2009	150			0	0		1971	18
	2010	112				–		706	6.7
	2011	166	3 400 (280–6 500)	2 400 (77–5 500)	92	0.25	1 000 (210–1 800)	1195	12
Lesotho	2005					–			–
	2009					–			–
	2010	117				–			–
	2011	64	180 (37–310)	80 (17–230)		–	95 (20–260)		–
Liberia	2005					–			–
	2009					–			–
	2010	0			0	0		0	0
	2011		140 (49–220)	110 (31–190)		–	24 (8.3–40)		–
Madagascar	2005					–			–
	2009	3			44	0.27		22	1.1
	2010	3			60	0.36		24	1.1
	2011	9	180 (32–340)	97 (26–250)	9	<0.1	87 (11–300)	64	2.9

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).
[b] BACT+VE = bacteriologically-positive cases.

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2011**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
				ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
Malawi	2005	9				–		917	29
	2009	6			0	0		34	1.4
	2010	40			871	10		449	20
	2011	26	160 (99–220)	57 (19–130)	102	1.5	100 (70–150)	552	26
Mali	2005	2			0	0		0	0
	2009	22			14	0.27		14	3.3
	2010	12			0	0		12	3.4
	2011	10	140 (68–210)	77 (21–130)		–	62 (21–100)		–
Mauritania	2005	11			161	12		30	15
	2009					–			–
	2010	35				–			–
	2011	8	42 (21–63)	22 (6.2–38)	3	0.30	20 (6.8–33)	4	3.9
Mauritius	2005	0			114	100		3	60
	2009	1			98	100		5	100
	2010	2			105	100		7	100
	2011	1	1.0 (0–3.0)	1.0 (<0.1–5.6)	100	100	0 (0–2.6)	5	100
Mozambique	2005	115			113	0.63		305	16
	2009	140			73	0.37		213	5.9
	2010	165			80	0.39		251	6.2
	2011	283	1 800 (1 200–2 500)	1 300 (830–1 800)	206	1.1	510 (0–1 100)	443	10
Namibia	2005					–			–
	2009	301				–			–
	2010	214				–			–
	2011	192	670 (550–800)	290 (210–390)		–	390 (300–490)		–
Niger	2005					–			–
	2009	24			0	0		33	4.8
	2010	39			0	0		47	7.0
	2011	18	260 (130–400)	150 (42–260)	1	<0.1	110 (38–180)	21	3.6
Nigeria	2005					–			–
	2009	28			17	<0.1		25	0.31
	2010	21			27	<0.1		19	0.21
	2011	95	3 400 (150–6 600)	2 500 (80–5 700)	12	<0.1	890 (180–1 600)	76	0.86
Rwanda	2005	35			57	1.4		0	0
	2009	78			77	1.8		138	29
	2010	90			171	4.0		431	68
	2011	76	280 (200–360)	200 (130–290)		–	79 (64–95)		–
Sao Tome and Principe	2005					–			–
	2009					–			–
	2010	0				–			–
	2011	4	4.9 (2.5–7.3)	1.8 (0.51–3.2)	2	1.9	3.1 (1.1–5.1)	2	12
Senegal	2005					–			–
	2009	11			57	0.72		31	2.8
	2010	38			41	0.53		66	6.4
	2011	50	380 (170–590)	190 (63–440)	14	0.18	190 (78–350)	97	8.7
Seychelles	2005					–			–
	2009	0				–			–
	2010	0				–			–
	2011	0	0.27 (<0.1–0.47)	0.27 (<0.1–0.47)	0	0	0 (0–0)	1	–
Sierra Leone	2005					–			–
	2009					–			–
	2010					–			–
	2011	8	190 (0–400)	100 (2.6–550)		–	87 (19–200)		–
South Africa	2005	2000				–			–
	2009	9070				–			–
	2010	7386				–			–
	2011	10085	8 100 (6 900–9 400)	5 000 (4 000–6 300)		–	3 100 (2 500–3 700)		–
Swaziland	2005					–			–
	2009	190			2200	63			–
	2010	326			148	2.9		505	35
	2011	332	900 (700–1 100)	510 (320–700)		–	390 (330–450)		–
Togo	2005					–			–
	2009	4			0	0		4	1.9
	2010	2				–			–
	2011	4	82 (41–120)	41 (11–71)	86	4.1	41 (14–68)	83	39
Uganda	2005	46				–			–
	2009	57			369	1.6		228	5.7
	2010	93			358	1.5		356	9.0
	2011	71	1 000 (690–1 400)	560 (240–900)	316	1.2	480 (270–780)	360	9.0
United Republic of Tanzania	2005	10			276	0.60		405	8.0
	2009	24			348	0.75		177	4.2
	2010	34			201	0.44		246	6.5
	2011	68	480 (12–950)	480 (130–1 200)	83	0.34	0 (0–210)	17	0.59
Zambia	2005					–			–
	2009	29			63	0.46		30	1.2
	2010					–			–
	2011		730 (240–1 200)	580 (250–1 100)		–	150 (3.8–800)		–
Zimbabwe	2005					–			–
	2009					–			–
	2010	17				–			–
	2011	118	970 (460–1 500)	610 (330–1 000)	0	0	360 (76–980)	0	0

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).
[b] BACT+VE = bacteriologically-positive cases.

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2011**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Algeria	1995																	–
	2000	59	927	1 516	610	491	234	299		36	1 005	1 293	746	314	208	312		1.1
	2005	53	1 309	1 841	919	473	314	426		102	1 044	820	389	270	229	465		1.6
	2010	52	1 203	1 669	825	513	392	397		79	1 086	826	417	251	222	367		1.6
	2011	42	1 147	1 513	881	483	345	347		58	1 050	787	383	211	202	341		1.6
Angola	1995	386	724	562	346	224	155	14		371	707	443	264	248	130	18		1.1
	2000	186	999	1 003	912	482	312	194		247	1 142	1 091	844	417	200	120		1.0
	2005	520	2 549	2 797	1 918	1 255	665	461		704	2 926	2 682	1 797	1 138	581	417		0.99
	2010	448	2 900	3 584	2 415	1 424	691	355		558	2 763	2 594	1 688	958	482	286		1.3
	2011	501	3 000	3 792	2 386	1 395	680	455	0	708	2 731	2 563	1 683	1 006	457	346	0	1.3
Benin	1995	14	186	352	306	176	101	92		26	148	197	118	69	32	22		2.0
	2000	19	277	428	327	213	103	74		36	239	275	149	76	45	25		1.7
	2005	21	306	595	396	270	135	87		25	249	331	145	89	51	39		1.9
	2010	18	314	631	443	267	164	85	0	29	265	382	200	98	42	35	0	1.8
	2011	21	320	650	497	353	210	107	0	41	288	385	246	119	42	52	0	1.8
Botswana	1995																	–
	2000	25	185	605	488	267	135	96		37	335	469	262	98	57	36		1.4
	2005	27	260	563	506	272	135	97		45	321	491	253	97	55	48		1.4
	2010	45	256	590	477	239	137	107	0	68	338	509	301	119	56	53	0	1.3
	2011	36	220	464	354	206	110	94	0	65	286	421	211	105	48	49	0	1.3
Burkina Faso	1995	4	67	133	124	62	48	29		7	76	53	39	26	11	10		2.1
	2000	12	91	274	252	133	68	65		7	59	128	101	45	38	14		2.3
	2005	18	181	430	370	273	144	113		15	125	248	174	109	54	40		2.0
	2010	20	231	620	493	328	224	173	0	33	158	259	198	124	97	83	0	2.2
	2011	22	265	708	582	375	262	196	0	31	163	277	221	146	110	92	0	2.3
Burundi	1995	5	128	238	224	73	32	19		19	109	124	89	33	12	4		1.8
	2000																	–
	2005	34	352	591	525	372	111	55		46	298	399	288	122	36	33		1.7
	2010	56	481	773	651	570	270	157	0	78	390	421	332	225	99	87	0	1.8
	2011	37	484	743	620	504	235	98	0	56	345	374	263	180	81	40	0	2.0
Cameroon	1995	20	208	569	323	287	204	164		9	185	313	223	153	106	93		1.6
	2000	41	518	842	584	284	130	75		63	368	530	293	139	60	33		1.7
	2005	134	1 472	2 482	1 766	1 035	463	289		226	1 467	1 788	1 028	503	205	143		1.4
	2010	106	1 497	2 750	1 996	1 314	559	329		172	1 474	2 031	1 121	642	290	183		1.4
	2011	114	1 580	2 931	2 139	1 283	625	361		178	1 461	2 022	1 177	581	281	194		1.5
Cape Verde	1995																	–
	2000																	–
	2005	0	22	23	26	9	2	8		2	9	16	4	5	3	6		2.0
	2010																	–
	2011	0	17	43	35	31	3	3	0	4	14	15	4	6	3	4	0	2.6
Central African Republic	1995	38	162	356	206	120	40	18		39	233	350	145	57	21	9		1.1
	2000																	–
	2005	29	40	1 136	160	26	35	15		30	32	420	145	30	40	15		2.0
	2010	78	379	633	468	251	135	63	1	88	367	576	319	155	73	44	8	1.2
	2011	70	362	576	467	269	119	59	4	96	382	530	289	162	62	26	6	1.2
Chad	1995																	–
	2000																	–
	2005	25	194	535	409	229	123	82		28	148	298	211	148	59	27		1.7
	2010	76	382	850	666	379	173	99	0	59	274	413	263	158	79	44	0	2.0
	2011	92	469	951	764	418	184	121	0	84	296	438	298	166	109	44	0	2.1
Comoros	1995	0	18	13	9	7	8	4		1	13	9	8	6	5	2		1.3
	2000	0	18	7	14	9	3	4		1	9	6	12	1	2	1		1.7
	2005	0	12	9	6	4	2	4		2	10	7	4	8	3	8		0.88
	2010																	–
	2011	0	10	13	9	5	2	5	0	2	8	4	2	1	0	1	0	2.4
Congo	1995	16	265	409	221	73	44	15		17	296	353	167	61	38	11		1.1
	2000																	–
	2005																	–
	2010	41	435	672	424	203	77	55		49	409	510	296	152	70	56		1.2
	2011	58	453	705	462	222	80	76	0	72	408	463	332	200	88	97	0	1.2
Côte d'Ivoire	1995	41	989	2 092	1 344	759	283	130		99	810	813	497	273	105	19		2.2
	2000																	–
	2005	128	1 346	2 449	1 606	888	422	385		193	1 280	1 756	989	528	232	201		1.4
	2010	159	1 751	2 858	1 882	1 010	505	375		246	1 431	1 819	1 051	531	304	209		1.5
	2011	189	1 743	3 043	1 852	1 072	601	348	0	244	1 358	1 838	1 044	560	301	223	0	1.6
Democratic Republic of the Congo	1995	373	1 572	2 382	1 890	1 184	634	289		331	1 223	1 532	1 232	863	427	137		1.4
	2000	485	4 048	5 833	4 151	2 549	1 295	602		718	4 422	5 146	3 309	1 724	855	351		1.1
	2005	1 321	6 675	9 808	7 577	5 022	2 637	1 499		1 695	7 570	8 501	5 832	3 898	2 054	951		1.1
	2010	1 707	6 859	10 412	9 134	6 464	3 641	1 907		1 987	7 199	9 120	6 721	4 579	2 612	1 311		1.2
	2011	1 579	6 640	9 872	8 932	6 415	3 584	1 911		1 800	6 802	8 742	6 541	4 537	2 671	1 295		1.2
Equatorial Guinea	1995	8	15	45	37	15	11	7		2	18	28	20	4	7	1		1.7
	2000																	–
	2005																	–
	2010	10	71	80	59	35	16	10	0	13	80	57	45	26	9	6	0	1.2
	2011	11	77	90	89	59	22	12	0	15	76	81	46	21	9	3	0	1.4
Eritrea	1995																	–
	2000	9	70	75	57	32	25	20		10	100	87	71	21	12	8		0.93
	2005	9	68	73	50	45	51	39		8	67	127	72	39	21	18		0.95
	2010	10	93	109	81	51	37	60	0	3	88	111	79	43	31	36	0	1.1
	2011	0																–
Ethiopia	1995	247	1 221	1 017	541	276	142	51		283	908	781	382	152	64	15		1.4
	2000	915	5 095	5 187	3 082	1 495	610	397		1 037	4 699	4 424	2 105	976	366	122		1.2
	2005	1 109	6 726	6 181	3 454	1 985	1 027	475		1 326	5 885	5 663	2 730	1 296	513	155		1.2
	2010	1 582	7 400	7 785	4 451	2 746	1 473	822		1 608	5 708	6 480	3 439	1 950	855	335		1.3
	2011	1 847	7 835	9 246	3 881	2 771	1 218	771		1 983	6 570	7 917	3 069	1 564	719	303		1.2
Gabon	1995	3	45	74	80	54	30	15		9	47	54	28	25	19	3		1.6
	2000																	–
	2005	13	123	199	140	70	38	25		19	128	123	88	29	29	18		1.4
	2010	15	145	223	208	130	89	91	0	13	110	164	122	100	86	64	0	1.4
	2011	34	240	269	229	144	86	66	0	25	177	188	125	74	44	39	0	1.6
Gambia	1995	3	68	181	88	72	29	24		4	39	61	44	25	12	8		2.4
	2000																	–
	2005	13	133	292	206	62	53	44		2	84	87	64	38	22	27		2.5
	2010	9	194	314	184	141	68	39	0	6	104	121	71	35	40	18	0	2.4
	2011	14	183	271	181	136	87	56	0	16	103	112	88	63	32	33	0	2.1
Ghana	1995	42	223	397	398	302	190	112		40	199	272	205	122	88	48		1.7
	2000	73	550	1 266	1 115	811	495	426		74	456	791	566	338	179	176		1.8
	2005	49	592	1 201	1 311	944	462	414		68	450	693	527	366	207	221		2.0
	2010	63	570	1 146	1 301	1 030	540	447		64	446	667	560	369	204	249		2.0
	2011	50	550	1 127	1 328	955	491	456		52	470	699	614	390	174	260		1.9
Guinea	1995	18	244	538	357	189	98	61		28	202	255	153	64	37	19		2.0
	2000	39	551	860	570	282	203	103		66	314	446	245	114	82	45		2.0
	2005	51	749	1 165	778	463	195	130		65	594	583	354	203	94	55		1.8
	2010	61	679	877	982	876	565	289		51	549	739	751	405	145	72		1.6
	2011	45	1 051	1 537	955	541	293	197		85	709	688	432	219	109	73		2.0
Guinea-Bissau	1995																	–
	2000	2	52	92	80	64	39	19		4	30	46	47	24	15	12		2.0
	2005	14	116	167	153	130	72	42		13	78	110	92	82	44	19		1.6
	2010	18	164	219	183	141	80	43	0	30	100	161	133	80	38	19	0	1.5
	2011	6	140	230	181	104	65	36	0	12	119	122	90	56	44	25	0	1.6
Kenya	1995	154	2 072	3 073	1 675	920	485	296		187	1 802	1 759	741	411	242	117		1.6
	2000	264	3 739	6 653	3 548	1 630	630	414		416	3 916	4 363	1 874	831	347	148		1.4
	2005	359	4 790	8 832	5 069	2 521	1 031	590		577	5 144	6 521	2 781	1 266	593	315		1.3
	2010	357	4 698	7 945	5 077	2 509	994	658		549	4 044	5 112	2 372	1 056	544	345		1.6
	2011	356	4 773	8 376	5 201	2 660	1 045	665	0	629	4 183	4 917	2 434	1 025	477	344	0	1.6

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2011**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Lesotho	1995	9	108	214	256	189	96	88		14	106	125	71	49	17	19		2.4
	2000	8	165	458	517	395	198	76		11	222	336	195	83	36	29		2.0
	2005	32	395	695	397	148	82	37		19	226	721	616	494	297	121		0.72
	2010	16	222	607	497	364	244	133		27	283	597	329	169	64	48		1.4
	2011	19	179	584	493	329	245	121		23	311	572	307	185	84	58		1.3
Liberia	1995																	–
	2000	12	133	196	127	52	17	26		21	140	149	88	28	16	16		1.2
	2005	26	240	352	333	155	74	65		37	232	297	171	108	52	25		1.4
	2010	90	338	621	510	295	114	21	0	254	339	488	259	171	151	99	0	1.1
	2011	67	382	595	727	440	194	87	0	67	329	433	517	285	88	50	0	1.4
Madagascar	1995	79	791	1 289	1 173	630	423	242		100	799	1 108	744	340	230	78		1.4
	2000																	–
	2005	98	1 159	1 867	1 732	1 349	582	333		150	1 012	1 451	1 047	614	248	129		1.5
	2010	204	1 721	1 621	2 525	1 782	960	485	0	323	1 621	1 943	1 376	946	397	192	0	1.4
	2011	146	1 807	2 764	2 495	1 938	1 044	522	0	252	1 726	2 031	1 503	978	462	188	0	1.5
Malawi	1995	25	493	1 195	833	519	215	89		65	802	1 028	573	294	108	45		1.2
	2000	50	653	1 476	1 113	585	245	114		66	1 038	1 481	831	401	148	64		1.1
	2005	58	622	1 653	1 031	549	279	157		84	913	1 598	859	386	180	74		1.1
	2010	50	565	1 509	985	485	275	187	0	103	610	1 196	661	314	198	102	0	1.3
	2011	70	519	1 486	1 050	440	238	201		79	601	1 119	660	283	161	96		1.3
Mali	1995	27	72	357	294	181	138	102		31	132	184	128	107	61	52		1.7
	2000	23	206	430	396	297	235	144		14	174	232	152	106	75	43		2.2
	2005	26	350	628	539	365	263	193		33	208	348	245	152	101	72		2.0
	2010	94	381	707	526	354	227	207		31	265	337	247	144	96	70		2.1
	2011	25	370	772	515	352	267	230		42	255	393	223	147	118	68		2.0
Mauritania	1995																	–
	2000																	–
	2005																	–
	2010	17	192	295	206	137	99	76		14	90	104	82	52	29	29		2.6
	2011	36	165	185	131	106	58	55		28	68	72	47	36	19	20		2.5
Mauritius	1995	2	17	13	22	27	13	8		2	4	12	10	8	4	4		2.3
	2000	2	6	9	18	19	14	8		1	5	8	8	6	7	4		1.9
	2005		10	15	21	20	10	6			4	5	5	11	2	1		2.9
	2010	0	9	9	13	23	15	7	0	0	7	9	4	4	3	2	0	2.6
	2011	0	10	13	9	17	10	8	0	0	7	12	2	3	6	3	0	2.0
Mozambique	1995	187	1 136	1 475	1 338	1 022	664	320		226	994	1 314	1 016	551	234	89		1.4
	2000																	–
	2005																	–
	2010																	–
	2011																	–
Namibia	1995	0	68	235	113	55	21	6		5	49	78	50	16	1	0		2.5
	2000	18	269	874	665	300	147	81		16	352	654	348	161	76	52		1.4
	2005	98	355	1 027	874	365	146	120		105	399	809	525	213	95	91		1.3
	2010	36	359	852	680	287	146	126		67	429	685	382	206	122	87		1.3
	2011	48	337	844	660	361	152	138		78	427	653	410	185	100	110		1.3
Niger	1995																	–
	2000	29	270	174	441	252	151	78		31	123	206	168	151	63	9		1.9
	2005	35	557	1 204	819	497	350	198		34	214	388	330	223	131	70		2.6
	2010	44	669	1 587	988	615	415	342		39	272	418	347	238	174	135		2.9
	2011	50	709	1 673	1 025	646	436	347	0	50	285	449	323	278	189	147	0	2.8
Nigeria	1995	450	845	921	937	557	611	515		404	842	795	770	724	654	451		1.0
	2000	157	2 173	3 164	1 836	1 091	566	463		239	2 934	2 434	1 110	676	344	231		1.2
	2005	325	3 824	6 758	4 544	2 863	1 464	950		482	3 996	4 884	2 448	1 350	745	415		1.4
	2010	521	4 457	9 186	6 218	3 804	1 974	1 363	0	595	4 182	6 117	3 431	1 846	1 040	682	0	1.5
	2011	529	4 549	9 520	6 550	4 230	2 248	1 443	0	578	4 198	6 168	3 574	2 014	1 112	724	0	1.6
Rwanda	1995																	–
	2000	155	466	974	824	393	129	56		105	396	473	309	109	52	14		2.1
	2005	45	494	713	592	408	142	71		73	483	442	262	157	60	29		1.6
	2010	48	430	741	526	325	202	126		48	399	448	261	128	65	38		1.7
	2011	42	423	795	500	376	210	124	0	50	358	398	235	146	87	67	0	1.8
Sao Tome and Principe	1995																	–
	2000	1	5	11	4	7	3	10		3	7	15	5	7	4	15		0.73
	2005	2	5	7	6	4	5	2		1	4	5	3	2	3	0		1.7
	2010	0	10	14	7	1	0	1	0	0	5	4	3	2	0	0	0	2.4
	2011	0	5	9	8	7	1	4	0	2	2	10	4	1	0	0	0	1.8
Senegal	1995	94	717	1 219	813	408	300	213		84	428	461	283	203	126	72		2.3
	2000	60	772	1 297	857	470	279	189		77	521	540	376	217	107	61		2.1
	2005	71	1 050	1 561	904	533	274	236		83	709	568	351	185	116	81		2.2
	2010	81	1 351	1 793	972	590	329	221	0	81	835	643	332	217	136	105	0	2.3
	2011	75	1 264	1 835	981	582	335	214	89	88	807	664	362	208	144	74	43	2.2
Seychelles	1995	0	2	0	1	1	2	1		0	0	1	0	0	0	1		3.5
	2000			2	4	1	1					1	0	1	1			2.7
	2005	0	2	1	2	1	0	0		0	0	1	1	0	0	0		3.0
	2010	0	0	0	6	0	0	1	0	0	2	0	0	0	0	0	0	3.5
	2011	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1.0
Sierra Leone	1995	10	184	305	201	99	47	22		18	165	193	110	65	24	11		1.5
	2000	18	287	486	361	190	113	47		27	249	298	225	92	49	30		1.5
	2005	45	490	792	651	397	226	124		54	393	518	312	207	114	47		1.7
	2010	64	718	1 176	1 076	663	320	254		77	648	742	556	293	180	131		1.6
	2011	75	825	1 224	1 099	781	334	287	0	115	678	796	543	343	219	116	0	1.6
South Africa	1995																	–
	2000	116	723	1 999	2 135	1 146	435	212		122	1 283	1 716	933	423	167	80		1.4
	2005	2 035	10 422	20 576	19 465	11 143	4 124	1 705		2 561	13 632	19 343	11 338	5 416	2 352	1 348		1.2
	2010	1 496	9 925	20 855	19 842	12 386	5 155	2 211	0	1 933	13 023	20 205	12 910	6 873	3 165	2 128	0	1.2
	2011	1 472	9 772	20 487	19 360	12 111	5 220	2 164	0	1 932	12 751	19 250	12 807	6 955	3 266	2 223	0	1.2
Swaziland	1995	4	59	117	130	98	40	16		5	52	57	39	29	8	6		2.4
	2000	11	130	352	249	138	37	17		10	198	298	62	62	24	5		1.4
	2005	9	162	406	285	139	57	27		14	318	453	207	73	21	8		0.99
	2010	30	207	537	369	192	109	50	0	51	354	662	276	104	54	16	0	0.98
	2011	16	161	459	318	158	69	46		35	281	495	220	86	40	24		1.0
Togo	1995	7	95	151	123	82	64	49		9	80	96	45	38	23	15		1.9
	2000	4	101	168	144	109	48	39		13	107	124	50	36	24	15		1.7
	2005	11	177	320	283	125	79	69		23	157	236	146	67	41	32		1.5
	2010	21	150	350	358	217	116	80		39	163	285	148	78	62	29		1.6
	2011	15	169	340	350	234	123	85	0	11	167	277	146	89	50	38	0	1.7
Uganda	1995	370	1 193	2 491	1 797	1 115	602	323		402	1 376	1 845	1 104	635	312	113		1.4
	2000	283	1 511	3 497	2 479	1 279	607	395		400	1 649	2 782	1 510	671	316	163		1.3
	2005	257	1 598	4 075	3 209	1 576	725	539		371	1 811	3 099	1 800	818	389	257		1.4
	2010	268	2 055	4 735	4 133	2 214	905	613	16	401	1 964	2 923	1 691	924	365	248	1	1.8
	2011	295	2 075	5 044	4 613	2 466	994	604	423	400	2 092	2 853	1 809	973	409	313	252	1.8
United Republic of Tanzania	1995	183	2 108	4 091	2 916	1 754	1 007	640		201	1 904	2 532	1 324	735	380	179		1.8
	2000	200	2 357	4 836	3 430	2 022	1 202	834		257	2 106	3 426	1 738	868	494	269		1.6
	2005	190	2 062	4 939	4 025	2 310	1 279	1 054		271	1 852	3 521	1 892	968	547	354		1.7
	2010	232	1 975	4 493	4 141	2 427	1 309	1 161	0	248	1 689	2 988	2 013	1 044	578	471	0	1.7
	2011	190	1 975	4 405	4 073	2 402	1 211	1 127		221	1 660	2 896	2 140	944	490	381		1.8
Zambia	1995	91	659	1 668	1 124	487	231	130		129	1 125	1 779	717	257	117	63		1.0
	2000	349	2 175	2 610	3 045	435	261	174		150	932	1 118	1 305	186	112	75		2.3
	2005	135	1 240	3 166	2 160	917	358	321		168	1 507	2 463	1 433	569	235	185		1.3
	2010																	–
	2011	105	1 033	2 897	2 194	810	280	207		151	940	1 683	1 063	422	162	99		1.7
Zimbabwe	1995																	–
	2000																	–
	2005	210	837	2 264	1 855	762	295	656		269	1 136	2 242	1 255	578	193	603		1.1
	2010	150	710	2 208	1 682	761	350	252	0	173	974	2 185	1 283	490	265	171	0	1.1
	2011	152	784	2 467	2 071	780	377	278	0	174	1 084	2 161	1 386	448	274	160	0	1.2

TABLE A4.9 **Laboratories, NTP services, drug management and infection control, 2011**

	LABORATORIES								FREE THROUGH NTP			
	SMEAR LABS PER 100K POPULATION	% OF SMEAR LABS USING LED[a]	CULTURE LABS PER 5M POPULATION	DST[b] LABS PER 5M POPULATION	LPA[c] LABS PER 5M POPULATION	NUMBER OF LABS USING XPERT MTB/RIF	SECOND-LINE DST AVAILABLE	NRL[d]	TB DIAGNOSIS	FIRST-LINE DRUGS	RIFAMPICIN USED THROUGHOUT TREATMENT	TB NOTIF. RATE PER 100 000 HEALTH-CARE WORKERS
Algeria	0.7	0	4.0	0.4	0.1	1	In country	yes	Yes (all suspects)	yes	Yes	
Angola	0.7	0	0.8	0.8	0	0	Out of country	yes	Yes (for smear-positive TB)	yes	No	1 429
Benin	0.6	12	0.5	0.5	0.5	0	In country	yes	Yes (if TB is confirmed)	yes	Yes	
Botswana	2.6	2	2.5	2.5	0	0	Out of country	yes	Yes (all suspects)	yes	Yes	
Burkina Faso	0.7	0	0.3	0.3	0	0	Out of country	yes	Yes (all suspects)	yes	Yes	
Burundi	2.0	9	0.6	0	0	0	Out of country	yes	Yes (all suspects)	yes	Yes	
Cameroon	1.1	4	1.0	0.5	0.2	1	In and out of country	yes	No	yes	Yes	
Cape Verde	3.2	0	0	0	0	0	Out of country	yes	Yes (all suspects)	No	Yes	
Central African Republic	1.6	0	1.1	1.1	1.1	0		yes	Yes (all suspects)	No	Yes	
Chad	0.5	0	0	0	0	0	No	yes	Yes (all suspects)	yes	Yes	
Comoros		–					No	yes	Yes (all suspects)	yes	Yes	
Congo	0.7	0	0	0	0	0	No	yes	Yes (if TB is confirmed)	yes	Yes	
Côte d'Ivoire	0.6	0	0.5	0.5	0	0	No	yes	Yes (all suspects)	yes	Yes	
Democratic Republic of the Congo	2.2	0	<0.1	<0.1	0	0		yes	Yes (if TB is confirmed)	yes	Yes	
Equatorial Guinea		–	0	0	0	0	No	No	Yes (all suspects)	yes	Yes	
Eritrea	1.4	0	0	0	0	0	No	yes	Yes (if TB is confirmed)	yes	Yes	
Ethiopia	2.3	–	0.1	<0.1	0.1		In country	yes	Yes (all suspects)	yes	Yes	
Gabon	1.0	–	3.3	3.3	0	0	No	No	No	No	Yes	
Gambia	1.8	31	2.8	2.8			In country	yes	Yes (all suspects)	yes	Yes	
Ghana	1.1	0	0.6	0.6	0.2	0	No	yes	Yes (all suspects)	yes	Yes	
Guinea	0.5	2	0.5	0.5	0	1	No	yes	Yes (all suspects)	yes	Yes	
Guinea-Bissau	1.3	0	3.2				No	yes	No	yes	Yes	
Kenya	3.8	9	0.7	0.1	0.1	3	Out of country	yes	Yes (all suspects)	yes	Yes	115
Lesotho	0.8	22	2.3	2.3	2.3	3	No	yes	Yes (all suspects)	yes	Yes	
Liberia	3.7	0	0	0	0	0	No	yes	Yes (all suspects)	yes	Yes	111
Madagascar	1.0	2	0.2	0.2	0.2		In country	yes	Yes (all suspects)	yes	No	
Malawi	1.5	13	1.0	0.3	0.3	8	Out of country	yes	Yes (all suspects)	yes	Yes	
Mali	0.4	0	0.6	0.6	0.3	0	No	yes	Yes (all suspects)	yes	Yes	
Mauritania	1.8	100	1.4	1.4			No	yes	Yes (all suspects)	yes	Yes	
Mauritius		–					Out of country	yes	Yes (all suspects)	yes	Yes	
Mozambique	1.8	0	0.4	0.4	0	1	In and out of country	yes	Yes (all suspects)	yes	Yes	
Namibia	1.3	100	2.2	2.2	0	0	Out of country	yes	Yes (all suspects)	yes	Yes	
Niger	1.1	1	0.3	0.3	0	0	In and out of country	yes	Yes (all suspects)	yes	Yes	
Nigeria	0.8	2	0.2	0.1	<0.1	8	Out of country	yes	Yes (all suspects)	yes	Yes	
Rwanda	1.8	5	0.9	0.5	0.5			yes	Yes (all suspects)	yes	Yes	
Sao Tome and Principe	2.4	0	0	0	0	0	No	yes	Yes (all suspects)	yes	Yes	329
Senegal	0.8	0	1.2	0.4	0	1		yes	Yes (if TB is confirmed)	yes	Yes	
Seychelles		–					Out of country	No	Yes (all suspects)	yes	Yes	
Sierra Leone	2.6	0	0	0	0	0	No	yes	Yes (all suspects)	yes	Yes	
South Africa	0.5	–	1.5	1.5	1	55		yes	Yes (all suspects)	yes	Yes	
Swaziland	1.4	35	4.2	4.2	4.2	4		yes	Yes (all suspects)	yes	Yes	14
Togo	1.9	1	0.8	0.8	0	0	No	yes	Yes (all suspects)	yes	Yes	
Uganda	3.1	1	1.0	1.2	1.2	18	In country	yes	Yes (all suspects)	yes	Yes	
United Republic of Tanzania	2.0	3	0.5	0.1	0.1	6	In and out of country	yes	Yes (all suspects)	yes	Yes	
Zambia		–							Yes (all suspects)	yes	Yes	
Zimbabwe	1.2	3	0.8	0.8	0	11	No	yes	Yes (all suspects)	yes	Yes	

[a] LED = Light emitting diode microscopes
[b] DST = Drug susceptibility testing
[c] LPA = Line probe assay
[d] NRL = National Reference Laboratory

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Estimates of mortality, prevalence and incidence

Estimated values are shown as best estimates followed by lower and upper bounds. The lower and upper bounds are defined as the 2.5th and 97.5th centiles of outcome distributions produced in simulations. See Annex 1 for further details.

Estimated numbers are shown rounded to two significant figures. Estimated rates are shown rounded to three significant figures unless the value is under 100, in which case rates are shown rounded to two significant figures. Blank cells indicate that estimates are not available.

Estimates for all years are recalculated as new information becomes available and techniques are refined, so they may differ from those published in previous reports in this series. Estimates published in previous global TB control reports should no longer be used.

Data source

Data shown in this annex are taken from the WHO global TB database on 25 September 2012. Data shown in the main part of the report were taken from the database in July 2012. As a result, data in this annex may differ slightly from those in the main part of the report.

Data can be downloaded from **www.who.int/tb/data**.

Country notes

Caribbean Islands

Data from the territories of Anguilla; Bermuda; Bonaire, Saint Eustatius and Saba; British Virgin Islands; Cayman Islands; Curaçao; Montserrat; Sint Maarten (Dutch part); Turks and Caicos Islands; and US Virgin Islands have been re-introduced with support from the Caribbean Epidemiology Centre (CAREC/PAHO/WHO).

USA

In addition to the 51 reporting areas, the USA includes territories that report separately to WHO. The data for these territories are not included in the data reported by the USA.

Definitions of case types and outcomes do not exactly match those used by WHO.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2011**

			MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
Anguilla	1990	< 1			<0.01 (<0.01–<0.01)	60 (21–118)	<0.01 (<0.01–<0.01)	24 (15–35)
	1995	< 1			<0.01 (<0.01–<0.01)	46 (22–79)	<0.01 (<0.01–<0.01)	23 (20–27)
	2000	< 1			<0.01 (<0.01–0.011)	56 (24–103)	<0.01 (<0.01–<0.01)	23 (18–27)
	2005	< 1			<0.01 (<0.01–0.013)	54 (23–99)	<0.01 (<0.01–<0.01)	22 (18–26)
	2009	< 1			<0.01 (<0.01–0.013)	50 (22–90)	<0.01 (<0.01–<0.01)	21 (18–26)
	2010	< 1			<0.01 (<0.01–0.013)	49 (22–87)	<0.01 (<0.01–<0.01)	21 (18–25)
	2011	< 1			<0.01 (<0.01–0.013)	48 (22–84)	<0.01 (<0.01–<0.01)	21 (17–25)
Antigua and Barbuda	1990	< 1	<0.01 (<0.01–<0.01)	0.14 (0.13–0.16)	<0.01 (<0.01–<0.01)	3.7 (1.4–6.9)	<0.01 (<0.01–<0.01)	2.9 (2.5–3.2)
	1995	< 1	<0.01 (<0.01–<0.01)	0.55 (0.48–0.64)	<0.01 (<0.01–<0.01)	6.5 (2.6–12)	<0.01 (<0.01–<0.01)	5.1 (4.5–5.8)
	2000	< 1	<0.01 (<0.01–<0.01)	1.6 (1.3–1.9)	<0.01 (<0.01–<0.01)	5.8 (2.3–11)	<0.01 (<0.01–<0.01)	4.6 (4.0–5.2)
	2005	< 1	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.19)	<0.01 (<0.01–<0.01)	3.6 (0.42–10)	<0.01 (<0.01–<0.01)	4.1 (3.6–4.7)
	2009	< 1	<0.01 (<0.01–<0.01)	1.2 (1.1–1.3)	<0.01 (<0.01–0.014)	6.9 (1.8–15)	<0.01 (<0.01–<0.01)	5.4 (4.7–6.1)
	2010	< 1	<0.01 (0–<0.01)	<0.1 (0–0.18)	<0.01 (<0.01–0.010)	3.6 (0.21–12)	<0.01 (<0.01–<0.01)	6 (5.3–6.8)
	2011	< 1	<0.01 (<0.01–<0.01)	0.99 (0.88–1.1)	<0.01 (<0.01–0.013)	5.3 (0.64–15)	<0.01 (<0.01–<0.01)	6.9 (6.0–7.8)
Argentina	1990	33	1.3 (1.3–1.3)	4 (3.9–4.0)	31 (11–62)	95 (33–191)	19 (13–28)	60 (39–85)
	1995	35	1.1 (1.1–1.1)	3.2 (3.1–3.2)	24 (10–43)	68 (29–124)	17 (14–21)	49 (40–59)
	2000	37	0.88 (0.850–0.910)	2.4 (2.3–2.5)	20 (8.4–37)	55 (23–101)	15 (12–18)	40 (33–49)
	2005	39	0.74 (0.690–0.790)	1.9 (1.8–2.1)	18 (7.4–32)	45 (19–83)	13 (11–15)	33 (27–40)
	2009	40	0.64 (0.610–0.680)	1.6 (1.5–1.7)	16 (6.8–28)	39 (17–71)	11 (9.4–14)	28 (23–34)
	2010	40	0.61 (0.590–0.630)	1.5 (1.5–1.6)	15 (6.6–27)	38 (16–68)	11 (9.1–13)	27 (23–32)
	2011	41	0.59 (0.570–0.600)	1.4 (1.4–1.5)	15 (6.3–26)	36 (15–65)	11 (8.9–13)	26 (22–31)
Aruba	1990	< 1	<0.01 (<0.01–<0.01)	0.67 (0.29–1.2)	<0.01 (<0.01–<0.01)	8.3 (3.2–16)	<0.01 (<0.01–<0.01)	6.4 (5.6–7.3)
	1995	< 1	<0.01 (<0.01–<0.01)	0.67 (0.29–1.2)	<0.01 (<0.01–0.013)	8.3 (3.2–16)	<0.01 (<0.01–<0.01)	6.4 (5.6–7.3)
	2000	< 1	<0.01 (<0.01–<0.01)	0.67 (0.29–1.2)	<0.01 (<0.01–0.014)	8.2 (3.2–16)	<0.01 (<0.01–<0.01)	6.4 (5.6–7.3)
	2005	< 1	<0.01 (<0.01–<0.01)	0.67 (0.29–1.2)	<0.01 (<0.01–0.016)	8.2 (3.2–16)	<0.01 (<0.01–<0.01)	6.4 (5.6–7.3)
	2009	< 1	<0.01 (<0.01–<0.01)	0.67 (0.29–1.2)	<0.01 (<0.01–0.017)	8.3 (3.2–16)	<0.01 (<0.01–<0.01)	6.4 (5.6–7.3)
	2010	< 1	<0.01 (<0.01–<0.01)	0.67 (0.29–1.2)	<0.01 (<0.01–0.017)	8.2 (3.2–15)	<0.01 (<0.01–<0.01)	6.4 (5.6–7.3)
	2011	< 1	<0.01 (<0.01–<0.01)	0.67 (0.29–1.2)	<0.01 (<0.01–0.017)	8.2 (3.2–16)	<0.01 (<0.01–<0.01)	6.4 (5.6–7.3)
Bahamas	1990	< 1	<0.01 (<0.01–<0.01)	0.56 (0.49–0.63)	0.048 (0.023–0.083)	19 (8.8–33)	0.054 (0.047–0.061)	21 (18–24)
	1995	< 1	0.012 (0.012–0.012)	4.3 (4.3–4.4)	0.07 (0.032–0.120)	25 (11–44)	0.082 (0.072–0.093)	29 (26–33)
	2000	< 1	<0.01 (<0.01–<0.01)	2 (1.9–2.1)	0.068 (0.031–0.120)	23 (10–40)	0.078 (0.068–0.088)	26 (23–30)
	2005	< 1	<0.01 (<0.01–<0.01)	1.1 (1.1–1.1)	0.05 (0.023–0.088)	16 (7.1–28)	0.055 (0.048–0.062)	17 (15–19)
	2009	< 1	<0.01 (<0.01–<0.01)	0.77 (0.75–0.79)	0.049 (0.019–0.094)	14 (5.5–28)	0.048 (0.042–0.055)	14 (13–16)
	2010	< 1	<0.01 (<0.01–<0.01)	0.7 (0.68–0.72)	0.041 (0.014–0.083)	12 (4.1–24)	0.047 (0.041–0.053)	14 (12–15)
	2011	< 1	<0.01 (<0.01–<0.01)	0.64 (0.62–0.65)	0.047 (0.018–0.091)	14 (5.1–26)	0.046 (0.040–0.052)	13 (11–15)
Barbados	1990	< 1	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	<0.01 (<0.01–0.015)	3.1 (1.2–5.9)	<0.01 (<0.01–<0.01)	2.5 (2.2–2.8)
	1995	< 1	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	<0.01 (<0.01–0.010)	2.1 (0.85–3.9)	<0.01 (<0.01–<0.01)	1.7 (1.5–1.9)
	2000	< 1	<0.01 (<0.01–<0.01)	0.56 (0.55–0.57)	<0.01 (<0.01–0.014)	2.7 (1.1–5.1)	<0.01 (<0.01–<0.01)	2.3 (2.0–2.6)
	2005	< 1	<0.01 (<0.01–<0.01)	0.49 (0.48–0.49)	0.015 (<0.01–0.027)	5.5 (2.3–10)	0.013 (0.011–0.015)	4.8 (4.2–5.4)
	2009	< 1	<0.01 (<0.01–<0.01)	0.53 (0.51–0.54)	<0.01 (<0.01–0.021)	3.1 (0.55–7.8)	<0.01 (<0.01–<0.01)	2.4 (2.1–2.7)
	2010	< 1	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	<0.01 (<0.01–<0.01)	1.2 (0.21–3.0)	<0.01 (<0.01–<0.01)	1.2 (1.0–1.3)
	2011	< 1	<0.01 (<0.01–<0.01)	0.55 (0.54–0.56)				
Belize	1990	< 1	<0.01 (<0.01–0.010)	4.1 (3.1–5.2)	0.095 (0.028–0.200)	50 (15–105)	0.076 (0.053–0.100)	40 (28–54)
	1995	< 1	0.012 (0.011–0.013)	5.6 (5.0–6.1)	0.091 (0.030–0.190)	41 (14–84)	0.088 (0.072–0.110)	40 (33–48)
	2000	< 1	0.016 (0.016–0.017)	6.6 (6.5–6.7)	0.12 (0.041–0.240)	47 (16–95)	0.1 (0.082–0.120)	40 (33–48)
	2005	< 1	0.011 (0.011–0.012)	4.1 (4.1–4.1)	0.12 (0.052–0.230)	44 (19–81)	0.11 (0.097–0.130)	40 (34–46)
	2009	< 1	0.012 (0.012–0.012)	4 (3.9–4.0)	0.15 (0.066–0.270)	50 (22–90)	0.12 (0.099–0.150)	40 (33–48)
	2010	< 1	0.013 (0.012–0.014)	4.1 (3.8–4.4)	0.15 (0.066–0.270)	49 (21–87)	0.12 (0.100–0.150)	40 (33–48)
	2011	< 1	0.014 (0.013–0.015)	4.3 (4.0–4.6)	0.13 (0.053–0.240)	41 (17–75)	0.13 (0.100–0.150)	40 (33–48)
Bermuda	1990	< 1	<0.01 (<0.01–<0.01)	0.16 (0.16–0.16)	<0.01 (<0.01–<0.01)	4.5 (1.8–8.4)	<0.01 (<0.01–<0.01)	3.5 (3.0–3.9)
	1995	< 1	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	<0.01 (<0.01–<0.01)	6.7 (2.6–13)	<0.01 (<0.01–<0.01)	5.2 (4.5–5.9)
	2000	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	0.87 (0.34–1.6)	<0.01 (<0.01–<0.01)	0.68 (0.59–0.77)
	2005	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	7.6 (3.0–14)	<0.01 (<0.01–<0.01)	5.9 (5.2–6.7)
	2009	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	4.7 (1.9–8.9)	<0.01 (<0.01–<0.01)	3.7 (3.2–4.2)
	2010	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	2.8 (0.40–7.4)	<0.01 (<0.01–<0.01)	2.2 (1.9–2.4)
	2011	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	0.34 (<0.1–0.89)	<0.01 (<0.01–<0.01)	0.26 (0.23–0.30)
Bolivia (Plurinational State of)	1990	7	2.4 (0.760–5.0)	36 (11–76)	25 (9.0–50)	380 (135–749)	17 (11–24)	251 (166–354)
	1995	7	2.4 (1.1–4.2)	32 (15–56)	24 (12–41)	324 (160–545)	16 (14–19)	215 (185–248)
	2000	8	2.2 (0.970–4.0)	27 (12–48)	23 (11–40)	276 (130–477)	15 (13–18)	184 (151–221)
	2005	9	2.1 (0.920–3.8)	23 (10–42)	22 (10–38)	239 (111–414)	14 (12–17)	158 (129–190)
	2009	10	2.1 (0.920–3.8)	22 (9.4–39)	21 (9.9–37)	217 (102–374)	14 (11–16)	140 (114–167)
	2010	10	2.1 (0.920–3.7)	21 (9.2–38)	21 (9.9–36)	210 (100–362)	13 (11–16)	135 (111–161)
	2011	10	2.1 (0.910–3.7)	21 (9.0–37)	21 (9.9–36)	205 (98–352)	13 (11–16)	131 (108–156)
Bonaire, Saint Eustatius and Saba	2010	< 1			<0.01 (<0.01–<0.01)	1.7 (0.73–3.2)	<0.01 (<0.01–<0.01)	0.69 (0.57–0.84)
	2011	< 1			<0.01 (<0.01–<0.01)	6 (1.8–13)	<0.01 (<0.01–<0.01)	0.69 (0.57–0.84)
Brazil	1990	150	8 (6.0–10)	5.3 (4.0–6.9)	180 (64–370)	123 (42–246)	130 (79–180)	84 (53–121)
	1995	162	8.5 (6.7–10)	5.2 (4.2–6.5)	140 (65–250)	89 (40–156)	110 (94–140)	71 (58–85)
	2000	174	7.8 (6.4–9.3)	4.5 (3.7–5.3)	130 (56–220)	72 (32–129)	110 (86–130)	60 (49–72)
	2005	186	6.2 (5.4–7.1)	3.3 (2.9–3.8)	110 (48–210)	61 (26–112)	95 (80–110)	51 (43–60)
	2009	193	5.7 (5.1–6.3)	2.9 (2.6–3.3)	97 (39–180)	50 (20–94)	87 (72–100)	45 (37–53)
	2010	195	5.6 (4.6–6.8)	2.9 (2.3–3.5)	95 (37–180)	49 (19–92)	85 (71–100)	43 (36–51)
	2011	197	5.6 (4.6–6.8)	2.9 (2.3–3.4)	91 (36–170)	46 (18–87)	83 (69–97)	42 (35–50)
British Virgin Islands	1990	< 1	<0.01 (<0.01–<0.01)	0.32 (0.31–0.33)	<0.01 (<0.01–<0.01)	21 (8.4–40)	<0.01 (<0.01–<0.01)	17 (15–19)
	1995	< 1	<0.01 (<0.01–<0.01)	2.2 (2.2–2.2)	<0.01 (<0.01–<0.01)	22 (8.6–42)	<0.01 (<0.01–<0.01)	17 (15–19)
	2000	< 1	<0.01 (<0.01–<0.01)	0.44 (0.39–0.50)	<0.01 (<0.01–<0.01)	11 (4.4–21)	<0.01 (<0.01–<0.01)	8.8 (7.7–10)
	2005	< 1	<0.01 (<0.01–<0.01)	0.15 (0.13–0.17)	<0.01 (<0.01–<0.01)	3.8 (1.5–7.2)	<0.01 (<0.01–<0.01)	3 (2.6–3.4)
	2009	< 1	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.10)	<0.01 (<0.01–<0.01)	2.3 (0.90–4.3)	<0.01 (<0.01–<0.01)	1.8 (1.6–2.0)
	2010	< 1	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.11)	<0.01 (<0.01–<0.01)	2.4 (0.95–4.6)	<0.01 (<0.01–<0.01)	1.9 (1.7–2.1)
	2011	< 1	<0.01 (<0.01–<0.01)	0.11 (0.10–0.12)	<0.01 (<0.01–<0.01)	2.8 (1.1–5.3)	<0.01 (<0.01–<0.01)	2.2 (1.9–2.5)
Canada	1990	28	0.15 (0.150–0.150)	0.54 (0.52–0.55)	2.9 (1.2–5.5)	11 (4.2–20)	2.3 (2.0–2.6)	8.4 (7.3–9.5)
	1995	29	0.12 (0.120–0.120)	0.4 (0.40–0.40)	2.8 (1.1–5.3)	9.7 (3.8–18)	2.3 (2.0–2.6)	7.7 (6.8–8.7)
	2000	31	0.1 (0.100–0.100)	0.33 (0.33–0.33)	2.5 (0.980–4.6)	8 (3.2–15)	2 (1.7–2.2)	6.4 (5.6–7.2)
	2005	32	0.08 (0.079–0.080)	0.25 (0.24–0.25)	2.2 (0.860–4.0)	6.7 (2.7–13)	1.7 (1.5–2.0)	5.4 (4.7–6.1)
	2009	34	0.066 (0.065–0.067)	0.2 (0.19–0.20)	2 (0.800–3.7)	6 (2.4–11)	1.6 (1.4–1.8)	4.8 (4.2–5.4)
	2010	34	0.063 (0.063–0.064)	0.19 (0.18–0.19)	2 (0.780–3.7)	5.8 (2.3–11)	1.6 (1.4–1.8)	4.7 (4.1–5.3)
	2011	34	0.061 (0.060–0.062)	0.18 (0.18–0.18)	1.9 (0.770–3.6)	5.6 (2.2–11)	1.6 (1.4–1.8)	4.5 (4.0–5.1)
Cayman Islands	1990	< 1	<0.01 (<0.01–<0.01)	1.2 (1.2–1.2)	<0.01 (<0.01–<0.01)	15 (6.0–29)	<0.01 (<0.01–<0.01)	12 (10–13)
	1995	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	8 (3.1–15)	<0.01 (<0.01–<0.01)	6.2 (5.5–7.1)
	2000	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–<0.01)	7 (2.7–13)	<0.01 (<0.01–<0.01)	5.5 (4.8–6.2)
	2005	< 1	0 (0–0)	<0.1 (<0.1–<0.1)	<0.01 (<0.01–<0.01)	1.5 (0.60–2.9)	<0.01 (<0.01–<0.01)	1.2 (1.1–1.4)
	2009	< 1	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	<0.01 (<0.01–<0.01)	5.3 (2.1–10)	<0.01 (<0.01–<0.01)	4.1 (3.6–4.7)
	2010	< 1	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	<0.01 (<0.01–<0.01)	7.2 (1.6–17)	<0.01 (<0.01–<0.01)	5.7 (5.0–6.4)
	2011	< 1	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	<0.01 (<0.01–0.014)	9.6 (1.7–24)	<0.01 (<0.01–<0.01)	7.5 (6.6–8.5)
Chile	1990	13	0.9 (0.830–0.970)	6.8 (6.3–7.4)	12 (5.2–22)	91 (39–164)	8.2 (6.6–9.9)	62 (50–75)
	1995	14	0.5 (0.460–0.530)	3.4 (3.2–3.7)	7.7 (3.2–14)	54 (22–98)	5.5 (4.5–6.7)	38 (31–46)
	2000	15	0.35 (0.340–0.360)	2.3 (2.2–2.4)	5.5 (2.3–10)	36 (15–65)	4 (3.3–4.9)	26 (21–32)
	2005	16	0.28 (0.270–0.290)	1.7 (1.6–1.7)	4.7 (2.1–8.4)	29 (13–52)	3.3 (2.7–4.0)	20 (17–25)
	2009	17	0.24 (0.230–0.250)	1.4 (1.4–1.5)	4.4 (1.9–8.0)	26 (11–47)	3.2 (2.6–3.9)	19 (15–23)
	2010	17	0.23 (0.220–0.250)	1.4 (1.3–1.5)	4.3 (1.8–7.9)	25 (11–46)	3.2 (2.6–3.8)	19 (15–22)
	2011	17	0.23 (0.220–0.240)	1.3 (1.3–1.4)	4.1 (1.7–7.7)	24 (9.7–44)	3.1 (2.5–3.8)	18 (15–22)
Colombia	1990	33	2.1 (1.8–2.5)	6.4 (5.4–7.6)	26 (8.7–52)	78 (26–157)	18 (12–25)	54 (36–75)
	1995	36	1.9 (1.7–2.2)	5.3 (4.8–5.9)	28 (14–48)	78 (38–132)	18 (14–21)	48 (39–58)
	2000	40	1.3 (1.3–1.4)	3.4 (3.2–3.6)	25 (12–44)	64 (30–110)	17 (14–21)	43 (35–52)
	2005	43	1.2 (1.2–1.2)	2.8 (2.7–2.9)	24 (11–43)	57 (26–99)	17 (14–20)	38 (31–46)
	2009	46	1 (0.900–1.1)	2.2 (2.0–2.4)	23 (10–40)	50 (23–87)	16 (13–19)	35 (29–42)
	2010	46	0.94 (0.840–1.0)	2 (1.8–2.2)	22 (10–39)	48 (22–84)	16 (13–19)	34 (28–41)
	2011	47	0.88 (0.790–0.970)	1.9 (1.7–2.1)	20 (9.4–35)	43 (20–74)	16 (13–19)	34 (28–40)

[a] Rates are per 100 000 population.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2011**

			MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
Costa Rica	1990	3	0.087 (0.081–0.093)	2.8 (2.6–3.0)	3.4 (1.5–6.1)	112 (50–198)	1.5 (1.3–1.7)	48 (42–54)
	1995	3	0.089 (0.086–0.092)	2.6 (2.5–2.6)	2.8 (1.4–4.8)	82 (40–137)	1.5 (1.3–1.7)	43 (37–48)
	2000	4	0.081 (0.079–0.084)	2.1 (2.0–2.2)	2.3 (1.2–3.8)	59 (30–97)	1.4 (1.2–1.5)	35 (31–39)
	2005	4	0.06 (0.057–0.062)	1.4 (1.3–1.4)	1.5 (0.790–2.6)	36 (18–59)	1 (0.880–1.1)	23 (20–26)
	2009	5	0.043 (0.039–0.047)	0.93 (0.85–1.0)	1 (0.500–1.7)	22 (11–37)	0.72 (0.630–0.810)	16 (14–18)
	2010	5	0.039 (0.037–0.041)	0.83 (0.79–0.88)	0.86 (0.410–1.5)	19 (8.7–32)	0.65 (0.570–0.740)	14 (12–16)
	2011	5	0.035 (0.033–0.037)	0.74 (0.70–0.78)	0.73 (0.310–1.3)	15 (6.6–28)	0.58 (0.510–0.660)	12 (11–14)
Cuba	1990	11	0.066 (0.062–0.069)	0.62 (0.59–0.65)	6.1 (2.2–12)	58 (21–114)	2.6 (1.6–3.9)	25 (15–37)
	1995	11	0.088 (0.087–0.090)	0.81 (0.80–0.82)	3.2 (1.5–5.6)	30 (14–52)	2 (1.6–2.5)	19 (15–23)
	2000	11	0.052 (0.051–0.053)	0.47 (0.46–0.48)	2.1 (0.850–3.8)	19 (7.6–34)	1.4 (1.1–1.8)	13 (10–16)
	2005	11	0.034 (0.033–0.035)	0.3 (0.30–0.31)	1.5 (0.650–2.7)	13 (5.8–24)	1 (0.850–1.3)	9.2 (7.5–11)
	2009	11	0.03 (0.029–0.030)	0.26 (0.26–0.27)	1.4 (0.630–2.5)	13 (5.6–23)	1 (0.850–1.2)	9.1 (7.5–11)
	2010	11	0.03 (0.029–0.030)	0.26 (0.26–0.27)	1.5 (0.620–2.7)	13 (5.5–24)	1 (0.830–1.3)	9.3 (7.4–11)
	2011	11	0.03 (0.029–0.031)	0.27 (0.26–0.27)	1.4 (0.550–2.5)	12 (4.9–22)	1 (0.830–1.3)	9.3 (7.4–11)
Curaçao	2010	< 1	<0.01 (0–<0.01)	0.2 (0–0.78)	<0.01 (<0.01–0.014)	5.1 (2.0–9.7)	<0.01 (<0.01–<0.01)	4 (3.5–4.5)
	2011	< 1	<0.01 (0–<0.01)	<0.1 (0–0.15)	<0.01 (<0.01–<0.01)	1 (0.40–1.9)	<0.01 (<0.01–<0.01)	0.79 (0.69–0.89)
Dominica	1990	< 1	<0.01 (<0.01–<0.01)	6.7 (6.4–7.0)	0.012 (<0.01–0.032)	17 (2.8–45)	0.01 (<0.01–0.015)	15 (9.3–21)
	1995	< 1	<0.01 (<0.01–<0.01)	3.5 (3.2–3.7)	0.013 (<0.01–0.026)	18 (6.7–36)	0.01 (<0.01–0.012)	14 (12–17)
	2000	< 1	<0.01 (<0.01–<0.01)	2.7 (2.5–3.0)	0.02 (<0.01–0.035)	29 (14–50)	<0.01 (<0.01–0.012)	14 (11–17)
	2005	< 1	<0.01 (<0.01–<0.01)	1.8 (1.8–1.8)	0.012 (<0.01–0.023)	17 (5.6–34)	<0.01 (<0.01–0.011)	13 (11–16)
	2009	< 1	<0.01 (<0.01–<0.01)	3 (3.0–3.1)	0.01 (<0.01–0.025)	15 (2.5–37)	<0.01 (<0.01–0.011)	13 (11–16)
	2010	< 1	<0.01 (<0.01–<0.01)	3.6 (3.5–3.6)	0.014 (<0.01–0.024)	21 (9.7–36)	<0.01 (<0.01–0.011)	13 (11–16)
	2011	< 1	<0.01 (<0.01–<0.01)	4.2 (4.0–4.4)	0.017 (<0.01–0.034)	25 (8.6–51)	<0.01 (<0.01–0.011)	13 (11–16)
Dominican Republic	1990	7	0.98 (0.540–1.6)	14 (7.5–22)	22 (8.0–42)	302 (112–586)	11 (6.6–16)	148 (91–218)
	1995	8	0.9 (0.460–1.5)	11 (5.8–19)	14 (7.0–24)	179 (89–300)	9.6 (7.9–12)	121 (99–146)
	2000	9	0.79 (0.420–1.3)	9.2 (4.8–15)	11 (5.7–19)	133 (66–224)	8.6 (7.0–10)	100 (82–120)
	2005	9	0.73 (0.410–1.1)	7.9 (4.5–12)	12 (5.7–20)	128 (62–218)	7.6 (6.2–9.1)	82 (67–98)
	2009	10	0.66 (0.340–1.1)	6.7 (3.5–11)	9.8 (4.8–17)	100 (49–169)	6.9 (5.6–8.2)	70 (57–84)
	2010	10	0.64 (0.330–1.0)	6.4 (3.3–10)	9 (4.5–15)	91 (45–152)	6.7 (5.5–8.0)	67 (55–80)
	2011	10	0.62 (0.320–1.0)	6.1 (3.2–10)	8.4 (4.2–14)	83 (42–140)	6.5 (5.4–7.7)	65 (53–77)
Ecuador	1990	10	2.3 (1.6–3.0)	22 (16–30)	33 (12–66)	325 (116–639)	18 (11–26)	174 (108–257)
	1995	11	2 (1.4–2.7)	18 (12–24)	26 (13–44)	228 (110–389)	16 (13–19)	136 (111–164)
	2000	12	1.6 (1.2–2.1)	13 (9.8–17)	22 (11–37)	179 (87–303)	13 (11–16)	107 (87–128)
	2005	13	1.2 (0.870–1.5)	8.8 (6.5–11)	19 (9.3–33)	143 (70–242)	11 (9.1–13)	83 (68–100)
	2009	14	0.83 (0.720–0.960)	5.9 (5.1–6.7)	16 (8.0–28)	115 (56–194)	9.7 (8.0–12)	68 (56–82)
	2010	14	0.75 (0.540–1.0)	5.2 (3.7–6.9)	16 (7.7–26)	108 (53–182)	9.4 (7.7–11)	65 (54–77)
	2011	15	0.68 (0.480–0.900)	4.6 (3.3–6.1)	14 (7.0–24)	98 (48–165)	9.1 (7.5–11)	62 (51–74)
El Salvador	1990	5	0.31 (0.180–0.470)	5.7 (3.4–8.7)	4.8 (1.5–9.9)	90 (29–186)	3.4 (2.3–4.7)	63 (43–88)
	1995	6	0.26 (0.180–0.360)	4.6 (3.1–6.2)	2.8 (0.900–5.8)	49 (16–102)	2.6 (2.3–2.9)	45 (39–50)
	2000	6	0.17 (0.130–0.220)	2.9 (2.2–3.8)	3.3 (1.5–5.7)	55 (26–95)	2.2 (1.8–2.6)	37 (30–44)
	2005	6	0.11 (0.082–0.140)	1.8 (1.4–2.3)	3.4 (1.6–5.8)	56 (26–96)	2.4 (1.9–2.8)	39 (32–47)
	2009	6	0.08 (0.060–0.100)	1.3 (0.98–1.7)	2 (0.670–4.0)	32 (11–65)	1.8 (1.6–2.1)	30 (25–34)
	2010	6	0.073 (0.048–0.100)	1.2 (0.77–1.7)	1.8 (0.600–3.8)	30 (9.7–61)	1.8 (1.5–2.0)	28 (24–33)
	2011	6	0.066 (0.043–0.093)	1.1 (0.69–1.5)	1.9 (0.620–3.9)	31 (9.9–63)	1.7 (1.4–1.9)	27 (23–31)
Grenada	1990	< 1	<0.01 (<0.01–<0.01)	0.3 (0.23–0.39)	0.01 (<0.01–0.021)	11 (4.0–21)	<0.01 (<0.01–<0.01)	4.6 (2.9–6.8)
	1995	< 1	0 (0–0)	0 (0–0)	<0.01 (<0.01–0.014)	8.1 (4.0–14)	<0.01 (<0.01–<0.01)	4.5 (3.8–5.2)
	2000	< 1	<0.01 (0–<0.01)	<0.1 (0–0.15)	<0.01 (<0.01–0.015)	8.6 (4.1–15)	<0.01 (<0.01–<0.01)	4.4 (3.6–5.2)
	2005	< 1	<0.01 (<0.01–<0.01)	1.3 (1.2–1.4)	<0.01 (<0.01–0.014)	7.9 (3.8–14)	<0.01 (<0.01–<0.01)	4.2 (3.5–5.1)
	2009	< 1	<0.01 (<0.01–<0.01)	1.4 (1.4–1.4)	<0.01 (<0.01–0.012)	5 (1.2–12)	<0.01 (<0.01–<0.01)	4.1 (3.4–5.0)
	2010	< 1	<0.01 (<0.01–<0.01)	1.3 (1.2–1.4)	<0.01 (<0.01–0.012)	4.5 (0.76–12)	<0.01 (<0.01–<0.01)	4.1 (3.4–4.9)
	2011	< 1	<0.01 (<0.01–<0.01)	1.1 (0.97–1.2)	<0.01 (<0.01–0.014)	5.1 (0.80–13)	<0.01 (<0.01–<0.01)	4.1 (3.4–4.9)
Guatemala	1990	9	0.97 (0.900–1.0)	11 (10–12)	12 (4.3–23)	134 (48–263)	6.6 (4.2–9.7)	74 (47–109)
	1995	10	0.8 (0.710–0.890)	8 (7.1–8.8)	13 (6.3–23)	132 (63–226)	7.1 (5.8–8.5)	71 (58–85)
	2000	11	0.57 (0.510–0.630)	5 (4.5–5.6)	14 (6.7–24)	125 (60–214)	7.6 (6.2–9.1)	68 (55–81)
	2005	13	0.42 (0.380–0.460)	3.3 (3.0–3.6)	15 (7.1–25)	116 (56–197)	8.2 (6.7–9.9)	65 (53–78)
	2009	14	0.37 (0.320–0.430)	2.7 (2.3–3.1)	15 (7.4–26)	109 (53–186)	8.7 (7.2–10)	62 (51–74)
	2010	14	0.36 (0.320–0.410)	2.5 (2.2–2.8)	16 (7.7–27)	111 (53–188)	8.9 (7.3–11)	62 (51–73)
	2011	15	0.36 (0.320–0.400)	2.4 (2.1–2.7)	16 (7.9–28)	111 (53–188)	9 (7.4–11)	61 (50–73)
Guyana	1990	< 1	0.067 (0.045–0.093)	9.2 (6.2–13)	1.3 (0.470–2.4)	174 (65–337)	0.65 (0.400–0.960)	89 (55–132)
	1995	< 1	0.084 (0.062–0.110)	12 (8.5–15)	0.95 (0.470–1.6)	130 (64–219)	0.65 (0.530–0.780)	89 (73–107)
	2000	< 1	0.15 (0.099–0.200)	20 (13–27)	0.87 (0.440–1.5)	119 (60–198)	0.76 (0.620–0.920)	104 (85–125)
	2005	< 1	0.16 (0.110–0.220)	22 (15–30)	1.1 (0.490–1.9)	146 (66–258)	0.86 (0.700–1.0)	115 (94–138)
	2009	< 1	0.18 (0.120–0.240)	24 (17–32)	0.91 (0.390–1.7)	121 (52–220)	0.84 (0.690–1.0)	112 (92–134)
	2010	< 1	0.19 (0.130–0.260)	25 (17–34)	0.89 (0.380–1.6)	118 (50–215)	0.84 (0.690–1.0)	111 (91–132)
	2011	< 1	0.2 (0.140–0.270)	27 (18–36)	0.92 (0.380–1.7)	121 (50–224)	0.83 (0.680–0.990)	110 (91–131)
Haiti	1990	7	2.2 (0.650–4.7)	31 (9.1–65)	23 (8.4–46)	329 (118–646)	18 (11–26)	247 (153–365)
	1995	8	3 (1.2–5.6)	39 (16–71)	28 (14–47)	359 (179–601)	19 (16–23)	247 (202–297)
	2000	9	3.6 (1.5–6.5)	41 (17–76)	34 (17–57)	391 (195–655)	23 (19–28)	271 (221–325)
	2005	9	3.6 (1.5–6.4)	38 (16–69)	36 (18–60)	382 (189–642)	25 (21–30)	272 (222–326)
	2009	10	3.1 (1.4–5.6)	31 (14–57)	32 (16–54)	327 (161–552)	24 (19–28)	238 (196–285)
	2010	10	3 (1.3–5.4)	30 (13–54)	32 (16–53)	316 (156–532)	23 (19–27)	230 (190–275)
	2011	10	3 (1.3–5.4)	30 (13–53)	31 (15–52)	307 (152–516)	22 (18–27)	222 (183–265)
Honduras	1990	5	0.32 (0.140–0.570)	6.4 (2.8–12)	8.5 (2.9–17)	174 (60–348)	6.1 (3.9–8.9)	125 (79–182)
	1995	6	0.35 (0.150–0.650)	6.3 (2.6–12)	8.1 (4.1–13)	145 (73–242)	7 (5.7–8.4)	125 (102–150)
	2000	6	0.31 (0.130–0.580)	5 (2.1–9.3)	8.6 (4.3–14)	138 (69–229)	7.2 (6.2–8.3)	116 (99–134)
	2005	7	0.27 (0.110–0.490)	3.9 (1.6–7.1)	8.8 (4.3–15)	128 (63–215)	6.1 (5.0–7.3)	89 (73–107)
	2009	7	0.24 (0.100–0.450)	3.3 (1.4–6.1)	6.1 (2.9–10)	82 (39–141)	4.3 (3.5–5.1)	58 (47–69)
	2010	8	0.24 (0.100–0.440)	3.2 (1.3–5.8)	5 (2.3–8.9)	66 (30–117)	3.9 (3.2–4.6)	51 (42–61)
	2011	8	0.24 (0.099–0.440)	3.1 (1.3–5.7)	3.8 (1.3–7.6)	49 (17–98)	3.4 (2.8–4.0)	43 (36–52)
Jamaica	1990	2	0.025 (0.020–0.031)	1.1 (0.83–1.3)	0.2 (0.071–0.400)	8.5 (3.0–17)	0.15 (0.110–0.210)	6.5 (4.7–8.8)
	1995	2	0.023 (0.016–0.030)	0.92 (0.67–1.2)	0.19 (0.091–0.320)	7.7 (3.7–13)	0.16 (0.130–0.190)	6.5 (5.4–7.9)
	2000	3	0.016 (0.012–0.021)	0.61 (0.45–0.81)	0.19 (0.092–0.320)	7.4 (3.5–13)	0.17 (0.140–0.200)	6.5 (5.4–7.9)
	2005	3	0.011 (<0.01–0.015)	0.42 (0.30–0.55)	0.21 (0.099–0.360)	7.8 (3.7–13)	0.18 (0.140–0.210)	6.5 (5.4–7.9)
	2009	3	<0.01 (<0.01–0.010)	0.29 (0.21–0.38)	0.22 (0.110–0.380)	8.1 (3.9–14)	0.18 (0.150–0.210)	6.6 (5.4–7.8)
	2010	3	<0.01 (<0.01–<0.01)	0.26 (0.19–0.35)	0.23 (0.110–0.400)	8.5 (4.0–15)	0.18 (0.150–0.210)	6.6 (5.4–7.8)
	2011	3	<0.01 (<0.01–<0.01)	0.24 (0.17–0.31)	0.24 (0.110–0.420)	8.8 (4.1–15)	0.18 (0.150–0.210)	6.6 (5.4–7.8)
Mexico	1990	84	7.3 (7.0–7.6)	8.7 (8.3–9.0)	110 (39–210)	127 (47–248)	52 (32–76)	61 (38–90)
	1995	92	5.2 (4.8–5.5)	5.6 (5.2–6.0)	75 (36–130)	81 (39–138)	41 (33–49)	44 (36–53)
	2000	100	3.7 (3.6–3.8)	3.7 (3.6–3.8)	50 (24–86)	50 (24–86)	32 (26–38)	32 (26–38)
	2005	106	2.7 (2.6–2.8)	2.5 (2.4–2.6)	36 (16–63)	33 (15–59)	24 (20–29)	23 (19–27)
	2009	112	2.2 (2.1–2.2)	1.9 (1.9–2.0)	22 (7.0–46)	20 (6.2–41)	20 (17–22)	17 (15–20)
	2010	113	2.1 (2.0–2.2)	1.8 (1.7–1.9)	21 (6.4–44)	19 (5.7–39)	18 (16–21)	16 (14–19)
	2011	115	2 (1.9–2.1)	1.7 (1.7–1.8)	20 (6.9–40)	18 (6.0–35)	17 (15–20)	15 (13–18)
Montserrat	1990	< 1	0 (0–0)	<0.1 (<0.1–<0.1)	<0.01 (<0.01–<0.01)	8.1 (3.1–15)	<0.01 (<0.01–<0.01)	6.3 (5.5–7.1)
	1995	< 1	<0.01 (<0.01–<0.01)	0.43 (0.37–0.48)	<0.01 (<0.01–<0.01)	11 (4.3–21)	<0.01 (<0.01–<0.01)	8.5 (7.5–9.7)
	2000	< 1	<0.01 (<0.01–<0.01)	0.64 (0.56–0.73)	<0.01 (<0.01–<0.01)	16 (6.4–31)	<0.01 (<0.01–<0.01)	13 (11–15)
	2005	< 1	<0.01 (<0.01–<0.01)	0.68 (0.60–0.77)	<0.01 (<0.01–<0.01)	17 (6.8–33)	<0.01 (<0.01–<0.01)	14 (12–15)
	2009	< 1	<0.01 (<0.01–<0.01)	0.58 (0.51–0.66)	<0.01 (<0.01–<0.01)	15 (5.8–28)	<0.01 (<0.01–<0.01)	12 (10–13)
	2010	< 1	<0.01 (<0.01–<0.01)	0.41 (0.36–0.46)	<0.01 (<0.01–<0.01)	10 (4.1–20)	<0.01 (<0.01–<0.01)	8.2 (7.1–9.2)
	2011	< 1	<0.01 (<0.01–<0.01)	0.17 (0.15–0.20)	<0.01 (<0.01–<0.01)	4.5 (1.8–8.4)	<0.01 (<0.01–<0.01)	3.5 (3.0–3.9)
Netherlands Antilles	1990	< 1	<0.01 (<0.01–<0.01)	0.58 (0.55–0.61)	0.013 (<0.01–0.024)	6.7 (2.6–13)	0.01 (<0.01–0.011)	5.3 (4.6–5.9)
	1995	< 1	<0.01 (<0.01–<0.01)	0.56 (0.53–0.60)	0.012 (<0.01–0.023)	6.3 (2.5–12)	<0.01 (<0.01–0.011)	4.9 (4.3–5.6)
	2000	< 1	<0.01 (<0.01–<0.01)	0.58 (0.56–0.60)	0.012 (<0.01–0.022)	6.6 (2.6–12)	<0.01 (<0.01–0.010)	5.2 (4.5–5.8)
	2005	< 1	<0.01 (<0.01–<0.01)	0.55 (0.53–0.57)	0.014 (<0.01–0.026)	7.3 (2.9–14)	0.011 (<0.01–0.012)	5.7 (5.0–6.5)
	2009	< 1	<0.01 (<0.01–<0.01)	0.5 (0.48–0.52)	0.011 (<0.01–0.022)	5.8 (2.3–11)	<0.01 (<0.01–0.010)	4.5 (4.0–5.1)
Nicaragua	1990	4	0.46 (0.270–0.690)	11 (6.6–17)	7 (2.4–14)	171 (59–341)	4.4 (2.9–6.3)	108 (71–152)
	1995	5	0.42 (0.290–0.580)	9.1 (6.2–13)	5.9 (2.6–10)	127 (56–225)	4 (3.2–4.7)	85 (70–102)
	2000	5	0.34 (0.240–0.470)	6.8 (4.8–9.2)	5.1 (2.2–9.0)	100 (44–177)	3.4 (2.8–4.1)	68 (55–81)
	2005	5	0.26 (0.200–0.330)	4.8 (3.6–6.1)	4.2 (1.9–7.5)	78 (35–139)	2.9 (2.4–3.5)	53 (44–64)
	2009	6	0.21 (0.170–0.250)	3.6 (2.9–4.4)	3 (1.0–6.0)	52 (18–104)	2.5 (2.2–2.9)	44 (38–51)
	2010	6	0.2 (0.160–0.230)	3.4 (2.8–4.0)	2.7 (0.830–5.6)	46 (14–97)	2.4 (2.1–2.8)	42 (36–49)
	2011	6	0.19 (0.130–0.260)	3.2 (2.2–4.4)	2.9 (0.880–6.2)	50 (15–105)	2.4 (2.0–2.7)	40 (35–46)

[a] Rates are per 100 000 population.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2011**

			MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
Panama	1990	2	0.2 (0.180–0.230)	8.4 (7.5–9.4)	1.6 (0.620–3.1)	67 (26–129)	1.1 (0.790–1.6)	47 (33–65)
	1995	3	0.22 (0.190–0.240)	8.1 (7.2–9.0)	1.3 (0.470–2.6)	49 (18–95)	1.3 (1.0–1.5)	47 (39–57)
	2000	3	0.21 (0.190–0.230)	7.1 (6.3–7.9)	1.4 (0.500–2.8)	48 (17–93)	1.4 (1.2–1.7)	47 (39–56)
	2005	3	0.2 (0.190–0.210)	6.1 (5.7–6.5)	1.7 (0.550–3.4)	52 (17–106)	1.5 (1.3–1.8)	47 (39–57)
	2009	3	0.21 (0.200–0.220)	6 (5.7–6.4)	1.8 (0.630–3.4)	51 (18–99)	1.6 (1.5–1.8)	48 (42–53)
	2010	4	0.21 (0.190–0.240)	6.1 (5.4–6.8)	1.9 (0.750–3.5)	53 (21–100)	1.7 (1.5–1.9)	48 (42–54)
	2011	4	0.22 (0.200–0.240)	6.1 (5.5–6.8)	2 (0.860–3.6)	56 (24–100)	1.7 (1.5–1.9)	48 (42–54)
Paraguay	1990	4	0.16 (0.120–0.200)	3.7 (2.8–4.8)	3.9 (1.8–6.8)	92 (42–159)	2.8 (2.6–3.0)	66 (61–72)
	1995	5	0.23 (0.170–0.290)	4.7 (3.6–6.0)	3.5 (1.7–6.1)	74 (35–127)	2.5 (2.3–2.7)	52 (48–56)
	2000	5	0.24 (0.170–0.330)	4.6 (3.2–6.1)	3.7 (1.7–6.3)	69 (33–119)	2.6 (2.4–2.8)	49 (45–53)
	2005	6	0.24 (0.180–0.300)	4 (3.1–5.1)	4 (1.9–7.0)	68 (32–118)	2.9 (2.7–3.1)	49 (45–53)
	2009	6	0.2 (0.170–0.240)	3.2 (2.7–3.8)	4.1 (1.9–7.1)	64 (30–112)	3 (2.7–3.2)	47 (43–51)
	2010	6	0.19 (0.140–0.250)	2.9 (2.2–3.8)	4.1 (1.9–7.1)	63 (30–109)	3 (2.7–3.2)	46 (42–50)
	2011	7	0.17 (0.130–0.220)	2.6 (2.0–3.4)	3.9 (1.8–6.6)	59 (28–101)	3 (2.8–3.2)	45 (42–49)
Peru	1990	22	7.7 (2.5–16)	35 (12–72)	110 (37–230)	522 (169–1 070)	69 (42–100)	317 (196–468)
	1995	24	6.4 (3.4–10)	27 (14–43)	78 (31–140)	325 (130–608)	58 (47–69)	242 (198–290)
	2000	26	3.6 (2.2–5.2)	14 (8.7–20)	64 (26–120)	247 (100–460)	48 (39–57)	184 (151–221)
	2005	28	2.5 (1.9–3.1)	9.1 (7.0–11)	50 (19–95)	181 (71–343)	39 (33–45)	140 (118–164)
	2009	29	2.2 (1.1–3.7)	7.7 (3.8–13)	36 (11–76)	126 (38–266)	32 (28–37)	113 (98–128)
	2010	29	2.2 (1.1–3.7)	7.5 (3.7–13)	34 (10–72)	118 (36–249)	31 (27–35)	106 (93–120)
	2011	29	2.2 (1.1–3.7)	7.4 (3.6–12)	34 (10–72)	117 (35–246)	30 (26–33)	101 (88–114)
Puerto Rico	1990	4	0.062 (0.062–0.062)	1.8 (1.8–1.8)	0.28 (0.110–0.530)	8 (3.1–15)	0.22 (0.190–0.250)	6.2 (5.5–7.1)
	1995	4	0.063 (0.063–0.063)	1.7 (1.7–1.7)	0.38 (0.150–0.710)	10 (4.0–19)	0.29 (0.260–0.330)	7.9 (6.9–9.0)
	2000	4	0.026 (0.026–0.027)	0.69 (0.69–0.70)	0.25 (0.096–0.470)	6.4 (2.5–12)	0.19 (0.170–0.220)	5 (4.4–5.7)
	2005	4	0.017 (0.017–0.017)	0.44 (0.44–0.45)	0.13 (0.052–0.240)	3.4 (1.4–6.2)	0.12 (0.110–0.140)	3.3 (2.9–3.7)
	2009	4	0.017 (0.017–0.017)	0.44 (0.44–0.44)	0.1 (0.040–0.190)	2.7 (1.1–5.1)	0.088 (0.077–0.100)	2.3 (2.1–2.7)
	2010	4	0.017 (0.017–0.017)	0.46 (0.45–0.46)	0.088 (0.036–0.160)	2.4 (0.95–4.4)	0.078 (0.068–0.088)	2.1 (1.8–2.4)
	2011	4	0.018 (0.018–0.018)	0.48 (0.48–0.48)	0.075 (0.029–0.140)	2 (0.77–3.8)	0.068 (0.059–0.077)	1.8 (1.6–2.0)
Saint Kitts and Nevis	1990	< 1	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	<0.01 (<0.01–<0.01)	0.29 (0.11–0.54)	<0.01 (<0.01–<0.01)	0.22 (0.20–0.25)
	1995	< 1	<0.01 (<0.01–<0.01)	2.6 (2.6–2.7)	<0.01 (<0.01–0.015)	18 (7.1–34)	<0.01 (<0.01–<0.01)	14 (12–16)
	2000	< 1	<0.01 (<0.01–<0.01)	2.7 (2.6–2.9)	<0.01 (<0.01–<0.01)	10 (4.1–20)	<0.01 (<0.01–<0.01)	8.1 (7.1–9.2)
	2005	< 1	<0.01 (<0.01–<0.01)	0.2 (0.18–0.23)	<0.01 (<0.01–<0.01)	5.2 (2.0–9.9)	<0.01 (<0.01–<0.01)	4.1 (3.6–4.6)
	2009	< 1	<0.01 (<0.01–<0.01)	2.8 (2.6–2.9)	<0.01 (<0.01–<0.01)	7.3 (1.9–16)	<0.01 (<0.01–<0.01)	5.7 (5.0–6.4)
	2010	< 1	<0.01 (<0.01–<0.01)	2.8 (2.6–2.9)	<0.01 (<0.01–<0.01)	7.3 (1.3–18)	<0.01 (<0.01–<0.01)	5.7 (5.0–6.4)
	2011	< 1	<0.01 (<0.01–<0.01)	2.7 (2.6–2.9)	<0.01 (<0.01–0.010)	7.1 (1.0–19)	<0.01 (<0.01–<0.01)	5.5 (4.8–6.2)
Saint Lucia	1990	< 1	<0.01 (<0.01–<0.01)	3.7 (3.5–3.9)	0.027 (0.011–0.051)	20 (7.6–37)	0.021 (0.019–0.024)	15 (13–17)
	1995	< 1	<0.01 (<0.01–<0.01)	4.6 (3.5–5.8)	0.034 (0.014–0.065)	23 (9.2–44)	0.027 (0.023–0.030)	18 (16–21)
	2000	< 1	<0.01 (<0.01–<0.01)	1.2 (1.0–1.4)	0.023 (<0.01–0.044)	15 (5.8–28)	0.018 (0.016–0.021)	12 (10–13)
	2005	< 1	<0.01 (<0.01–<0.01)	2 (1.9–2.1)	0.023 (<0.01–0.043)	14 (5.5–26)	0.018 (0.016–0.020)	11 (9.5–12)
	2009	< 1	<0.01 (<0.01–<0.01)	2.2 (1.9–2.5)	0.014 (<0.01–0.033)	8.2 (1.9–19)	0.014 (0.013–0.016)	8.4 (7.3–9.5)
	2010	< 1	<0.01 (<0.01–<0.01)	2.1 (1.8–2.4)	0.015 (<0.01–0.031)	8.9 (3.0–18)	0.012 (0.011–0.014)	6.9 (6.1–7.8)
	2011	< 1	<0.01 (<0.01–<0.01)	1.9 (1.6–2.2)	0.011 (<0.01–0.023)	6 (1.6–13)	<0.01 (<0.01–0.010)	5.1 (4.5–5.8)
Saint Vincent and the Grenadines	1990	< 1	<0.01 (<0.01–<0.01)	1.2 (1.2–1.3)	0.071 (0.026–0.140)	66 (24–129)	0.029 (0.018–0.043)	27 (17–40)
	1995	< 1	<0.01 (<0.01–<0.01)	2.7 (2.6–2.7)	0.062 (0.028–0.110)	57 (26–100)	0.029 (0.023–0.034)	27 (22–32)
	2000	< 1	<0.01 (<0.01–<0.01)	1.9 (1.8–2.1)	0.055 (0.026–0.093)	51 (24–87)	0.028 (0.023–0.033)	26 (21–31)
	2005	< 1	<0.01 (<0.01–<0.01)	2.8 (2.8–2.9)	0.047 (0.018–0.088)	43 (17–81)	0.027 (0.022–0.033)	25 (20–30)
	2009	< 1	<0.01 (<0.01–<0.01)	2 (1.9–2.1)	0.02 (<0.01–0.053)	18 (2.4–49)	0.027 (0.022–0.032)	24 (20–29)
	2010	< 1	<0.01 (<0.01–<0.01)	1.8 (1.7–1.8)	0.035 (0.012–0.070)	32 (11–64)	0.027 (0.022–0.032)	24 (20–29)
	2011	< 1	<0.01 (<0.01–<0.01)	1.6 (1.5–1.6)	0.033 (0.013–0.063)	30 (11–58)	0.026 (0.022–0.032)	24 (20–29)
Sint Maarten (Dutch part)	2010	< 1	<0.01 (0–<0.01)	0.45 (<0.1–1.8)	<0.01 (<0.01–<0.01)	12 (4.5–22)	<0.01 (<0.01–<0.01)	9.1 (8.0–10)
	2011	< 1	<0.01 (0–<0.01)	0.28 (0–1.6)	<0.01 (<0.01–<0.01)	7.7 (1.4–19)	<0.01 (<0.01–<0.01)	6 (5.2–6.8)
Suriname	1990	< 1	0.014 (<0.01–0.019)	3.5 (2.4–4.8)	0.38 (0.150–0.710)	94 (38–175)	0.26 (0.170–0.360)	63 (41–90)
	1995	< 1	0.014 (<0.01–0.023)	3.2 (1.5–5.4)	0.33 (0.140–0.610)	76 (31–141)	0.4 (0.260–0.570)	92 (59–131)
	2000	< 1	<0.01 (<0.01–0.011)	1.8 (1.5–2.3)	0.33 (0.140–0.600)	70 (30–129)	0.4 (0.260–0.580)	86 (56–124)
	2005	< 1	<0.01 (<0.01–0.010)	1.8 (1.6–2.0)	0.35 (0.150–0.650)	71 (30–130)	0.31 (0.200–0.450)	63 (41–90)
	2009	< 1	0.012 (0.011–0.014)	2.4 (2.0–2.7)	0.33 (0.130–0.630)	63 (24–121)	0.26 (0.170–0.370)	49 (32–70)
	2010	< 1	0.013 (0.010–0.017)	2.5 (1.9–3.3)	0.29 (0.110–0.550)	56 (22–105)	0.24 (0.160–0.340)	46 (31–65)
	2011	< 1	0.015 (0.011–0.019)	2.7 (2.1–3.5)	0.27 (0.110–0.500)	51 (21–94)	0.23 (0.170–0.310)	44 (32–58)
Trinidad and Tobago	1990	1	0.028 (0.027–0.029)	2.3 (2.2–2.4)	0.16 (0.062–0.300)	13 (5.1–24)	0.13 (0.110–0.140)	10 (9.1–12)
	1995	1	0.033 (0.032–0.033)	2.6 (2.6–2.6)	0.24 (0.098–0.440)	19 (7.8–35)	0.2 (0.180–0.230)	16 (14–18)
	2000	1	0.029 (0.029–0.029)	2.2 (2.2–2.3)	0.23 (0.100–0.420)	18 (7.7–33)	0.21 (0.190–0.240)	17 (15–19)
	2005	1	0.023 (0.022–0.023)	1.7 (1.7–1.8)	0.22 (0.093–0.400)	17 (7.1–30)	0.22 (0.190–0.250)	17 (15–19)
	2009	1	0.027 (0.027–0.028)	2 (2.0–2.1)	0.28 (0.120–0.500)	21 (9.0–37)	0.27 (0.240–0.310)	20 (18–23)
	2010	1	0.028 (0.028–0.029)	2.1 (2.1–2.2)	0.31 (0.130–0.560)	23 (9.6–42)	0.28 (0.240–0.320)	21 (18–24)
	2011	1	0.029 (0.029–0.030)	2.2 (2.1–2.2)	0.29 (0.130–0.520)	22 (9.3–39)	0.29 (0.250–0.330)	21 (19–24)
Turks and Caicos Islands	1990	< 1	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)				
	1995	< 1	<0.01 (<0.01–<0.01)	0.58 (0.55–0.61)	<0.01 (<0.01–0.019)	64 (25–121)	<0.01 (<0.01–<0.01)	50 (44–56)
	2000	< 1	<0.01 (<0.01–<0.01)	6.5 (6.0–7.0)	0.015 (<0.01–0.028)	80 (31–150)	0.012 (0.010–0.013)	62 (54–70)
	2005	< 1	<0.01 (<0.01–<0.01)	3.6 (3.5–3.7)	<0.01 (<0.01–0.014)	24 (9.2–45)	<0.01 (<0.01–<0.01)	19 (16–21)
	2009	< 1	<0.01 (<0.01–<0.01)	2.8 (2.6–2.9)	<0.01 (<0.01–0.018)	26 (10–49)	<0.01 (<0.01–<0.01)	20 (18–23)
	2010	< 1	<0.01 (<0.01–<0.01)	2.7 (2.5–2.8)	<0.01 (<0.01–0.024)	26 (5.1–63)	<0.01 (<0.01–0.010)	23 (20–26)
	2011	< 1	<0.01 (<0.01–<0.01)	2.6 (2.5–2.8)	0.013 (<0.01–0.026)	34 (13–65)	0.011 (<0.01–0.012)	27 (24–30)
United States of America	1990	253	1.8 (1.8–1.8)	0.7 (0.69–0.72)	38 (15–70)	15 (6.0–28)	31 (27–35)	12 (11–14)
	1995	266	1.6 (1.6–1.6)	0.61 (0.61–0.62)	31 (13–59)	12 (4.8–22)	26 (23–29)	9.7 (8.5–11)
	2000	282	0.93 (0.910–0.950)	0.33 (0.32–0.33)	23 (9.4–43)	8.2 (3.3–15)	19 (17–22)	6.7 (5.9–7.6)
	2005	297	0.66 (0.640–0.680)	0.22 (0.22–0.23)	19 (7.8–35)	6.4 (2.6–12)	16 (14–18)	5.4 (4.7–6.1)
	2009	308	0.51 (0.500–0.520)	0.16 (0.16–0.17)	16 (6.7–30)	5.3 (2.2–9.9)	14 (12–15)	4.4 (3.9–5.0)
	2010	310	0.46 (0.460–0.470)	0.15 (0.15–0.15)	16 (6.4–29)	5.1 (2.1–9.4)	13 (11–15)	4.2 (3.7–4.7)
	2011	313	0.42 (0.410–0.430)	0.13 (0.13–0.14)	15 (6.0–28)	4.7 (1.9–8.8)	12 (11–14)	3.9 (3.4–4.4)
Uruguay	1990	3	0.082 (0.075–0.089)	2.6 (2.4–2.9)	0.98 (0.150–2.6)	31 (5.0–82)	0.86 (0.530–1.3)	28 (17–41)
	1995	3	0.083 (0.080–0.086)	2.6 (2.5–2.7)	1.1 (0.450–2.0)	34 (14–62)	0.84 (0.690–1.0)	26 (21–31)
	2000	3	0.071 (0.069–0.074)	2.2 (2.1–2.2)	1 (0.420–1.8)	30 (13–55)	0.81 (0.660–0.970)	24 (20–29)
	2005	3	0.065 (0.062–0.068)	2 (1.9–2.1)	0.94 (0.390–1.7)	28 (12–52)	0.76 (0.630–0.910)	23 (19–27)
	2009	3	0.058 (0.052–0.063)	1.7 (1.6–1.9)	0.77 (0.260–1.5)	23 (7.9–46)	0.73 (0.630–0.830)	22 (19–25)
	2010	3	0.056 (0.053–0.059)	1.7 (1.6–1.7)	0.74 (0.250–1.5)	22 (7.4–44)	0.72 (0.620–0.830)	21 (18–25)
	2011	3	0.054 (0.051–0.057)	1.6 (1.5–1.7)	0.79 (0.260–1.6)	23 (7.7–47)	0.72 (0.620–0.830)	21 (18–24)
US Virgin Islands	1990	< 1	<0.01 (<0.01–<0.01)	0.22 (0.20–0.25)	<0.01 (<0.01–0.011)	5.8 (2.3–11)	<0.01 (<0.01–<0.01)	4.5 (3.9–5.1)
	1995	< 1	<0.01 (<0.01–<0.01)	3 (3.0–3.1)	0.011 (<0.01–0.020)	9.9 (3.9–19)	<0.01 (<0.01–<0.01)	7.7 (6.7–8.7)
	2000	< 1	<0.01 (<0.01–<0.01)	1.8 (1.7–1.8)	0.011 (<0.01–0.020)	9.9 (3.8–19)	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)
	2005	< 1	<0.01 (<0.01–<0.01)	0.71 (0.70–0.71)	0.011 (<0.01–0.020)	9.9 (3.9–19)	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)
	2009	< 1	<0.01 (<0.01–<0.01)	0.26 (0.26–0.26)	0.011 (<0.01–0.020)	9.9 (3.9–19)	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)
	2010	< 1	<0.01 (<0.01–<0.01)	0.18 (0.18–0.19)	0.011 (<0.01–0.020)	9.9 (3.9–19)	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)
	2011	< 1	<0.01 (<0.01–<0.01)	0.12 (0.12–0.12)	0.011 (<0.01–0.020)	9.9 (3.8–19)	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)
Venezuela (Bolivarian Republic of)	1990	20	1.1 (1.1–1.1)	5.5 (5.4–5.7)	9.7 (3.4–19)	49 (17–99)	7 (4.9–9.3)	35 (25–47)
	1995	22	0.8 (0.780–0.820)	3.6 (3.5–3.7)	11 (4.8–19)	50 (22–88)	7.7 (6.3–9.2)	35 (28–42)
	2000	24	0.74 (0.720–0.770)	3.1 (2.9–3.2)	11 (4.8–20)	46 (20–84)	8.3 (6.8–10)	34 (28–41)
	2005	27	0.69 (0.670–0.710)	2.6 (2.5–2.7)	12 (5.5–22)	47 (21–83)	9 (7.4–11)	34 (28–41)
	2009	29	0.68 (0.660–0.700)	2.4 (2.3–2.4)	14 (6.4–23)	48 (23–82)	9.5 (7.8–11)	33 (27–40)
	2010	29	0.68 (0.660–0.700)	2.3 (2.3–2.4)	14 (6.7–24)	49 (23–84)	9.7 (8.0–12)	33 (27–40)
	2011	29	0.68 (0.670–0.700)	2.3 (2.3–2.4)	14 (6.9–24)	48 (23–82)	9.8 (8.1–12)	33 (27–40)

[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2011**

			INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE		CASE DETECTION
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
Anguilla	1990	< 1	<0.01 (<0.01–<0.01)	24 (15–35)			0	0	0
	1995	< 1	<0.01 (<0.01–<0.01)	23 (20–27)			2	20	88 (75–100)
	2000	< 1	<0.01 (<0.01–<0.01)	23 (18–27)					
	2005	< 1	<0.01 (<0.01–<0.01)	22 (18–26)					
	2009	< 1	<0.01 (<0.01–<0.01)	21 (18–26)					
	2010	< 1	<0.01 (<0.01–<0.01)	21 (18–25)			1	6.5	31 (26–37)
	2011	< 1	<0.01 (<0.01–<0.01)	21 (17–25)			0	0	0
Antigua and Barbuda	1990	< 1	<0.01 (<0.01–<0.01)	2.9 (2.5–3.2)			1	1.6	56 (50–64)
	1995	< 1	<0.01 (<0.01–<0.01)	5.1 (4.5–5.8)			0	0	0
	2000	< 1	<0.01 (<0.01–<0.01)	4.6 (4.0–5.2)			4	5.2	110 (100–130)
	2005	< 1	<0.01 (<0.01–<0.01)	4.1 (3.6–4.7)	<0.01 (<0.01–<0.01)	2.1 (0.80–3.9)	6	7.2	170 (150–200)
	2009	< 1	<0.01 (<0.01–<0.01)	5.4 (4.7–6.1)			3	3.4	64 (56–73)
	2010	< 1	<0.01 (<0.01–<0.01)	6 (5.3–6.8)	<0.01 (<0.01–<0.01)	5 (3.2–7.2)	6	6.8	110 (99–130)
	2011	< 1	<0.01 (<0.01–<0.01)	6.9 (6.0–7.8)	<0.01 (<0.01–<0.01)	4.3 (2.3–6.9)	6	6.7	97 (86–110)
Argentina	1990	33	19 (13–28)	60 (39–85)	0.4 (0.260–0.570)	1.2 (0.80–1.8)	12 309	38	63 (44–97)
	1995	35	17 (14–21)	49 (40–59)	0.57 (0.410–0.770)	1.6 (1.2–2.2)	13 450	39	79 (65–96)
	2000	37	15 (12–18)	40 (33–49)	0.64 (0.460–0.840)	1.7 (1.2–2.3)	11 767	32	79 (66–96)
	2005	39	13 (11–15)	33 (27–40)	0.59 (0.430–0.780)	1.5 (1.1–2.0)	9 770	25	76 (63–93)
	2009	40	11 (9.4–14)	28 (23–34)	0.55 (0.400–0.720)	1.4 (1.0–1.8)	7 701	19	68 (57–82)
	2010	40	11 (9.1–13)	27 (23–32)	0.54 (0.400–0.710)	1.3 (0.99–1.8)	7 287	18	66 (55–80)
	2011	41	11 (8.9–13)	26 (22–31)	0.53 (0.390–0.690)	1.3 (0.96–1.7)	9 610	24	90 (75–110)
Aruba	1990	< 1	<0.01 (<0.01–<0.01)	6.4 (5.6–7.3)					
	1995	< 1	<0.01 (<0.01–<0.01)	6.4 (5.6–7.3)					
	2000	< 1	<0.01 (<0.01–<0.01)	6.4 (5.6–7.3)					
	2005	< 1	<0.01 (<0.01–<0.01)	6.4 (5.6–7.3)					
	2009	< 1	<0.01 (<0.01–<0.01)	6.4 (5.6–7.3)					
	2010	< 1	<0.01 (<0.01–<0.01)	6.4 (5.6–7.3)			6	5.6	87 (77–99)
	2011	< 1	<0.01 (<0.01–<0.01)	6.4 (5.6–7.3)			8	7.4	120 (100–130)
Bahamas	1990	< 1	0.054 (0.047–0.061)	21 (18–24)	0.025 (0.022–0.028)	9.8 (8.5–11)	46	18	86 (76–98)
	1995	< 1	0.082 (0.072–0.093)	29 (26–33)	0.042 (0.035–0.050)	15 (13–18)	57	20	69 (61–79)
	2000	< 1	0.078 (0.068–0.088)	26 (23–30)	0.038 (0.032–0.045)	13 (11–15)	82	28	110 (93–120)
	2005	< 1	0.055 (0.048–0.062)	17 (15–19)	0.024 (0.020–0.029)	7.6 (6.3–9.0)	48	15	88 (78–100)
	2009	< 1	0.048 (0.042–0.055)	14 (13–16)	0.016 (<0.01–0.024)	4.7 (2.8–7.0)	45	13	93 (82–110)
	2010	< 1	0.047 (0.041–0.053)	14 (12–15)	0.023 (0.015–0.032)	6.6 (4.3–9.4)	31	9	66 (58–75)
	2011	< 1	0.046 (0.040–0.052)	13 (11–15)	0.013 (<0.01–0.020)	3.7 (2.1–5.9)	41	12	90 (80–100)
Barbados	1990	< 1	<0.01 (<0.01–<0.01)	2.5 (2.2–2.8)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	5	1.9	77 (68–88)
	1995	< 1	<0.01 (<0.01–<0.01)	1.7 (1.5–1.9)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.14)	3	1.1	67 (59–76)
	2000	< 1	<0.01 (<0.01–<0.01)	2.3 (2.0–2.6)	<0.01 (<0.01–<0.01)	0.3 (0.20–0.31)	3	1.1	49 (43–56)
	2005	< 1	0.013 (0.011–0.015)	4.8 (4.2–5.4)	<0.01 (<0.01–<0.01)	0.7 (0.58–0.89)			
	2009	< 1	<0.01 (<0.01–<0.01)	2.4 (2.1–2.7)			2	0.73	31 (27–35)
	2010	< 1	<0.01 (<0.01–<0.01)	1.2 (1.0–1.3)	<0.01 (<0.01–<0.01)	0.4 (<0.1–0.93)	6	2.2	180 (160–210)
	2011	< 1					0	0	
Belize	1990	< 1	0.076 (0.053–0.100)	40 (28–54)	<0.01 (<0.01–<0.01)	3.6 (2.5–4.9)	57	30	75 (55–110)
	1995	< 1	0.088 (0.072–0.110)	40 (33–48)	0.013 (0.010–0.016)	5.9 (4.6–7.4)	95	43	110 (90–130)
	2000	< 1	0.1 (0.082–0.120)	40 (33–48)	0.019 (0.015–0.023)	7.4 (5.8–9.2)	106	42	110 (88–130)
	2005	< 1	0.11 (0.097–0.130)	40 (34–46)	0.026 (0.017–0.037)	9.4 (6.2–13)	102	36	91 (79–110)
	2009	< 1	0.12 (0.099–0.150)	40 (33–48)	0.023 (0.013–0.036)	7.6 (4.4–12)	88	29	72 (60–89)
	2010	< 1	0.12 (0.100–0.150)	40 (33–48)	0.025 (0.017–0.036)	8.2 (5.3–12)	145	47	120 (97–140)
	2011	< 1	0.13 (0.100–0.150)	40 (33–48)	0.048 (0.031–0.067)	15 (9.9–21)	74	23	58 (49–71)
Bermuda	1990	< 1	<0.01 (<0.01–<0.01)	3.5 (3.0–3.9)			0	0	0
	1995	< 1	<0.01 (<0.01–<0.01)	5.2 (4.5–5.9)			4	6.5	130 (110–140)
	2000	< 1	<0.01 (<0.01–<0.01)	0.68 (0.59–0.77)			0	0	0
	2005	< 1	<0.01 (<0.01–<0.01)	5.9 (5.2–6.7)					
	2009	< 1	<0.01 (<0.01–<0.01)	3.7 (3.2–4.2)					
	2010	< 1	<0.01 (<0.01–<0.01)	2.2 (1.9–2.4)			1	1.5	71 (63–81)
	2011	< 1	<0.01 (<0.01–<0.01)	0.26 (0.23–0.30)			1	1.5	590 (520–670)
Bolivia (Plurinational State of)	1990	7	17 (11–24)	251 (166–354)	1.3 (0.880–1.9)	20 (13–28)	11 166	168	67 (47–100)
	1995	7	16 (14–19)	215 (185–248)	1.1 (0.820–1.3)	14 (11–18)	14 422	193	90 (78–100)
	2000	8	15 (13–18)	184 (151–221)	1 (0.740–1.3)	12 (8.9–16)	10 127	122	66 (55–81)
	2005	9	14 (12–17)	158 (129–190)	0.81 (0.590–1.1)	8.8 (6.5–12)	9 748	107	67 (56–83)
	2009	10	14 (11–16)	140 (114–167)	0.58 (0.420–0.770)	5.9 (4.3–7.8)	8 847	91	65 (54–79)
	2010	10	13 (11–16)	135 (111–161)	0.53 (0.390–0.710)	5.4 (3.9–7.1)	8 345	84	62 (52–75)
	2011	10	13 (11–16)	131 (108–156)	0.5 (0.360–0.660)	4.9 (3.6–6.5)	8 521	84	64 (54–78)
Bonaire, Saint Eustatius and Saba	2010	< 1	<0.01 (<0.01–<0.01)	0.69 (0.57–0.84)			0	0	0
	2011	< 1	<0.01 (<0.01–<0.01)	0.69 (0.57–0.84)			1	5.4	780 (650–960)
Brazil	1990	150	130 (79–180)	84 (53–121)	15 (9.5–22)	10 (6.3–14)	74 570	50	60 (41–94)
	1995	162	110 (94–140)	71 (58–85)	23 (16–30)	14 (10–18)	91 013	56	79 (66–97)
	2000	174	110 (86–130)	60 (49–72)	23 (17–30)	13 (9.6–17)	77 899	45	74 (62–91)
	2005	186	95 (80–110)	51 (43–60)	15 (13–18)	8.2 (6.8–9.7)	80 209	43	84 (71–100)
	2009	193	87 (72–100)	45 (37–53)	17 (14–21)	9 (7.5–11)	75 040	39	86 (73–100)
	2010	195	85 (71–100)	43 (36–51)	15 (13–18)	7.8 (6.5–9.2)	74 395	38	88 (75–110)
	2011	197	83 (69–97)	42 (35–50)	16 (13–19)	8.2 (6.8–9.7)	74 892	38	91 (77–110)
British Virgin Islands	1990	< 1	<0.01 (<0.01–<0.01)	17 (15–19)					
	1995	< 1	<0.01 (<0.01–<0.01)	17 (15–19)					
	2000	< 1	<0.01 (<0.01–<0.01)	8.8 (7.7–10)			1	4.9	55 (49–63)
	2005	< 1	<0.01 (<0.01–<0.01)	3 (2.6–3.4)			0	0	0
	2009	< 1	<0.01 (<0.01–<0.01)	1.8 (1.6–2.0)					
	2010	< 1	<0.01 (<0.01–<0.01)	1.9 (1.7–2.1)			1	4.3	230 (200–260)
	2011	< 1	<0.01 (<0.01–<0.01)	2.2 (1.9–2.5)			0	0	0
Canada	1990	28	2.3 (2.0–2.6)	8.4 (7.3–9.5)	0.076 (0.067–0.086)	0.3 (0.24–0.31)	1 968	7.1	85 (75–97)
	1995	29	2.3 (2.0–2.6)	7.7 (6.8–8.7)	0.076 (0.056–0.098)	0.3 (0.19–0.34)	1 921	6.6	85 (75–97)
	2000	31	2 (1.7–2.2)	6.4 (5.6–7.2)	0.075 (0.056–0.097)	0.2 (0.18–0.32)	1 667	5.4	85 (75–97)
	2005	32	1.7 (1.5–2.0)	5.4 (4.7–6.1)	0.074 (0.056–0.095)	0.2 (0.17–0.29)	1 484	4.6	86 (76–98)
	2009	34	1.6 (1.4–1.8)	4.8 (4.2–5.4)	0.073 (0.055–0.093)	0.2 (0.16–0.28)	1 505	4.5	93 (83–110)
	2010	34	1.6 (1.4–1.8)	4.7 (4.1–5.3)	0.072 (0.055–0.092)	0.2 (0.16–0.27)	1 322	3.9	83 (74–95)
	2011	34	1.6 (1.4–1.8)	4.5 (4.0–5.1)	0.072 (0.054–0.091)	0.2 (0.16–0.27)	1 391	4	89 (79–100)
Cayman Islands	1990	< 1	<0.01 (<0.01–<0.01)	12 (10–13)			2	7.7	64 (57–74)
	1995	< 1	<0.01 (<0.01–<0.01)	6.2 (5.5–7.1)			2	6.1	98 (86–110)
	2000	< 1	<0.01 (<0.01–<0.01)	5.5 (4.8–6.2)			5	12	230 (200–260)
	2005	< 1	<0.01 (<0.01–<0.01)	1.2 (1.1–1.4)					
	2009	< 1	<0.01 (<0.01–<0.01)	4.1 (3.6–4.7)			2	3.6	87 (77–99)
	2010	< 1	<0.01 (<0.01–<0.01)	5.7 (5.0–6.4)			4	7.1	130 (110–140)
	2011	< 1	<0.01 (<0.01–<0.01)	7.5 (6.6–8.5)			2	3.5	47 (42–54)
Chile	1990	13	8.2 (6.6–9.9)	62 (50–75)	0.067 (0.054–0.081)	0.5 (0.41–0.61)	6 151	47	75 (62–93)
	1995	14	5.5 (4.5–6.7)	38 (31–46)	0.14 (0.100–0.200)	1 (0.69–1.4)	4 150	29	75 (62–93)
	2000	15	4 (3.3–4.9)	26 (21–32)	0.22 (0.160–0.290)	1.5 (1.1–1.9)	3 021	20	75 (62–93)
	2005	16	3.3 (2.7–4.0)	20 (17–25)	0.21 (0.160–0.280)	1.3 (0.96–1.7)	2 505	15	75 (62–93)
	2009	17	3.2 (2.6–3.9)	19 (15–23)	0.2 (0.150–0.260)	1.2 (0.87–1.5)	2 398	14	75 (62–93)
	2010	17	3.2 (2.6–3.8)	19 (15–22)	0.2 (0.140–0.260)	1.2 (0.85–1.5)	2 376	14	75 (62–93)
	2011	17	3.1 (2.5–3.8)	18 (15–22)	0.19 (0.140–0.250)	1.1 (0.82–1.5)	2 450	14	79 (65–97)
Colombia	1990	33	18 (12–25)	54 (36–75)	0.71 (0.480–0.990)	2.1 (1.4–3.0)	12 447	37	70 (50–100)
	1995	36	18 (14–21)	48 (39–58)	1.4 (1.1–1.9)	4 (2.9–5.2)	9 912	27	57 (47–69)
	2000	40	17 (14–21)	43 (35–52)	1.6 (1.2–2.1)	4.1 (3.1–5.3)	11 630	29	68 (57–83)
	2005	43	17 (14–20)	38 (31–46)	1.1 (0.840–1.3)	2.5 (2.0–3.0)	10 360	24	63 (52–77)
	2009	46	16 (13–19)	35 (29–42)	1.5 (0.960–2.2)	3.3 (2.1–4.9)	11 324	25	70 (59–86)
	2010	46	16 (13–19)	34 (28–41)	1.5 (1.1–1.9)	3.3 (2.5–4.2)	11 420	25	72 (60–87)
	2011	47	16 (13–19)	34 (28–40)	3.1 (2.5–3.7)	6.6 (5.4–7.9)	11 523	25	73 (61–88)

[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2011**

			INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE		CASE DETECTION
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
Costa Rica	1990	3	1.5 (1.3–1.7)	48 (42–54)	0.037 (0.033–0.042)	1.2 (1.1–1.4)	230	7.5	16 (14–18)
	1995	3	1.5 (1.3–1.7)	43 (37–48)	0.071 (0.049–0.096)	2 (1.4–2.8)	586	17	40 (35–45)
	2000	4	1.4 (1.2–1.5)	35 (31–39)	0.098 (0.071–0.130)	2.5 (1.8–3.3)	585	15	43 (38–49)
	2005	4	1 (0.880–1.1)	23 (20–26)	0.13 (0.098–0.180)	3.1 (2.3–4.1)	534	12	53 (47–61)
	2009	5	0.72 (0.630–0.810)	16 (14–18)	0.077 (0.058–0.100)	1.7 (1.3–2.2)	443	9.6	62 (54–70)
	2010	5	0.65 (0.570–0.740)	14 (12–16)	0.071 (0.052–0.093)	1.5 (1.1–2.0)	490	11	75 (67–86)
	2011	5	0.58 (0.510–0.660)	12 (11–14)	0.055 (0.040–0.073)	1.2 (0.84–1.5)	514	11	88 (78–100)
Cuba	1990	11	2.6 (1.6–3.9)	25 (15–37)	0.011 (<0.01–0.016)	0.1 (<0.1–0.15)	546	5.2	21 (14–34)
	1995	11	2 (1.6–2.5)	19 (15–23)	0.013 (<0.01–0.021)	0.1 (<0.1–0.19)	1 553	14	76 (63–94)
	2000	11	1.4 (1.1–1.8)	13 (10–16)	0.016 (<0.01–0.024)	0.1 (<0.1–0.21)	1 183	11	83 (67–100)
	2005	11	1 (0.850–1.3)	9.2 (7.5–11)			770	6.8	74 (61–91)
	2009	11	1 (0.850–1.2)	9.1 (7.5–11)	0.067 (0.046–0.091)	0.6 (0.41–0.81)	712	6.3	69 (58–84)
	2010	11	1 (0.830–1.3)	9.3 (7.4–11)	0.01 (<0.01–0.014)	<0.1 (<0.1–0.13)	827	7.3	79 (65–99)
	2011	11	1 (0.830–1.3)	9.3 (7.4–11)	0.092 (0.066–0.120)	0.8 (0.58–1.1)	805	7.2	77 (63–97)
Curaçao	2010	< 1	<0.01 (<0.01–<0.01)	4 (3.5–4.5)			5	3.5	87 (77–99)
	2011	< 1	<0.01 (<0.01–<0.01)	0.79 (0.69–0.89)			1	0.69	87 (77–99)
Dominica	1990	< 1	0.01 (<0.01–0.015)	15 (9.3–21)			6	8.5	57 (40–91)
	1995	< 1	0.01 (<0.01–0.012)	14 (12–17)			8	11	78 (66–95)
	2000	< 1	<0.01 (<0.01–0.012)	14 (11–17)					
	2005	< 1	<0.01 (<0.01–0.011)	13 (11–16)					
	2009	< 1	<0.01 (<0.01–0.011)	13 (11–16)	<0.01 (<0.01–<0.01)	3.3 (0.25–10)	4	5.9	45 (37–55)
	2010	< 1	<0.01 (<0.01–0.011)	13 (11–16)			8	12	90 (76–110)
	2011	< 1	<0.01 (<0.01–0.011)	13 (11–16)			2	3	23 (19–28)
Dominican Republic	1990	7	11 (6.6–16)	148 (91–218)	1 (0.620–1.5)	14 (8.6–21)	2 597	36	24 (17–40)
	1995	8	9.6 (7.9–12)	121 (99–146)	2.1 (1.6–2.6)	26 (20–33)	4 053	51	42 (35–52)
	2000	9	8.6 (7.0–10)	100 (82–120)	2.1 (1.6–2.7)	25 (19–32)	5 291	62	62 (51–75)
	2005	9	7.6 (6.2–9.1)	82 (67–98)	0.65 (0.450–0.890)	7.1 (4.9–9.6)	5 003	54	66 (55–81)
	2009	10	6.9 (5.6–8.2)	70 (57–84)	1.1 (0.880–1.3)	11 (9.0–14)	4 256	43	62 (52–76)
	2010	10	6.7 (5.5–8.0)	67 (55–80)	1.5 (1.2–1.8)	15 (12–18)	3 964	40	59 (50–72)
	2011	10	6.5 (5.4–7.7)	65 (53–77)	1.7 (1.3–2.0)	16 (13–20)	4 309	43	66 (56–80)
Ecuador	1990	10	18 (11–26)	174 (108–257)	0.71 (0.440–1.1)	7 (4.3–10)	8 243	80	46 (31–75)
	1995	11	16 (13–19)	136 (111–164)	0.88 (0.630–1.2)	7.7 (5.5–10)	7 893	69	51 (42–62)
	2000	12	13 (11–16)	107 (87–128)	1 (0.750–1.3)	8.3 (6.1–11)	6 908	56	53 (44–64)
	2005	13	11 (9.1–13)	83 (68–100)	0.97 (0.720–1.3)	7.3 (5.3–9.5)	4 416	33	39 (33–48)
	2009	14	9.7 (8.0–12)	68 (56–82)	0.81 (0.600–1.1)	5.7 (4.2–7.4)	4 703	33	48 (40–59)
	2010	14	9.4 (7.7–11)	65 (54–77)	0.77 (0.620–0.940)	5.3 (4.3–6.5)	4 832	33	51 (43–62)
	2011	15	9.1 (7.5–11)	62 (51–74)	0.98 (0.790–1.2)	6.7 (5.4–8.0)	5 106	35	56 (47–68)
El Salvador	1990	5	3.4 (2.3–4.7)	63 (43–88)	0.077 (0.052–0.110)	1.4 (0.97–2.0)	2 367	44	70 (50–100)
	1995	6	2.6 (2.3–2.9)	45 (39–50)	0.13 (0.096–0.170)	2.3 (1.7–2.9)	2 422	42	95 (84–110)
	2000	6	2.2 (1.8–2.6)	37 (30–44)	0.16 (0.110–0.210)	2.7 (1.9–3.5)	1 485	25	68 (57–83)
	2005	6	2.4 (1.9–2.8)	39 (32–47)	0.29 (0.220–0.360)	4.8 (3.7–5.9)	1 794	30	76 (63–93)
	2009	6	1.8 (1.6–2.1)	30 (25–34)	0.23 (0.180–0.270)	3.7 (3.0–4.4)	1 686	27	92 (80–110)
	2010	6	1.8 (1.5–2.0)	28 (24–33)	0.19 (0.150–0.230)	3.1 (2.5–3.7)	1 700	27	96 (84–110)
	2011	6	1.7 (1.4–1.9)	27 (23–31)	0.17 (0.140–0.210)	2.8 (2.2–3.3)	1 896	30	110 (99–130)
Grenada	1990	< 1	<0.01 (<0.01–<0.01)	4.6 (2.9–6.8)			0	0	0
	1995	< 1	<0.01 (<0.01–<0.01)	4.5 (3.8–5.2)			4	4	89 (77–100)
	2000	< 1	<0.01 (<0.01–<0.01)	4.4 (3.6–5.2)			0	0	0
	2005	< 1	<0.01 (<0.01–<0.01)	4.2 (3.5–5.1)					
	2009	< 1	<0.01 (<0.01–<0.01)	4.1 (3.4–5.0)	<0.01 (<0.01–<0.01)	0.8 (<0.1–2.8)	5	4.8	120 (97–140)
	2010	< 1	<0.01 (<0.01–<0.01)	4.1 (3.4–4.9)	<0.01 (<0.01–<0.01)	1 (<0.1–3.2)	4	3.8	93 (78–110)
	2011	< 1	<0.01 (<0.01–<0.01)	4.1 (3.4–4.9)			2	1.9	47 (39–57)
Guatemala	1990	9	6.6 (4.2–9.7)	74 (47–109)	0.15 (0.093–0.220)	1.7 (1.0–2.4)	3 813	43	57 (39–92)
	1995	10	7.1 (5.8–8.5)	71 (58–85)	0.39 (0.280–0.510)	3.9 (2.8–5.1)	3 119	31	44 (36–54)
	2000	11	7.6 (6.2–9.1)	68 (55–81)	0.65 (0.480–0.850)	5.8 (4.3–7.6)	2 913	26	38 (32–47)
	2005	13	8.2 (6.7–9.9)	65 (53–78)	0.83 (0.620–1.1)	6.5 (4.9–8.5)	3 365	26	41 (34–50)
	2009	14	8.7 (7.2–10)	62 (51–74)	1.2 (0.940–1.5)	8.4 (6.7–10)	2 902	21	33 (28–40)
	2010	14	8.9 (7.3–11)	62 (51–73)	1.1 (0.850–1.3)	7.4 (5.9–9.1)	3 322	23	37 (31–45)
	2011	15	9 (7.4–11)	61 (50–73)	1.1 (0.880–1.4)	7.5 (5.9–9.2)	3 040	21	34 (28–41)
Guyana	1990	< 1	0.65 (0.400–0.960)	89 (55–132)	0.087 (0.053–0.130)	12 (7.4–18)	168	23	26 (18–42)
	1995	< 1	0.65 (0.530–0.780)	89 (73–107)	0.18 (0.140–0.230)	25 (20–32)	296	41	45 (38–56)
	2000	< 1	0.76 (0.620–0.920)	104 (85–125)	0.3 (0.240–0.380)	42 (32–52)	422	58	55 (46–68)
	2005	< 1	0.86 (0.700–1.0)	115 (94–138)	0.15 (0.110–0.200)	20 (15–26)	639	86	74 (62–91)
	2009	< 1	0.84 (0.690–1.0)	112 (92–134)	0.23 (0.180–0.280)	30 (24–38)	763	101	91 (76–110)
	2010	< 1	0.84 (0.690–1.0)	111 (91–132)	0.24 (0.190–0.290)	32 (25–39)	712	94	85 (71–100)
	2011	< 1	0.83 (0.680–0.990)	110 (91–131)	0.19 (0.150–0.240)	26 (20–32)	710	94	85 (72–100)
Haiti	1990	7	18 (11–26)	247 (153–365)	4.6 (2.8–6.7)	64 (40–95)			
	1995	8	19 (16–23)	247 (202–297)	5.8 (4.6–7.1)	73 (58–91)	6 212	79	32 (27–39)
	2000	9	23 (19–28)	271 (221–325)	6.2 (4.9–7.7)	72 (56–89)	10 420	121	44 (37–54)
	2005	9	25 (21–30)	272 (222–326)	5.8 (4.5–7.2)	62 (48–77)	14 311	153	56 (47–69)
	2009	10	24 (19–28)	238 (196–285)	4.8 (3.7–5.9)	48 (38–60)			
	2010	10	23 (19–27)	230 (190–275)	4.6 (3.8–5.5)	46 (38–55)	14 222	142	62 (52–75)
	2011	10	22 (18–27)	222 (183–265)	4.3 (3.6–5.2)	43 (35–51)	14 315	141	64 (53–77)
Honduras	1990	5	6.1 (3.9–8.9)	125 (79–182)	1.1 (0.680–1.6)	22 (14–32)	3 647	75	60 (41–94)
	1995	6	7 (5.7–8.4)	125 (102–150)	2.5 (2.0–3.1)	45 (36–56)	4 984	89	71 (59–87)
	2000	6	7.2 (6.2–8.3)	116 (99–134)	2.2 (1.8–2.6)	35 (28–42)	6 406	103	89 (77–100)
	2005	7	6.1 (5.0–7.3)	89 (73–107)	1.2 (0.900–1.5)	17 (13–21)	3 333	48	55 (45–67)
	2009	7	4.3 (3.5–5.1)	58 (47–69)	0.51 (0.400–0.630)	6.8 (5.3–8.5)	2 924	39	68 (57–83)
	2010	8	3.9 (3.2–4.6)	51 (42–61)	0.5 (0.390–0.620)	6.6 (5.2–8.1)	2 876	38	74 (62–90)
	2011	8	3.4 (2.8–4.0)	43 (36–52)	0.38 (0.300–0.470)	4.9 (3.9–6.0)	3 233	42	96 (80–120)
Jamaica	1990	2	0.15 (0.110–0.210)	6.5 (4.7–8.8)	0.019 (0.013–0.025)	0.8 (0.56–1.1)	123	5.2	79 (59–110)
	1995	2	0.16 (0.130–0.190)	6.5 (5.4–7.9)	0.048 (0.037–0.059)	1.9 (1.5–2.4)	109	4.4	68 (56–83)
	2000	3	0.17 (0.140–0.200)	6.5 (5.4–7.9)	0.057 (0.045–0.071)	2.2 (1.7–2.8)	127	4.9	75 (63–92)
	2005	3	0.18 (0.140–0.210)	6.5 (5.4–7.9)	0.062 (0.042–0.087)	2.3 (1.6–3.2)	90	3.4	51 (43–63)
	2009	3	0.18 (0.150–0.210)	6.6 (5.4–7.8)	0.054 (0.036–0.075)	2 (1.3–2.8)	139	5.1	78 (65–95)
	2010	3	0.18 (0.150–0.210)	6.6 (5.4–7.8)	0.042 (0.028–0.059)	1.5 (1.0–2.2)	130	4.7	72 (61–88)
	2011	3	0.18 (0.150–0.210)	6.6 (5.4–7.8)	0.031 (0.017–0.048)	1.1 (0.62–1.8)	105	3.8	58 (49–71)
Mexico	1990	84	52 (32–76)	61 (38–90)	1.5 (0.910–2.2)	1.7 (1.1–2.6)	14 437	17	28 (19–45)
	1995	92	41 (33–49)	44 (36–53)	1.3 (0.910–1.7)	1.4 (0.98–1.9)	11 329	12	28 (23–34)
	2000	100	32 (26–38)	32 (26–38)	1 (0.740–1.4)	1 (0.74–1.4)	18 434	18	58 (48–71)
	2005	106	24 (20–29)	23 (19–27)	0.82 (0.580–1.1)	0.8 (0.55–1.0)	18 524	17	76 (64–93)
	2009	112	20 (17–22)	17 (15–20)	0.67 (0.490–0.870)	0.6 (0.44–0.78)	18 846	17	96 (84–110)
	2010	113	18 (16–21)	16 (14–19)	0.63 (0.460–0.830)	0.6 (0.41–0.73)	19 570	17	110 (92–120)
	2011	115	17 (15–20)	15 (13–18)	3.3 (2.8–3.8)	2.9 (2.4–3.3)	19 857	17	110 (98–130)
Montserrat	1990	< 1	<0.01 (<0.01–<0.01)	6.3 (5.5–7.1)			1	9.3	150 (130–170)
	1995	< 1	<0.01 (<0.01–<0.01)	8.5 (7.5–9.7)					
	2000	< 1	<0.01 (<0.01–<0.01)	13 (11–15)			0	0	0
	2005	< 1	<0.01 (<0.01–<0.01)	14 (12–15)			1	18	130 (120–150)
	2009	< 1	<0.01 (<0.01–<0.01)	12 (10–13)					
	2010	< 1	<0.01 (<0.01–<0.01)	8.2 (7.1–9.2)			0	0	0
	2011	< 1	<0.01 (<0.01–<0.01)	3.5 (3.0–3.9)			0	0	0
Netherlands Antilles	1990	< 1	0.01 (<0.01–0.011)	5.3 (4.6–5.9)					
	1995	< 1	<0.01 (<0.01–0.011)	4.9 (4.3–5.6)					
	2000	< 1	<0.01 (<0.01–0.010)	5.2 (4.5–5.8)			5	2.8	54 (48–62)
	2005	< 1	0.011 (<0.01–0.012)	5.7 (5.0–6.5)					
	2009	< 1	<0.01 (<0.01–0.010)	4.5 (4.0–5.1)					
Nicaragua	1990	4	4.4 (2.9–6.3)	108 (71–152)	0.035 (0.023–0.050)	0.9 (0.56–1.2)	2 944	71	66 (47–100)
	1995	5	4 (3.2–4.7)	85 (70–102)	0.046 (0.029–0.066)	1 (0.63–1.4)	2 842	61	72 (60–88)
	2000	5	3.4 (2.8–4.1)	68 (55–81)	0.059 (0.039–0.083)	1.2 (0.78–1.6)	2 402	47	70 (58–86)
	2005	5	2.9 (2.4–3.5)	53 (44–64)	0.077 (0.053–0.110)	1.4 (0.98–2.0)	1 907	35	66 (55–80)
	2009	6	2.5 (2.2–2.9)	44 (38–51)	0.096 (0.070–0.130)	1.7 (1.2–2.2)	2 283	40	90 (78–110)
	2010	6	2.4 (2.1–2.8)	42 (36–49)	0.1 (0.074–0.130)	1.8 (1.3–2.3)	2 448	42	100 (87–120)
	2011	6	2.4 (2.0–2.7)	40 (35–46)	0.024 (0.013–0.039)	0.4 (0.22–0.66)	2 693	46	110 (99–130)

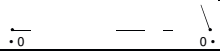
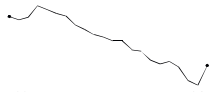
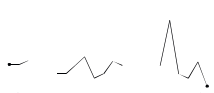
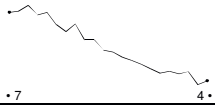
[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2011**

			INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE		CASE DETECTION
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
Panama	1990	2	1.1 (0.790–1.6)	47 (33–65)	0.14 (0.099–0.200)	6 (4.1–8.2)	846	35	74 (54–110)
	1995	3	1.3 (1.0–1.5)	47 (39–57)	0.31 (0.240–0.390)	12 (9.0–15)	1 300	49	100 (85–130)
	2000	3	1.4 (1.2–1.7)	47 (39–56)	0.36 (0.280–0.450)	12 (9.6–15)	1 169	40	83 (70–100)
	2005	3	1.5 (1.3–1.8)	47 (39–57)	0.2 (0.150–0.240)	6 (4.7–7.5)	1 637	51	110 (89–130)
	2009	3	1.6 (1.5–1.8)	48 (42–53)	0.26 (0.210–0.300)	7.4 (6.2–8.7)	1 539	44	94 (83–110)
	2010	4	1.7 (1.5–1.9)	48 (42–54)	0.26 (0.220–0.300)	7.3 (6.2–8.6)	1 496	43	89 (79–100)
	2011	4	1.7 (1.5–1.9)	48 (42–54)	0.27 (0.230–0.320)	7.6 (6.4–8.9)	1 553	43	91 (81–100)
Paraguay	1990	4	2.8 (2.6–3.0)	66 (61–72)	0.028 (0.025–0.030)	0.7 (0.60–0.71)	2 167	51	77 (71–84)
	1995	5	2.5 (2.3–2.7)	52 (48–56)	0.037 (0.026–0.050)	0.8 (0.55–1.1)	1 745	36	70 (65–75)
	2000	5	2.6 (2.4–2.8)	49 (45–53)	0.05 (0.036–0.066)	0.9 (0.67–1.2)	1 950	36	74 (69–81)
	2005	6	2.9 (2.7–3.1)	49 (45–53)	0.071 (0.052–0.093)	1.2 (0.89–1.6)	2 075	35	72 (66–77)
	2009	6	3 (2.7–3.2)	47 (43–51)	0.1 (0.076–0.130)	1.6 (1.2–2.0)	2 346	37	79 (73–86)
	2010	6	3 (2.7–3.2)	46 (42–50)	0.11 (0.084–0.140)	1.7 (1.3–2.2)	2 277	35	77 (71–83)
	2011	7	3 (2.8–3.2)	45 (42–49)	0.34 (0.290–0.400)	5.2 (4.4–6.1)	2 372	36	79 (73–86)
Peru	1990	22	69 (42–100)	317 (196–468)	0.67 (0.410–0.990)	3.1 (1.9–4.6)	37 905	175	55 (37–89)
	1995	24	58 (47–69)	242 (198–290)	1.4 (1.0–1.8)	5.8 (4.3–7.6)	45 310	190	79 (65–96)
	2000	26	48 (39–57)	184 (151–221)	1.3 (0.970–1.7)	5 (3.7–6.4)	38 661	149	81 (68–99)
	2005	28	39 (33–45)	140 (118–164)	0.88 (0.660–1.1)	3.2 (2.4–4.1)	33 421	121	86 (74–100)
	2009	29	32 (28–37)	113 (98–128)	0.65 (0.500–0.820)	2.3 (1.7–2.9)	31 844	111	98 (87–110)
	2010	29	31 (27–35)	106 (93–120)	0.62 (0.460–0.800)	2.1 (1.6–2.8)	31 073	107	100 (89–110)
	2011	29	30 (26–33)	101 (88–114)	0.59 (0.450–0.750)	2 (1.5–2.6)	31 241	106	110 (93–120)
Puerto Rico	1990	4	0.22 (0.190–0.250)	6.2 (5.5–7.1)			159	4.5	72 (64–82)
	1995	4	0.29 (0.260–0.330)	7.9 (6.9–9.0)			262	7.1	89 (79–100)
	2000	4	0.19 (0.170–0.220)	5 (4.4–5.7)			174	4.6	91 (80–100)
	2005	4	0.12 (0.110–0.140)	3.3 (2.9–3.7)	0.037 (0.026–0.051)	1 (0.68–1.3)	113	3	92 (81–100)
	2009	4	0.088 (0.077–0.100)	2.3 (2.1–2.7)	0.013 (<0.01–0.023)	0.4 (0.16–0.61)	63	1.7	71 (63–82)
	2010	4	0.078 (0.068–0.088)	2.1 (1.8–2.4)	0.014 (<0.01–0.023)	0.4 (0.21–0.60)	80	2.1	100 (90–120)
	2011	4	0.068 (0.059–0.077)	1.8 (1.6–2.0)	0.014 (<0.01–0.023)	0.4 (0.17–0.62)	50	1.3	74 (65–84)
Saint Kitts and Nevis	1990	< 1	<0.01 (<0.01–<0.01)	0.22 (0.20–0.25)			0	0	0
	1995	< 1	<0.01 (<0.01–<0.01)	14 (12–16)			5	12	82 (72–93)
	2000	< 1	<0.01 (<0.01–<0.01)	8.1 (7.1–9.2)			0	0	0
	2005	< 1	<0.01 (<0.01–<0.01)	4.1 (3.6–4.6)			0	0	0
	2009	< 1	<0.01 (<0.01–<0.01)	5.7 (5.0–6.4)			4	7.7	140 (120–160)
	2010	< 1	<0.01 (<0.01–<0.01)	5.7 (5.0–6.4)			2	3.8	67 (60–77)
	2011	< 1	<0.01 (<0.01–<0.01)	5.5 (4.8–6.2)			1	1.9	34 (30–39)
Saint Lucia	1990	< 1	0.021 (0.019–0.024)	15 (13–17)			13	9.4	61 (54–70)
	1995	< 1	0.027 (0.023–0.030)	18 (16–21)			11	7.5	41 (36–47)
	2000	< 1	0.018 (0.016–0.021)	12 (10–13)			9	5.7	49 (43–56)
	2005	< 1	0.018 (0.016–0.020)	11 (9.5–12)			14	8.5	78 (69–89)
	2009	< 1	0.014 (0.013–0.016)	8.4 (7.3–9.5)	<0.01 (<0.01–0.010)	3 (1.1–5.9)	10	5.8	69 (61–79)
	2010	< 1	0.012 (0.011–0.014)	6.9 (6.1–7.8)			9	5.2	75 (66–85)
	2011	< 1	<0.01 (<0.01–0.010)	5.1 (4.5–5.8)	<0.01 (<0.01–<0.01)	0.7 (<0.1–2.7)	7	4	78 (69–89)
Saint Vincent and the Grenadines	1990	< 1	0.029 (0.018–0.043)	27 (17–40)			2	1.9	6.8 (4.6–11)
	1995	< 1	0.029 (0.023–0.034)	27 (22–32)			13	12	45 (38–55)
	2000	< 1	0.028 (0.023–0.033)	26 (21–31)			16	15	57 (48–70)
	2005	< 1	0.027 (0.022–0.033)	25 (20–30)	<0.01 (<0.01–0.015)	3.6 (<0.1–13)	7	6.4	26 (21–31)
	2009	< 1	0.027 (0.022–0.032)	24 (20–29)	0.019 (0.011–0.030)	17 (9.9–27)	9	8.2	34 (28–41)
	2010	< 1	0.027 (0.022–0.032)	24 (20–29)	<0.01 (<0.01–0.017)	7.3 (2.0–16)	15	14	56 (47–68)
	2011	< 1	0.026 (0.022–0.032)	24 (20–29)	<0.01 (<0.01–0.016)	7.6 (2.9–14)	17	16	64 (54–78)
Sint Maarten (Dutch part)	2010	< 1	<0.01 (<0.01–<0.01)	9.1 (8.0–10)			3	7.9	87 (77–99)
	2011	< 1	<0.01 (<0.01–<0.01)	6 (5.2–6.8)			2	5.2	87 (77–99)
Suriname	1990	< 1	0.26 (0.170–0.360)	63 (41–90)	0.085 (0.055–0.120)	21 (13–30)	82	20	32 (22–50)
	1995	< 1	0.4 (0.260–0.570)	92 (59–131)	0.27 (0.170–0.400)	63 (40–91)			
	2000	< 1	0.4 (0.260–0.580)	86 (56–124)	0.28 (0.180–0.400)	60 (38–87)	89	19	22 (15–34)
	2005	< 1	0.31 (0.200–0.450)	63 (41–90)	0.16 (0.098–0.230)	31 (20–45)	117	23	37 (26–58)
	2009	< 1	0.26 (0.170–0.370)	49 (32–70)	0.079 (0.046–0.120)	15 (8.9–23)	177	34	69 (48–110)
	2010	< 1	0.24 (0.160–0.340)	46 (31–65)	0.082 (0.051–0.120)	16 (9.7–23)	194	37	80 (57–120)
	2011	< 1	0.23 (0.170–0.310)	44 (32–58)	0.075 (0.048–0.110)	14 (9.1–20)	124	23	53 (41–73)
Trinidad and Tobago	1990	1	0.13 (0.110–0.140)	10 (9.1–12)	<0.01 (<0.01–<0.01)	0.4 (0.32–0.42)	120	9.9	96 (84–110)
	1995	1	0.2 (0.180–0.230)	16 (14–18)	0.028 (0.022–0.035)	2.2 (1.8–2.7)	166	13	81 (72–93)
	2000	1	0.21 (0.190–0.240)	17 (15–19)	0.049 (0.040–0.060)	3.8 (3.1–4.6)	198	15	92 (82–110)
	2005	1	0.22 (0.190–0.250)	17 (15–19)	0.074 (0.055–0.097)	5.7 (4.2–7.4)	166	13	76 (67–86)
	2009	1	0.27 (0.240–0.310)	20 (18–23)	0.084 (0.067–0.100)	6.3 (5.0–7.7)	272	20	100 (89–110)
	2010	1	0.28 (0.240–0.320)	21 (18–24)	0.064 (0.048–0.082)	4.8 (3.6–6.1)	219	16	78 (69–89)
	2011	1	0.29 (0.250–0.330)	21 (19–24)	0.095 (0.076–0.120)	7.1 (5.6–8.7)	224	17	78 (69–89)
Turks and Caicos Islands	1990	< 1					0	0	
	1995	< 1	<0.01 (<0.01–<0.01)	50 (44–56)					
	2000	< 1	0.012 (0.010–0.013)	62 (54–70)					
	2005	< 1	<0.01 (<0.01–<0.01)	19 (16–21)					
	2009	< 1	<0.01 (<0.01–<0.01)	20 (18–23)					
	2010	< 1	<0.01 (<0.01–0.010)	23 (20–26)	<0.01 (<0.01–<0.01)	4.6 (0.22–15)	6	16	68 (60–78)
	2011	< 1	0.011 (<0.01–0.012)	27 (24–30)			9	23	86 (76–98)
United States of America	1990	253	31 (27–35)	12 (11–14)	2.3 (2.1–2.7)	0.9 (0.81–1.0)	25 701	10	83 (74–95)
	1995	266	26 (23–29)	9.7 (8.5–11)	1.9 (1.5–2.4)	0.7 (0.56–0.90)	22 728	8.5	88 (78–100)
	2000	282	19 (17–22)	6.7 (5.9–7.6)	1.5 (1.2–1.9)	0.5 (0.42–0.66)	16 310	5.8	86 (76–98)
	2005	297	16 (14–18)	5.4 (4.7–6.1)	2 (1.7–2.3)	0.7 (0.59–0.77)	14 080	4.7	88 (77–100)
	2009	308	14 (12–15)	4.4 (3.9–5.0)	1.3 (1.2–1.6)	0.4 (0.38–0.50)	11 545	3.8	85 (75–97)
	2010	310	13 (11–15)	4.2 (3.7–4.7)	1.1 (0.940–1.3)	0.4 (0.30–0.41)	11 181	3.6	86 (76–99)
	2011	313	12 (11–14)	3.9 (3.4–4.4)	0.96 (0.820–1.1)	0.3 (0.26–0.35)	10 521	3.4	86 (76–99)
Uruguay	1990	3	0.86 (0.530–1.3)	28 (17–41)	0.022 (0.014–0.033)	0.7 (0.44–1.1)	886	28	100 (70–170)
	1995	3	0.84 (0.690–1.0)	26 (21–31)	0.074 (0.053–0.097)	2.3 (1.6–3.0)	625	19	75 (62–91)
	2000	3	0.81 (0.660–0.970)	24 (20–29)	0.12 (0.093–0.160)	3.7 (2.8–4.8)	645	19	80 (66–97)
	2005	3	0.76 (0.630–0.910)	23 (19–27)	0.098 (0.072–0.130)	3 (2.2–3.8)	622	19	82 (69–99)
	2009	3	0.73 (0.630–0.830)	22 (19–25)	0.11 (0.089–0.140)	3.4 (2.6–4.1)	704	21	96 (85–110)
	2010	3	0.72 (0.620–0.830)	21 (18–25)	0.12 (0.091–0.140)	3.5 (2.7–4.3)	699	21	97 (84–110)
	2011	3	0.72 (0.620–0.830)	21 (18–24)	0.11 (0.084–0.130)	3.2 (2.5–3.9)	817	24	110 (99–130)
US Virgin Islands	1990	< 1	<0.01 (<0.01–<0.01)	4.5 (3.9–5.1)			4	3.9	87 (76–99)
	1995	< 1	<0.01 (<0.01–<0.01)	7.7 (6.7–8.7)			4	3.7	49 (43–56)
	2000	< 1	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)					
	2005	< 1	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)					
	2009	< 1	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)					
	2010	< 1	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)					
	2011	< 1	<0.01 (<0.01–<0.01)	7.7 (6.8–8.7)					
Venezuela (Bolivarian Republic of)	1990	20	7 (4.9–9.3)	35 (25–47)	0.24 (0.170–0.330)	1.2 (0.87–1.7)	5 457	28	79 (58–110)
	1995	22	7.7 (6.3–9.2)	35 (28–42)	0.42 (0.300–0.550)	1.9 (1.4–2.5)	5 578	25	73 (61–89)
	2000	24	8.3 (6.8–10)	34 (28–41)	0.59 (0.430–0.780)	2.4 (1.8–3.2)	6 466	27	77 (65–95)
	2005	27	9 (7.4–11)	34 (28–41)	0.76 (0.560–0.980)	2.8 (2.1–3.7)	6 847	26	76 (63–93)
	2009	29	9.5 (7.8–11)	33 (27–40)	0.96 (0.770–1.2)	3.4 (2.7–4.1)	6 474	23	68 (57–83)
	2010	29	9.7 (8.0–12)	33 (27–40)	0.89 (0.720–1.1)	3.1 (2.5–3.7)	6 335	22	66 (55–80)
	2011	29	9.8 (8.1–12)	33 (27–40)	1.3 (1.0–1.5)	4.3 (3.5–5.2)	6 282	21	64 (54–78)

[a] Rates are per 100 000 population.

TABLE A4.3 **Case notifications, 1990–2011**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2011	YEAR	NEW AND RELAPSE	NEW CASES				RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
				SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN	EXTRA-PULMONARY	OTHER					
Anguilla		1990	0									–
		1995	2	0	2	0		0		0		0
		2000										–
		2005										–
		2009										–
		2010	1	0	1	0	0	0	0	0	0	0
	• 0 0 •	2011	0	0	0	0	0	0	0	0	0	
Antigua and Barbuda		1990	1									–
		1995	0									–
		2000	4	3	1	0		0		0		75
		2005	6	6	0	0	0	0	0	0	0	100
		2009	3	1	1	0	0	1	1	2	0	50
		2010	6	6	0	0	0	0	0	0	1	100
	• 2 7 •	2011	6	6	0	0	0	0	2	2	0	100
Argentina		1990	12 309									–
		1995	13 450	5 698	4 668	3 067						55
		2000	11 767	4 749	4 110	1 773		104	1 724	1 828		54
		2005	9 770	4 709	3 357	1 561	0	143	666	809	806	58
		2009	7 701	4 044	2 165	937	217	338	489	827		65
		2010	7 287	3 973	2 011	854	159	290	426	716	49	66
	• 38 24 •	2011	9 610	5 007	2 629	1 613	0	361	689	1 050	352	66
Aruba		1990										–
		1995										–
		2000										–
		2005										–
		2009										–
		2010	6	4	2							67
	• 0 7 •	2011	8	7	0	1						100
Bahamas		1990	46									–
		1995	57	38	11	8		1		1		78
		2000	82	56	23	4		0	0	0		71
		2005	48	30	8	7	1	2	2	4	0	79
		2009	45	26	10	5	0	4	1	5	0	72
		2010	31	19	3	7	1	1	1	2	0	86
	• 18 12 •	2011	41	23	12	5	0	1	1	2	0	66
Barbados		1990	5									–
		1995	3	3								100
		2000	3	3	0	0		0	0	0		100
		2005										–
		2009	2	2	0	0	0	0	0	0	0	100
		2010	6	6	0	0	0	0	0	0	0	100
	• 2 0 •	2011	0	0	0	0	0	0	0	0	0	
Belize		1990	57									–
		1995	95	36	34	1		4		4		51
		2000	106	44	55	1		6	0	6		44
		2005	102	59	29	3	0	11	4	15	0	67
		2009	88	82	0		0	6	6	12	0	100
		2010	145	97	47	0	0	1	0	1	0	67
	• 30 23 •	2011	74	64	0	0	0	10	2	12	0	100
Bermuda		1990	0									–
		1995	4	2	2							50
		2000	0	0	0	0		0	0	0		
		2005										–
		2009										–
		2010	1	1	0	0	0	0	0	0	0	100
	• 0 2 •	2011	1	0	1	0	0	0	0	0	0	0
Bolivia (Plurinational State of)		1990	11 166									–
		1995	14 422	7 010	1 408	1 133		63		63		83
		2000	10 127	6 458	1 565	1 288		451	1 630	2 081		80
		2005	9 748	6 278	1 250	1 673		547	225	772		83
		2009	8 847	5 937	699	1 742		469	263	732	18	89
		2010	8 345	5 613	630	1 694	0	408	257	665	18	90
	• 168 84 •	2011	8 521	5 746	643	1 721		411	226	637		90
Bonaire, Saint Eustatius and Saba		2010	0	0	0	0	0					
		2011	1	0	0	0	0	1	0	1	0	
Brazil		1990	74 570									–
		1995	91 013	45 650	29 291	13 814						61
		2000	77 899	41 186	23 622	10 457		2 634	8 700	11 334		64
		2005	80 209	42 093	23 990	11 037		3 089	6 548	9 637	466	64
		2009	75 040	39 267	22 144	10 275	14	3 340	6 478	9 818	3 641	64
		2010	74 395	37 932	23 030	10 017	18	3 398	7 551	10 949	0	62
	• 50 38 •	2011	74 892	40 294	20 961	10 067	15	3 555	6 490	10 045	2 755	66
British Virgin Islands		1990										–
		1995										–
		2000	1	1								100
		2005	0	0	0	0	0	0	0	0	0	
		2009										–
		2010	1	1	0	0	0	0	0	0	0	100
	• 0 0 •	2011	0	0	0	0	0	0	0	0	0	
Canada		1990	1 968	549	516	723	0	180		180	29	52
		1995	1 921	436	656	634	0	195		195	44	40
		2000	1 667	492	528	482	20	145		145	56	48
		2005	1 484	433	446	562	4	39	64	103	68	49
		2009	1 505	462	519	466	0	58	36	94	58	47
		2010	1 322	358	472	444	0	48	24	72	39	43
	• 7 4 •	2011	1 391	407	456	469	0	59	22	81	39	47
Cayman Islands		1990	2									–
		1995	2	0	2	1		0		0		0
		2000	5	5	0	0		0	0	0		100
		2005										–
		2009	2	1	1	0	0	0	0	0	0	50
		2010	4	2	2	0	0	0	0	0	0	50
	• 8 4 •	2011	2	1	1	0	0	0	0	0	0	50
Chile		1990	6 151									–
		1995	4 150	1 561	1 284	1 017		225		225		55
		2000	3 021	1 290	879	694		158		158		59
		2005	2 505	1 186	502	631		186	128	314		70
		2009	2 398	1 152	509	549	0	188	118	306	0	69
		2010	2 376	1 154	502	553	0	167	96	263	0	70
	• 47 14 •	2011	2 450	1 196	473	594	0	187	85	272	0	72
Colombia		1990	12 447									–
		1995	9 912	7 530	1 380	1 002						85
		2000	11 630	8 358	1 446	1 487		339		339		85
		2005	10 360	6 870	1 429	1 618		443		443		83
		2009	11 324	7 319	1 611	2 117	0	277	339	616	0	82
		2010	11 420	7 028	1 696	1 985	311	400	469	869	0	81
	• 37 25 •	2011	11 523	6 512	2 355	2 275	0	381	461	842	0	73

[a] Rates are per 100 000 population.

TABLE A4.3 **Case notifications, 1990–2011**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2011	YEAR	NEW AND RELAPSE	NEW CASES				RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
				SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN	EXTRA-PULMONARY	OTHER					
Costa Rica		1990	230									–
		1995	586	245	71	31		0		0		78
		2000	585	349	184	98		35		35		65
		2005	534	330	81	104		19	26	45		80
		2009	443	271	66	89		17	14	31		80
		2010	490	267	89	108	1	25	7	32	2	75
	• 7 11 •	2011	514	285	128	85	0	16	10	26	0	69
Cuba		1990	546									–
		1995	1 553	834	520	199		54		54		62
		2000	1 183	675	257	201		50	122	172		72
		2005	770	467	160	103		40	9	49	2	74
		2009	712	418	150	91	7	46	5	51	0	74
		2010	827	462	212	98	10	45	11	56	0	69
	• 5 7 •	2011	805	437	219	86	6	57	16	73	0	67
Curaçao		2010	5	5	0	0	0					100
		2011	1	0	1	0	0	0	0	0	0	0
Dominica		1990	6									–
		1995	8	5				3		3		100
		2000										–
		2005										–
		2009	4	4	0	0	0	0	1	1	0	100
		2010	8	8	0	0	0	0	0	0	0	100
	• 8 3 •	2011	2	2	0	0	0	0	1	1	0	100
Dominican Republic		1990	2 597									–
		1995	4 053	2 787	1 418	244		204		204		66
		2000	5 291	2 907	1 234	540		610		610		70
		2005	5 003	2 949	1 032	602		420	309	729		74
		2009	4 256	2 441	822	615	112	266	186	452	0	75
		2010	3 964	2 159	803	578	100	324	196	520	0	73
	• 36 43 •	2011	4 309	2 454	809	655	49	342	163	505	0	75
Ecuador		1990	8 243									–
		1995	7 893	5 890	2 237	420						72
		2000	6 908	5 064	1 338	400		106	280	386		79
		2005	4 416	3 048	635	330		403	392	795		83
		2009	4 703	3 317	369	584		433	323	756		90
		2010	4 832	3 373	404	655	0	400	263	663	0	89
	• 80 35 •	2011	5 106	3 521	380	808	0	397	244	641	0	90
El Salvador		1990	2 367									–
		1995	2 422		2 241	181						–
		2000	1 485	1 008	278	108		91	180	271		78
		2005	1 794	1 059	402	255		78	36	114	0	72
		2009	1 686	930	363	329	1	63	50	113	0	72
		2010	1 700	972	338	328	0	62	30	92	0	74
	• 44 30 •	2011	1 896	1 079	371	384	0	62	21	83	0	74
Grenada		1990	0									–
		1995	4	2								100
		2000	0	0	0	0		0	0	0		
		2005										–
		2009	5	4	1	0	0	0	0	0	0	80
		2010	4	4	0	0	0	0	0	0	0	100
	• 0 2 •	2011	2	1	1	0	0	0	0	0	0	50
Guatemala		1990	3 813									–
		1995	3 119	2 368	546	205		249		249		81
		2000	2 913	2 052	518	202		141		141		80
		2005	3 365	2 420	588	256		101	58	159	438	80
		2009	2 902	1 609	170	207	828	88	40	128	0	90
		2010	3 322	2 121	265	348	436	152	29	181	0	89
	• 43 21 •	2011	3 040	1 961	309	243	415	112	48	160	0	86
Guyana		1990	168									–
		1995	296	85	187	22		2		2		31
		2000	422	119	231	34		38	46	84		34
		2005	639	240	352	33	6	8	17	25	0	41
		2009	763	328	301	78	0	56	149	205	0	52
		2010	712	325	274	75	0	38	124	162	0	54
	• 23 94 •	2011	710	323	282	78	0	27	206	233	0	53
Haiti		1990										–
		1995	6 212									–
		2000	10 420	5 887	2 930	1 367		236	110	346		67
		2005	14 311	7 340	5 292	1 484		195	33	228		58
		2009										–
		2010	14 222	8 242	4 335	1 307	0	338	43	381	0	66
	• 0 141 •	2011	14 315	8 011	4 553	1 374	0	377	46	423	0	64
Honduras		1990	3 647									–
		1995	4 984	2 306	2 214	232		100		100		51
		2000	6 406	3 404	2 396	370		236		236		59
		2005	3 333	2 069	721	362		181		181		74
		2009	2 924	1 881	520	331	0	192	33	225	0	78
		2010	2 876	1 842	482	382	0	170	25	195	0	79
	• 75 42 •	2011	3 233	2 060	616	377	0	180	10	190		77
Jamaica		1990	123									–
		1995	109	93	14	2		2		2		87
		2000	127	90	20	4		13		13		82
		2005	90	53	31	6	0	0	5	5	0	63
		2009	139	77	48	5	0	9	11	20	0	62
		2010	130	76	46	6	0	2	17	19	0	62
	• 5 4 •	2011	105	35	39	6	24	1	3	4	0	47
Mexico		1990	14 437									–
		1995	11 329	9 220	1 807	302						84
		2000	18 434	11 676	1 675	2 081		421	914	1 335		87
		2005	18 524	11 997	421	2 657	2 831	618	1 408	2 026		97
		2009	18 846	11 862	958	3 193	2 114	719	816	1 535	111	93
		2010	19 570	12 572	2 812	3 464	0	722	544	1 266	585	82
	• 17 17 •	2011	19 857	12 960	2 497	3 529	0	871	671	1 542	0	84
Montserrat		1990	1									–
		1995										–
		2000	0	0	0	0		0	0	0		
		2005	1	1	0	0	0	0	0	0	0	100
		2009										–
		2010	0	0	0	0	0	0	0	0		
	• 9 0 •	2011	0	0	0	0	0	0	0	0	0	
Netherlands Antilles		1990										–
		1995										–
		2000	5	2	3	0	0	0	0	0	0	40
		2005										–
	• 0 0 •	2009										–

[a] Rates are per 100 000 population.

TABLE A4.3 **Case notifications, 1990–2011**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2011	YEAR	NEW AND RELAPSE	NEW CASES				RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
				SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN	EXTRA-PULMONARY	OTHER					
Nicaragua		1990	2 944									–
		1995	2 842	1 568	854	253		167		167		65
		2000	2 402	1 471	541	231		159		159		73
		2005	1 907	1 253	395	160		99	169	268	0	76
		2009	2 283	1 329	541	261	0	152	130	282	0	71
		2010	2 448	1 440	575	274	0	159	127	286	0	71
	• 71 46 •	2011	2 693	1 552	653	335	0	153	129	282	0	70
Panama		1990	846									–
		1995	1 300	1 066	114	28		108		108		90
		2000	1 169	460	589	74	5	41	93	134		44
		2005	1 637	860	505	216		56	191	247		63
		2009	1 539	755	452	287	0	45	190	235		63
		2010	1 496	707	425	287	0	77	134	211	0	62
	• 35 43 •	2011	1 553	830	433	235	0	55	124	179	18	66
Paraguay		1990	2 167	993								100
		1995	1 745	748	870	127		28		28		46
		2000	1 950	900	791	170		14	516	530		53
		2005	2 075	1 260	665	150			273	273		65
		2009	2 346	1 498	428	283	41	96	81	177	0	78
		2010	2 277	1 318	499	269	86	105	109	214	75	73
	• 51 36 •	2011	2 372	1 371	515	251	108	127	177	304	0	73
Peru		1990	37 905									–
		1995	45 310	32 096	7 803	5 411						80
		2000	38 661	22 580	6 018	5 682		4 381		4 381		79
		2005	33 421	18 490	5 592	5 335	809	3 195	1 794	4 989	326	77
		2009	31 844	17 391	5 203	5 380	871	2 999	1 325	4 324	0	77
		2010	31 073	17 264	5 201	5 185	647	2 776	1 404	4 180		77
	• 175 106 •	2011	31 241	17 754	5 164	5 564	712	2 047	1 603	3 650	0	77
Puerto Rico		1990	159									–
		1995	262	128	111	23						54
		2000	174	81	69	24						54
		2005	113	60	37	16	0	0	0	0	0	62
		2009	63	30	25	8	0	0	0	0	0	55
		2010	80	37	35	4	0	4	0	4	0	51
	• 5 1 •	2011	50	29	13	8	0	0	0	0	0	69
Saint Kitts and Nevis		1990	0									–
		1995	5	4								100
		2000	0	0	0	0		0	0	0		
		2005	0	0	0	0	0	0	2	2		
		2009	4	4	0	0	0	0	0	0	0	100
		2010	2	2	0	0	0	0	0	0	0	100
	• 0 2 •	2011	1	1	0	0	0	0	0	0	0	100
Saint Lucia		1990	13									–
		1995	11	11								100
		2000	9	7	1	0		1	2	3		88
		2005	14	11	1	0	0	2	0	2		92
		2009	10	7	0	1	0	2	1	3	0	100
		2010	9	9	0	0	0	0	0	0	0	100
	• 9 4 •	2011	7	7	0	0	0	0	0	0	0	100
Saint Vincent and the Grenadines		1990	2									–
		1995	13	5	7	0		4		4		42
		2000	16	9	4	0		3	0	3		69
		2005	7	6	1	0	0	0	0	0	0	86
		2009	9	3	6	0	0	0	2	2	0	33
		2010	15	8	7	0	0	0	2	2	0	53
	• 2 16 •	2011	17	8	9	0	0	0	0	0	0	47
Sint Maarten (Dutch part)		2010	3	3	0	0	0	0	0	0		100
		2011	2	2	0	0	0	0		0		100
Suriname		1990	82									–
		1995										–
		2000	89	37	40	12		0	1	1		48
		2005	117	49	54	6	2	6	2	8	0	48
		2009	177	149	14	9	0	5	10	15	1	91
		2010	194	130	42	14	2	6	10	16	0	76
	• 20 23 •	2011	124	64	34	20	1	5	6	11	1	65
Trinidad and Tobago		1990	120									–
		1995	166	7	68	12		22		22		9
		2000	198	115	61	17		5	26	31		65
		2005	166	95	50	12	0	9	13	22		66
		2009	272	154	91	19	0	8	52	60	0	63
		2010	219	136	58	20	0	5	39	44	0	70
	• 10 17 •	2011	224	121	77	19	0	7	42	49	0	61
Turks and Caicos Islands		1990	0									–
		1995										–
		2000										–
		2005										–
		2009										–
		2010	6	3	1	1	0	1	1	2	0	75
	• 0 23 •	2011	9	8	1	0	0	0	1	1	0	89
United States of America		1990	25 701									–
		1995	22 728	8 093	10 795	3 835	5					43
		2000	16 310	5 883	7 204	3 211	12					45
		2005	14 080	5 111	6 030	2 939	0					46
		2009	11 545	4 014	4 990	2 383	158					45
		2010	11 181	3 695	4 990	2 134	362					43
	• 10 3 •	2011	10 521	3 742	4 556	2 189	34					45
Uruguay		1990	886									–
		1995	625	349	178	78		20		20		66
		2000	645	348	165	77		39		39		68
		2005	622	355	147	73	32	15	4	19		71
		2009	704	409	192	66	0	37		37		68
		2010	699	368	218	72	0	41	0	41	0	63
	• 28 24 •	2011	817	467	249	48	0	53	0	53	0	65
US Virgin Islands		1990	4									–
		1995	4	2	2	0						50
		2000										–
		2005										–
		2009										–
		2010										–
	• 4 0 •	2011										–
Venezuela (Bolivarian Republic of)		1990	5 457									–
		1995	5 578	3 056	1 517	709		272		272		67
		2000	6 466	3 525	1 616	948		377		377		69
		2005	6 847	3 653	1 853	1 094		247	103	350		66
		2009	6 474	3 436	1 665	1 112	0	261	167	428	0	67
		2010	6 335	3 252	1 758	1 077	0	248	194	442	116	65
	• 28 21 •	2011	6 282	3 224	1 649	1 196	0	213	195	408	0	66

[a] Rates are per 100 000 population.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Anguilla		1995	0		–						
		2000			–						
		2005			–						
		2008			–						
		2009		0	–						
	• 0 0 •	2010	0	0	–						
Antigua and Barbuda		1995			–						
		2000	3	4	133	100	0	0	0	0	0
		2005	6	6	100	50		33			17
		2008	1	1	100	100	0	0	0	0	0
		2009	1	3	300	67	0	33	0	0	0
	• 0 33 •	2010	6	6	100	0	33	33	0	33	0
Argentina		1995	5 698	5 707	100	5	7	1	0	3	84
		2000	4 749	5 177	109	26	20	5	0	6	43
		2005	4 709	4 709	100	19	34	5	0	5	37
		2008	4 758	2 577	54	24	19	4	0	5	47
		2009	4 044	5 062	125	19	26	4	0	7	43
	• 12 48 •	2010	3 973	5 088	128	20	27	4	0	8	40
Aruba		1995			–						
		2000			–						
		2005			–						
		2008			–						
		2009		6	–						
	• 0 0 •	2010	4		–						
Bahamas		1995	38		–						
		2000	56		–						
		2005	30	30	100	17	40	17	7	20	0
		2008	31	31	100	32	42	6	3	10	6
		2009	26	26	100	12	69	8	0	12	0
	• 0 68 •	2010	19	19	100	16	53	16	5	11	0
Barbados		1995	3		–						
		2000	3		–						
		2005		11	–	45	45	9			0
		2008	1	3	300	100	0	0	0	0	0
		2009	2	2	100	100	0	0	0	0	0
	• 0 100 •	2010	6	6	100	100	0	0	0	0	0
Belize		1995	36	29	81	52	0	10	3	28	7
		2000	44	45	102	78	0	9	0	2	11
		2005	59	59	100	56	19	12	2	12	0
		2008	83	82	99	83	0	17	0	0	0
		2009	82		–						
	• 52 0 •	2010	97	142	146						
Bermuda		1995	2		–						
		2000	0		–						
		2005			–						
		2008			–						
		2009		1	–	0	0	0	0	0	100
	• 0 0 •	2010	1	1	100	0	0	0	0	0	100
Bolivia (Plurinational State of)		1995	7 010	7 010	100	53	9	4	1	9	24
		2000	6 458	6 212	96	73	6	4	1	9	7
		2005	6 278	6 278	100	76	2	3	1	5	12
		2008	6 048	6 048	100	82	2	4	1	5	7
		2009	5 937	5 897	99	84	1	4	1	5	4
	• 62 88 •	2010	5 613	5 571	99	86	2	4	1	5	3
Bonaire, Saint Eustatius and Saba		2009		0	–						
		2010	0	0	–						
Brazil		1995	45 650	45 650	100	17	0	1	1	3	79
		2000	41 186	34 007	83	49	22	4	0	9	16
		2005	42 093	42 093	100	31	44	5	1	9	9
		2008	37 697	40 714	108	33	38	5	1	9	14
		2009	39 267	40 818	104	31	41	5	1	10	11
	• 17 74 •	2010	37 932	41 840	110	37	37	5	0	11	10
British Virgin Islands		1995			–						
		2000	1	1	100			100			0
		2005	0		–						
		2008			–						
		2009		1	–	0	100	0	0	0	0
	• 0 0 •	2010	1	0	0						
Canada		1995	436		–						
		2000	492	492	100	22	13	5		1	59
		2005	433	459	106	8	59	9	0	1	22
		2008	488	919	188	12	65	9	0	1	13
		2009	462	850	184	10	65	7	0	0	17
	• 0 76 •	2010	358	854	239	12	65	8	0	0	15
Cayman Islands		1995	0		–						
		2000	5	5	100	0	40	0	0	0	60
		2005		1	–	0	0	0	0	100	0
		2008	1		–						
		2009	1	2	200	50	0	0	0	0	50
	• 0 50 •	2010	2	2	100	50	0	0	0	0	50
Chile		1995	1 561	1 111	71	79		7	0	8	5
		2000	1 290	1 360	105	82		9	0	6	2
		2005	1 186	1 147	97	83	0	9	0	6	2
		2008	1 114	1 259	113	72		9	0	7	12
		2009	1 152	1 365	118	61	11	9	0	7	12
	• 79 71 •	2010	1 154	1 437	125	51	20	9	0	6	14
Colombia		1995	7 530		–						
		2000	8 358	1 634	20	70	10	5	1	8	6
		2005	6 870	7 778	113	63	9	6	1	7	14
		2008	7 196	7 288	101	67	9	6	2	8	8
		2009	7 319	6 899	94	68	9	6	2	9	6
	• 0 79 •	2010	7 028	7 364	105	69	10	7	1	9	4
Costa Rica		1995	245		–						
		2000	349	349	100	43	14	10	1	12	19
		2005	330	306	93	85	4	5	2	3	1
		2008	287	280	98	86	3	5	1	2	2
		2009	271	166	61	49	4	5	1	1	39
	• 0 87 •	2010	267	297	111	75	12	7	2	2	2
Cuba		1995	834	834	100	90	0	4	3	2	2
		2000	675	673	100	91	2	4	1	1	1
		2005	467	466	100	90	2	6	1	1	1
		2008	498	496	100	88	0	8	1	2	0
		2009	418	415	99	87	3	7	2	1	0
	• 90 89 •	2010	462	458	99	89	1	7	1	2	0

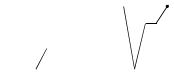
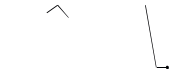
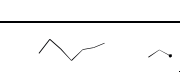
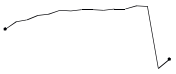
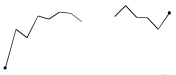
[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Curaçao		2009		5	–						
		2010	5		–						
Dominica		1995	5		–						
		2000			–						
		2005			–						
		2008	3	3	100	100	0	0	0	0	0
		2009	4	4	100	100	0	0	0	0	0
	• 0 100 •	2010	8	3	38	67	33	0	0	0	0
Dominican Republic		1995	2 787	2 007	72	43	21	5	2	13	16
		2000	2 907	2 760	95	37	34	5	2	19	4
		2005	2 949	2 697	91	80	5	4	2	7	3
		2008	2 458	2 458	100	71	4	3	1	8	12
		2009	2 441	2 441	100	79	6	4	2	7	2
	• 64 80 •	2010	2 159	2 194	102	73	7	5	1	7	6
Ecuador		1995	5 890	5 236	89		39	2	8	14	37
		2000	5 064		–						
		2005	3 048	2 150	71	81	3	3	3	6	5
		2008	3 380	3 380	100	74	4	4	4	8	7
		2009	3 317	3 330	100	71	4	4	3	8	11
	• 39 79 •	2010	3 373	3 373	100	75	4	3	3	7	8
El Salvador		1995			–						
		2000	1 008	1 008	100	78	1	7	1	5	8
		2005	1 059	1 059	100	91	0	4	1	2	1
		2008	985	985	100	91	1	5	1	3	0
		2009	930	930	100	88	1	5	4	2	0
	• 0 91 •	2010	972	972	100	91	1	4	2	2	0
Grenada		1995	2		–						
		2000	0		–						
		2005		6	–	67		33			0
		2008	5	6	120	33		67			0
		2009	4	4	100	50		50			0
	• 0 75 •	2010	4	4	100	75	0	25	0	0	0
Guatemala		1995	2 368	2 368	100	56	5	3	1	4	31
		2000	2 052	1 908	93	75	11	5	1	7	1
		2005	2 420		–						
		2008	2 070	2 070	100	79	4	5	1	9	2
		2009	1 609	2 121	132	77	6	6	1	9	1
	• 61 83 •	2010	2 121	2 121	100	77	6	6	1	9	1
Guyana		1995	85	296	348	10	34	11	1	38	6
		2000	119	119	100	43	13	12	5	24	3
		2005	240	257	107	2	57	7		26	9
		2008	320	340	106	14	55	5	2	16	8
		2009	328	328	100	13	57	8	1	19	2
	• 44 71 •	2010	325	325	100	30	41	6	1	18	4
Haiti		1995		3 081	–		70	4	1	21	3
		2000	5 887	5 887	100	57	14	5	1	13	10
		2005	7 340	7 340	100	72	8	6	1	7	6
		2008	8 171		–						
		2009		8 435	–	67	12	5	1	8	7
	• 70 82 •	2010	8 242	8 242	100	72	10	5	1	7	5
Honduras		1995	2 306	2 226	97	39	25	7	0	4	25
		2000	3 404	2 362	69	81	5	6	1	5	3
		2005	2 069	1 905	92	81	7	5	0	4	3
		2008	1 897	1 888	100	80	6	5	1	6	3
		2009	1 881	1 881	100	79	6	6	1	6	2
	• 64 85 •	2010	1 842	1 918	104	79	6	6	1	6	2
Jamaica		1995	93	93	100	2	65	10	1	17	5
		2000	90	99	110	5	40	23	0	11	20
		2005	53	53	100	4	53	13	0	26	4
		2008	78	78	100	13	51	10	0	10	15
		2009	77	76	99	55	14	14	0	11	5
	• 67 47 •	2010	76	76	100	13	34	9	0	5	38
Mexico		1995	9 220	9 220	100	69	6	4	3	12	6
		2000	11 676	11 538	99	64	12	6	1	9	8
		2005	11 997	12 172	101	71	6	5	1	6	11
		2008	11 903	11 840	99	81	4	6	1	5	3
		2009	11 862	11 821	100	82	4	6	1	5	2
	• 75 87 •	2010	12 572	12 304	98	82	4	6	1	5	1
Montserrat		1995			–						
		2000	0		–						
		2005	1		–						
		2008			–						
		2009		0	–						
	• 0 0 •	2010	0	0	–						
Netherlands Antilles		1995			–						
		2000	2	5	250			20			80
		2005			–						
	• 0	2008			–						
Nicaragua		1995	1 568	1 536	98	66	14	4	2	10	4
		2000	1 471	1 437	98	70	13	5	1	9	2
		2005	1 253	1 496	119	73	12	5	2	6	3
		2008	1 394	1 481	106	73	16	3	1	7	0
		2009	1 329	1 552	117	69	16	4	1	7	3
	• 80 85 •	2010	1 440	1 704	118	66	18	5	2	6	3
Panama		1995	1 066	1 388	130	10	60	14	1	13	3
		2000	460	460	100	27	33	7	2	22	10
		2005	860	873	102	68	12	8	0	10	1
		2008	829	883	107	67	13	7	0	13	0
		2009	755	768	102	65	16	7	1	12	0
	• 69 80 •	2010	707	717	101	64	16	7	1	12	0
Paraguay		1995	748	748	100	8	43	3	0	17	29
		2000	900	900	100	21	45	5	0	22	7
		2005	1 260	1 452	115	46	33	5		8	7
		2008	1 345	1 350	100	68	12	5	0	6	8
		2009	1 498	1 467	98	75	5	7	0	5	7
	• 51 78 •	2010	1 318	1 317	100	69	9	8	0	5	8
Peru		1995	32 096	28 185	88	75	9	3	2	6	6
		2000	22 580	22 230	98	90	0	2	2	3	4
		2005	18 490	14 793	80	91		2	2	4	1
		2008	17 989	14 805	82	78	4	3	1	6	8
		2009	17 391	14 212	82	70	11	3	1	6	9
	• 83 68 •	2010	17 264	17 264	100	57	12	2	5	5	20
Puerto Rico		1995	128	128	100		68	23		8	2
		2000	81	81	100		64	31		5	0
		2005	60	60	100	75	0	22	0	3	0
		2008	52	43	83	0	63	33	0	5	0
		2009	30	37	123	81	0	16	0	0	3
	• 68 78 •	2010	37	37	100	78	0	14	3	5	0

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Saint Kitts and Nevis	 • 60 100 •	1995	4	5	125	20	40	20	0	20	0
		2000	0		–						
		2005	0		–						
		2008	5	5	100		80	0	0	0	20
		2009	4	5	125	80	0	0	0	0	20
		2010	2	2	100	100	0	0	0	0	0
Saint Lucia	• 0 89 •	1995	11		–						
		2000	7	8	114	88	12	0	0	0	0
		2005	11	13	118	15	54	31	0	0	0
		2008	18	18	100	28	67	6	0	0	0
		2009	7	7	100		57	29	0	14	0
		2010	9	9	100	22	67	0	0	0	11
Saint Vincent and the Grenadines	 • 0 0 •	1995	5		–						
		2000	9	13	144	100	0	0	0	0	0
		2005	6		–						
		2008	11	4	36		100	0	0	0	0
		2009	3	1	33	0	0	0	0	0	100
		2010	8	8	100	0	0	0	0	0	100
Sint Maarten (Dutch part)		2009			–						
		2010	3	3	100		100	0	0	0	0
Suriname	 • 14 60 •	1995		51	–	10	4	12		8	67
		2000	37	37	100	49	19	16	0	14	3
		2005	49		–						
		2008	68	71	104	38	21	13	0	24	4
		2009	149	143	96	64	3	11	1	16	5
		2010	130	73	56	60	0	12	0	4	23
Trinidad and Tobago	• 69 76 •	1995	7	78	1 114	49	21	19	1	10	0
		2000	115	194	169	22	46	11	2	6	13
		2005	95	106	112	68	4	12		16	0
		2008	169	169	100	65	2	15	4	14	0
		2009	154	154	100	61	8	14	1	14	1
		2010	136	136	100	72	4	9	3	11	1
Turks and Caicos Islands		1995			–						
		2000		2	–	0	0	0	0	100	0
		2005		3	–	33	33	0	0	0	33
		2008			–						
		2009			–						
	• 0 75 •	2010	3	4	133	75					25
United States of America	 • 76 64 •	1995	8 093	8 116	100		76	15		4	6
		2000	5 883	5 901	100		83	11		3	3
		2005	5 111	5 136	100		84	8	2		6
		2008	4 742	3 709	78		85	9		2	5
		2009	4 014	7 460	186		60	6		1	32
		2010	3 695	7 034	190		64	6		1	29
Uruguay	 • 68 85 •	1995	349	370	106	41	27	10	1	4	17
		2000	348	344	99	85	0	13	1	1	0
		2005	355	345	97	80	4	11	0	4	1
		2008	424	422	100	77	7	9	1	5	2
		2009	409	406	99	73	7	12	0	6	2
		2010	368	368	100	80	5	10	0	5	0
US Virgin Islands		1995	2	2	100	50		0	0	0	50
		2000			–						
		2005			–						
		2008			–						
		2009			–						
	• 50 0 •	2010			–						
Venezuela (Bolivarian Republic of)	• 74 83 •	1995	3 056	3 056	100	68	6	4	1	8	13
		2000	3 525	3 390	96	76	0	4	0	13	6
		2005	3 653	3 581	98	83		5	0	10	2
		2008	3 344	3 301	99	83	0	4	0	11	1
		2009	3 436	3 433	100	84	0	4	0	11	1
		2010	3 252	3 157	97	83	0	5	0	11	0

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Anguilla		1995	0		–						
		2000			–						
		2005			–						
		2008			–						
		2009		0	–						
	• 0 0 •	2010	0	0	–						
Antigua and Barbuda		1995			–						
		2000	0		–						
		2005	0		–						
		2008	0	0	–						
		2009	2	1	50	100	0	0	0	0	0
	• 0 0 •	2010	0	0	–						
Argentina		1995			–						
		2000	1 828		–						
		2005	809	1 615	200	7	26	5	0	9	53
		2008	1 392	374	27	10	16	6	1	9	59
		2009	827	893	108	10	20	4	1	13	52
	• 0 32 •	2010	716	1 114	156	9	23	4	1	15	49
Aruba		1995			–						
		2000			–						
		2005			–						
		2008			–						
		2009			–						
	• 0 0 •	2010			–						
Bahamas		1995	1		–						
		2000	0		–						
		2005	4	4	100	25	50	0	0	25	0
		2008	4	3	75	0	33	33	0	0	33
		2009	5	5	100	20	60	20	0	0	0
	• 0 100 •	2010	2	2	100	0	100	0	0	0	0
Barbados		1995			–						
		2000	0		–						
		2005			–						
		2008	0	0	–						
		2009	0	0	–						
	• 0 0 •	2010	0	0	–						
Belize		1995	4	13	325	23	0	23	8	38	8
		2000	6		–						
		2005	15	14	93	57	29	14	0	0	0
		2008	5	0	0						
		2009	12		–						
	• 23 0 •	2010	1	1	100						
Bermuda		1995			–						
		2000	0		–						
		2005			–						
		2008			–						
		2009		0	–						
	• 0 0 •	2010	0	0	–						
Bolivia (Plurinational State of)		1995	63	462	733	57	9	7	5	15	7
		2000	2 081	804	39	49	11	12	2	8	16
		2005	772	772	100	63	3	5	3	7	19
		2008	590	590	100	72	4	8	2	7	7
		2009	732	598	82	73	5	7	2	7	7
	• 66 78 •	2010	665	589	89	72	5	5	3	10	5
Bonaire, Saint Eustatius and Saba		2009		0	–						
		2010		0	–						
Brazil		1995			–						
		2000	11 334	7 859	69	30	10	4	0	14	41
		2005	9 637	9 479	98	26	22	7	2	19	25
		2008	11 164	9 494	85	18	32	8	2	25	15
		2009	9 818	10 664	109	15	28	8	2	23	24
	• 0 46 •	2010	10 949	10 721	98	18	28	8	2	25	19
British Virgin Islands		1995			–						
		2000			–						
		2005	0		–						
		2008			–						
		2009		0	–						
	• 0 0 •	2010	0	0	–						
Canada		1995	195		–						
		2000	145	145	100	16	16	6	1	2	60
		2005	103	106	103	8	59	7	0	3	23
		2008	122	126	103	7	71	10	0	0	11
		2009	94	95	101	4	60	7	0	1	27
	• 0 71 •	2010	72	94	131	15	56	9	0	0	20
Cayman Islands		1995	0		–						
		2000	0		–						
		2005		0	–						
		2008	0		–						
		2009	0	0	–						
	• 0 0 •	2010	0	0	–						
Chile		1995	225		–						
		2000	158	150	95	32	26	8	1	18	15
		2005	314	140	45	69	3	14	1	9	3
		2008	219	231	105	22		8	1	10	59
		2009	306	219	72	15	9	7	2	7	60
	• 0 26 •	2010	263	336	128	14	12	6	2	9	58
Colombia		1995			–						
		2000	339		–						
		2005	443	0	0						
		2008	413		–						
		2009	616		–						
	• 0 17 •	2010	869	920	106	11	5	3	1	7	73
Costa Rica		1995	0		–						
		2000	35	69	197	23	9	10	3	25	30
		2005	45	49	109	55	12	4	2	24	2
		2008	24	32	133	56	28	3		6	6
		2009	31	2	6	0	0	50	0	0	50
	• 0 80 •	2010	32	35	109	37	43	11	0	9	0
Cuba		1995	54	55	102	82	0	7	5	5	0
		2000	172	58	34	78	7	10	3	2	0
		2005	49	48	98	67		6	4	2	21
		2008	60	56	93	64	16	18	0	2	0
		2009	51	61	120	69	5	15	5	7	0
	• 82 82 •	2010	56	55	98	67	15	4	4	11	0

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Curaçao		2009			–						
		2010			–						
Dominica		1995	3		–						
		2000			–						
		2005			–						
		2008	4	0	0						
		2009	1	0	0						
	• 0 100 •	2010	0	1	–	0	100	0	0	0	0
Dominican Republic		1995	204		–						
		2000	610	498	82	29	26	3	4	27	11
		2005	729	530	73	56	5	7	8	19	6
		2008	497	497	100	0	0	0	0	0	100
		2009	452	434	96	47	6	13	5	29	0
	• 0 64 •	2010	520	384	74	51	13	9	5	18	4
Ecuador		1995			–						
		2000	386		–						
		2005	795	554	70	56	8	5	10	12	9
		2008	778	778	100	61	8	7	8	15	0
		2009	756	756	100	46	9	6	8	16	16
	• 0 0 •	2010	663		–						
El Salvador		1995			–						
		2000	271	181	67	63	3	9	3	18	3
		2005	114	114	100	68	0	6	4	13	8
		2008	86	86	100	84	0	8	0	5	3
		2009	113	113	100	85	3	3	1	8	1
	• 0 90 •	2010	92	92	100	88	2	2	3	1	3
Grenada		1995			–						
		2000	0		–						
		2005			–						
		2008	1	0	0						
		2009	0	0	–						
	• 0 0 •	2010	0	0	–						
Guatemala		1995	249	254	102	59	15	4	2	4	17
		2000	141	164	116	63	16	4	4	10	2
		2005	159		–						
		2008	202	202	100	55	10	8	6	16	5
		2009	128	181	141	55	8	5	7	20	4
	• 73 64 •	2010	181	181	100	55	8	5	7	20	4
Guyana		1995	2		–						
		2000	84	38	45	24	29	13	5	26	3
		2005	25	23	92	22	35	9	9	13	13
		2008	117	146	125	4	22	10	2	24	38
		2009	205	205	100	0	51	14	0	18	17
	• 0 52 •	2010	162	162	100	0	52	14	1	28	5
Haiti		1995			–						
		2000	346	55	16	42	15	5	7	22	9
		2005	228	228	100	63	7	3	0	13	14
		2008	373		–						
		2009		381	–	49	20	7	3	10	11
	• 0 75 •	2010	381	381	100	60	14	5	2	10	8
Honduras		1995	100		–						
		2000	236	180	76	44	10	8	2	6	29
		2005	181	169	93	59	9	6	2	17	7
		2008	184	145	79	65	6	10	3	14	3
		2009	225	192	85	50	7	10	1	10	22
	• 0 75 •	2010	195	164	84	66	9	7	2	15	1
Jamaica		1995	2	6	300	0	67	17	0	17	0
		2000	13		–						
		2005	5	5	100		20			80	0
		2008	3	3	100	0	67	0	0	33	0
		2009	20	19	95	16	58	5	0	21	0
	• 67 32 •	2010	19	19	100	5	26	26	0	21	21
Mexico		1995			–						
		2000	1 335	138	10	33	4	8	7	12	36
		2005	2 026	1 456	72	48	7	7	4	14	20
		2008	1 370	1 829	134	55	7	11	4	11	11
		2009	1 535	1 229	80	56	5	9	6	10	14
	• 0 63 •	2010	1 266	1 272	100	55	7	9	6	11	10
Montserrat		1995			–						
		2000	0		–						
		2005	0		–						
		2008			–						
		2009		0	–						
	• 0 0 •	2010	0	0	–						
Netherlands Antilles		1995			–						
		2000	0		–						
		2005			–						
	• 0	2008			–						
Nicaragua		1995	167	289	173	69	10	4	3	11	3
		2000	159	230	145	65	10	6	2	15	2
		2005	268	181	68	71	12	7	2	7	2
		2008	167	150	90	97	0	0	0	3	0
		2009	282	178	63	70	6	3	6	11	3
	• 78 76 •	2010	286	204	71	60	16	8	4	9	2
Panama		1995	108		–						
		2000	134	42	31	19	24	2	0	48	7
		2005	247	237	96	23	35	9	4	22	7
		2008	191	238	125	16	30	9	2	42	1
		2009	235	203	86	18	30	10	0	37	4
	• 0 56 •	2010	211	208	99	23	34	11	3	30	0
Paraguay		1995	28		–						
		2000	530	144	27	19	40	6	1	25	9
		2005	273	164	60	44	26	4		10	16
		2008	154	164	106	46	14	9	1	10	21
		2009	177	188	106	47	9	9	4	11	20
	• 0 60 •	2010	214	216	101	54	6	8	2	9	20
Peru		1995			–						
		2000	4 381	4 521	103	78	0	4	7	6	4
		2005	4 989	2 299	46	78		5	5	11	1
		2008	4 534		–						
		2009	4 324	2 163	50	49	21	4	2	12	12
	• 0 0 •	2010	4 180		–						
Puerto Rico		1995			–						
		2000			–						
		2005	0	113	–		73	23	0	4	1
		2008	0	0	–						
		2009	0	0	–						
	• 0 50 •	2010	4	4	100	50	0	25	25	0	0

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Saint Kitts and Nevis		1995			–						
		2000	0		–						
		2005	2	2	100		50				50
		2008	0	0	–						
		2009	0	0	–						
	• 0 0 •	2010	0	0	–						
Saint Lucia		1995			–						
		2000	3	1	33	100	0	0	0	0	0
		2005	2		–						
		2008	1	1	100	0	0	0	100	0	0
		2009	3	3	100		33	67	0	0	0
	• 0 0 •	2010	0	0	–						
Saint Vincent and the Grenadines		1995	4		–						
		2000	3	3	100	100	0	0	0	0	0
		2005	0		–						
		2008	4	4	100	0	0	0	0	100	0
		2009	2	1	50	0	0	0	0	100	0
	• 0 0 •	2010	2	0	0						
Sint Maarten (Dutch part)		2009			–						
		2010	0		–						
Suriname		1995			–						
		2000	1		–						
		2005	8		–						
		2008	7	3	43	0	33	0	0	33	33
		2009	15	12	80	50	0	8	0	42	0
	• 0 55 •	2010	16	11	69	45	9	27	0	0	18
Trinidad and Tobago		1995	22		–						
		2000	31	22	71	23	45	14	9	9	0
		2005	22	21	95	19	38	29		14	0
		2008	47	47	100	32	4	11	6	47	0
		2009	60	60	100	48	20	15	0	17	0
	• 0 64 •	2010	44	44	100	43	20	14	0	23	0
Turks and Caicos Islands		1995			–						
		2000			–						
		2005		3	–	33	33	33	0	0	0
		2008			–						
		2009			–						
	• 0 0 •	2010	2	0	0						
United States of America		1995			–						
		2000			–						
		2005			–						
		2008			–						
		2009			–						
	• 0 0 •	2010			–						
Uruguay		1995	20	25	125	56	20	16	0	8	0
		2000	39		–						
		2005	19	30	158	57	17	13	3	7	3
		2008	56	57	102	60	12	14	0	14	0
		2009	37	41	111	46	10	34	0	7	2
	• 76 76 •	2010	41	41	100	56	20	15	0	5	5
US Virgin Islands		1995			–						
		2000			–						
		2005			–						
		2008			–						
		2009			–						
	• 0 0 •	2010			–						
Venezuela (Bolivarian Republic of)		1995	272		–						
		2000	377		–						
		2005	350	247	71	80		4	2	12	2
		2008	432	227	53	84	0	5	1	10	0
		2009	428	261	61	80	0	4	2	13	2
	• 0 83 •	2010	442	248	56	83	0	6	1	10	0

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2011**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2011	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Anguilla		2005								
		2009		0		0				
		2010	0	0	1	0				
	– –	2011		0	0	0				
Antigua and Barbuda		2005	100	6	6	3	50	100	100	0
		2009	100	4	4	0	0			0
		2010	86	6	7	5	83	40	100	0
	• 100 100 •	2011	100	8	8	5	62	40	100	5
Argentina		2005			11 242					
		2009	13	1 093	8 190	530	48			
		2010	14	1 121	7 762	672	60			
	– 10 •	2011	10	1 053	10 651	559	53			
Aruba		2005								
		2009								
		2010			6					
	– –	2011			8					
Bahamas		2005			50					
		2009	100	46	46	15	33	40	67	
		2010	103	33	32	16	48	31	75	
	– 100 •	2011	100	42	42	12	29	42	67	
Barbados		2005		8		2	25	0		
		2009	100	2	2	0	0			0
		2010	100	6	6	2	33	0	100	
	– –	2011		0	0	0				
Belize		2005	100	106	106	25	24	68	68	409
		2009	95	89	94	17	19	100	100	
		2010	98	142	145	29	20	100	100	
	• 100 84 •	2011	84	64	76	24	38		100	
Bermuda		2005		1		0	0			
		2009		0		0				
		2010	100	1	1	0	0			
	– 100 •	2011	100	1	1	0	0			
Bolivia (Plurinational State of)		2005	0	0	9 973	0				50
		2009	17	1 509	9 128	38	3	21	76	
		2010	22	1 897	8 620	130	7	0	87	
	• 0 47 •	2011	47	4 118	8 747	138	3		87	
Bonaire, Saint Eustatius and Saba		2010		0	0	0				
		2011			1					
Brazil		2005	59	51 552	87 223	8 249	16	0	85	674
		2009	52	44 038	85 159	8 828	20		88	
		2010	63	51 764	81 946	9 338	18		92	
	• 59 58 •	2011	58	49 091	84 137	9 575	20		92	
British Virgin Islands		2005		0	0	0				27
		2009		1		1	100	100	100	
		2010	0	0	1	0				
	– –	2011		0	0	0				
Canada		2005	26	414	1 616	63	15			
		2009	40	645	1 599	64	10			
		2010	48	658	1 385	53	8			
	• 26 36 •	2011	36	529	1 452	77	15			
Cayman Islands		2005		1		0	0			
		2009	100	2	2	0	0			
		2010	75	3	4	0	0			
	– 100 •	2011	100	2	2	0	0			
Chile		2005			2 633					
		2009			2 516					
		2010			2 472					
	– 10 •	2011	10	259	2 535	120	46			
Colombia		2005	53	5 537	10 360	353	6			
		2009	43	5 031	11 663	1 133	23		21	
		2010	43	5 079	11 889	1 231	24		35	
	• 53 55 •	2011	55	6 579	11 984	1 292	20		36	
Costa Rica		2005	67	374	560	50	13		84	
		2009	104	476	457	41	9			
		2010	99	494	499	54	11	0	0	
	• 67 95 •	2011	95	498	524	47	9	0	0	
Cuba		2005	93	729	781	0	0			
		2009	99	710	717	46	6	0	80	1 561
		2010	103	862	838	56	6	0	62	1 366
	• 93 95 •	2011	95	780	821	69	9	30	80	1 429
Curaçao		2010	0	0	5	0				
		2011			1					
Dominica		2005				0				
		2009	80	4	5	1	25	0	100	2
		2010	38	3	8	1	33	100	100	
	– 67 •	2011	67	2	3	0	0			
Dominican Republic		2005	1	78	5 312	3	4	0	0	953
		2009	57	2 516	4 442	403	16	0	0	822
		2010	60	2 489	4 160	547	22	8	4	5 041
	• 1 57 •	2011	57	2 540	4 472	648	26	41	66	
Ecuador		2005	0	10	4 808	3	30	0		
		2009	47	2 385	5 026	443	19		100	
		2010	102	5 183	5 095	427	8		100	
	• 0 100 •	2011	100	5 350	5 350	576	11			
El Salvador		2005	84	1 544	1 830	188	12	20	38	
		2009	95	1 650	1 736	204	12	28	35	97
		2010	96	1 667	1 730	180	11	82	63	455
	• 84 98 •	2011	98	1 878	1 917	194	10	85	77	
Grenada		2005		0		0				
		2009	100	5	5	1	20	100	100	0
		2010	100	4	4	1	25	0	0	0
	– 100 •	2011	100	2	2	0	0			
Guatemala		2005	16	600	3 861	478	80		243	
		2009	65	1 920	2 942	260	14	100	100	250
		2010	63	2 121	3 351	255	12	100	100	
	• 16 69 •	2011	69	2 125	3 088	260	12	100	100	
Guyana		2005	70	456	656	80	18			
		2009	79	717	912	195	27	82	55	162
		2010	88	734	836	209	28	77	59	144
	• 70 93 •	2011	93	852	916	199	23	94	83	119
Haiti		2005	0	0	14 344	1 797				
		2009		9 886		2 236	23	5	8	
		2010	67	9 518	14 265	1 892	20	13	10	4 112
	• 0 73 •	2011	73	10 461	14 361	2 025	19	12	17	

TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2011**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2011	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Honduras		2005	44	1 455	3 333	200	14	0	0	0
		2009	55	1 619	2 957	192	12	100	89	96
		2010	54	1 557	2 901	201	13	90	90	27
	• 44 70 •	2011	70	2 256	3 243	255	11	31	71	
Jamaica		2005	83	79	95	28	35	43	54	
		2009	64	96	150	29	30		100	
		2010	87	128	147	30	23		100	
	• 83 81 •	2011	81	88	108	15	17		93	
Mexico		2005	7	1 382	19 932	217	16			
		2009	30	5 879	19 773	945	16	100	23	676
		2010	43	8 915	20 699	1 645	18	100	26	
	• 7 52 •	2011	52	10 599	20 528	1 985	19	64	28	
Montserrat		2005	100	1	1	0	0			
		2009		0		0				
		2010		0	0	0				
	• 100 –	2011		0	0	0				
Netherlands Antilles		2005		2		2	100			
		2009								
Nicaragua		2005	0	0	2 076	30		0		
		2009	45	1 081	2 413	32	3	94	94	60
		2010	56	1 440	2 575	60	4	67	67	465
	• 0 55 •	2011	55	1 552	2 822	16	1			152
Panama		2005	86	1 569	1 828	200	13		10	400
		2009	79	1 364	1 729	213	16	42	28	196
		2010	96	1 558	1 630	240	15	63	84	
	• 86 91 •	2011	91	1 534	1 695	245	16	65	48	
Paraguay		2005			2 348					
		2009	11	271	2 427	140	52	0	51	0
		2010	33	817	2 461	144	18	0	67	
	– 60 •	2011	60	1 520	2 549	174	11	25	56	
Peru		2005	2	668	35 541	668	100			1 214
		2009	35	11 710	33 169	678	6		18	1 361
		2010	29	9 539	32 477	853	9		1	1 183
	• 2 21 •	2011	21	7 052	32 844	960	14		2	
Puerto Rico		2005	82	93	113	28	30			
		2009	97	61	63	9	15	33	56	0
		2010	95	76	80	14	18	43	50	
	• 82 90 •	2011	90	45	50	9	20			
Saint Kitts and Nevis		2005			2					
		2009	100	4	4	0	0			
		2010	100	2	2	0	0			
	– 100 •	2011	100	1	1	0	0			
Saint Lucia		2005	7	1	14	0	0			
		2009	100	11	11	4	36	0	25	0
		2010	100	9	9	0	0			
	• 7 100 •	2011	100	7	7	1	14	0	100	
Saint Vincent and the Grenadines		2005	100	7	7	1	14	0	0	
		2009	64	7	11	5	71		20	1
		2010	59	10	17	3	30		100	
	• 100 94 •	2011	94	16	17	5	31		60	
Sint Maarten (Dutch part)		2010	100	3	3	0	0			
		2011	100	2	2	0	0			
Suriname		2005	73	87	119	20	23		10	
		2009	76	143	188	44	31	11	50	
		2010	85	173	204	58	34	10	38	
	• 73 90 •	2011	90	118	131	38	32	18	53	
Trinidad and Tobago		2005	69	124	179	42	34	29	36	0
		2009	94	306	324	95	31	14	6	4
		2010	98	254	258	58	23	19	34	11
	• 69 94 •	2011	94	250	266	83	33	20	36	
Turks and Caicos Islands		2005		5		1	20	0	0	
		2009		3		1	33	0		
		2010	71	5	7	1	20	100	100	
	– 10 •	2011	10	1	10	0	0			
United States of America		2005	59	8 273	14 080	1 035	13			
		2009	62	7 197	11 545	711	10			
		2010	66	7 404	11 181	627	8			
	• 59 81 •	2011	81	8 527	10 521	671	8			
Uruguay		2005	92	574	626	74	13	0		
		2009	94	662	704	102	15	0	19	
		2010	92	646	699	104	16	0	34	
	• 92 91 •	2011	91	741	817	110	15	0	31	
US Virgin Islands		2005								
		2009								
		2010								
	– –	2011								
Venezuela (Bolivarian Republic of)		2005	39	2 678	6 950	392	15	0	39	
		2009	73	4 856	6 641	487	10	0	21	102
		2010	78	5 213	6 645	479	9		33	102
	• 39 62 •	2011	62	4 033	6 477	519	13		32	

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2011**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
				ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
Anguilla	2005					–			–
	2009					–			–
	2010	0			0	–		0	–
	2011	0	0 (0–0)	0 (0–0)	0	–	0 (0–0)	0	–
Antigua and	2005					–			–
Barbuda	2009	0			0	0		1	50
	2010	0			0	0		0	–
	2011	0	0.35 (0.19–0.50)	0.13 (<0.1–0.20)	0	0	0.22 (<0.1–0.35)	0	0
Argentina	2005	276			2369	46		1290	160
	2009	89				–			–
	2010	109				–			–
	2011	103	330 (220–440)	170 (94–270)		–	160 (100–240)		–
Aruba	2005					–			–
	2009					–			–
	2010					–			–
	2011	0	0.15 (<0.1–0.24)	0.15 (<0.1–0.24)	5	71	–		–
Bahamas	2005					–			–
	2009	0			38	110		4	80
	2010	0			21	95		2	100
	2011	1	1.1 (0–3.3)	1.1 (<0.1–5.8)	31	97	0 (0–2.0)	1	50
Barbados	2005					–			–
	2009	0			0	0		0	–
	2010	0			0	0		0	–
	2011	0	0 (0–0)	0 (0–0)	0	–	0 (0–0)	0	–
Belize	2005	0			0	0		3	20
	2009	1			1	1.2		0	0
	2010	0				–			–
	2011	0	2.7 (1.5–3.9)	1.3 (0.45–2.2)		–	1.3 (0.52–2.1)		–
Bermuda	2005					–			–
	2009					–			–
	2010	0			1	100		0	–
	2011	0	0 (0–0.98)	0 (0–0.98)	1	100	0 (0–0)	0	–
Bolivia	2005	63				–			–
(Plurinational	2009	60				–		670	92
State of)	2010	106			0	0		664	100
	2011	83	170 (100–230)	77 (28–170)	98	1.7	89 (72–110)	597	94
Bonaire, Saint	2010	0			0	–		0	–
Eustatius and Saba	2011	1	1.0 (<0.1–1.0)	0 (0–0)		–	1.0 (<0.1–1.0)	1	100
Brazil	2005	373				–		5917	61
	2009	449				–			–
	2010	573			22	<0.1		643	5.9
	2011	566	1 100 (810–1 400)	560 (340–870)	21	<0.1	540 (400–730)	604	6.0
British Virgin	2005					–			–
Islands	2009					–			–
	2010	0			0	0		0	–
	2011	0	0 (0–0)	0 (0–0)	0	–	0 (0–0)	0	–
Canada	2005	22			1130	150			–
	2009	18			1321	150			–
	2010	15			987	130		51	71
	2011	19	13 (6.5–20)	13 (7.4–22)		–	0 (0–5.7)		–
Cayman Islands	2005					–			–
	2009					–			–
	2010	0			1	50		0	–
	2011	0	0 (0–2.0)	0 (0–2.0)	1	100	0 (0–0)	0	–
Chile	2005	6			49	3.2		226	72
	2009	23			56	3.7		221	72
	2010	10			65	4.4		276	100
	2011	9	20 (9.6–31)	12 (4.2–25)	71	4.8	8.8 (4.1–17)	277	100
Colombia	2005					–			–
	2009	110			455	4.7		487	79
	2010	131			1240	17		495	57
	2011	108	190 (130–260)	130 (75–210)	2620	37	61 (44–81)	568	67
Costa Rica	2005	3			2	0.49		1	2.2
	2009					–			–
	2010	3			203	64			–
	2011	0	7.5 (0.97–14)	6.3 (1.7–16)	32	9.6	1.2 (<0.1–6.2)	16	62
Cuba	2005	1			169	32		19	39
	2009	3			172	38		19	37
	2010	7			174	36		31	55
	2011	10	13 (4.5–22)	6.3 (1.3–18)	313	60	6.7 (2.8–13)	76	100
Curaçao	2010	0			5	100			–
	2011	0	0 (0–0.98)	0 (0–0.98)	1	100	0 (0–0)	0	–
Dominica	2005					–			–
	2009					–			–
	2010	0			1	12		1	–
	2011	0	0 (0–0)	0 (0–2.0)	1	50	0 (0–0.98)	1	100
Dominican	2005					–			–
Republic	2009	0			0	0		0	0
	2010	108			32	1.4		106	20
	2011	117	320 (220–420)	220 (140–330)	12	0.42	99 (65–140)	77	15
Ecuador	2005	253			117	3.2		502	63
	2009	156				–			–
	2010	176			363	10		584	88
	2011	354	350 (280–420)	190 (140–260)	239	6.3	160 (120–200)	284	44
El Salvador	2005	14			12	1.1		14	12
	2009	2			65	7.0		85	75
	2010	2			0	0		2	2.2
	2011	4	8.4 (0.67–16)	4.7 (0.58–17)	238	22	3.6 (0.75–10)	69	83
Grenada	2005					–			–
	2009					–			–
	2010	0				–			–
	2011	0	<0.1 (<0.1–<0.1)	<0.1 (<0.1–<0.1)		–	0 (0–0)		–
Guatemala	2005	40			20	0.83		40	25
	2009	230			134	8.0		182	140
	2010	18				–		18	9.9
	2011	27	120 (86–160)	80 (49–120)	0	0	42 (32–55)	27	17
Guyana	2005					–			–
	2009	0			0	0			–
	2010	5			0	0		0	0
	2011	3	38 (21–56)	13 (4.2–21)	2	0.62	26 (10–41)	55	24
Haiti	2005				53	0.72			–
	2009					–			–
	2010	41			2	<0.1		39	10
	2011	86	310 (140–490)	260 (88–430)		–	47 (18–75)		–

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).

[b] BACT+VE = bacteriologically-positive cases.

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2011**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
				ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
Honduras	2005	3			3	0.13		0	0
	2009	4			27	1.4		43	19
	2010	9			57	3.1		62	32
	2011	5	70 (35–110)	47 (20–92)	30	1.5	23 (11–42)	65	34
Jamaica	2005	0			11	19		2	40
	2009	0			67	87			–
	2010	1			40	31		5	26
	2011	1	2.5 (1.1–3.9)	2.1 (0.69–3.3)	28	64	0.44 (0.17–0.71)	1	25
Mexico	2005	394			314	2.1		74	3.7
	2009	11			1	<0.1		11	0.72
	2010	140			21	0.16		505	40
	2011	140	470 (340–600)	370 (320–430)	6	<0.1	97 (79–120)	180	12
Montserrat	2005	1			0	0		0	–
	2009					–			–
	2010	0			0	–		0	–
	2011	0	0 (0–0)	0 (0–0)	0	–	0 (0–0)	0	–
Netherlands Antilles	2005					–			–
	2009					–			–
Nicaragua	2005	50			8	0.64		8	3.0
	2009					–			–
	2010	18			50	3.5		150	52
	2011	13	44 (20–67)	14 (1.7–49)	200	13	30 (18–47)	67	24
Panama	2005	5			29	3.3		48	19
	2009	8				–			–
	2010	10			58	8.2		17	8.1
	2011	7	46 (25–67)	27 (8.8–43)	25	2.3	20 (7.7–32)	40	22
Paraguay	2005	13				–			–
	2009	6			64	4.2		46	26
	2010	1			115	8.2		52	24
	2011	6	51 (18–83)	6.3 (0.16–35)	227	15	44 (18–84)	93	31
Peru	2005	2748				–		2336	47
	2009	1578			966	4.4		803	19
	2010	1048				–			–
	2011	1663	2 100 (1 800–2 400)	1 200 (1 000–1 500)	1199	6.5	860 (710–1 000)	598	16
Puerto Rico	2005	0				–			–
	2009	0			54	90		1	–
	2010	0			69	100		4	100
	2011	3	2.9 (0.60–7.8)	2.9 (0.60–7.8)	44	110	0 (0–0)	0	–
Saint Kitts and Nevis	2005					–			–
	2009					–			–
	2010	0			0	0		0	–
	2011	0	<0.1 (<0.1–<0.1)	<0.1 (<0.1–<0.1)	0	0	0 (0–0)	0	–
Saint Lucia	2005					–			–
	2009	0			0	0		0	0
	2010	0			0	0		0	–
	2011	0	0.15 (<0.1–0.24)	0.15 (<0.1–0.24)	2	29	0 (0–0)	0	–
Saint Vincent and the Grenadines	2005	6			6	86		0	–
	2009					–			–
	2010	0			2	22			–
	2011	0	0.36 (0.12–0.58)	0.36 (0.12–0.58)	1	12	0 (0–0)	0	–
Sint Maarten (Dutch part)	2010	0				–			–
	2011	0	<0.1 (<0.1–<0.1)	<0.1 (<0.1–<0.1)	0	0	0 (0–0)		–
Suriname	2005	1			49	44		0	0
	2009	1			1	0.67		0	0
	2010	0			1	0.70			–
	2011	0	3.3 (1.7–4.8)	2.1 (0.69–3.4)	0	0	1.2 (0.47–1.9)	0	0
Trinidad and Tobago	2005	3			0	0		3	14
	2009	0			0	0		0	0
	2010	0				–			–
	2011		9.6 (7.7–12)	3.6 (2.0–5.0)		–	6.1 (4.9–7.3)		–
Turks and Caicos Islands	2005					–			–
	2009					–			–
	2010	1				–			–
	2011		0.29 (0.21–0.36)	0.16 (<0.1–0.23)		–	0.12 (0.10–0.15)		–
United States of America	2005	124			10064	110		505	–
	2009	114			8196	110		336	–
	2010	107			7593	110		345	–
	2011	119	110 (92–140)	110 (92–140)	6899	99	–	304	–
Uruguay	2005					–			–
	2009					–			–
	2010	1			160	36		22	54
	2011	1	1.7 (0–5.0)	1.7 (<0.1–9.4)	422	75	0 (0–4.9)	38	72
US Virgin Islands	2005					–			–
	2009					–			–
	2010					–			–
	2011		–	–		–	–		–
Venezuela (Bolivarian Republic of)	2005	28			163	4.3		15	4.3
	2009	21			20	0.57		160	37
	2010	21			26	0.78		160	36
	2011	25	80 (44–120)	25 (6.9–65)	565	17	55 (31–88)	195	48

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).
[b] BACT+VE = bacteriologically-positive cases.

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2011**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Anguilla	1995																	–
	2000																	–
	2005																	–
	2010	0	0	0	0	0	0	1		0	0	0	0	0	0	0		–
	2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
Antigua and Barbuda	1995																	–
	2000	0	0	0	0	0	0	1		1	1	1	0	0	0	0		0.33
	2005				1	1					2	2						0.50
	2010	0	0	2	0	2	1	0	0	0	0	1	0	0	0	0	0	5.0
	2011	0	0	1	1	3	1	1	0	0	1	0	0	0	0	0	0	7.0
Argentina	1995																	–
	2000	97	278	594	402	419	368	330		121	544	479	262	230	179	216		1.2
	2005	64	621	530	358	384	340	348		90	530	474	290	198	169	240		1.3
	2010	56	536	491	309	302	340	282	2	59	421	426	233	184	153	176	1	1.4
	2011	143	664	657	434	397	358	289	9	142	587	470	279	192	169	213	4	1.4
Aruba	1995																	–
	2000																	–
	2005																	–
	2010																	–
	2011					4		1				1				1		2.5
Bahamas	1995	3	3	5	7	4	2	2		0	1	7	2	0	0	1		2.4
	2000	1	2	7	9	4	3	2		2	5	7	8	2	3	1		1.0
	2005																	–
	2010	0	2	3	5	0	2	0	0	0	5	1	1	0	0	0	0	1.7
	2011	0	2	3	6	2	2	1	0	0	1	3	3	0	0	0	0	2.3
Barbados	1995																	–
	2000	0	0	0	2	0	0	0		0	0	1	0	0	0	0		2.0
	2005																	–
	2010	0	0	0	1	2	0	0	0	0	1	0	0	2	0	0	0	1.0
	2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
Belize	1995	1	1	2	4	0	1	1		0	6	2	0	1	1	2		0.83
	2000	2	5	7	2	6	3	5		0	2	1	2	4	1	4		2.1
	2005	0	8	8	6	8	5	3		0	4	4	4	3	2	4		1.8
	2010	2	9	16	22	24	11	18		4	5	7	7	9	4	5		2.5
	2011	0	8	14	9	16	2	0		0	2	0	8	4	1	0		3.3
Bermuda	1995																	–
	2000																	–
	2005																	–
	2010	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	–
	2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
Bolivia (Plurinational State of)	1995																	–
	2000	166	1 182	797	518	466	340	366		191	831	588	334	254	192	233		1.5
	2005	157	1 320	725	439	391	346	415		160	846	533	276	226	182	262		1.5
	2010	95	1 150	622	415	395	338	409		119	744	471	238	191	162	264		1.6
	2011	100	1 231	685	372	371	302	457		146	778	459	235	183	155	272		1.6
Bonaire, Saint Eustatius and Saba	2010	0	0	0	0	0	0	0		0	0	0	0	0	0	0		–
	2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
Brazil	1995																	–
	2000	1 894	7 268	11 568	11 906	8 623	5 085	4 494		1 859	6 719	7 215	5 395	3 582	2 384	2 496		1.7
	2005	317	5 074	6 119	6 128	5 259	2 803	2 140		355	3 496	3 663	2 626	1 897	1 112	1 104		2.0
	2010	298	4 405	6 381	5 293	4 762	2 875	1 947	43	280	2 677	3 008	2 211	1 720	1 038	979	15	2.2
	2011	336	4 877	6 755	5 462	5 054	3 083	2 142	41	356	2 815	3 131	2 230	1 779	1 164	1 069	0	2.2
British Virgin Islands	1995																	–
	2000						1											–
	2005																	–
	2010	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	–
	2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
Canada	1995	1	28	31	60	34	41	70		7	33	28	22	12	18	51		1.5
	2000	5	34	45	46	41	32	79		4	33	40	30	25	12	66		1.3
	2005	3	37	45	44	40	20	68		6	28	40	27	24	13	37		1.5
	2010	3	30	28	36	32	25	62	0	1	28	24	16	10	19	44	0	1.5
	2011	2	34	36	31	40	33	70	0	3	23	29	28	14	9	55	0	1.5
Cayman Islands	1995																	–
	2000	0	0	3	1	0	1	0										–
	2005																	–
	2010	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1.0
	2011	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	–
Chile	1995	24	148	182	204	155	141	163		24	100	120	108	75	73	107		1.7
	2000	6	81	160	198	150	132	126		10	66	96	70	54	58	83		2.0
	2005	3	74	128	179	162	115	133		4	55	78	60	56	36	93		2.1
	2010	2	90	115	144	159	122	157	0	6	56	76	59	56	40	72	0	2.2
	2011	4	88	139	143	164	127	134	0	6	62	75	66	69	48	71	0	2.0
Colombia	1995																	–
	2000	246	763	1 030	963	743	610	746		194	587	758	523	381	304	510		1.6
	2005	178	623	685	666	687	510	695		179	581	533	457	389	292	395		1.4
	2010	148	602	765	540	710	610	814	0	146	560	576	428	374	284	471	0	1.5
	2011	105	663	714	558	702	594	753	0	98	461	535	324	337	278	390	0	1.7
Costa Rica	1995	1	17	38	24	19	23	22		2	17	15	11	7	9	14		1.9
	2000	14	31	53	62	39	28	49		13	21	33	24	20	23	24		1.7
	2005	1	43	38	53	34	20	34		1	21	31	18	16	6	14		2.1
	2010	2	18	48	33	27	22	28	1	0	18	20	12	14	15	8	1	2.0
	2011	0	23	24	29	33	22	36	0	2	18	27	23	19	12	17	0	1.4
Cuba	1995	2	59	118	83	75	75	156		1	17	52	29	39	48	80		2.1
	2000	0	71	167	90	74	55	75		2	9	22	26	22	23	39		3.7
	2005	2	20	73	90	50	58	51		2	14	17	26	13	22	29		2.8
	2010	3	17	61	89	78	53	57	0	1	15	15	14	16	17	26	0	3.4
	2011	2	14	51	83	86	50	48	0	1	6	18	18	17	17	26	0	3.2
Curaçao	2010	0	0	0	2	1	0	0	0	0	1	1	0	0	0	0	0	1.5
	2011	0	0	0	0	0	0	0		0	0	0	0	0	0	0		–
Dominica	1995																	–
	2000																	–
	2005																	–
	2010	0	0	0	0	0	3	1	0	0	0	0	1	2	1	0	0	1.0
	2011	0	0		2	0	0	0	0	0	0	0	0	0	0	0	0	–
Dominican Republic	1995																	–
	2000	73	410	481	344	173	125	113		65	317	325	212	115	79	75		1.4
	2005	43	399	483	386	228	123	105		57	339	332	209	119	72	54		1.5
	2010	29	276	346	292	170	112	85	0	43	239	207	142	102	54	62	0	1.5
	2011	20	333	406	318	200	133	112	0	30	242	274	159	103	66	58	0	1.6
Ecuador	1995																	–
	2000																	–
	2005	48	446	468	308	237	150	159		48	329	305	199	139	85	127		1.5
	2010	32	499	529	314	309	227	246		52	298	308	178	158	113	110		1.8
	2011	45	481	547	364	323	272	232		49	340	311	177	141	118	121		1.8
El Salvador	1995																	–
	2000	13	99	124	114	92	62	107		28	81	76	63	63	39	47		1.5
	2005	5	97	140	128	104	74	117		6	85	82	59	50	42	70		1.7
	2010	5	101	170	96	77	62	101	0	6	63	65	49	58	51	68	0	1.7
	2011	3	114	183	106	96	77	115	0	6	61	61	44	52	69	92	0	1.8
Grenada	1995																	–
	2000																	–
	2005																	–
	2010				1	1	1					1						3.0
	2011	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	–

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2011**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UNKNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UNKNOWN	MALE:FEMALE RATIO
Guatemala	1995	51	235	280	236	165	142	139		51	224	255	221	146	129	94		1.1
	2000	36	220	236	216	177	112	140		41	199	167	175	135	87	111		1.2
	2005	39	251	258	185	187	127	115		38	339	245	277	176	88	95		0.92
	2010	60	187	245	207	172	143	165		29	194	190	179	139	108	103		1.3
	2011	18	197	205	172	162	136	152		25	186	192	154	154	102	106		1.1
Guyana	1995	7	8	5	6	9	6	7		3	5	7	6	5	2	4		1.5
	2000	4	20	19	14	7	6	9		1	11	8	7	5	5	3		2.0
	2005	12	48	130	116	81	41	20		14	41	62	41	30	11	9		2.2
	2010	2	32	38	65	49	22	13	0	2	22	25	19	20	10	6	0	2.1
	2011	8	26	54	61	54	19	13	0	2	17	19	17	17	7	9	0	2.7
Haiti	1995																	–
	2000	67	836	898	613	350	147	118		96	914	857	513	275	132	71		1.1
	2005	69	1 045	1 035	701	451	222	156		116	1 097	1 099	633	414	170	132		1.0
	2010	98	1 225	1 357	718	469	259	160	0	158	1 268	1 223	608	358	207	134	0	1.1
	2011	102	1 155	1 342	670	442	206	132	0	148	1 282	1 250	595	363	196	128	0	1.0
Honduras	1995	42	280	540	204	130	236	58		54	208	292	134	76	136	48		1.6
	2000	30	123	371	246	277	214	43		25	21	269	258	270	160	38		1.3
	2005	13	238	280	215	152	134	152		27	219	222	125	107	81	104		1.3
	2010	15	177	246	207	165	113	157	0	28	186	163	106	103	69	107	0	1.4
	2011	17	194	291	227	184	120	184	0	19	181	194	138	99	98	126	0	1.4
Jamaica	1995	2	9	14	9	11	8	9		2	7	6	5	5	2	2		2.1
	2000	0	6	13	13	15	6	5		1	8	8	7	2	5	1		1.8
	2005	0	4	6	6	10	6	7		0	1	5	4	0	1	3		2.8
	2010	1	7	15	15	8	6	7	0	0	5	4	5	1	0	2	0	3.5
	2011	0	2	6	3	4	4	3	0	1	3	4	0	3	1	1	0	1.7
Mexico	1995																	–
	2000	214	1 079	1 387	1 162	1 235	972	1 126		176	663	828	698	832	595	709		1.6
	2005	100	1 095	1 376	1 314	1 238	1 042	1 288		125	771	733	710	784	637	784		1.6
	2010	125	1 081	1 375	1 380	1 392	1 119	1 303	0	112	791	763	730	852	713	836	0	1.6
	2011	128	1 124	1 440	1 503	1 532	1 112	1 299	0	136	776	765	698	889	734	824	0	1.7
Montserrat	1995																	–
	2000																	–
	2005					1												–
	2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
	2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
Netherlands Antilles	1995																	–
	2000	0	0	1	2	0	0	0		0	0	1	0	0	1	0		1.5
	2005																	–
Nicaragua	1995	23	178	172	175	126	96	92		24	176	215	98	83	64	46		1.2
	2000	18	194	174	147	108	64	90		34	188	173	98	76	46	61		1.2
	2005	17	163	159	116	106	61	79		23	135	122	103	61	54	47		1.3
	2010	22	157	189	141	115	82	108	0	27	154	149	92	75	50	79	0	1.3
	2011	10	273	235	156	108	61	94	0	4	61	145	161	108	64	72	0	1.5
Panama	1995	86	155	193	112	126	42	83		72	120	111	75	57	16	40		1.6
	2000	3	44	78	61	37	27	26		6	43	34	35	19	12	16		1.7
	2005	5	76	129	129	84	57	49		11	73	81	62	33	30	41		1.6
	2010	6	69	127	80	62	61	49	0	7	51	52	46	45	23	29	0	1.8
	2011	10	96	104	91	99	63	47	0	11	55	64	58	44	40	48	0	1.6
Paraguay	1995	18	64	71	96	74	57	61		13	65	49	46	35	34	53		1.5
	2000	16	112	103	105	86	80	71		12	69	86	41	41	30	46		1.8
	2005	23	168	185	136	117	87	99		31	89	98	69	52	29	71		1.9
	2010	18	163	244	129	143	103	99	11	18	106	99	39	50	46	45	5	2.2
	2011	9	182	238	135	151	124	103	6	14	110	103	55	39	36	62	4	2.2
Peru	1995	147	1 311	849	454	322	200	216		149	1 005	660	373	259	162	152		1.3
	2000	552	5 290	2 875	1 546	1 041	801	796		633	3 686	2 472	1 156	609	499	624		1.3
	2005	371	3 802	2 670	1 513	1 075	641	708		375	2 674	2 111	1 046	699	333	472		1.4
	2010																	–
	2011																	–
Puerto Rico	1995	4	3	12	20	15	9	19		1	2	6	5	7	4	9		2.4
	2000	0	1	4	19	9	10	14		1	4	5	3	7	1	3		2.4
	2005	0	4	4	7	9	7	7		0	3	2	5	4	1	7		1.7
	2010	0	0	3	2	4	5	8	0	0	1	0	2	6	2	4	0	1.5
	2011	0	1	4	3	6	6	2	0	0	1	1	1	0	3	1	0	3.1
Saint Kitts and Nevis	1995																	–
	2000																	–
	2005																	–
	2010	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	1.0
	2011	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	–
Saint Lucia	1995																	–
	2000	0	0	0	1	0	1	2		0	1	0	1	0	1	0		1.3
	2005	0	0	0	0	2	1	2		1	1	0	1	1	0	2		0.83
	2010	0	0	1	2	0	1	2	0	0	0	0	1	0	1	1	0	2.0
	2011	0	0	1	1	0	3	2	0	0	0	0	0	0	0	0	0	–
Saint Vincent and the Grenadines	1995																	–
	2000	0	1	0	4	2	0	1		1	0	0	0	0	0	0		8.0
	2005	0	0	0	2	1	0	2		0	0	1	0	1	0	0		2.5
	2010	0	0	1	0	3	0	2	0	0	0	1	0	0	1	0	0	3.0
	2011	0	0	2	2	2	0	0	0	0	0	1	0	1	0	0	0	3.0
Sint Maarten (Dutch part)	2010			1											2			0.50
	2011		1									1						1.0
Suriname	1995																	–
	2000	1	6	6	3	2	0	4		2	3	6	3	0	1	1		1.4
	2005	0	7	8	12	6	3	4		0	3	2	1	2	1	2		3.6
	2010	0	5	21	35	19	5	10	0	1	4	6	10	6	2	8	0	2.6
	2011	0	4	7	15	18	3	5	0	0	1	1	5	2	2	1	0	4.3
Trinidad and Tobago	1995	2	6	15	10	12	7	4		0	6	4	2	5	3	0		2.8
	2000	0	7	18	27	17	7	7		0	5	7	9	5	2	4		2.6
	2005	0	10	11	13	21	10	3		0	4	9	3	5	4	3		2.4
	2010	0	11	21	17	32	20	8	0	0	4	7	7	5	2	2	0	4.0
	2011	1	14	27	13	15	16	7	0	1	6	7	3	4	2	5	0	3.3
Turks and Caicos Islands	1995																	–
	2000																	–
	2005																	–
	2010	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0.50
	2011	0	2	3	2	0	1	0	0	0	0	0	0	0	0	0	0	–
United States of America	1995	19	355	876	1 417	1 121	742	1 099		26	280	579	499	285	202	591		2.3
	2000	6	365	602	906	904	577	738		14	246	376	349	253	152	396		2.3
	2005	14	383	535	666	767	499	624		11	241	348	276	242	161	322		2.2
	2010	5	246	360	371	505	403	466	2	9	195	265	183	165	130	223	0	2.0
	2011	12	235	403	374	557	434	486	0	15	160	254	199	150	138	269	1	2.1
Uruguay	1995	4	28	40	35	49	38	50		2	21	26	18	12	9	17		2.3
	2000	0	36	48	45	41	30	34		2	28	22	21	13	12	16		2.1
	2005	1	42	48	39	45	34	36		1	33	30	17	9	8	12		2.2
	2010	1	46	70	35	46	33	31	0	3	24	36	12	10	5	16	0	2.5
	2011	0	58	93	55	45	36	37	0	1	29	55	19	12	11	16	0	2.3
US Virgin Islands	1995	0	0	0	1	1	0	0										–
	2000																	–
	2005																	–
	2010																	–
	2011																	–
Venezuela (Bolivarian Republic of)	1995																	–
	2000																	–
	2005	35	312	395	413	402	265	332		37	351	299	267	183	146	216		1.4
	2010	22	320	376	333	391	253	288		26	269	306	188	145	147	188		1.6
	2011	28	340	353	303	363	307	241	0	25	252	316	178	178	150	190	0	1.5

TABLE A4.9 **Laboratories, NTP services, drug management and infection control, 2011**

	LABORATORIES								FREE THROUGH NTP			
	SMEAR LABS PER 100K POPULATION	% OF SMEAR LABS USING LED[a]	CULTURE LABS PER 5M POPULATION	DST[b] LABS PER 5M POPULATION	LPA[c] LABS PER 5M POPULATION	NUMBER OF LABS USING XPERT MTB/RIF	SECOND-LINE DST AVAILABLE	NRL[d]	TB DIAGNOSIS	FIRST-LINE DRUGS	RIFAMPICIN USED THROUGHOUT TREATMENT	TB NOTIF. RATE PER 100 000 HEALTH-CARE WORKERS
Anguilla		–					No	No	No	No	No	
Antigua and Barbuda		–						yes	Yes (all suspects)	yes	Yes	
Argentina	1.7	0	12.6	2.1	0	0	In country	yes	Yes (all suspects)	yes	Yes	
Aruba		–					No	yes	Yes (all suspects)	yes	Yes	
Bahamas		–					Out of country	yes	Yes (other criteria)	yes	Yes	
Barbados		–					Out of country	yes	Yes (all suspects)	yes	Yes	
Belize	0.6	50	0	0	0	0	Out of country	yes	Yes (all suspects)	yes	Yes	
Bermuda		–					Out of country	yes	Yes (all suspects)	yes	Yes	
Bolivia (Plurinational State of)	5.3	–	24.3	0.5	0.5		Out of country	No	Yes (all suspects)	yes	Yes	
Bonaire, Saint Eustatius and Saba		–					Out of country	yes	Yes (all suspects)	No	Yes	
Brazil	2.0	0	7.8	1.1	0	0		yes	Yes (all suspects)	yes	Yes	
British Virgin Islands		–					Out of country	yes	Yes (all suspects)	No	Yes	
Canada		–					In and out of country	yes	Yes (all suspects)	yes	No	
Cayman Islands		–					Out of country	yes	Yes (all suspects)	yes	Yes	
Chile	0.9	4	11.6	0.3	0.3	0	In country	yes	Yes (all suspects)	yes	Yes	
Colombia	7.8	0	133.8	0.5	0.3	1	In country	yes	Yes (all suspects)	yes	Yes	
Costa Rica	2.3	0	21.2	1.1	0	2	Out of country	yes	Yes (all suspects)	yes	Yes	
Cuba		–					In country	yes	Yes (all suspects)	yes	Yes	
Curaçao		–						yes	Yes (all suspects)	No	Yes	
Dominica		–					Out of country	yes	Yes (all suspects)	yes	Yes	
Dominican Republic	2.3	1	5.5	0.5	0	0	In country	yes	Yes (all suspects)	yes	Yes	
Ecuador	2.2	0	5.8	0.3	0	5	In country	yes	Yes (all suspects)	yes	Yes	
El Salvador	3.3	0	17.7	0.8	0	0	No	yes	Yes (all suspects)	yes	Yes	122
Grenada		–					Out of country	No	Yes (all suspects)	yes	Yes	
Guatemala	1.8	0	4.1	1	0	0	Out of country	yes	Yes (all suspects)	yes	Yes	143
Guyana	2.6	100	6.6	6.6	6.6	0	In and out of country	yes	Yes (all suspects)	yes	Yes	
Haiti	2.2	7	1.0	1	1	1	Out of country	yes	Yes (all suspects)	yes	Yes	
Honduras	2.1	0	3.2	0.6	0	0		yes	Yes (all suspects)	yes	Yes	95
Jamaica	0.1	0	1.8	0	0	0	Out of country	yes	Yes (all suspects)	yes	Yes	21
Mexico	0.6	0	2.8	0.7	<0.1	2	In and out of country	yes	Yes (all suspects)	yes	Yes	37
Montserrat		–					Out of country	No	Yes (if TB is confirmed)	No	Yes	
Nicaragua	3.3	0	2.6	0.9	0	0	Out of country	yes	Yes (all suspects)	yes	Yes	
Panama	1.5	0	8.4	1.4	1.4	0	No	yes	Yes (all suspects)	yes	Yes	
Paraguay	1.8	0	6.9	0.8	0	0	In country	yes	Yes (all suspects)	yes	Yes	10
Peru	5.2	0	11.2	1.2	0.2	0	In country	yes	Yes (all suspects)	yes	Yes	
Puerto Rico		–					Out of country	yes	Yes (all suspects)	yes	Yes	
Saint Kitts and Nevis		–					No	No	Yes (all suspects)	yes	Yes	
Saint Lucia		–					In and out of country	yes	Yes (if TB is confirmed)	yes	Yes	
Saint Vincent and the Grenadines		–					Out of country	yes	Yes (all suspects)	yes	Yes	
Sint Maarten (Dutch part)		–					No	No	No	No	Yes	
Suriname	0.6	0	9.4	0	0	0	No	yes	Yes (all suspects)	yes	Yes	
Trinidad and Tobago		–					No	yes	Yes (all suspects)	yes	Yes	
Turks and Caicos Islands		–					Out of country	yes	Yes (if TB is confirmed)	yes	Yes	
United States of America		–					In country	yes	Yes (all suspects)	yes	Yes	
Uruguay	<0.1	100	1.5	1.5	1.5	0	Out of country	No	Yes (all suspects)	yes	Yes	33
US Virgin Islands		–										
Venezuela (Bolivarian Republic of)	1.9	0	3.7	0.2	0	0	In country	yes	Yes (all suspects)	yes	Yes	

[a] LED = Light emitting diode microscopes
[b] DST = Drug susceptibility testing
[c] LPA = Line probe assay
[d] NRL = National Reference Laboratory

EASTERN MEDITERRANEAN REGION

Table A4.1 Estimates of the burden of disease caused by TB, 1990–2011 197

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Estimates of mortality, prevalence and incidence

Estimated values are shown as best estimates followed by lower and upper bounds. The lower and upper bounds are defined as the 2.5th and 97.5th centiles of outcome distributions produced in simulations. See **Annex 1** for further details.

Estimated numbers are shown rounded to two significant figures. Estimated rates are shown rounded to three significant figures unless the value is under 100, in which case rates are shown rounded to two significant figures. Blank cells indicate that estimates are not available.

Estimates for all years are recalculated as new information becomes available and techniques are refined, so they may differ from those published in previous reports in this series. Estimates published in previous global TB control reports should no longer be used.

Data source

Data shown in this annex are taken from the WHO global TB database on 25 September 2012. Data shown in the main part of the report were taken from the database in July 2012. As a result, data in this annex may differ slightly from those in the main part of the report.

Data can be downloaded from **www.who.int/tb/data**.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2011**

			MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
Afghanistan	1990	13	4.3 (1.3–9.1)	33 (10–70)	42 (14–86)	326 (108–660)	25 (15–36)	189 (117–279)
	1995	20	11 (4.0–20)	53 (20–103)	86 (38–150)	434 (194–769)	37 (31–45)	189 (155–227)
	2000	23	12 (4.6–23)	53 (20–102)	99 (44–180)	433 (193–767)	43 (35–52)	189 (155–227)
	2005	28	11 (4.7–21)	41 (17–75)	100 (48–170)	361 (173–618)	52 (43–63)	189 (155–227)
	2009	31	12 (4.9–21)	38 (16–69)	110 (51–180)	345 (167–586)	58 (48–69)	189 (155–226)
	2010	31	12 (5.1–22)	38 (16–69)	110 (53–190)	346 (167–589)	59 (49–71)	189 (156–225)
	2011	32	13 (5.3–23)	39 (16–71)	110 (55–190)	351 (169–597)	61 (51–73)	189 (156–225)
Bahrain	1990	< 1	0.017 (0.015–0.019)	3.4 (3.1–3.8)	0.22 (0.088–0.420)	46 (18–86)	0.18 (0.150–0.200)	36 (31–40)
	1995	< 1	0.013 (0.012–0.015)	2.3 (2.1–2.6)	0.1 (0.039–0.190)	18 (7.0–34)	0.078 (0.068–0.088)	14 (12–16)
	2000	< 1	0.012 (0.010–0.014)	1.8 (1.6–2.1)	0.24 (0.094–0.460)	38 (15–71)	0.19 (0.170–0.210)	30 (26–33)
	2005	< 1	<0.01 (<0.01–<0.01)	0.95 (0.87–1.0)	0.39 (0.150–0.740)	54 (21–102)	0.31 (0.270–0.350)	42 (37–48)
	2009	1	<0.01 (<0.01–<0.01)	0.57 (0.51–0.64)	0.44 (0.180–0.830)	38 (15–71)	0.35 (0.310–0.400)	30 (26–34)
	2010	1	<0.01 (<0.01–<0.01)	0.57 (0.50–0.63)	0.39 (0.150–0.730)	31 (12–58)	0.31 (0.270–0.350)	25 (22–28)
	2011	1	<0.01 (<0.01–<0.01)	0.59 (0.52–0.65)	0.3 (0.120–0.560)	22 (8.8–42)	0.24 (0.210–0.270)	18 (16–20)
Djibouti	1990	< 1	0.5 (0.140–1.1)	88 (24–193)	5.3 (1.7–11)	942 (296–1 950)	3.5 (2.2–5.0)	619 (395–893)
	1995	< 1	0.33 (0.100–0.680)	53 (17–109)	4.5 (1.6–8.8)	713 (255–1 400)	3.9 (3.2–4.7)	619 (506–744)
	2000	< 1	0.41 (0.170–0.760)	56 (23–104)	5.3 (2.2–9.7)	721 (298–1 330)	4.5 (3.9–5.3)	619 (528–718)
	2005	< 1	0.7 (0.310–1.3)	87 (38–156)	7.2 (3.5–12)	892 (429–1 520)	5 (4.1–6.0)	619 (506–744)
	2009	< 1	0.76 (0.330–1.4)	87 (38–155)	7.9 (3.7–14)	902 (426–1 550)	5.4 (4.4–6.5)	620 (509–741)
	2010	< 1	0.72 (0.310–1.3)	81 (35–144)	7.7 (3.6–13)	865 (403–1 500)	5.5 (4.6–6.6)	620 (512–738)
	2011	< 1	0.69 (0.300–1.2)	76 (33–136)	7.6 (3.4–13)	840 (378–1 480)	5.6 (4.6–6.7)	620 (512–738)
Egypt	1990	57	1.9 (1.6–2.2)	3.3 (2.8–3.9)	46 (21–82)	81 (36–145)	20 (17–23)	34 (29–40)
	1995	62	1.5 (1.3–1.8)	2.5 (2.1–2.9)	36 (17–60)	57 (28–97)	20 (17–23)	32 (27–37)
	2000	68	1.1 (0.860–1.5)	1.7 (1.3–2.2)	27 (12–46)	39 (18–68)	17 (15–20)	26 (22–30)
	2005	74	0.91 (0.770–1.1)	1.2 (1.0–1.4)	24 (11–42)	33 (15–56)	16 (13–18)	21 (18–25)
	2009	80	0.64 (0.590–0.690)	0.8 (0.74–0.86)	24 (11–40)	30 (14–50)	15 (13–17)	19 (16–22)
	2010	81	0.56 (0.520–0.610)	0.69 (0.64–0.75)	23 (11–40)	29 (14–49)	15 (12–17)	18 (15–21)
	2011	83	0.49 (0.410–0.570)	0.59 (0.50–0.69)	24 (12–40)	28 (14–48)	14 (12–17)	17 (15–20)
Iran (Islamic Republic of)	1990	55	2.4 (0.860–4.9)	4.5 (1.6–8.8)	26 (9.9–49)	47 (18–90)	17 (12–22)	31 (23–41)
	1995	60	3 (1.1–6.0)	5.1 (1.8–10)	32 (12–61)	54 (21–102)	21 (15–28)	35 (26–46)
	2000	65	2.4 (0.840–4.7)	3.6 (1.3–7.2)	25 (9.8–48)	39 (15–73)	17 (12–22)	26 (19–34)
	2005	70	2 (0.700–3.9)	2.8 (1.0–5.6)	21 (8.1–40)	30 (12–58)	14 (10–19)	20 (15–27)
	2009	73	2 (0.700–3.9)	2.7 (0.95–5.4)	21 (8.2–40)	29 (11–55)	14 (10–19)	19 (14–25)
	2010	74	2.1 (0.730–4.1)	2.8 (0.98–5.5)	22 (8.5–42)	30 (12–56)	15 (11–19)	20 (14–26)
	2011	75	2.2 (0.760–4.3)	2.9 (1.0–5.8)	23 (9.0–44)	31 (12–59)	16 (11–20)	21 (15–27)
Iraq	1990	17	1.3 (0.690–2.0)	7.2 (4.0–11)	16 (4.9–34)	94 (28–198)	9.4 (8.2–11)	54 (47–62)
	1995	20	1.2 (0.680–1.9)	6 (3.3–9.5)	16 (4.9–35)	81 (24–171)	11 (9.4–12)	53 (46–60)
	2000	24	1.2 (0.650–1.8)	4.9 (2.7–7.7)	15 (5.4–29)	62 (23–122)	12 (11–14)	50 (44–57)
	2005	27	1.1 (0.620–1.8)	4.1 (2.3–6.4)	19 (8.8–33)	70 (32–122)	13 (11–15)	48 (42–54)
	2009	31	1.1 (0.590–1.7)	3.5 (1.9–5.5)	23 (11–38)	75 (37–125)	14 (12–16)	46 (40–52)
	2010	32	1.1 (0.580–1.7)	3.3 (1.8–5.3)	23 (12–39)	74 (37–124)	14 (13–16)	45 (40–52)
	2011	33	1 (0.580–1.6)	3.2 (1.8–5.0)	24 (12–40)	74 (37–123)	15 (13–17)	45 (39–51)
Jordan	1990	3	0.062 (0.034–0.098)	1.8 (1.0–2.9)	0.63 (0.240–1.2)	18 (7.2–35)	0.49 (0.430–0.560)	14 (13–16)
	1995	4	0.06 (0.033–0.095)	1.4 (0.76–2.2)	0.67 (0.260–1.3)	15 (6.0–29)	0.52 (0.460–0.590)	12 (10–13)
	2000	5	0.058 (0.032–0.091)	1.2 (0.66–1.9)	0.5 (0.200–0.940)	10 (4.0–20)	0.39 (0.340–0.440)	8.1 (7.1–9.1)
	2005	5	0.055 (0.030–0.087)	1 (0.57–1.6)	0.49 (0.190–0.930)	9.2 (3.6–17)	0.38 (0.340–0.430)	7.2 (6.3–8.1)
	2009	6	0.053 (0.029–0.083)	0.87 (0.48–1.4)	0.5 (0.200–0.950)	8.4 (3.3–16)	0.39 (0.350–0.450)	6.5 (5.7–7.4)
	2010	6	0.052 (0.029–0.082)	0.84 (0.47–1.3)	0.5 (0.190–0.940)	8.1 (3.1–15)	0.39 (0.340–0.440)	6.3 (5.5–7.1)
	2011	6	0.052 (0.029–0.081)	0.82 (0.45–1.3)	0.49 (0.190–0.920)	7.7 (3.0–14)	0.38 (0.330–0.430)	6 (5.2–6.8)
Kuwait	1990	2	0.014 (0.013–0.014)	0.66 (0.64–0.68)	0.35 (0.140–0.660)	17 (6.5–32)	0.27 (0.240–0.310)	13 (11–15)
	1995	2	0.016 (0.015–0.017)	0.96 (0.90–1.0)	0.53 (0.210–1.0)	32 (13–61)	0.41 (0.360–0.470)	25 (22–29)
	2000	2	0.017 (0.017–0.017)	0.87 (0.85–0.88)	0.81 (0.320–1.5)	42 (17–79)	0.64 (0.560–0.720)	33 (29–37)
	2005	2	0.021 (0.021–0.021)	0.92 (0.91–0.93)	0.89 (0.350–1.7)	39 (15–74)	0.7 (0.610–0.790)	31 (27–35)
	2009	3	0.024 (0.023–0.024)	0.89 (0.88–0.90)	1.2 (0.460–2.2)	44 (17–83)	0.91 (0.800–1.0)	34 (30–39)
	2010	3	0.024 (0.024–0.025)	0.89 (0.86–0.92)	1.2 (0.480–2.3)	45 (18–85)	0.96 (0.840–1.1)	35 (31–40)
	2011	3	0.025 (0.024–0.026)	0.89 (0.87–0.92)	1.3 (0.510–2.5)	46 (18–87)	1 (0.890–1.1)	36 (31–41)
Lebanon	1990	3	0.11 (0.046–0.190)	3.6 (1.6–6.5)	1.3 (0.510–2.5)	44 (17–84)	1 (0.900–1.2)	35 (31–39)
	1995	3	0.1 (0.045–0.190)	3 (1.3–5.4)	1.3 (0.510–2.4)	37 (15–69)	1 (0.880–1.1)	29 (26–33)
	2000	4	0.066 (0.028–0.120)	1.8 (0.75–3.2)	0.81 (0.320–1.5)	22 (8.5–41)	0.65 (0.570–0.730)	17 (15–20)
	2005	4	0.046 (0.020–0.083)	1.1 (0.49–2.1)	0.57 (0.230–1.1)	14 (5.6–27)	0.46 (0.400–0.520)	11 (10–13)
	2009	4	0.052 (0.022–0.094)	1.2 (0.53–2.2)	0.66 (0.260–1.2)	16 (6.3–29)	0.54 (0.470–0.610)	13 (11–15)
	2010	4	0.06 (0.026–0.110)	1.4 (0.61–2.6)	0.74 (0.290–1.4)	17 (6.9–33)	0.59 (0.510–0.660)	14 (12–16)
	2011	4	0.063 (0.027–0.110)	1.5 (0.64–2.7)	0.79 (0.310–1.5)	19 (7.4–35)	0.64 (0.560–0.720)	15 (13–17)
Libyan Arab Jamahiriya	1990	4	0.45 (0.180–0.860)	10 (4.1–20)	3.8 (1.7–6.6)	87 (40–152)	1.7 (1.4–2.1)	40 (33–48)
	1995	5	0.28 (0.120–0.500)	5.8 (2.5–10)	2.9 (1.3–5.1)	60 (27–107)	1.9 (1.6–2.3)	40 (33–48)
	2000	5	0.28 (0.120–0.510)	5.3 (2.2–9.7)	3 (1.3–5.5)	58 (25–104)	2.1 (1.7–2.5)	40 (33–48)
	2005	6	0.25 (0.100–0.460)	4.3 (1.8–8.0)	3 (1.2–5.7)	52 (20–98)	2.3 (2.0–2.7)	40 (34–46)
	2009	6	0.32 (0.130–0.590)	5.1 (2.1–9.4)	3.6 (1.5–6.5)	57 (24–104)	2.5 (2.0–3.0)	40 (33–48)
	2010	6	0.36 (0.160–0.650)	5.7 (2.5–10)	3.8 (1.7–6.8)	60 (27–107)	2.5 (2.1–3.0)	40 (33–48)
	2011	6	0.38 (0.160–0.680)	5.9 (2.6–11)	3.8 (1.8–6.6)	60 (28–103)	2.6 (2.1–3.1)	40 (33–48)
Morocco	1990	25	5.6 (0.540–17)	23 (2.2–67)	54 (21–100)	217 (84–412)	36 (27–47)	147 (110–189)
	1995	27	4.7 (0.450–14)	18 (1.7–52)	60 (26–110)	224 (98–401)	41 (33–49)	152 (124–182)
	2000	29	3.9 (0.370–12)	14 (1.3–40)	43 (17–81)	149 (58–281)	34 (29–38)	117 (102–132)
	2005	30	3.3 (0.310–9.6)	11 (1.0–32)	39 (15–73)	128 (50–241)	30 (27–34)	100 (88–113)
	2009	32	2.9 (0.280–8.6)	9.2 (0.88–27)	40 (16–75)	126 (49–238)	31 (27–35)	99 (87–112)
	2010	32	2.9 (0.270–8.4)	8.9 (0.85–26)	41 (16–77)	128 (50–242)	32 (28–36)	100 (88–114)
	2011	32	2.8 (0.270–8.2)	8.7 (0.82–26)	42 (17–80)	131 (51–248)	33 (29–38)	103 (90–117)
Oman	1990	2	0.055 (0.038–0.076)	2.9 (2.0–4.1)	0.68 (0.270–1.3)	37 (14–69)	0.53 (0.470–0.600)	29 (25–32)
	1995	2	0.047 (0.032–0.065)	2.1 (1.4–2.9)	0.44 (0.170–0.830)	20 (7.7–37)	0.34 (0.300–0.390)	15 (13–17)
	2000	2	0.038 (0.026–0.053)	1.7 (1.1–2.3)	0.42 (0.160–0.790)	18 (7.2–35)	0.33 (0.290–0.370)	14 (13–16)
	2005	2	0.031 (0.021–0.043)	1.3 (0.87–1.8)	0.43 (0.170–0.800)	18 (7.0–33)	0.34 (0.300–0.390)	14 (12–16)
	2009	3	0.027 (0.015–0.042)	0.98 (0.55–1.5)	0.48 (0.190–0.910)	18 (7.0–34)	0.38 (0.330–0.430)	14 (12–16)
	2010	3	0.026 (0.018–0.035)	0.93 (0.63–1.3)	0.49 (0.190–0.920)	18 (6.9–33)	0.38 (0.340–0.430)	14 (12–16)
	2011	3	0.025 (0.017–0.035)	0.88 (0.60–1.2)	0.49 (0.190–0.920)	17 (6.8–32)	0.39 (0.340–0.440)	14 (12–15)
Pakistan	1990	112	80 (25–170)	72 (22–150)	630 (230–1 200)	566 (203–1 110)	260 (160–380)	231 (143–341)
	1995	127	90 (33–170)	70 (26–137)	710 (310–1 300)	559 (242–1 010)	290 (240–350)	231 (189–278)
	2000	145	99 (37–190)	68 (25–132)	790 (340–1 400)	547 (238–981)	330 (270–400)	231 (189–278)
	2005	159	84 (34–160)	53 (21–98)	730 (340–1 300)	459 (217–790)	370 (300–440)	231 (189–278)
	2009	170	65 (28–120)	38 (17–68)	640 (300–1 100)	375 (176–647)	390 (320–470)	231 (190–277)
	2010	174	62 (27–110)	35 (16–63)	630 (290–1 100)	361 (167–628)	400 (330–480)	231 (190–276)
	2011	177	59 (26–110)	33 (15–60)	620 (280–1 100)	350 (158–618)	410 (340–490)	231 (190–276)
Qatar	1990	< 1	<0.01 (<0.01–<0.01)	0.47 (0.38–0.58)	0.26 (0.100–0.490)	55 (22–104)	0.2 (0.180–0.230)	43 (38–49)
	1995	< 1	<0.01 (<0.01–<0.01)	0.45 (0.43–0.47)	0.36 (0.140–0.670)	71 (28–134)	0.28 (0.240–0.310)	55 (48–63)
	2000	< 1	<0.01 (<0.01–<0.01)	0.38 (0.31–0.47)	0.39 (0.150–0.750)	67 (26–126)	0.31 (0.270–0.350)	52 (46–59)
	2005	< 1	<0.01 (<0.01–<0.01)	0.25 (0.19–0.31)	0.48 (0.190–0.900)	58 (23–110)	0.37 (0.330–0.420)	45 (40–51)
	2009	2	<0.01 (<0.01–<0.01)	0.15 (0.13–0.18)	0.82 (0.320–1.5)	51 (20–96)	0.63 (0.560–0.720)	40 (35–45)
	2010	2	<0.01 (<0.01–<0.01)	0.14 (0.11–0.18)	0.87 (0.340–1.6)	49 (19–93)	0.68 (0.590–0.760)	38 (34–43)
	2011	2	<0.01 (<0.01–<0.01)	0.14 (0.11–0.17)	0.89 (0.350–1.7)	47 (19–90)	0.69 (0.610–0.790)	37 (33–42)
Saudi Arabia	1990	16	0.65 (0.062–1.9)	4 (0.39–12)	3.1 (1.2–6.0)	20 (7.6–37)	2.5 (2.2–2.8)	15 (13–17)
	1995	18	0.73 (0.070–2.2)	4 (0.38–12)	4.1 (1.6–7.7)	22 (8.8–42)	3.2 (2.8–3.6)	17 (15–20)
	2000	20	0.81 (0.077–2.4)	4 (0.38–12)	4.9 (1.9–9.3)	25 (9.6–47)	3.9 (3.4–4.4)	19 (17–22)
	2005	24	0.95 (0.091–2.8)	4 (0.38–12)	5.3 (2.1–10)	22 (8.6–42)	4.1 (3.6–4.7)	17 (15–20)
	2009	27	1.1 (0.200–2.7)	4 (0.74–9.9)	5.9 (2.3–11)	22 (8.7–42)	4.6 (4.0–5.2)	17 (15–20)
	2010	27	1.1 (0.110–3.2)	4 (0.38–12)	6 (2.4–11)	22 (8.6–41)	4.8 (4.2–5.4)	17 (15–20)
	2011	28	1.1 (0.110–3.3)	4 (0.38–12)	6.2 (2.5–12)	22 (8.7–42)	4.9 (4.3–5.5)	17 (15–20)
Somalia	1990	7	5.7 (1.7–12)	86 (27–181)	45 (16–88)	678 (244–1 330)	19 (12–28)	285 (176–421)
	1995	7	4.8 (1.8–9.2)	74 (28–142)	39 (18–70)	602 (270–1 060)	19 (15–22)	285 (233–343)
	2000	7	4.8 (1.9–9.0)	64 (25–121)	41 (19–70)	549 (258–949)	21 (17–25)	285 (233–343)
	2005	8	4.4 (1.8–8.0)	53 (22–96)	41 (20–69)	485 (236–821)	24 (19–29)	285 (233–343)
	2009	9	4.9 (2.1–9.0)	54 (23–99)	45 (22–76)	496 (242–838)	26 (21–31)	285 (234–341)
	2010	9	5.3 (2.2–9.7)	56 (23–104)	48 (23–80)	509 (249–861)	27 (22–32)	286 (236–340)
	2011	10	5.7 (2.3–10)	59 (24–109)	50 (24–85)	523 (251–894)	27 (23–33)	286 (236–340)

[a] Rates are per 100 000 population.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2011**

	YEAR	POPULATION (MILLIONS)	MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
			NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
South Sudan	2011	10	3 (1.3–5.5)	29 (12–53)	28 (13–47)	267 (129–455)	15 (12–18)	146 (121–174)
Sudan	1990	26	12 (4.5–22)	44 (17–83)	96 (44–170)	362 (166–633)	45 (37–54)	170 (140–203)
	1995	30	9 (3.8–16)	30 (13–54)	83 (40–140)	275 (134–466)	47 (39–57)	158 (130–188)
	2000	34	9.2 (3.9–17)	27 (11–49)	85 (41–140)	248 (121–420)	49 (41–59)	144 (119–172)
	2005	38	8.9 (3.8–16)	23 (10–42)	85 (41–140)	220 (108–372)	51 (42–61)	133 (110–158)
	2009	42	9.2 (3.9–17)	22 (9.3–39)	86 (42–150)	203 (100–343)	52 (43–61)	121 (100–145)
	2010	44	9.4 (4.0–17)	22 (9.2–39)	88 (43–150)	202 (99–341)	52 (43–62)	119 (98–142)
	2011	34	7.5 (3.2–14)	22 (9.2–40)	69 (34–120)	201 (98–339)	40 (33–48)	117 (96–139)
Syrian Arab Republic	1990	12	0.9 (0.240–2.0)	7.3 (2.0–16)	10 (3.4–21)	85 (27–174)	7.5 (5.3–10)	61 (43–82)
	1995	14	0.81 (0.330–1.5)	5.7 (2.3–11)	9.1 (3.7–17)	64 (26–118)	6.5 (5.3–7.8)	46 (38–55)
	2000	16	0.5 (0.170–1.0)	3.1 (1.1–6.3)	6.7 (2.2–14)	42 (14–85)	5.6 (4.8–6.4)	35 (30–40)
	2005	18	0.47 (0.170–0.930)	2.6 (0.92–5.1)	6.1 (2.2–12)	33 (12–65)	4.9 (4.1–5.7)	26 (22–31)
	2009	20	0.42 (0.140–0.850)	2.1 (0.71–4.2)	5.3 (1.9–11)	27 (9.3–53)	4.2 (3.5–5.0)	21 (17–25)
	2010	20	0.4 (0.140–0.800)	2 (0.66–3.9)	5.1 (1.8–10)	25 (8.6–49)	4.1 (3.4–4.8)	20 (16–24)
	2011	21	0.38 (0.120–0.770)	1.8 (0.59–3.7)	4.8 (1.7–9.7)	23 (8.0–47)	3.9 (3.2–4.6)	19 (16–22)
Tunisia	1990	8	0.24 (0.100–0.430)	2.9 (1.2–5.2)	2.9 (1.2–5.5)	36 (14–67)	2.3 (2.1–2.7)	29 (25–32)
	1995	9	0.28 (0.120–0.500)	3.1 (1.3–5.6)	3.4 (1.4–6.4)	38 (15–72)	2.7 (2.4–3.1)	31 (27–35)
	2000	9	0.24 (0.100–0.430)	2.5 (1.1–4.6)	3 (1.2–5.6)	31 (12–59)	2.4 (2.1–2.7)	25 (22–28)
	2005	10	0.24 (0.100–0.430)	2.4 (1.0–4.3)	2.9 (1.2–5.5)	30 (12–56)	2.3 (2.0–2.6)	23 (21–27)
	2009	10	0.28 (0.120–0.510)	2.7 (1.2–5.0)	3.5 (1.4–6.6)	34 (13–64)	2.8 (2.4–3.1)	27 (23–30)
	2010	10	0.3 (0.130–0.550)	2.9 (1.2–5.2)	3.7 (1.5–7.0)	36 (14–67)	3 (2.6–3.3)	28 (25–32)
	2011	11	0.33 (0.140–0.590)	3.1 (1.3–5.6)	4 (1.6–7.6)	38 (15–71)	3.2 (2.8–3.6)	30 (26–34)
United Arab Emirates	1990	2	0.01 (<0.01–0.049)	0.58 (0–2.7)	0.28 (0.082–0.590)	15 (4.5–33)	0.22 (0.160–0.290)	12 (8.7–16)
	1995	2			0.51 (0.150–1.1)	22 (6.5–46)	0.28 (0.210–0.370)	12 (8.7–16)
	2000	3	0.023 (<0.01–0.120)	0.74 (0–4.0)	0.56 (0.220–1.1)	18 (7.2–35)	0.36 (0.260–0.480)	12 (8.7–16)
	2005	4	<0.01 (0–0.051)	0.2 (0–1.2)	0.19 (0.080–0.340)	4.6 (2.0–8.4)	0.1 (0.076–0.140)	2.6 (1.9–3.4)
	2009	7	0.016 (0–0.099)	0.22 (0–1.4)	0.37 (0.160–0.660)	5.3 (2.3–9.6)	0.2 (0.150–0.270)	2.9 (2.1–3.8)
	2010	8	0.018 (0–0.110)	0.23 (0–1.5)	0.42 (0.180–0.750)	5.5 (2.4–10)	0.24 (0.180–0.320)	3.2 (2.3–4.2)
	2011	8	0.021 (0–0.140)	0.27 (0–1.7)	0.5 (0.210–0.920)	6.4 (2.7–12)	0.29 (0.210–0.380)	3.7 (2.7–4.8)
West Bank and Gaza Strip	1990	2	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	0.25 (0.130–0.420)	12 (6.1–20)	0.15 (0.130–0.170)	7.2 (6.3–8.1)
	1995	3	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	0.3 (0.150–0.500)	11 (5.7–19)	0.15 (0.130–0.170)	5.9 (5.2–6.7)
	2000	3	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	0.26 (0.130–0.440)	8.1 (4.0–14)	0.13 (0.110–0.150)	4 (3.5–4.6)
	2005	4	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	0.27 (0.130–0.450)	7.5 (3.6–13)	0.13 (0.110–0.140)	3.6 (3.1–4.1)
	2009	4	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	0.28 (0.130–0.470)	7 (3.3–12)	0.13 (0.110–0.150)	3.3 (2.9–3.7)
	2010	4	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	0.27 (0.130–0.460)	6.7 (3.2–11)	0.13 (0.110–0.140)	3.1 (2.8–3.6)
	2011	4	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	0.26 (0.130–0.450)	6.3 (3.0–11)	0.12 (0.110–0.140)	3 (2.6–3.4)
Yemen	1990	12	3.9 (1.3–7.8)	32 (11–66)	33 (12–65)	280 (102–545)	16 (10–24)	137 (85–202)
	1995	15	3.4 (1.5–6.2)	23 (9.9–41)	34 (16–59)	224 (105–387)	21 (17–25)	137 (112–165)
	2000	18	3.3 (1.5–6.0)	19 (8.2–34)	33 (16–57)	186 (88–321)	20 (17–25)	116 (94–139)
	2005	21	2.9 (1.2–5.2)	14 (6.0–25)	28 (13–48)	134 (64–230)	17 (14–20)	81 (66–97)
	2009	23	1.9 (0.850–3.5)	8.3 (3.6–15)	20 (9.2–34)	85 (40–146)	13 (10–15)	54 (45–65)
	2010	24	1.6 (0.700–2.9)	6.7 (2.9–12)	17 (7.7–30)	72 (32–127)	12 (9.7–14)	49 (40–58)
	2011	25	1.3 (0.500–2.3)	5 (2.0–9.4)	15 (5.9–27)	59 (24–109)	11 (9.0–13)	44 (36–52)

[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2011**

			INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE		CASE DETECTION
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
Afghanistan	1990	13	25 (15–36)	189 (117–279)	0.044 (0.027–0.065)	0.3 (0.21–0.50)	4 332	33	18 (12–28)
	1995	20	37 (31–45)	189 (155–227)	0.079 (0.043–0.120)	0.4 (0.22–0.63)			
	2000	23	43 (35–52)	189 (155–227)	0.11 (0.061–0.170)	0.5 (0.27–0.75)	7 107	31	16 (14–20)
	2005	28	52 (43–63)	189 (155–227)	0.17 (0.096–0.260)	0.6 (0.35–0.93)	21 844	79	42 (35–51)
	2009	31	58 (48–69)	189 (155–226)	0.24 (0.140–0.370)	0.8 (0.47–1.2)	25 417	83	44 (37–53)
	2010	31	59 (49–71)	189 (156–225)	0.27 (0.160–0.410)	0.9 (0.51–1.3)	28 029	89	47 (40–57)
	2011	32	61 (51–73)	189 (156–225)	0.3 (0.180–0.450)	0.9 (0.56–1.4)	27 983	86	46 (38–55)
Bahrain	1990	< 1	0.18 (0.150–0.200)	36 (31–40)			117	24	67 (59–76)
	1995	< 1	0.078 (0.068–0.088)	14 (12–16)			43	7.7	55 (49–63)
	2000	< 1	0.19 (0.170–0.210)	30 (26–33)			207	32	110 (97–130)
	2005	< 1	0.31 (0.270–0.350)	42 (37–48)			280	39	92 (81–100)
	2009	1	0.35 (0.310–0.400)	30 (26–34)	0.011 (<0.01–0.021)	0.9 (0.37–1.8)	326	28	92 (82–110)
	2010	1	0.31 (0.270–0.350)	25 (22–28)	0.012 (<0.01–0.024)	0.9 (0.30–1.9)	246	19	79 (70–90)
	2011	1	0.24 (0.210–0.270)	18 (16–20)	0.011 (<0.01–0.021)	0.8 (0.30–1.6)	225	17	95 (84–110)
Djibouti	1990	< 1	3.5 (2.2–5.0)	619 (395–893)	0.11 (0.070–0.160)	20 (13–29)	2 100	373	60 (42–95)
	1995	< 1	3.9 (3.2–4.7)	619 (506–744)	0.46 (0.360–0.580)	74 (58–92)			
	2000	< 1	4.5 (3.9–5.3)	619 (528–718)	0.73 (0.590–0.880)	99 (81–120)	3 971	543	88 (76–100)
	2005	< 1	5 (4.1–6.0)	619 (506–744)	0.69 (0.540–0.860)	86 (67–107)	3 109	385	62 (52–76)
	2009	< 1	5.4 (4.4–6.5)	620 (509–741)	0.53 (0.420–0.660)	61 (48–76)	3 783	434	70 (59–85)
	2010	< 1	5.5 (4.6–6.6)	620 (512–738)	0.63 (0.500–0.780)	71 (57–87)	4 172	469	76 (64–92)
	2011	< 1	5.6 (4.6–6.7)	620 (512–738)	0.57 (0.450–0.710)	63 (49–79)	3 686	407	66 (55–79)
Egypt	1990	57	20 (17–23)	34 (29–40)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	2 142	3.8	11 (9.3–13)
	1995	62	20 (17–23)	32 (27–37)	0.017 (<0.01–0.028)	<0.1 (<0.1–<0.1)	11 145	18	57 (49–67)
	2000	68	17 (15–20)	26 (22–30)	0.056 (0.033–0.086)	<0.1 (<0.1–0.13)	10 762	16	62 (53–73)
	2005	74	16 (13–18)	21 (18–25)	0.054 (0.031–0.082)	<0.1 (<0.1–0.11)	11 446	15	73 (62–86)
	2009	80	15 (13–17)	19 (16–22)	0.042 (0.024–0.065)	<0.1 (<0.1–<0.1)	9 685	12	65 (56–77)
	2010	81	15 (12–17)	18 (15–21)	0.042 (0.025–0.065)	<0.1 (<0.1–<0.1)	9 260	11	64 (55–75)
	2011	83	14 (12–17)	17 (15–20)	0.043 (0.025–0.067)	<0.1 (<0.1–<0.1)	8 974	11	63 (54–74)
Iran (Islamic Republic of)	1990	55	17 (12–22)	31 (23–41)	0.02 (0.014–0.026)	<0.1 (<0.1–<0.1)	9 255	17	54 (41–74)
	1995	60	21 (15–28)	35 (26–46)	0.094 (0.052–0.150)	0.2 (<0.1–0.25)	15 936	27	75 (57–100)
	2000	65	17 (12–22)	26 (19–34)	0.25 (0.160–0.370)	0.4 (0.24–0.57)	11 850	18	71 (54–97)
	2005	70	14 (10–19)	20 (15–27)	0.29 (0.180–0.420)	0.4 (0.26–0.60)	9 192	13	65 (50–90)
	2009	73	14 (10–19)	19 (14–25)	0.33 (0.210–0.470)	0.4 (0.28–0.64)	10 097	14	71 (54–98)
	2010	74	15 (11–19)	20 (14–26)	0.35 (0.220–0.500)	0.5 (0.30–0.68)	10 362	14	70 (53–97)
	2011	75	16 (11–20)	21 (15–27)	0.38 (0.240–0.540)	0.5 (0.32–0.73)	10 980	15	71 (54–97)
Iraq	1990	17	9.4 (8.2–11)	54 (47–62)			14 735	85	160 (140–180)
	1995	20	11 (9.4–12)	53 (46–60)			9 697	48	91 (80–100)
	2000	24	12 (11–14)	50 (44–57)			9 697	41	81 (71–92)
	2005	27	13 (11–15)	48 (42–54)			9 454	35	72 (64–82)
	2009	31	14 (12–16)	46 (40–52)	<0.01 (0–0.011)	<0.1 (0–<0.1)	9 385	31	66 (58–76)
	2010	32	14 (13–16)	45 (40–52)	<0.01 (0–0.011)	<0.1 (0–<0.1)	9 707	31	67 (59–77)
	2011	33	15 (13–17)	45 (39–51)			8 837	27	60 (53–69)
Jordan	1990	3	0.49 (0.430–0.560)	14 (13–16)			439	13	90 (79–100)
	1995	4	0.52 (0.460–0.590)	12 (10–13)			498	11	96 (85–110)
	2000	5	0.39 (0.340–0.440)	8.1 (7.1–9.1)			306	6.3	79 (69–90)
	2005	5	0.38 (0.340–0.430)	7.2 (6.3–8.1)			367	6.9	96 (85–110)
	2009	6	0.39 (0.350–0.450)	6.5 (5.7–7.4)			367	6.1	93 (82–110)
	2010	6	0.39 (0.340–0.440)	6.3 (5.5–7.1)			338	5.5	87 (77–99)
	2011	6	0.38 (0.330–0.430)	6 (5.2–6.8)			314	5	83 (73–95)
Kuwait	1990	2	0.27 (0.240–0.310)	13 (11–15)			277	13	100 (90–120)
	1995	2	0.41 (0.360–0.470)	25 (22–29)			336	21	82 (72–93)
	2000	2	0.64 (0.560–0.720)	33 (29–37)	<0.01 (<0.01–0.010)	0.2 (<0.1–0.52)	513	26	80 (71–92)
	2005	2	0.7 (0.610–0.790)	31 (27–35)	<0.01 (<0.01–0.011)	0.2 (<0.1–0.48)	517	23	74 (66–85)
	2009	3	0.91 (0.800–1.0)	34 (30–39)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.11)	933	35	100 (90–120)
	2010	3	0.96 (0.840–1.1)	35 (31–40)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.30)	957	35	99 (88–110)
	2011	3	1 (0.890–1.1)	36 (31–41)			672	24	66 (59–76)
Lebanon	1990	3	1 (0.900–1.2)	35 (31–39)	0.011 (<0.01–0.012)	0.4 (0.33–0.42)			
	1995	3	1 (0.880–1.1)	29 (26–33)	0.019 (0.012–0.028)	0.6 (0.34–0.80)	983	28	97 (86–110)
	2000	4	0.65 (0.570–0.730)	17 (15–20)	0.02 (0.013–0.029)	0.5 (0.35–0.76)	571	15	88 (78–100)
	2005	4	0.46 (0.400–0.520)	11 (10–13)	0.021 (0.014–0.029)	0.5 (0.34–0.71)	391	9.6	85 (75–97)
	2009	4	0.54 (0.470–0.610)	13 (11–15)	0.045 (0.029–0.066)	1.1 (0.69–1.6)	499	12	92 (81–110)
	2010	4	0.59 (0.510–0.660)	14 (12–16)	0.015 (<0.01–0.030)	0.4 (0.13–0.71)	513	12	88 (77–100)
	2011	4	0.64 (0.560–0.720)	15 (13–17)	0.036 (0.025–0.050)	0.9 (0.58–1.2)	496	12	77 (68–88)
Libyan Arab Jamahiriya	1990	4	1.7 (1.4–2.1)	40 (33–48)			442	10	26 (21–31)
	1995	5	1.9 (1.6–2.3)	40 (33–48)			1 440	30	76 (63–92)
	2000	5	2.1 (1.7–2.5)	40 (33–48)			1 341	26	64 (53–79)
	2005	6	2.3 (2.0–2.7)	40 (34–46)			2 098	36	91 (79–110)
	2009	6	2.5 (2.0–3.0)	40 (33–48)			2 096	33	84 (70–100)
	2010	6	2.5 (2.1–3.0)	40 (33–48)					
	2011	6	2.6 (2.1–3.1)	40 (33–48)	0.22 (0.170–0.280)	3.4 (2.6–4.3)	1 518	24	59 (49–72)
Morocco	1990	25	36 (27–47)	147 (110–189)	0.021 (0.016–0.027)	<0.1 (<0.1–0.11)	27 658	112	76 (59–100)
	1995	27	41 (33–49)	152 (124–182)	0.064 (0.037–0.098)	0.2 (0.14–0.36)	29 829	111	73 (61–89)
	2000	29	34 (29–38)	117 (102–132)	0.11 (0.074–0.160)	0.4 (0.26–0.56)	28 852	100	86 (76–98)
	2005	30	30 (27–34)	100 (88–113)	0.17 (0.120–0.240)	0.6 (0.39–0.79)	26 269	86	86 (76–99)
	2009	32	31 (27–35)	99 (87–112)	0.25 (0.170–0.330)	0.8 (0.55–1.1)	27 348	86	88 (77–100)
	2010	32	32 (28–36)	100 (88–114)	0.27 (0.200–0.350)	0.9 (0.63–1.1)	28 359	89	88 (78–100)
	2011	32	33 (29–38)	103 (90–117)	0.3 (0.210–0.400)	0.9 (0.66–1.2)	28 640	89	86 (76–98)
Oman	1990	2	0.53 (0.470–0.600)	29 (25–32)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	482	26	90 (80–100)
	1995	2	0.34 (0.300–0.390)	15 (13–17)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	276	12	81 (71–92)
	2000	2	0.33 (0.290–0.370)	14 (13–16)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	321	14	98 (87–110)
	2005	2	0.34 (0.300–0.390)	14 (12–16)	0.013 (<0.01–0.024)	0.6 (0.25–0.97)	261	11	76 (67–87)
	2009	3	0.38 (0.330–0.430)	14 (12–16)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.34)	332	12	88 (78–100)
	2010	3	0.38 (0.340–0.430)	14 (12–16)	<0.01 (<0.01–0.012)	0.2 (<0.1–0.42)	308	11	80 (71–92)
	2011	3	0.39 (0.340–0.440)	14 (12–15)	<0.01 (<0.01–0.017)	0.3 (0.13–0.61)	337	12	87 (77–99)
Pakistan	1990	112	260 (160–380)	231 (143–341)	0.011 (<0.01–0.016)	<0.1 (<0.1–<0.1)	156 759	140	61 (41–98)
	1995	127	290 (240–350)	231 (189–278)	0.036 (0.017–0.064)	<0.1 (<0.1–<0.1)	13 142	10	4.5 (3.7–5.5)
	2000	145	330 (270–400)	231 (189–278)	0.13 (0.068–0.210)	<0.1 (<0.1–0.14)	11 050	7.6	3.3 (2.8–4.0)
	2005	159	370 (300–440)	231 (189–278)	0.42 (0.250–0.630)	0.3 (0.16–0.40)	142 017	90	39 (32–47)
	2009	170	390 (320–470)	231 (190–277)	0.98 (0.630–1.4)	0.6 (0.37–0.82)	264 248	155	67 (56–82)
	2010	174	400 (330–480)	231 (190–276)	1.2 (0.860–1.6)	0.7 (0.50–0.92)	261 199	150	65 (55–79)
	2011	177	410 (340–490)	231 (190–276)	1.5 (0.990–2.1)	0.8 (0.56–1.2)	261 041	148	64 (54–78)
Qatar	1990	< 1	0.2 (0.180–0.230)	43 (38–49)			184	39	90 (80–100)
	1995	< 1	0.28 (0.240–0.310)	55 (48–63)			304	61	110 (97–130)
	2000	< 1	0.31 (0.270–0.350)	52 (46–59)			279	47	91 (80–100)
	2005	< 1	0.37 (0.330–0.420)	45 (40–51)			325	40	88 (77–100)
	2009	2	0.63 (0.560–0.720)	40 (35–45)			619	39	98 (86–110)
	2010	2	0.68 (0.590–0.760)	38 (34–43)			580	33	86 (76–98)
	2011	2	0.69 (0.610–0.790)	37 (33–42)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.14)	553	30	80 (70–91)
Saudi Arabia	1990	16	2.5 (2.2–2.8)	15 (13–17)			2 415	15	98 (87–110)
	1995	18	3.2 (2.8–3.6)	17 (15–20)					
	2000	20	3.9 (3.4–4.4)	19 (17–22)			3 452	17	89 (79–100)
	2005	24	4.1 (3.6–4.7)	17 (15–20)			3 539	15	85 (75–97)
	2009	27	4.6 (4.0–5.2)	17 (15–20)			4 043	15	87 (77–100)
	2010	27	4.8 (4.2–5.4)	17 (15–20)	0.11 (0.085–0.140)	0.4 (0.31–0.52)	4 422	16	93 (82–110)
	2011	28	4.9 (4.3–5.5)	17 (15–20)	0.11 (0.083–0.140)	0.4 (0.30–0.50)	3 932	14	80 (71–92)
Somalia	1990	7	19 (12–28)	285 (176–421)	0.97 (0.600–1.4)	15 (9.1–22)			
	1995	7	19 (15–22)	285 (233–343)	1.6 (1.2–2.1)	25 (19–32)	2 504	38	13 (11–16)
	2000	7	21 (17–25)	285 (233–343)	2 (1.5–2.5)	27 (21–34)	5 686	77	27 (22–33)
	2005	8	24 (19–29)	285 (233–343)	2.1 (1.6–2.7)	26 (19–33)	12 904	154	54 (45–66)
	2009	9	26 (21–31)	285 (234–341)	2.1 (1.6–2.7)	23 (18–30)	11 075	121	43 (36–52)
	2010	9	27 (22–32)	286 (236–340)	2.1 (1.6–2.7)	23 (17–29)	10 139	109	38 (32–46)
	2011	10	27 (23–33)	286 (236–340)	2.1 (1.6–2.7)	22 (17–28)	11 653	122	43 (36–52)

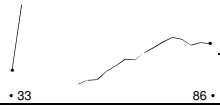
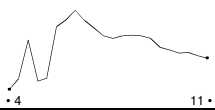
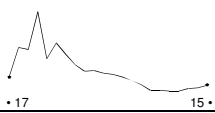
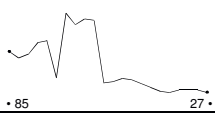
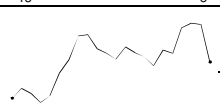
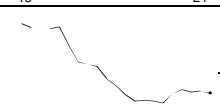
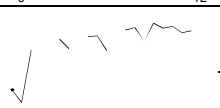
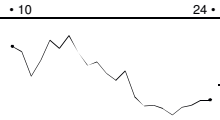
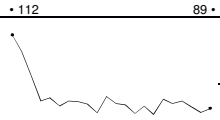
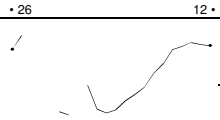
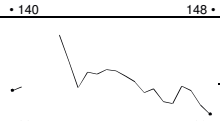
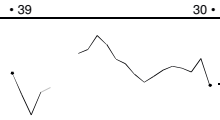
[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2011**

			INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE		CASE DETECTION
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
South Sudan	2011	10	15 (12–18)	146 (121–174)			7 217	70	48 (40–58)
Sudan	1990	26	45 (37–54)	170 (140–203)	1.7 (1.4–2.0)	6.4 (5.3–7.6)	212	0.8	0.47 (0.39–0.57)
	1995	30	47 (39–57)	158 (130–188)	2.4 (1.8–3.1)	7.9 (5.8–10)	14 320	48	30 (25–37)
	2000	34	49 (41–59)	144 (119–172)	3.2 (2.4–4.1)	9.3 (6.9–12)	24 807	73	50 (42–61)
	2005	38	51 (42–61)	133 (110–158)	3.7 (2.7–4.7)	9.5 (7.2–12)	27 562	72	54 (45–66)
	2009	42	52 (43–61)	121 (100–145)	3.7 (2.8–4.7)	8.7 (6.5–11)	26 001	61	50 (42–61)
	2010	44	52 (43–62)	119 (98–142)	3.7 (2.8–4.7)	8.5 (6.3–11)	26 131	60	50 (42–61)
	2011	34	40 (33–48)	117 (96–139)	2.8 (2.1–3.6)	8.2 (6.2–11)	19 348	56	48 (41–59)
Syrian Arab Republic	1990	12	7.5 (5.3–10)	61 (43–82)			6 018	49	81 (60–110)
	1995	14	6.5 (5.3–7.8)	46 (38–55)			4 404	31	68 (56–83)
	2000	16	5.6 (4.8–6.4)	35 (30–40)			5 090	32	92 (79–110)
	2005	18	4.9 (4.1–5.7)	26 (22–31)			4 310	23	89 (76–110)
	2009	20	4.2 (3.5–5.0)	21 (17–25)			4 050	20	96 (80–120)
	2010	20	4.1 (3.4–4.8)	20 (16–24)			3 666	18	90 (76–110)
	2011	21	3.9 (3.2–4.6)	19 (16–22)			3 395	16	87 (73–110)
Tunisia	1990	8	2.3 (2.1–2.7)	29 (25–32)	0.096 (0.084–0.110)	1.2 (1.0–1.3)	2 054	25	88 (77–100)
	1995	9	2.7 (2.4–3.1)	31 (27–35)	0.082 (0.060–0.110)	0.9 (0.68–1.2)	2 383	27	87 (77–100)
	2000	9	2.4 (2.1–2.7)	25 (22–28)	0.053 (0.038–0.071)	0.6 (0.40–0.75)	2 038	22	87 (77–99)
	2005	10	2.3 (2.0–2.6)	23 (21–27)	0.047 (0.033–0.063)	0.5 (0.34–0.64)	2 079	21	90 (79–100)
	2009	10	2.8 (2.4–3.1)	27 (23–30)	0.057 (0.040–0.076)	0.6 (0.39–0.73)	2 155	21	78 (69–89)
	2010	10	3 (2.6–3.3)	28 (25–32)	0.061 (0.043–0.081)	0.6 (0.41–0.78)	2 368	23	80 (71–91)
	2011	11	3.2 (2.8–3.6)	30 (26–34)	0.066 (0.047–0.088)	0.6 (0.44–0.83)	3 015	28	95 (84–110)
United Arab Emirates	1990	2	0.22 (0.160–0.290)	12 (8.7–16)			285	16	130 (100–180)
	1995	2	0.28 (0.210–0.370)	12 (8.7–16)					
	2000	3	0.36 (0.260–0.480)	12 (8.7–16)			115	3.8	32 (24–43)
	2005	4	0.1 (0.076–0.140)	2.6 (1.9–3.4)			103	2.5	99 (75–140)
	2009	7	0.2 (0.150–0.270)	2.9 (2.1–3.8)			116	1.7	57 (43–79)
	2010	8	0.24 (0.180–0.320)	3.2 (2.3–4.2)	0.011 (<0.01–0.028)	0.2 (<0.1–0.37)	131	1.7	54 (41–75)
	2011	8	0.29 (0.210–0.380)	3.7 (2.7–4.8)	0.011 (<0.01–0.029)	0.1 (<0.1–0.37)	103	1.3	36 (27–49)
West Bank and Gaza Strip	1990	2	0.15 (0.130–0.170)	7.2 (6.3–8.1)			64	3.1	43 (38–49)
	1995	3	0.15 (0.130–0.170)	5.9 (5.2–6.7)			77	3	50 (44–57)
	2000	3	0.13 (0.110–0.150)	4 (3.5–4.6)			82	2.6	64 (56–73)
	2005	4	0.13 (0.110–0.140)	3.6 (3.1–4.1)			28	0.79	22 (19–25)
	2009	4	0.13 (0.110–0.150)	3.3 (2.9–3.7)			35	0.89	27 (24–31)
	2010	4	0.13 (0.110–0.140)	3.1 (2.8–3.6)			31	0.77	24 (22–28)
	2011	4	0.12 (0.110–0.140)	3 (2.6–3.4)			32	0.77	26 (23–29)
Yemen	1990	12	16 (10–24)	137 (85–202)	0.014 (<0.01–0.020)	0.1 (<0.1–0.17)	4 650	39	28 (19–46)
	1995	15	21 (17–25)	137 (112–165)	0.074 (0.043–0.110)	0.5 (0.28–0.75)	14 428	95	69 (58–85)
	2000	18	20 (17–25)	116 (94–139)	0.24 (0.150–0.340)	1.3 (0.87–1.9)	13 651	77	67 (56–82)
	2005	21	17 (14–20)	81 (66–97)	0.34 (0.230–0.470)	1.7 (1.1–2.3)	9 063	44	54 (45–67)
	2009	23	13 (10–15)	54 (45–65)	0.28 (0.190–0.380)	1.2 (0.82–1.6)	8 562	37	67 (56–82)
	2010	24	12 (9.7–14)	49 (40–58)	0.26 (0.180–0.350)	1.1 (0.74–1.5)	8 916	37	76 (64–92)
	2011	25	11 (9.0–13)	44 (36–52)	0.24 (0.170–0.330)	1 (0.67–1.3)	8 636	35	79 (67–96)

[a] Rates are per 100 000 population.

TABLE A4.3 **Case notifications, 1990–2011**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2011	YEAR	NEW AND RELAPSE	NEW CASES				RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
				SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN	EXTRA-PULMONARY	OTHER					
Afghanistan		1990	4 332									–
		1995										–
		2000	7 107	2 892	2 358	1 620		237		237		55
		2005	21 844	9 949	6 085	4 954		856		856		62
		2009	25 417	12 497	6 108	5 730		1 082	208	1 290	733	67
		2010	28 029	12 947	7 085	6 248	633	1 116	209	1 325		65
	• 33 86 •	2011	27 983	13 789	6 155	6 286	623	1 130	184	1 314		69
Bahrain		1990	117									–
		1995	43	17	14	85		0		0		55
		2000	207	23	16	8						59
		2005	280	101	72	107	0	0	0	0	0	58
		2009	326	131	74	121	0	0	0	0	0	64
		2010	246	90	58	98	0	0	0	0	0	61
	• 24 17 •	2011	225	89	47	89	0	0	0	0	0	65
Djibouti		1990	2 100									–
		1995										–
		2000	3 971	1 391	518	1 875		184		184		73
		2005	3 109	1 120	739	1 058	0	192	61	253	0	60
		2009	3 783	1 377	507	1 710	0	189	21	210	0	73
		2010	4 172	1 181	538	2 253	0	200	19	219	0	69
	• 373 407 •	2011	3 686	1 336	569	1 587	0	194	37	231	0	70
Egypt		1990	2 142									–
		1995	11 145	4 229	9 204	4 684		753		753		31
		2000	10 762	4 606	2 693	2 843		620		620		63
		2005	11 446	5 217	2 617	3 163	0	449	289	738	0	67
		2009	9 685	5 201	1 238	2 850	0	396	352	748	0	81
		2010	9 260	4 679	1 158	3 048	0	375	328	703	0	80
	• 4 11 •	2011	8 974	4 508	1 055	3 074	0	337	333	670	0	81
Iran (Islamic Republic of)		1990	9 255									–
		1995	15 936	5 347	6 432	3 779		477		477		45
		2000	11 850	5 361	2 642	3 442		405		405		67
		2005	9 192	4 581	1 807	2 530		274	154	428	20	72
		2009	10 097	5 152	1 926	2 685	0	334	439	773	0	73
		2010	10 362	5 188	1 985	2 869	0	320	440	760	0	72
	• 17 15 •	2011	10 980	5 539	1 980	3 076	0	385	515	900	0	74
Iraq		1990	14 735	1 587	12 394	754						11
		1995	9 697	3 194	13 962	1 367		68		68		19
		2000	9 697	3 194	3 188	2 753		562		562		50
		2005	9 454	3 096	2 887	2 703		768		768		52
		2009	9 385	3 347	2 666	2 904	0	468	283	751	0	56
		2010	9 707	3 618	2 693	3 009	0	387	390	777	0	57
	• 85 27 •	2011	8 837	3 059	2 463	2 957	0	358	411	769	0	55
Jordan		1990	439									–
		1995	498	187	210	101		6		6		47
		2000	306	89	69	145		3		3		56
		2005	367	86	76	187	12	6	4	10	0	53
		2009	367	109	64	190	0	4	16	20	4	63
		2010	338	117	69	150	0	2	16	18	0	63
	• 13 5 •	2011	314	103	81	128	0	2	16	18	14	56
Kuwait		1990	277									–
		1995	336	175	42	115	0	4	0	4	0	81
		2000	513	180	89	244	0	0	0	0	0	67
		2005	517	187	95	234	0	1	0	1	0	66
		2009	933	386	155	391	0	1	0	1	0	71
		2010	957	385	163	407	0	2	0	2	0	70
	• 13 24 •	2011	672	222	141	309	0	0	0	0	0	61
Lebanon		1990										–
		1995	983	197	528	255		3		3		27
		2000	571	202	149	214		6		6		58
		2005	391	131	75	181	0	4	0	4	0	64
		2009	499	179	94	218	0	8	2	10	0	66
		2010	513	194	99	210	0	10	2	12	0	66
	• 0 12 •	2011	496	188	101	206		1		1		65
Libyan Arab Jamahiriya		1990	442									–
		1995	1 440		626	814						–
		2000	1 341	607	82	652						88
		2005	2 098	860	474	762		2	269	271		64
		2009	2 096	936	455	696	0	9	14	23	0	67
		2010										–
	• 10 24 •	2011	1 518	731	305	462	0	20	27	47		71
Morocco		1990	27 658									–
		1995	29 829	14 171	4 095	11 563						78
		2000	28 852	12 872	2 934	13 046						81
		2005	26 269	12 757	2 142	11 370	0					86
		2009	27 348	11 907	2 021	12 131	0	1 289	316	1 605	0	85
		2010	28 359	12 239	2 174	12 730	0	1 216	429	1 645	0	85
	• 112 89 •	2011	28 640	11 822	2 272	13 331	0	1 215	1 130	2 345	0	84
Oman		1990	482									–
		1995	276	135	60	81		0		0		69
		2000	321	164	37	112		8		8		82
		2005	261	131	37	89		4		4		78
		2009	332	164	36	127	0	5	2	7	0	82
		2010	308	152	28	124	0	4	5	9	0	84
	• 26 12 •	2011	337	180	32	122	0	3	0	3	0	85
Pakistan		1990	156 759									–
		1995	13 142	2 578	3 806	3 037		184		184		40
		2000	11 050	3 285	5 578	1 846		341		341		37
		2005	142 017	48 220	68 337	22 789		2 671	2 754	5 425		41
		2009	264 248	101 887	112 948	43 416		5 997	3 203	9 200		47
		2010	261 199	104 263	105 623	45 443	0	5 870	5 055	10 925	3 036	50
	• 140 148 •	2011	261 041	105 733	103 824	45 537	0	5 947	5 460	11 407	3 893	50
Qatar		1990	184									–
		1995	304	60	135	109		1		1		31
		2000	279	53	98	128		0		0		35
		2005	325	96	73	156		0	0	0		57
		2009	619	220	102	297	0	0	0	0	0	68
		2010	580	223	101	256	0	0	0	0	0	69
	• 39 30 •	2011	553	197	120	236	0					62
Saudi Arabia		1990	2 415									–
		1995										–
		2000	3 452	1 595	722	1 023		112		112		69
		2005	3 539	1 722	545	1 067	0	205		205		76
		2009	4 043	2 201	578	1 170		94	50	144		79
		2010	4 422	2 302	687	1 311	0	122	84	206	43	77
	• 15 14 •	2011	3 932	2 055	586	1 227		64	83	147		78

[a] Rates are per 100 000 population.

TABLE A4.3 **Case notifications, 1990–2011**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2011	YEAR	NEW AND RELAPSE	NEW CASES				RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
				SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN	EXTRA-PULMONARY	OTHER					
Somalia		1990										–
		1995	2 504	1 572	692	318		134		134		69
		2000	5 686	3 776	837	722		351		351		82
		2005	12 904	7 068	3 168	2 258	0	410	102	512	0	69
		2009	11 075	6 047	2 604	1 965	0	459	196	655	0	70
		2010	10 139	5 225	2 654	1 885	0	375	330	705	0	66
	• 0 122 •	2011	11 653	5 884	3 159	2 261	0	349	368	717	0	65
South Sudan		2011	7 217	2 797	2 610	1 639		171	366	537		52
Sudan		1990	212									–
		1995	14 320	8 761	2 655	1 675		474		474		77
		2000	24 807	12 311	6 512	3 843		2 141		2 141		65
		2005	27 562	12 730	9 212	5 434	0	186	1 616	1 802		58
		2009	26 001	10 541	8 897	5 530	76	957	1 036	1 993		54
		2010	26 131	9 958	9 144	6 217		812	1 110	1 922		52
	• 1 56 •	2011	19 348	7 266	6 746	4 624	0	712	1 037	1 749	0	52
Syrian Arab Republic		1990	6 018									–
		1995	4 404	1 295	1 507	1 574		28		28		46
		2000	5 090	1 584	1 409	2 000		97		97		53
		2005	4 310	1 350	796	2 103	0	61	83	144		63
		2009	4 050	1 143	796	2 036	0	75	101	176	0	59
		2010	3 666	1 122	544	1 948	0	52	161	213	0	67
	• 49 16 •	2011	3 395	1 027	393	1 915	0	60	55	115	225	72
Tunisia		1990	2 054									–
		1995	2 383	1 243	407	733						75
		2000	2 038	1 099	179	727		61		61		86
		2005	2 079	915	239	874		51		51		79
		2009	2 155	931	232	950		42		42		80
		2010	2 368	1 091	151	1 090		36		36		88
	• 25 28 •	2011	3 015	1 031	317	1 616		51		51		76
United Arab Emirates		1990	285									–
		1995										–
		2000	115	73	3	41		0		0		96
		2005	103	62	12	25	0	4	2	6	0	84
		2009	116	71	15	30	0	0	0	0	0	83
		2010	131	56	28	47	0	0	1	1	0	67
	• 16 1 •	2011	103	46	27	30	0	0	3	3	0	63
West Bank and Gaza Strip		1990	64									–
		1995	77	9	58	10						13
		2000	82	37								100
		2005	28	7	6	15						54
		2009	35	10	9	15	0	1	1	2	0	53
		2010	31	13	6	12	0	0	0	0	0	68
	• 3 1 •	2011	32	11	5	13	0	3	0	3	0	69
Yemen		1990	4 650									–
		1995	14 428	3 681	7 390	3 082		275		275		33
		2000	13 651	5 565	4 176	3 470		440		440		57
		2005	9 063	3 379	2 780	2 553		351		351		55
		2009	8 562	3 576	2 108	2 564	0	314	0	314	0	63
		2010	8 916	3 584	2 313	2 715	0	304	134	438	0	61
	• 39 35 •	2011	8 636	3 135	2 400	2 880	0	221	77	298	0	57

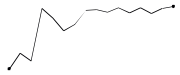
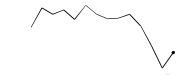
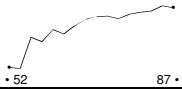
[a] Rates are per 100 000 population.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Afghanistan		1995			–						
		2000	2 892	3 136	108	76	9	3	3	6	2
		2005	9 949	10 013	101	83	7	2	1	2	5
		2008	13 136	13 136	100	83	5	2	1	2	7
		2009	12 497	12 497	100	83	4	2	1	2	9
	• 0 90 •	2010	12 947	12 947	100	86	3	2	1	2	5
Bahrain		1995	17		–						
		2000	23	22	96	73	0	27	0	0	0
		2005	101	15	15	93	0	7	0	0	0
		2008	141	142	101	8	0	1	0	0	90
		2009	131	192	147	98	0	2	0	0	0
	• 0 96 •	2010	90	162	180	96	0	4	0	0	0
Djibouti		1995		1 751	–	60	16	3	1	20	1
		2000	1 391	1 391	100	48	14	2	1	21	14
		2005	1 120	1 120	100	71	9	1	1	16	2
		2008	1 375	1 375	100	78	6	1	0	13	2
		2009	1 377	1 277	93	72	7	1	1	17	3
	• 75 80 •	2010	1 181	1 177	100	68	12	1	1	16	2
Egypt		1995	4 229	2 118	50	38	24	2	3	19	14
		2000	4 606	4 611	100	75	12	3	2	5	3
		2005	5 217	5 154	99	66	13	3	2	3	13
		2008	5 102	5 101	100	69	20	3	3	3	3
		2009	5 201	5 201	100	72	16	3	2	4	3
	• 62 86 •	2010	4 679	4 682	100	59	27	3	3	4	4
Iran (Islamic Republic of)		1995	5 347		–						
		2000	5 361	5 866	109	81	4	6	2	3	3
		2005	4 581	4 581	100	78	5	7	3	3	4
		2008	4 722	4 824	102	78	6	8	3	2	3
		2009	5 152	5 201	101	77	6	7	3	2	5
	• 0 83 •	2010	5 188	5 269	102	77	6	7	4	3	3
Iraq		1995	3 194	11 553	362	60	20	0	5	10	5
		2000	3 194	3 194	100	86	5	3	2	3	1
		2005	3 096	3 096	100	76	10	3	2	7	3
		2008	3 150	3 150	100	79	9	3	2	6	1
		2009	3 347	3 347	100	80	10	2	1	6	1
	• 80 89 •	2010	3 618	3 618	100	80	9	3	1	6	1
Jordan		1995	187	193	103	91	1	3	1	2	3
		2000	89	89	100	89	1	2	1	4	2
		2005	86	86	100	71	12	5	7	6	0
		2008	104	104	100	73	11	3	1	4	9
		2009	109	109	100	54	21	6	7	11	0
	• 92 87 •	2010	117	117	100	57	30	1	3	6	3
Kuwait		1995	175	175	100	40	31	3	0	1	25
		2000	180	180	100	54	15	1	0	9	21
		2005	187	187	100	53	10	1	0	7	29
		2008	345	345	100	43	37	0	0	7	12
		2009	386	386	100	41	44	0	0	4	11
	• 71 87 •	2010	385	385	100	63	24	0	0	3	9
Lebanon		1995	197	200	102	35	56	0	0	10	0
		2000	202	190	94	89	3	4	1	3	1
		2005	131	131	100	81	11	2	1	6	0
		2008	158	158	100	63	13	3	1	2	18
		2009	179	179	100	65	17	6	1	2	10
	• 91 80 •	2010	194	192	99	68	12	2	1	18	0
Libyan Arab Jamahiriya		1995		626	–	65	0	1	1	33	0
		2000	607		–						
		2005	860	860	100	40	29	2	0	27	2
		2008	871	872	100	52	17	3	1	24	4
		2009	936		–						
	• 65 64 •	2010		792	–	43	21	2	0	31	3
Morocco		1995	14 171	14 171	100	75	14	2	1	7	1
		2000	12 872	12 872	100	82	7	3	1	7	1
		2005	12 757	12 683	99	76	5	2	1	9	7
		2008	11 825	11 956	101	79	7	2	1	10	1
		2009	11 907	11 935	100	77	8	2	2	9	2
	• 90 85 •	2010	12 239	12 492	102	77	8	2	1	9	2
Oman		1995	135	93	69	84	0	9	1	1	5
		2000	164	112	68	93	0	4	3	0	0
		2005	131	104	79	90		10			0
		2008	171	171	100	96	2	2	0	0	0
		2009	164	334	204	49	49	2	0	0	0
	• 84 97 •	2010	152	152	100	97	0	3	0	0	0
Pakistan		1995	2 578	802	31	51	20	4	1	20	4
		2000	3 285	4 074	124	58	16	4	1	17	4
		2005	48 220	48 205	100	71	13	3	1	9	4
		2008	100 102	100 103	100	74	16	2	1	5	3
		2009	101 887	101 809	100	74	17	2	1	4	2
	• 70 91 •	2010	104 263	104 434	100	75	16	2	1	4	2
Qatar		1995	60	43	72	81	0	5	0	0	14
		2000	53	53	100	66	0	8	0	0	26
		2005	96	96	100	74	9	1	0	0	16
		2008	201	201	100	60	13	1	0	0	26
		2009	220	5	2	80	0	0	0	20	0
	• 81 67 •	2010	223	219	98	63	3	0	0	0	33
Saudi Arabia		1995			–						
		2000	1 595	1 285	81	62	11	7	0	13	6
		2005	1 722	1 722	100	60	5	7	1	10	17
		2008	2 108	2 104	100	54	6	6	2	8	24
		2009	2 201	2 201	100	54	11	6	1	10	18
	• 0 62 •	2010	2 302	2 302	100	52	10	5	1	14	18
Somalia		1995	1 572	1 278	81	82	4	4	5	5	0
		2000	3 776	3 776	100	81	2	4	2	3	9
		2005	7 068	7 059	100	85	4	4	1	4	2
		2008	6 520	6 520	100	78	3	3	2	3	11
		2009	6 047	6 047	100	83	2	4	2	3	7
	• 86 89 •	2010	5 225	5 225	100	87	2	3	2	3	4
South Sudan		2010		2 114	–	67	8	5	1	15	3
Sudan		1995	8 761	8 326	95	44	35	2	7	11	1
		2000	12 311	14 599	119	50	25	4	2	9	11
		2005	12 730	12 730	100	64	18	3	1	9	5
		2008	10 800	10 766	100	62	20	3	1	10	5
		2009	10 541	10 883	103	62	19	3	1	10	6
	• 79 80 •	2010	9 958	7 729	78	56	24	2	1	12	5

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Syrian Arab Republic		1995	1 295	1 295	100	45	16	2	9	24	5
		2000	1 584	1 562	99	69	10	4	3	11	4
		2005	1 350	1 350	100	76	13	3	2	6	1
		2008	1 116	1 115	100	86		3	2	6	2
		2009	1 143	1 144	100	76	12	4	1	4	3
	• 61 89 •	2010	1 122	1 122	100	75	14	3	2	4	2
Tunisia		1995	1 243		–						
		2000	1 099	1 099	100	87	4	3	2	2	2
		2005	915	910	99	83	7	2	1	2	4
		2008	1 005	967	96	76	10	3	1	2	8
		2009	931	931	100	72	11	3	2	3	9
	• 0 85 •	2010	1 091	1 091	100	62	24	3	1	4	6
United Arab Emirates		1995			–						
		2000	73	73	100	56	18	7	4	5	10
		2005	62	62	100	42	31	6	0	15	6
		2008	50	53	106	25	43	9	0	23	0
		2009	71	71	100	21	52	11	1	14	0
	• 0 69 •	2010	56	55	98	24	45	7	0	24	0
West Bank and Gaza Strip		1995	9	13	144	100					0
		2000	37		–						
		2005	7	12	171	58	42	0	0	0	0
		2008	16	16	100	38	56	0	0	6	0
		2009	10	11	110	18	64	9	0	9	0
	• 100 83 •	2010	13	12	92	8	75	0	17	0	0
Yemen		1995	3 681	3 681	100	43	9	1	1	35	11
		2000	5 565	5 565	100	59	13	3	1	14	10
		2005	3 379	3 566	106	69	11	3	1	6	10
		2008	3 540	3 540	100	75	9	3	1	5	7
		2009	3 576	3 557	99	79	9	3	1	4	4
	• 52 87 •	2010	3 584	3 584	100	77	9	3	1	4	7

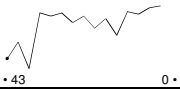
[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Afghanistan		1995			–						
		2000	237	304	128	73	5	4	4	11	3
		2005	856	856	100	87	2	3	1	2	5
		2008	1 135		–						
		2009	1 290		–						
	• 0 79 •	2010	1 325	1 325	100	73	6	3	3	1	14
Bahrain		1995	0		–						
		2000			–						
		2005	0		–						
		2008	0	0	–						
		2009	0	0	–						
	• 0 0 •	2010	0	0	–						
Djibouti		1995			–						
		2000	184	268	146	27	9	0	3	22	37
		2005	253	253	100	58	10	3	2	24	2
		2008	196	196	100	66	9	3	2	14	6
		2009	210	194	92	67	8	3	2	18	3
	• 0 70 •	2010	219	213	97	53	17	6	2	19	3
Egypt		1995	753		–						
		2000	620	956	154	52	11	7	12	13	5
		2005	738	738	100	41	17	10	12	8	12
		2008	792	779	98	39	32	8	8	9	4
		2009	748	748	100	39	39	6	5	7	4
	• 0 72 •	2010	703	703	100	38	34	6	8	8	6
Iran (Islamic		1995	477		–						
Republic of)		2000	405	606	150	63	13	6	5	6	7
		2005	428	448	105	68	8	9	3	4	8
		2008	423	692	164	57	15	8	4	5	11
		2009	773	708	92	48	25	8	3	5	11
	• 0 69 •	2010	760	781	103	49	20	8	5	4	15
Iraq		1995	68		–						
		2000	562		–						
		2005	768	953	124	60	12	4	8	12	4
		2008	685	685	100	62	18	2	4	11	2
		2009	751	751	100	57	27	3	3	9	1
	• 0 75 •	2010	777	777	100	36	40	4	5	13	3
Jordan		1995	6		–						
		2000	3	6	200	83	17	0	0	0	0
		2005	10		–						
		2008	1	12	1 200	8	67	0	8	17	0
		2009	20	24	120	17	62	4	0	17	0
	• 0 60 •	2010	18	5	28	0	60	0	20	0	20
Kuwait		1995	4		–						
		2000	0		–						
		2005	1	1	100	0	100	0	0	0	0
		2008	1	1	100	0	100	0	0	0	0
		2009	1	1	100	0	100	0	0	0	0
	• 0 100 •	2010	2	2	100	0	100	0	0	0	0
Lebanon		1995	3		–						
		2000	6	5	83	80					20
		2005	4	4	100	75	25	0	0	0	0
		2008	11	11	100	55	9	27	0	0	9
		2009	10	10	100	60	20	0	0	0	20
	• 0 75 •	2010	12	12	100	58	17	8	0	17	0
Libyan Arab		1995			–						
Jamahiriya		2000			–						
		2005	271		–						
		2008		32	–	6	31	0	0	62	0
		2009	23		–						
	• 0 33 •	2010		85	–	11	22	2	0	45	20
Morocco		1995		1 469	–	65	12	4	4	10	7
		2000			–						
		2005		1 650	–	55	17	4	5	14	5
		2008	1 646	1 535	93	65	8	4	5	18	1
		2009	1 605	1 668	104	60	9	4	3	16	8
	• 76 64 •	2010	1 645	2 899	176	40	24	4	3	21	9
Oman		1995	0		–						
		2000	8	7	88	86	0	0	14	0	0
		2005	4		–						
		2008	4	4	100	50	50	0	0	0	0
		2009	7	7	100	57	43	0	0	0	0
	• 0 100 •	2010	9	9	100	44	56	0	0	0	0
Pakistan		1995	184	374	203	48	22	2	5	24	0
		2000	341	907	266	37	17	6	3	29	8
		2005	5 425	5 009	92	61	15	5	3	11	5
		2008	7 983	7 685	96	62	17	5	3	10	4
		2009	9 200	8 801	96	63	18	4	3	8	3
	• 70 84 •	2010	10 925	8 394	77	68	16	3	3	6	3
Qatar		1995	1	3	300	67	0	0	0	0	33
		2000	0		–						
		2005	0		–						
		2008	0	0	–						
		2009	0	0	–						
	• 67 0 •	2010	0	0	–						
Saudi Arabia		1995			–						
		2000	112	139	124	43	15	7	3	13	19
		2005	205	96	47	40	9	9	5	18	19
		2008	145	141	97	34	10	5	4	16	31
		2009	144	151	105	45	15	8	1	17	14
	• 0 50 •	2010	206	249	121	31	19	8	2	22	17
Somalia		1995	134		–						
		2000	351	351	100	53	1	5	5	3	34
		2005	512	524	102	76	5	6	2	5	6
		2008	621	621	100	48	4	5	2	3	38
		2009	655	655	100	50	10	6	4	3	27
	• 0 62 •	2010	705	705	100	48	14	6	5	4	23
South Sudan		2010		434	–	23	34	5	9	23	5
Sudan		1995	474		–						
		2000	2 141		–						
		2005	1 802	1 828	101	53	29	3	1	9	6
		2008	2 080	1 953	94	39	35	2	1	14	8
		2009	1 993	2 147	108	33	38	3	1	15	10
	• 0 68 •	2010	1 922	1 517	79	28	40	2	1	14	16

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Syrian Arab Republic	• 0 81 •	1995	28		–						
		2000	97	189	195	44	10	4	20	15	7
		2005	144	144	100	53	14	5	9	19	0
		2008	267	266	100	26	51	5	5	12	3
		2009	176	176	100	48	22	9	4	15	3
		2010	213	213	100	23	58	4	3	11	1
Tunisia	• 0 0 •	1995			–						
		2000	61	42	69	74	0	5	2	10	10
		2005	51		–						
		2008	38		–						
		2009	42		–						
		2010	36		–						
United Arab Emirates	• 0 67 •	1995			–						
		2000	0		–						
		2005	6	5	83	80	0	0	0	20	0
		2008	1	1	100	100	0	0	0	0	0
		2009	0	0	–						
		2010	1	3	300	0	67	33	0	0	0
West Bank and Gaza Strip	• 0 0 •	1995			–						
		2000			–						
		2005		0	–						
		2008	1	0	0						
		2009	2	0	0						
		2010	0		–						
Yemen	 • 43 0 •	1995	275	14	5	29	14	21	14	14	7
		2000	440	437	99	64	8	7	6	11	4
		2005	351	351	100	48	9	2	3	7	30
		2008	411	376	91	66	9	3	3	9	10
		2009	314	291	93	70	7	3	4	7	9
		2010	438		–						

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2011**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2011	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Afghanistan		2005			21 844					
		2009	4	1 175	26 358	5	0	100	100	
		2010	18	5 170	28 238	2	0	100	100	
	– 23 •	2011	23	6 445	28 167	5	0	80	80	
Bahrain		2005	46	128	280	6	5	0	0	
		2009	79	256	326	8	3	0	12	
		2010	65	161	246	6	4	0	0	
	• 46 69 •	2011	69	155	225	7	5	0	43	
Djibouti		2005	7	224	3 170	135	60	15	15	0
		2009	55	2 091	3 804	207	10	0	23	
		2010	52	2 163	4 191	248	11	0	11	
	• 7 34 •	2011	34	1 274	3 723	177	14			
Egypt		2005			11 735					
		2009	32	3 204	10 037	11	0	100	100	1
		2010	47	4 483	9 588	7	0	100	100	0
	– 37 •	2011	37	3 441	9 307	12	0	100	100	
Iran (Islamic Republic of)		2005			9 366					
		2009	7	700	10 536	223	32	13	21	418
		2010	8	904	10 802	254	28	16	28	161
	– 11 •	2011	11	1 262	11 495	289	23	18	36	
Iraq		2005			9 454					
		2009	63	6 121	9 668	1	0	100	0	0
		2010	66	6 711	10 097	1	0	100	0	0
	– 42 •	2011	42	3 858	9 248	2	0	50	50	
Jordan		2005	23	86	371	0	0			
		2009	100	387	387	0	0			2
		2010	99	352	354	0	0			0
	• 23 97 •	2011	97	332	344	0	0			
Kuwait		2005	100	517	517	3	1	100	100	
		2009	100	933	933	4	0	100	100	0
		2010	100	957	957	3	0	100	100	
	• 100 100 •	2011	100	672	672	0	0			
Lebanon		2005	1	3	391	3	100	0		
		2009	59	298	501	25	8	100	100	19
		2010	52	269	515	7	3	100	100	68
	• 1 48 •	2011	48	236	496	9	4	100	100	
Libyan Arab Jamahiriya		2005			2 367					
		2009	45	950	2 110	144	15			
		2010		2 128		212	10	1		
	– 97 •	2011	97	1 498	1 545	128	9	0		
Morocco		2005			26 269					
		2009	3	930	27 664	99	11	23	45	0
		2010	1	215	28 788	17	8	100	100	
	– 6 •	2011	6	1 856	29 770	41	2	100	68	
Oman		2005	98	257	261	10	4	100	100	
		2009	100	334	334	3	1	100	100	0
		2010	100	313	313	4	1	100	100	0
	• 98 100 •	2011	100	337	337	8	2	88	88	
Pakistan		2005	0	0	144 771	0				
		2009	3	8 208	267 451	31	0	23	39	0
		2010	2	6 283	269 290	28	0	39	43	
	• 0 3 •	2011	3	8 322	270 394	33	0	33	85	
Qatar		2005	100	325	325	0	0			
		2009	100	619	619	0	0			0
		2010	0	0	580	0				
	• 100 0 •	2011	0	0	553					
Saudi Arabia		2005			3 539					
		2009	47	1 929	4 093	63	3			
		2010	72	3 278	4 549	77	2			
	– 86 •	2011	86	3 443	4 015	77	2			14
Somalia		2005	0	0	13 006	21		38	0	
		2009	8	875	11 271	107	12	88	7	0
		2010	26	2 741	10 469	231	8	68	26	
	• 0 34 •	2011	34	4 140	12 021	206	5	85	20	0
South Sudan		2011	47	3 570	7 583	475	13	85	29	
Sudan		2005	1	180	29 178	150	83	10	10	
		2009	60	16 168	27 037	692	4	43	54	
		2010	28	7 532	27 241	247	3	162	100	
	• 1 15 •	2011	15	3 082	20 385	292	9	0	100	
Syrian Arab Republic		2005	8	345	4 393	0	0			
		2009	0	0	4 151	0				
		2010	2	85	3 827	5	6	100	0	0
	• 8 16 •	2011	16	577	3 675	7	1	57	0	
Tunisia		2005	6	129	2 079	2	2	100	100	
		2009	4	80	2 155	2	2	0	100	24
		2010	7	156	2 368	7	4	100	100	24
	• 6 12 •	2011	12	360	3 015	10	3	100	100	38
United Arab Emirates		2005			105					
		2009	99	115	116	0	0			
		2010	64	84	132	4	5	100	100	
	– 76 •	2011	76	81	106	3	4	100	100	
West Bank and Gaza Strip		2005	0	0	28	0				
		2009	97	35	36	0	0			0
		2010	100	31	31	0	0			
	• 0 100 •	2011	100	32	32	0	0			
Yemen		2005	0	0	9 063	0				
		2009	0	0	8 562	0				
		2010	0	0	9 050	0				0
	• 0 –	2011			8 713					0

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2011**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
				ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
Afghanistan	2005					–			–
	2009					–			–
	2010	19			238	1.8		34	2.6
	2011	19	1 100 (0–2 600)	700 (21–2 300)		–	380 (34–730)		–
Bahrain	2005	4			2	2.0		0	–
	2009	0			42	15		0	–
	2010	0			162	70		0	–
	2011	9	7.9 (3.7–15)	7.9 (3.7–15)	154	99	0 (0–0)	0	–
Djibouti	2005	39			0	0		0	0
	2009					–			–
	2010					–			–
	2011	0	79 (40–120)	34 (9.5–59)		–	44 (15–73)		–
Egypt	2005					–			–
	2009	204			60	0.95		775	100
	2010					–			–
	2011	134	400 (310–500)	190 (110–270)	39	0.70	220 (160–270)	497	74
Iran (Islamic Republic of)	2005	27			205	4.5		41	9.6
	2009					–			–
	2010	58			271	4.7		169	22
	2011	43	810 (640–980)	370 (260–520)	717	13	430 (310–560)	322	36
Iraq	2005					–			–
	2009	72			0	0		163	22
	2010	110			0	0		185	24
	2011	84	410 (0–860)	190 (5.5–620)		–	220 (20–430)	224	29
Jordan	2005	19			98	97		33	330
	2009	8			95	87		7	35
	2010	10			74	63		7	39
	2011	4	17 (5.9–28)	12 (4.3–24)	55	30	5.1 (0.66–13)	6	33
Kuwait	2005	6			516	280		1	100
	2009	9			427	100		1	100
	2010	5			437	100		0	0
	2011	0	0 (0–47)	0 (0–47)	282	100	0 (0–0)	0	–
Lebanon	2005	3			48	37		4	100
	2009	4			14	7.8		10	100
	2010	7			4	2.1		14	120
	2011	3	4.0 (0–8.2)	3.0 (0.37–11)	18	9.6	1.0 (<0.1–1.0)	1	100
Libyan Arab Jamahiriya	2005	8			4	0.47			–
	2009					–			–
	2010					–			–
	2011	1	49 (0–120)	35 (1.0–120)		–	14 (1.2–26)		–
Morocco	2005	180			180	1.4			–
	2009					–			–
	2010	54			47	0.38		403	24
	2011	45	350 (230–480)	67 (22–160)	61	0.50	290 (180–420)	229	9.8
Oman	2005	5			125	95		11	280
	2009	5			248	74		7	100
	2010	1			185	59		8	89
	2011	4	3.9 (0.11–7.6)	3.9 (1.1–9.8)	219	100	0 (0–2.1)	3	100
Pakistan	2005					–			–
	2009	49			5	<0.1		60	0.65
	2010	444			9	<0.1		306	2.8
	2011	344	10 000 (0–26 000)	7 100 (210–23 000)		–	3 300 (300–6 300)		–
Qatar	2005	2			264	190		0	–
	2009	3			322	100		0	–
	2010	4			324	100		0	–
	2011	4	3.9 (1.1–9.9)	3.9 (1.1–9.9)	9	1.6	–	0	–
Saudi Arabia	2005					–			–
	2009					–			–
	2010	14				–			–
	2011	22	71 (53–89)	48 (37–63)		–	23 (18–30)		–
Somalia	2005					–			–
	2009					–			–
	2010	57			488	9.3		79	11
	2011	20	760 (600–920)	470 (240–700)	261	4.4	290 (170–420)	14	2.0
South Sudan	2011	6	200 (100–300)	97 (27–170)		–	100 (35–170)	8	1.5
Sudan	2005	45				–		4	0.22
	2009	94			125	1.2		207	10
	2010	62				–			–
	2011	62	590 (300–880)	250 (70–430)	36	0.29	340 (120–550)	82	4.7
Syrian Arab Republic	2005	7			0	0		0	0
	2009	14				–		14	8.0
	2010	25			63	1.7		12	5.6
	2011	24	120 (86–160)	88 (55–130)	408	12	36 (24–50)	70	61
Tunisia	2005					–			–
	2009	21			380	32			–
	2010	12			6	0.55		6	17
	2011	12	61 (0–160)	46 (1.3–150)	2	0.19	15 (1.3–28)	10	20
United Arab Emirates	2005	4				–			–
	2009					–			–
	2010	0				–			–
	2011	1	1.7 (1.1–2.3)	1.3 (0.73–1.8)	3	2.9	0.37 (0.30–0.44)	0	0
West Bank and Gaza Strip	2005					–			–
	2009	0			0	0		0	0
	2010	0			0	0		0	–
	2011	0	1.4 (<0.1–2.8)	0.54 (<0.1–1.8)	0	0	0.87 (<0.1–1.7)	0	0
Yemen	2005	1				–			–
	2009	13			42	1.1		30	9.6
	2010	4			89	1.5		34	7.8
	2011		140 (93–180)	95 (28–170)		–	44 (24–65)		–

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).
[b] BACT+VE = bacteriologically-positive cases.

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2011**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Afghanistan	1995																	–
	2000	52	228	183	149	129	94	80		93	414	565	339	205	99	36		0.52
	2005	151	606	560	472	453	470	419		320	1 651	1 959	1 302	869	471	246		0.46
	2010	197	986	819	491	490	641	622	0	445	2 107	2 263	1 455	1 112	831	488	0	0.49
	2011	204	1 010	895	613	570	700	692		465	2 167	2 325	1 564	1 146	903	535		0.51
Bahrain	1995	0	0	1	2	3	1	3		0	1	1	2	0	1	1		1.7
	2000	0	0	3	2	5	3	4		0	1	2	0	1	1	1		2.8
	2005	0	0	0	2	3	0	4		1	1	0	3	1	0	0		1.5
	2010	0	10	16	11	12	4	4	0	0	8	15	7	1	1	1		1.7
	2011	1	5	19	13	14	8	2	0	0	9	5	6	6	0	1	0	2.3
Djibouti	1995																	–
	2000	17	302	347	139	67	60	42		12	147	156	47	31	17	10		2.3
	2005	18	220	252	119	62	47	29		23	123	117	66	23	13	8		2.0
	2010	28	211	243	151	67	49	20	0	20	104	120	89	36	24	19	0	1.9
	2011	35	212	265	149	97	45	33	0	31	139	118	104	57	30	21	0	1.7
Egypt	1995	223	542	665	460	408	463	160		134	288	367	274	256	160	75		1.9
	2000	21	641	827	667	476	307	158		55	457	343	257	211	112	48		2.1
	2005	25	524	606	421	414	243	123		48	431	298	205	218	132	42		1.7
	2010	9	358	617	783	725	407	217	0	8	199	352	423	292	192	97	0	2.0
	2011	23	382	611	596	715	387	168	0	7	192	355	387	280	198	94	0	1.9
Iran (Islamic Republic of)	1995	118	751	754	636	494	737	921		234	1 039	890	664	613	685	788		0.90
	2000	29	438	467	387	295	344	642		77	593	410	322	320	407	647		0.94
	2005	16	352	531	338	281	260	630		45	394	205	186	260	382	701		1.1
	2010	18	292	487	354	296	310	760	0	54	433	288	208	276	398	1 014	0	0.94
	2011	13	289	543	398	315	351	877	0	37	473	313	184	296	441	1 009	0	1.0
Iraq	1995	1 125	862	1 409	1 085	863	900	271		725	304	1 208	915	800	886	200		1.3
	2000	21	627	317	297	205	135	101		37	338	241	136	134	103	87		1.6
	2005	13	424	644	261	245	189	148		44	305	260	151	197	135	80		1.6
	2010	42	370	482	384	276	286	228		73	394	294	198	205	220	166		1.3
	2011	35	304	395	313	237	223	183	0	66	368	258	164	159	201	153	0	1.2
Jordan	1995	0	19	37	17	20	26	11		1	15	4	10	14	12	7		2.1
	2000	0	8	16	13	9	14	2		0	8	9	1	2	2	5		2.3
	2005	0	8	17	9	4	6	5		1	6	6	6	5	8	5		1.3
	2010	2	5	14	10	12	12	6	0	3	14	24	4	3	5	3	0	1.1
	2011	0	9	10	13	8	13	5	0	0	8	11	8	4	8	6	0	1.3
Kuwait	1995	0	15	51	32	17	9	0		0	8	24	9	4	4	2		2.4
	2000	0	10	44	32	21	11	5		1	11	24	12	5	3	1		2.2
	2005	0	12	45	29	26	8	3		0	13	31	11	3	1	5		1.9
	2010	1	16	67	50	48	10	11	0	4	41	78	30	10	11	8	0	1.1
	2011	0	13	41	36	35	11	5	0	0	23	30	15	9	2	2	0	1.7
Lebanon	1995	3	26	32	30	16	16	10		1	16	18	13	8	5	3		2.1
	2000	5	16	28	20	15	17	14		4	31	26	9	7	4	6		1.3
	2005	0	12	19	15	10	12	8		1	25	14	8	3	3	1		1.4
	2010	1	8	21	15	12	12	10	0	0	36	48	17	7	4	3	0	0.69
	2011	1	14	18	13	15	6	8		0	37	51	12	9	1	3		0.66
Libyan Arab Jamahiriya	1995	2	112	212	78	46	22	21		5	34	31	19	20	13	11		3.7
	2000	5	101	239	86	36	29	32		6	43	35	24	24	16	22		3.1
	2005	2	114	293	168	52	19	35		8	36	36	35	21	21	20		3.9
	2010																	–
	2011	5	85	173	148	54	18	21	0	8	59	47	37	22	25	29	0	2.2
Morocco	1995	142	2 508	2 872	1 737	819	573	553		191	1 708	1 288	703	461	317	299		1.9
	2000	99	2 061	2 423	1 705	855	485	595		170	1 530	1 121	672	398	406	352		1.8
	2005	79	2 222	2 515	1 583	1 057	580	591		167	1 330	943	546	403	343	398		2.1
	2010	51	1 982	2 553	1 611	1 273	712	515	0	117	1 098	841	426	386	310	364	0	2.5
	2011	79	1 929	2 450	1 479	1 175	682	518	0	100	1 153	794	433	371	324	335	0	2.4
Oman	1995	1	7	12	7	7	10	11		2	18	13	5	5	6	3		1.1
	2000	1	8	9	11	12	9	11		2	17	5	7	5	11	6		1.2
	2005	1	21	11	24	15	19	5		2	13	5	3	4	5	3		2.7
	2010	2	12	27	15	16	8	10	0	3	18	22	6	4	4	5	0	1.5
	2011	1	17	25	12	23	10	11	0	5	20	21	9	13	7	6	0	1.2
Pakistan	1995	29	274	230	178	140	124	95		85	375	381	267	178	143	79		0.71
	2000	55	498	387	256	232	153	130		130	591	416	274	163	103	56		0.99
	2005	621	5 278	4 759	4 263	3 834	3 332	2 453		1 447	6 463	5 611	3 987	2 866	2 060	1 338		1.0
	2010	1 548	11 860	10 462	8 320	7 969	6 934	6 066		3 212	14 481	10 513	7 749	6 410	4 879	4 338		1.0
	2011	1 216	12 143	10 515	8 435	8 608	7 320	6 323		2 679	14 652	10 684	7 880	6 590	4 977	3 711		1.1
Qatar	1995	0	8	12	11	13	4	4		1	2	3	1	0	0	1		6.5
	2000	0	7	19	9	7	2	1		0	0	4	3	1	0	0		5.6
	2005		19	15	17	19	5	1			5	10	2	1	2	0		3.8
	2010	0	59	72	38	22	5	0	0	0	7	16	2	1	1	0	0	7.3
	2011	0	36	64	36	14	10	3		0	9	15	6	1	2	1		4.8
Saudi Arabia	1995																	–
	2000	0	131	268	213	158	86	107		28	172	182	79	51	50	70		1.5
	2005	8	182	276	201	175	70	107		31	205	184	98	73	51	61		1.4
	2010	14	335	458	242	210	116	102	0	33	239	271	105	70	49	58	0	1.8
	2011	4	227	406	225	225	113	106	0	35	200	245	110	64	49	46	0	1.7
Somalia	1995	46	334	730	201	127	278	109		38	158	139	97	40	25	16		3.6
	2000	113	740	724	408	254	195	142		85	354	319	219	110	72	41		2.1
	2005	125	1 343	1 114	725	458	330	319		169	752	636	436	292	212	157		1.7
	2010	109	1 036	886	496	355	266	277	0	91	467	444	341	188	137	132	0	1.9
	2011	113	1 147	1 047	587	398	330	277	0	114	495	465	348	260	168	135	0	2.0
South Sudan	2011	39	251	599	402	259	135	57	0	60	181	318	239	172	59	26	0	1.7
Sudan	1995	250	604	796	634	486	362	337		359	490	613	299	403	342	305		1.2
	2000	785	1 028	1 511	1 351	1 119	638	677		817	925	1 134	905	771	327	323		1.4
	2005	425	1 358	1 990	1 541	1 151	724	493		381	1 102	1 203	978	729	411	244		1.5
	2010	209	1 185	1 781	1 335	863	497	391		195	761	979	772	520	279	191		1.7
	2011	107	899	1 359	981	689	386	372	0	113	512	620	513	352	188	175	0	1.9
Syrian Arab Republic	1995	13	332	255	111	70	59	50		22	158	97	53	44	37	20		2.1
	2000	8	359	289	125	86	76	55		23	195	101	53	46	38	28		2.1
	2005	9	266	237	111	112	62	63		27	182	108	59	59	32	23		1.8
	2010	7	170	212	101	80	65	49	0	16	164	105	47	41	38	27	0	1.6
	2011	8	139	195	116	81	49	45	0	20	113	97	56	35	36	37	0	1.6
Tunisia	1995																	–
	2000	16	139	208	156	109	65	101		7	68	59	43	21	21	58		2.9
	2005	5	103	172	133	115	53	81		7	66	61	39	36	16	28		2.6
	2010	9	115	194	170	125	93	88		4	64	64	39	34	40	52		2.7
	2011	6	110	194	118	126	108	63	0	10	60	60	50	44	35	47	0	2.4
United Arab Emirates	1995																	–
	2000	2	4	4	6	5	12	10		3	16	1	3	0	0	4		1.6
	2005																	–
	2010	1	7	13	7	3	4	4	0	1	2	4	1	5	1	3	0	2.3
	2011	0	3	7	3	5	1	3	0	4	6	6	3	2	1	2	0	0.92
West Bank and Gaza Strip	1995	1	2	0	0	1	0	3		0	1	0	0	1	0	0		3.5
	2000																	–
	2005		1			1	3					1		1				2.5
	2010	0	2	0	2	1	1	3	0	0	0	1	0	1	2	0	0	2.2
	2011	1	0	1	1	1	0	3	0	0	0	1	1	0	2	0	0	1.8
Yemen	1995	57	400	605	256	201	148	45		83	420	720	348	200	106	92		0.87
	2000	110	789	689	493	314	255	127		161	799	627	517	345	247	92		1.0
	2005	48	493	553	366	242	149	78		44	426	410	265	181	85	39		1.3
	2010	68	507	569	322	231	164	138	0	98	471	409	264	174	106	63	0	1.3
	2011	33	406	471	297	193	143	96	0	85	446	375	251	168	113	58	0	1.1

TABLE A4.9 **Laboratories, NTP services, drug management and infection control, 2011**

	LABORATORIES								FREE THROUGH NTP			
	SMEAR LABS PER 100K POPULATION	% OF SMEAR LABS USING LED[a]	CULTURE LABS PER 5M POPULATION	DST[b] LABS PER 5M POPULATION	LPA[c] LABS PER 5M POPULATION	NUMBER OF LABS USING XPERT MTB/RIF	SECOND-LINE DST AVAILABLE	NRL[d]	TB DIAGNOSIS	FIRST-LINE DRUGS	RIFAMPICIN USED THROUGHOUT TREATMENT	TB NOTIF. RATE PER 100 000 HEALTH-CARE WORKERS
Afghanistan	1.9	2	0.5				Out of country	yes	Yes (all suspects)	yes	No	
Bahrain	1.4	–	7.6	3.8	3.8	1	Out of country	yes	Yes (all suspects)	yes	Yes	
Djibouti	1.8	0	0	0	0	0	No	yes	Yes (all suspects)	yes	Yes	
Egypt	0.3	0	1.1	<0.1	0	0	In country	yes	Yes (all suspects)	yes	Yes	
Iran (Islamic Republic of)	0.5	0	3.7	0.4	0	0	In country	yes	Yes (all suspects)	yes	Yes	
Iraq	0.8	0	0.6	0.2	0	0		yes	Yes (if TB is confirmed)	yes	Yes	
Jordan	2.4	0	39.5	0.8	0	0	No	yes	Yes (all suspects)	yes	Yes	0
Kuwait	0.4	0	1.8	1.8	0	0	No	yes	Yes (all suspects)	yes	Yes	8
Lebanon	3.9	–	3.5	1.2	2.3	3	Out of country	yes	Yes (for smear-positive TB)	yes	Yes	0
Libya		–						yes	Yes (all suspects)	yes	Yes	0
Morocco	0.5	0	2.2	0.3	0	0		yes	Yes (all suspects)	yes	Yes	
Oman	7.3	0	15.8	1.8	1.8	0	In country	yes	Yes (if TB is confirmed)	yes	Yes	33
Pakistan	0.7	0	0.3	0.3	<0.1	16	In country	yes	Yes (all suspects)	yes	Yes	
Qatar	<0.1	0	2.7	2.7	2.7	1	In and out of country	yes	Yes (all suspects)	yes	Yes	5
Saudi Arabia	0.3	1	2.1	2.1	0.4	1	No	yes	Yes (all suspects)	yes	Yes	
Somalia	0.7	0	0	0	0	0	No	No	Yes (all suspects)	yes	Yes	0
South Sudan	0.6	0	0	0	0	0	Out of country	No	Yes (all suspects)	yes	Yes	
Sudan	0.7	0	0.1	0.1	0	0		yes	Yes (all suspects)	yes	Yes	
Syrian Arab Republic	2.7	–	1.0	0.2	0.2		No	yes	Yes (all suspects)	yes	Yes	
Tunisia	0.7	0	5.2	2.4	0	0	In country	yes	Yes (all suspects)	yes	Yes	
United Arab Emirates		–					In and out of country	No	Yes (all suspects)	yes	Yes	
West Bank and Gaza Strip	1.5	0	1.2	0	0		No	yes	Yes (all suspects)	yes	Yes	204
Yemen	1.1	–					No	yes	Yes (if TB is confirmed)	yes	Yes	

[a] LED = Light emitting diode microscopes
[b] DST = Drug susceptibility testing
[c] LPA = Line probe assay
[d] NRL = National Reference Laboratory

EUROPEAN REGION

Table A4.1 Estimates of the burden of disease caused by TB, 1990–2011 213

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Estimates of mortality, prevalence and incidence

Estimated values are shown as best estimates followed by lower and upper bounds. The lower and upper bounds are defined as the 2.5th and 97.5th centiles of outcome distributions produced in simulations. See Annex 1 for further details.

Estimated numbers are shown rounded to two significant figures. Estimated rates are shown rounded to three significant figures unless the value is under 100, in which case rates are shown rounded to two significant figures. Blank cells indicate that estimates are not available.

Estimates for all years are recalculated as new information becomes available and techniques are refined, so they may differ from those published in previous reports in this series. Estimates published in previous global TB control reports should no longer be used.

Data source

Data shown in this annex are taken from the WHO global TB database on 25 September 2012. Data shown in the main part of the report were taken from the database in July 2012. As a result, data in this annex may differ slightly from those in the main part of the report.

Data can be downloaded from **www.who.int/tb/data**.

Country notes

EU/EEA countries

Notification and treatment outcome data for European Union and European Economic Area countries are provisional.

Denmark

Data for Denmark exclude Greenland.

Russian Federation

Reported number of TB patients with known HIV status in Table A4.6 is for new TB patients only in 2010 and 2011. It was not possible to calculate the % of all TB patients with known HIV status.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2011**

			MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
Albania	1990	3	0.054 (0.038–0.073)	1.6 (1.2–2.2)	1.1 (0.390–2.3)	35 (12–69)	0.8 (0.580–1.1)	24 (18–32)
	1995	3	0.039 (0.031–0.048)	1.3 (1.0–1.5)	0.94 (0.320–1.9)	30 (10–60)	0.77 (0.640–0.900)	24 (20–29)
	2000	3	0.026 (0.018–0.035)	0.83 (0.57–1.1)	0.85 (0.290–1.7)	28 (9.5–55)	0.7 (0.590–0.810)	23 (19–26)
	2005	3	0.016 (0.012–0.022)	0.52 (0.37–0.71)	0.77 (0.300–1.5)	25 (9.6–46)	0.59 (0.500–0.680)	19 (16–22)
	2009	3	<0.01 (<0.01–0.013)	0.3 (0.21–0.41)	0.57 (0.190–1.1)	18 (5.9–36)	0.47 (0.400–0.540)	15 (12–17)
	2010	3	<0.01 (<0.01–0.011)	0.26 (0.18–0.35)	0.52 (0.160–1.1)	16 (5.1–34)	0.45 (0.380–0.520)	14 (12–16)
	2011	3	<0.01 (<0.01–<0.01)	0.21 (0.15–0.29)	0.46 (0.130–1.0)	14 (4.0–31)	0.42 (0.360–0.490)	13 (11–15)
Andorra	1990	< 1	<0.01 (<0.01–<0.01)	2.5 (<0.1–9.8)	0.034 (0.013–0.064)	64 (25–121)	0.026 (0.023–0.030)	50 (44–57)
	1995	< 1	<0.01 (<0.01–<0.01)	1.6 (<0.1–6.5)	0.027 (0.011–0.052)	42 (17–80)	0.021 (0.019–0.024)	33 (29–37)
	2000	< 1	<0.01 (<0.01–<0.01)	0.83 (<0.1–3.3)	0.014 (<0.01–0.026)	22 (8.5–41)	0.011 (<0.01–0.012)	17 (15–19)
	2005	< 1	<0.01 (<0.01–<0.01)	0.6 (<0.1–2.4)	0.012 (<0.01–0.023)	16 (6.2–30)	<0.01 (<0.01–0.011)	12 (11–14)
	2009	< 1	<0.01 (0–<0.01)	0.41 (<0.1–1.6)	<0.01 (<0.01–0.017)	11 (4.2–20)	<0.01 (<0.01–<0.01)	8.4 (7.3–9.5)
	2010	< 1	<0.01 (0–<0.01)	0.35 (0–1.4)	<0.01 (<0.01–0.015)	9.2 (3.6–17)	<0.01 (<0.01–<0.01)	7.2 (6.3–8.1)
	2011	< 1	<0.01 (0–<0.01)	0.29 (0–1.1)	<0.01 (<0.01–0.012)	7.5 (3.0–14)	<0.01 (<0.01–<0.01)	5.9 (5.1–6.6)
Armenia	1990	4	0.15 (0.110–0.200)	4.3 (3.1–5.7)	0.89 (0.340–1.7)	25 (9.5–48)	0.61 (0.450–0.790)	17 (13–22)
	1995	3	0.18 (0.150–0.220)	5.6 (4.6–6.7)	1.8 (0.830–3.2)	57 (26–101)	1.3 (1.1–1.5)	39 (33–46)
	2000	3	0.21 (0.180–0.230)	6.7 (6.0–7.5)	2.7 (1.3–4.7)	89 (42–153)	1.9 (1.7–2.1)	61 (54–69)
	2005	3	0.25 (0.210–0.310)	8.3 (6.7–10)	3.4 (1.6–5.9)	112 (53–192)	2.4 (2.1–2.7)	77 (68–87)
	2009	3	0.27 (0.200–0.360)	8.8 (6.4–12)	3.1 (1.4–5.4)	99 (46–174)	2.1 (1.8–2.4)	69 (59–79)
	2010	3	0.27 (0.220–0.330)	8.8 (7.2–11)	2.8 (1.3–4.9)	91 (41–159)	1.9 (1.6–2.2)	62 (53–73)
	2011	3	0.27 (0.220–0.330)	8.8 (7.2–11)	2.4 (1.1–4.3)	78 (35–139)	1.7 (1.4–2.0)	55 (45–65)
Austria	1990	8	0.15 (0.150–0.150)	1.9 (1.9–2.0)	2.1 (0.830–4.0)	28 (11–52)	1.7 (1.5–1.9)	22 (19–24)
	1995	8	0.094 (0.094–0.094)	1.2 (1.2–1.2)	2 (0.780–3.7)	25 (9.9–47)	1.6 (1.4–1.8)	20 (17–22)
	2000	8	0.075 (0.075–0.076)	0.94 (0.93–0.95)	1.7 (0.650–3.1)	21 (8.1–39)	1.3 (1.1–1.5)	16 (14–18)
	2005	8	0.046 (0.046–0.046)	0.56 (0.56–0.56)	1.3 (0.500–2.4)	15 (6.1–29)	1 (0.880–1.1)	12 (11–14)
	2009	8	0.036 (0.036–0.037)	0.43 (0.43–0.44)	0.74 (0.300–1.4)	8.9 (3.5–17)	0.6 (0.520–0.670)	7.1 (6.2–8.0)
	2010	8	0.034 (0.034–0.035)	0.41 (0.41–0.42)	0.57 (0.230–1.1)	6.8 (2.7–13)	0.46 (0.400–0.520)	5.5 (4.8–6.2)
	2011	8	0.033 (0.033–0.033)	0.39 (0.39–0.39)	0.39 (0.160–0.720)	4.6 (1.8–8.6)	0.31 (0.270–0.350)	3.7 (3.2–4.2)
Azerbaijan	1990	7	0.7 (0.520–0.910)	9.7 (7.2–13)	51 (23–91)	711 (316–1 260)	22 (18–26)	305 (252–363)
	1995	8	1.6 (1.2–2.0)	20 (15–26)	120 (51–210)	1 530 (662–2 750)	49 (41–59)	636 (525–758)
	2000	8	1.8 (1.4–2.2)	22 (17–27)	130 (57–230)	1 610 (700–2 880)	55 (46–66)	682 (563–812)
	2005	9	0.92 (0.660–1.2)	11 (7.7–14)	63 (29–110)	738 (334–1 300)	29 (24–34)	334 (276–398)
	2009	9	0.45 (0.320–0.590)	4.9 (3.6–6.5)	26 (12–43)	282 (136–478)	14 (12–17)	154 (127–183)
	2010	9	0.38 (0.280–0.510)	4.2 (3.0–5.5)	20 (9.8–35)	222 (107–378)	12 (9.9–14)	131 (108–155)
	2011	9	0.34 (0.240–0.440)	3.6 (2.6–4.8)	16 (7.7–28)	177 (83–306)	11 (8.7–13)	113 (93–134)
Belarus	1990	10	0.48 (0.450–0.510)	4.6 (4.4–4.9)	5.2 (2.1–9.5)	50 (21–92)	3.5 (2.8–4.3)	34 (27–42)
	1995	10	0.68 (0.620–0.740)	6.6 (6.0–7.2)	10 (4.6–18)	100 (45–176)	7 (5.9–8.2)	68 (58–79)
	2000	10	0.92 (0.870–0.970)	9.1 (8.7–9.6)	12 (5.4–22)	123 (54–218)	8.4 (7.0–10)	84 (69–100)
	2005	10	1.1 (0.990–1.1)	11 (10–11)	10 (4.1–19)	104 (42–194)	7.1 (5.4–8.9)	72 (55–91)
	2009	10	0.92 (0.860–0.980)	9.5 (9.0–10)	9.7 (4.1–18)	100 (42–183)	6.8 (5.3–8.4)	70 (55–87)
	2010	10	0.86 (0.810–0.920)	9 (8.4–9.5)	9.6 (4.1–17)	100 (43–181)	6.7 (5.4–8.2)	70 (56–86)
	2011	10	0.79 (0.740–0.840)	8.3 (7.8–8.8)	9.6 (4.2–17)	100 (44–179)	6.7 (5.5–8.1)	70 (57–84)
Belgium	1990	10	0.12 (0.120–0.130)	1.2 (1.2–1.3)	2.3 (0.890–4.2)	23 (8.9–43)	1.8 (1.5–2.0)	18 (16–20)
	1995	10	0.12 (0.110–0.120)	1.1 (1.1–1.2)	2 (0.780–3.7)	20 (7.7–37)	1.6 (1.4–1.8)	16 (14–18)
	2000	10	0.074 (0.072–0.077)	0.73 (0.71–0.75)	1.7 (0.690–3.2)	17 (6.8–32)	1.4 (1.2–1.6)	14 (12–15)
	2005	10	0.047 (0.046–0.047)	0.45 (0.44–0.45)	1.5 (0.600–2.8)	14 (5.8–27)	1.2 (1.1–1.4)	12 (10–13)
	2009	11	0.03 (0.030–0.031)	0.29 (0.28–0.29)	1.2 (0.490–2.3)	12 (4.6–22)	0.98 (0.860–1.1)	9.2 (8.1–10)
	2010	11	0.027 (0.026–0.028)	0.25 (0.24–0.26)	1.2 (0.460–2.2)	11 (4.3–20)	0.93 (0.810–1.1)	8.7 (7.6–9.8)
	2011	11	0.023 (0.023–0.024)	0.22 (0.21–0.22)	1.1 (0.430–2.0)	10 (4.0–19)	0.87 (0.760–0.990)	8.1 (7.1–9.2)
Bosnia and Herzegovina	1990	4	0.3 (0.290–0.310)	6.9 (6.6–7.2)	5.8 (1.6–13)	136 (36–300)	4 (2.5–5.9)	94 (58–138)
	1995	3	0.24 (0.220–0.250)	7.1 (6.7–7.4)	4.3 (1.9–7.6)	128 (57–227)	2.8 (2.3–3.4)	84 (69–101)
	2000	4	0.25 (0.240–0.260)	6.7 (6.4–7.1)	2.8 (0.840–6.0)	76 (23–162)	2.3 (1.9–2.8)	63 (51–75)
	2005	4	0.26 (0.250–0.270)	6.9 (6.5–7.2)	2.2 (0.550–5.0)	58 (15–131)	2 (1.6–2.4)	52 (43–63)
	2009	4	0.26 (0.240–0.270)	6.8 (6.5–7.2)	2.3 (0.840–4.6)	62 (22–122)	1.9 (1.6–2.2)	50 (43–58)
	2010	4	0.26 (0.240–0.270)	6.8 (6.5–7.2)	2.4 (0.920–4.6)	64 (24–122)	1.9 (1.6–2.1)	50 (43–57)
	2011	4	0.25 (0.240–0.270)	6.8 (6.4–7.2)	2.5 (1.0–4.5)	66 (27–121)	1.8 (1.6–2.1)	49 (42–56)
Bulgaria	1990	9	0.21 (0.210–0.220)	2.4 (2.3–2.5)	4 (1.7–7.2)	45 (19–81)	2.9 (2.5–3.3)	33 (29–37)
	1995	8	0.38 (0.370–0.390)	4.6 (4.5–4.7)	7.9 (3.8–13)	94 (45–162)	5.2 (4.5–5.9)	62 (54–71)
	2000	8	0.34 (0.330–0.350)	4.2 (4.1–4.3)	6.6 (3.0–12)	83 (38–146)	4.6 (4.0–5.3)	58 (50–66)
	2005	8	0.3 (0.300–0.300)	3.9 (3.8–3.9)	5.9 (2.7–10)	77 (35–135)	4.1 (3.6–4.7)	53 (46–61)
	2009	8	0.23 (0.220–0.230)	3 (3.0–3.1)	4.1 (1.7–7.6)	55 (23–101)	3.1 (2.7–3.5)	41 (36–47)
	2010	7	0.21 (0.200–0.210)	2.8 (2.7–2.8)	3.7 (1.5–7.0)	50 (20–93)	2.9 (2.5–3.3)	38 (33–43)
	2011	7	0.19 (0.190–0.190)	2.5 (2.5–2.6)	3.3 (1.3–6.3)	45 (17–85)	2.6 (2.3–3.0)	35 (30–40)
Croatia	1990	5	0.39 (0.380–0.400)	8.6 (8.3–8.8)	3.5 (1.4–6.6)	77 (30–146)	2.7 (2.4–3.1)	60 (53–68)
	1995	5	0.27 (0.250–0.280)	5.7 (5.4–6.0)	3.2 (1.3–6.1)	69 (27–131)	2.5 (2.2–2.9)	54 (47–61)
	2000	5	0.19 (0.180–0.200)	4.2 (4.0–4.4)	2.5 (0.960–4.6)	54 (21–103)	1.9 (1.7–2.2)	43 (37–48)
	2005	4	0.14 (0.130–0.140)	3 (3.0–3.1)	1.6 (0.640–3.1)	37 (14–69)	1.3 (1.1–1.4)	29 (25–32)
	2009	4	0.1 (0.100–0.100)	2.3 (2.3–2.3)	1.2 (0.460–2.2)	27 (10–50)	0.92 (0.810–1.0)	21 (18–24)
	2010	4	0.095 (0.093–0.096)	2.1 (2.1–2.2)	1.1 (0.420–2.0)	24 (9.5–46)	0.84 (0.730–0.950)	19 (17–22)
	2011	4	0.088 (0.085–0.091)	2 (1.9–2.1)	0.97 (0.380–1.8)	22 (8.6–42)	0.76 (0.660–0.860)	17 (15–20)
Cyprus	1990	< 1	<0.01 (<0.01–<0.01)	0.21 (0.17–0.26)	0.051 (0.020–0.096)	6.7 (2.6–13)	0.04 (0.035–0.045)	5.2 (4.6–5.9)
	1995	< 1	<0.01 (<0.01–<0.01)	0.21 (0.17–0.25)	0.057 (0.022–0.110)	6.6 (2.6–13)	0.044 (0.039–0.050)	5.1 (4.5–5.8)
	2000	< 1	<0.01 (<0.01–<0.01)	0.15 (<0.1–0.25)	0.053 (0.021–0.100)	5.7 (2.2–11)	0.042 (0.036–0.047)	4.4 (3.9–5.0)
	2005	1	<0.01 (<0.01–<0.01)	0.2 (0.18–0.23)	0.05 (0.019–0.094)	4.8 (1.9–9.1)	0.039 (0.034–0.044)	3.7 (3.3–4.2)
	2009	1	<0.01 (<0.01–<0.01)	0.15 (0.13–0.16)	0.056 (0.022–0.100)	5.1 (2.0–9.6)	0.043 (0.038–0.049)	4 (3.5–4.5)
	2010	1	<0.01 (<0.01–<0.01)	0.13 (0.10–0.16)	0.056 (0.022–0.110)	5.1 (2.0–9.6)	0.044 (0.038–0.050)	4 (3.5–4.5)
	2011	1	<0.01 (<0.01–<0.01)	0.11 (<0.1–0.13)	0.057 (0.022–0.110)	5.1 (2.0–9.6)	0.044 (0.039–0.050)	4 (3.5–4.5)
Czech Republic	1990	10	0.19 (0.190–0.190)	1.9 (1.9–1.9)	2.9 (1.1–5.4)	28 (11–53)	2.2 (2.0–2.5)	22 (19–25)
	1995	10	0.12 (0.120–0.120)	1.1 (1.1–1.1)	2.8 (1.1–5.4)	27 (11–52)	2.2 (1.9–2.5)	21 (19–24)
	2000	10	0.11 (0.110–0.110)	1 (1.0–1.0)	2.1 (0.840–4.1)	21 (8.2–40)	1.7 (1.5–1.9)	16 (14–19)
	2005	10	0.068 (0.067–0.068)	0.66 (0.66–0.67)	1.4 (0.550–2.6)	14 (5.3–26)	1.1 (0.960–1.2)	11 (9.4–12)
	2009	10	0.046 (0.045–0.046)	0.44 (0.44–0.44)	1 (0.390–1.9)	9.6 (3.8–18)	0.78 (0.690–0.890)	7.5 (6.6–8.5)
	2010	10	0.041 (0.041–0.041)	0.39 (0.39–0.39)	0.91 (0.360–1.7)	8.7 (3.4–16)	0.71 (0.620–0.800)	6.8 (5.9–7.6)
	2011	11	0.036 (0.036–0.036)	0.34 (0.34–0.35)	0.81 (0.320–1.5)	7.7 (3.0–15)	0.64 (0.560–0.720)	6 (5.3–6.8)
Denmark	1990	5	0.055 (0.053–0.056)	1.1 (1.0–1.1)	0.45 (0.180–0.850)	8.8 (3.5–17)	0.36 (0.310–0.400)	6.9 (6.1–7.8)
	1995	5	0.034 (0.033–0.035)	0.65 (0.63–0.68)	0.72 (0.280–1.4)	14 (5.4–26)	0.57 (0.500–0.640)	11 (9.5–12)
	2000	5	0.025 (0.024–0.025)	0.46 (0.45–0.47)	0.76 (0.300–1.4)	14 (5.6–27)	0.6 (0.530–0.680)	11 (9.9–13)
	2005	5	0.022 (0.021–0.022)	0.4 (0.39–0.41)	0.52 (0.210–0.980)	9.6 (3.8–18)	0.42 (0.360–0.470)	7.7 (6.7–8.7)
	2009	6	0.016 (0.016–0.017)	0.3 (0.28–0.31)	0.45 (0.180–0.850)	8.2 (3.2–15)	0.36 (0.320–0.410)	6.5 (5.7–7.4)
	2010	6	0.015 (0.014–0.016)	0.27 (0.26–0.28)	0.45 (0.180–0.840)	8.1 (3.2–15)	0.36 (0.320–0.410)	6.5 (5.7–7.3)
	2011	6	0.014 (0.013–0.014)	0.25 (0.24–0.26)	0.45 (0.180–0.850)	8.1 (3.2–15)	0.36 (0.320–0.410)	6.5 (5.7–7.4)
Estonia	1990	2	0.059 (0.058–0.060)	3.8 (3.7–3.8)	0.5 (0.190–0.940)	32 (12–60)	0.39 (0.340–0.440)	25 (22–28)
	1995	1	0.13 (0.130–0.140)	9.3 (9.1–9.6)	0.98 (0.380–1.8)	68 (26–128)	0.76 (0.670–0.860)	53 (46–60)
	2000	1	0.12 (0.120–0.120)	8.8 (8.6–9.0)	1.1 (0.420–2.0)	78 (31–147)	0.85 (0.750–0.970)	62 (55–70)
	2005	1	0.071 (0.070–0.072)	5.3 (5.2–5.4)	0.7 (0.280–1.3)	52 (21–97)	0.57 (0.500–0.650)	42 (37–48)
	2009	1	0.045 (0.045–0.046)	3.4 (3.3–3.4)	0.48 (0.190–0.890)	36 (14–66)	0.4 (0.350–0.450)	30 (26–34)
	2010	1	0.04 (0.039–0.041)	3 (2.9–3.1)	0.44 (0.180–0.810)	33 (13–61)	0.37 (0.320–0.410)	27 (24–31)
	2011	1	0.036 (0.035–0.037)	2.7 (2.6–2.7)	0.38 (0.160–0.710)	29 (12–53)	0.33 (0.290–0.380)	25 (22–28)
Finland	1990	5	0.12 (0.120–0.120)	2.5 (2.4–2.5)	1.1 (0.440–2.1)	22 (8.8–42)	0.87 (0.760–0.980)	17 (15–20)
	1995	5	0.086 (0.086–0.086)	1.7 (1.7–1.7)	0.91 (0.360–1.7)	18 (7.1–34)	0.72 (0.630–0.810)	14 (12–16)
	2000	5	0.064 (0.064–0.065)	1.2 (1.2–1.2)	0.77 (0.300–1.5)	15 (5.8–28)	0.6 (0.530–0.680)	12 (10–13)
	2005	5	0.033 (0.033–0.033)	0.64 (0.63–0.64)	0.5 (0.200–0.940)	9.5 (3.7–18)	0.39 (0.340–0.440)	7.4 (6.5–8.4)
	2009	5	0.02 (0.020–0.020)	0.38 (0.38–0.38)	0.49 (0.190–0.920)	9.2 (3.6–17)	0.38 (0.340–0.440)	7.2 (6.3–8.1)
	2010	5	0.018 (0.018–0.018)	0.34 (0.34–0.34)	0.51 (0.200–0.960)	9.5 (3.7–18)	0.4 (0.350–0.450)	7.5 (6.5–8.4)
	2011	5	0.017 (0.017–0.017)	0.31 (0.31–0.31)	0.48 (0.170–0.950)	9 (3.2–18)	0.4 (0.350–0.450)	7.5 (6.5–8.4)
France	1990	57	0.97 (0.940–1.0)	1.7 (1.7–1.8)	15 (7.0–26)	26 (12–45)	11 (11–12)	20 (19–21)
	1995	58	0.82 (0.790–0.840)	1.4 (1.4–1.5)	13 (6.2–23)	23 (11–40)	10 (9.5–11)	17 (16–19)
	2000	59	0.65 (0.630–0.670)	1.1 (1.1–1.1)	9.6 (4.5–17)	16 (7.6–28)	7.4 (6.9–7.8)	12 (12–13)
	2005	61	0.43 (0.420–0.450)	0.71 (0.68–0.73)	8.2 (3.8–14)	13 (6.3–23)	6.3 (5.9–6.7)	10 (9.7–11)
	2009	62	0.33 (0.310–0.340)	0.52 (0.50–0.54)	5.4 (2.5–9.4)	8.7 (4.1–15)	4.2 (3.9–4.5)	6.7 (6.3–7.1)
	2010	63	0.31 (0.290–0.320)	0.49 (0.47–0.50)	4.5 (2.1–7.8)	7.2 (3.4–12)	3.5 (3.3–3.7)	5.5 (5.2–5.9)
	2011	63	0.29 (0.280–0.300)	0.45 (0.44–0.47)	3.5 (1.7–6.1)	5.6 (2.6–9.7)	2.7 (2.5–2.9)	4.3 (4.0–4.6)

[a] Rates are per 100 000 population.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2011**

			MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
Georgia	1990	5	0.46 (0.400–0.510)	8.3 (7.3–9.4)	37 (16–65)	675 (300–1 200)	15 (14–17)	280 (250–312)
	1995	5	0.4 (0.350–0.450)	7.8 (6.8–8.9)	28 (13–46)	543 (265–917)	13 (12–15)	263 (234–293)
	2000	5	0.36 (0.320–0.410)	7.6 (6.6–8.7)	23 (12–38)	487 (246–809)	12 (11–14)	256 (228–285)
	2005	4	0.23 (0.190–0.270)	5.2 (4.3–6.1)	14 (7.0–22)	304 (156–500)	7.8 (7.0–8.7)	175 (156–195)
	2009	4	0.17 (0.150–0.200)	3.9 (3.3–4.6)	8.1 (3.7–14)	184 (84–324)	5.8 (5.2–6.4)	132 (118–147)
	2010	4	0.17 (0.140–0.190)	3.8 (3.3–4.4)	7.4 (3.1–13)	169 (72–307)	5.6 (5.0–6.2)	128 (114–142)
	2011	4	0.16 (0.140–0.190)	3.7 (3.2–4.3)	6.9 (2.8–13)	159 (64–298)	5.4 (4.8–6.1)	125 (112–140)
Germany	1990	79	1 (0.990–1.0)	1.3 (1.2–1.3)	21 (8.3–40)	27 (10–50)	17 (15–19)	21 (18–24)
	1995	82	0.71 (0.710–0.720)	0.87 (0.86–0.88)	18 (7.3–34)	22 (8.9–42)	14 (13–16)	18 (15–20)
	2000	82	0.47 (0.460–0.480)	0.57 (0.56–0.58)	13 (5.0–24)	15 (6.0–29)	10 (8.7–11)	12 (11–14)
	2005	83	0.34 (0.340–0.350)	0.42 (0.41–0.42)	7.8 (3.0–15)	9.4 (3.7–18)	6.1 (5.4–6.9)	7.4 (6.5–8.4)
	2009	82	0.3 (0.290–0.300)	0.36 (0.35–0.36)	5.4 (2.1–10)	6.6 (2.6–12)	4.3 (3.8–4.8)	5.2 (4.6–5.9)
	2010	82	0.29 (0.280–0.290)	0.35 (0.34–0.35)	5 (2.0–9.4)	6.1 (2.4–11)	4 (3.5–4.5)	4.8 (4.2–5.4)
	2011	82	0.28 (0.280–0.280)	0.34 (0.34–0.35)	4.7 (1.8–8.8)	5.7 (2.2–11)	3.7 (3.2–4.2)	4.5 (3.9–5.1)
Greece	1990	10	0.2 (0.190–0.210)	2 (1.9–2.1)	1.2 (0.460–2.2)	12 (4.5–22)	0.93 (0.810–1.0)	9.1 (8.0–10)
	1995	11	0.14 (0.130–0.160)	1.3 (1.2–1.5)	1.4 (0.550–2.6)	13 (5.1–25)	1.1 (0.970–1.2)	10 (9.1–12)
	2000	11	0.097 (0.093–0.100)	0.88 (0.84–0.92)	1.1 (0.430–2.1)	10 (3.9–19)	0.86 (0.760–0.980)	7.8 (6.9–8.9)
	2005	11	0.092 (0.088–0.096)	0.83 (0.79–0.86)	0.83 (0.330–1.6)	7.4 (2.9–14)	0.65 (0.570–0.740)	5.9 (5.1–6.6)
	2009	11	0.092 (0.089–0.096)	0.82 (0.78–0.85)	0.68 (0.270–1.3)	6 (2.4–11)	0.54 (0.470–0.610)	4.7 (4.1–5.3)
	2010	11	0.092 (0.087–0.097)	0.81 (0.76–0.85)	0.62 (0.240–1.2)	5.4 (2.2–10)	0.49 (0.430–0.550)	4.3 (3.8–4.9)
	2011	11	0.091 (0.086–0.096)	0.8 (0.75–0.84)	0.55 (0.220–1.0)	4.8 (1.9–9.0)	0.43 (0.380–0.490)	3.8 (3.3–4.3)
Greenland	1990	< 1	<0.01 (<0.01–0.019)	8.7 (0.12–35)	0.13 (0.050–0.240)	228 (89–430)	0.099 (0.086–0.110)	178 (156–201)
	1995	< 1	<0.01 (<0.01–0.019)	8.7 (0.12–35)	0.13 (0.049–0.240)	228 (89–431)	0.099 (0.087–0.110)	178 (156–201)
	2000	< 1	<0.01 (<0.01–0.019)	8.7 (0.12–35)	0.13 (0.050–0.240)	227 (89–430)	0.1 (0.087–0.110)	178 (156–201)
	2005	< 1	<0.01 (<0.01–0.020)	8.7 (0.12–35)	0.13 (0.051–0.250)	228 (89–430)	0.1 (0.089–0.110)	178 (156–201)
	2009	< 1	<0.01 (<0.01–0.020)	8.7 (0.12–35)	0.13 (0.051–0.250)	228 (89–431)	0.1 (0.089–0.120)	178 (156–201)
	2010	< 1	<0.01 (<0.01–0.020)	8.7 (0.12–35)	0.13 (0.051–0.250)	228 (89–431)	0.1 (0.089–0.120)	178 (156–201)
	2011	< 1	<0.01 (<0.01–0.020)	8.7 (0.12–35)	0.13 (0.051–0.250)	228 (89–431)	0.1 (0.089–0.120)	178 (156–201)
Hungary	1990	10	0.55 (0.550–0.560)	5.3 (5.3–5.3)	5.1 (2.0–9.6)	49 (19–92)	4 (3.5–4.5)	39 (34–44)
	1995	10	0.56 (0.550–0.560)	5.4 (5.4–5.5)	6.3 (2.5–12)	61 (24–115)	4.9 (4.3–5.6)	48 (42–54)
	2000	10	0.37 (0.370–0.370)	3.6 (3.6–3.6)	4.8 (1.9–9.2)	47 (19–90)	3.8 (3.3–4.3)	37 (33–42)
	2005	10	0.19 (0.190–0.190)	1.8 (1.8–1.8)	2.8 (1.1–5.3)	28 (11–53)	2.2 (1.9–2.5)	22 (19–25)
	2009	10	0.11 (0.110–0.110)	1.1 (1.1–1.1)	2.2 (0.850–4.1)	22 (8.5–41)	1.7 (1.5–1.9)	17 (15–19)
	2010	10	0.092 (0.092–0.092)	0.92 (0.92–0.93)	2.2 (0.850–4.1)	22 (8.5–41)	1.7 (1.5–1.9)	17 (15–19)
	2011	10	0.081 (0.081–0.081)	0.81 (0.81–0.82)	2.3 (0.890–4.3)	23 (8.9–43)	1.8 (1.6–2.0)	18 (16–20)
Iceland	1990	< 1	<0.01 (<0.01–<0.01)	0.7 (0.69–0.71)	0.025 (<0.01–0.047)	9.8 (3.8–19)	0.02 (0.017–0.022)	7.7 (6.7–8.7)
	1995	< 1	<0.01 (<0.01–<0.01)	1 (1.0–1.0)	0.02 (<0.01–0.037)	7.3 (2.9–14)	0.015 (0.013–0.017)	5.7 (5.0–6.5)
	2000	< 1	<0.01 (<0.01–<0.01)	0.41 (0.41–0.42)	0.016 (<0.01–0.030)	5.6 (2.2–11)	0.013 (0.011–0.014)	4.5 (3.9–5.1)
	2005	< 1	<0.01 (<0.01–<0.01)	0.32 (0.32–0.32)	0.013 (<0.01–0.027)	4.5 (1.4–9.3)	0.011 (<0.01–0.012)	3.7 (3.3–4.2)
	2009	< 1	<0.01 (<0.01–<0.01)	0.31 (0.31–0.31)	0.017 (<0.01–0.032)	5.4 (2.2–10)	0.014 (0.012–0.015)	4.3 (3.8–4.9)
	2010	< 1	<0.01 (<0.01–<0.01)	0.31 (0.30–0.31)	0.018 (<0.01–0.034)	5.7 (2.3–11)	0.015 (0.013–0.017)	4.6 (4.0–5.2)
	2011	< 1	<0.01 (<0.01–<0.01)	0.31 (0.30–0.31)	0.02 (<0.01–0.037)	6 (2.4–11)	0.016 (0.014–0.018)	4.8 (4.2–5.4)
Ireland	1990	4	0.051 (0.051–0.052)	1.5 (1.4–1.5)	0.97 (0.380–1.8)	28 (11–52)	0.76 (0.670–0.860)	22 (19–24)
	1995	4	0.042 (0.042–0.042)	1.2 (1.2–1.2)	0.72 (0.290–1.4)	20 (7.9–38)	0.57 (0.500–0.640)	16 (14–18)
	2000	4	0.032 (0.032–0.033)	0.85 (0.85–0.86)	0.57 (0.230–1.1)	15 (6.0–28)	0.45 (0.400–0.510)	12 (10–14)
	2005	4	0.022 (0.022–0.022)	0.53 (0.53–0.53)	0.55 (0.220–1.0)	13 (5.3–25)	0.44 (0.390–0.500)	11 (9.3–12)
	2009	4	0.021 (0.020–0.021)	0.47 (0.45–0.48)	0.49 (0.200–0.920)	11 (4.4–21)	0.39 (0.340–0.440)	8.9 (7.8–10)
	2010	4	0.02 (0.020–0.020)	0.46 (0.45–0.46)	0.46 (0.180–0.860)	10 (4.1–19)	0.37 (0.320–0.420)	8.2 (7.2–9.3)
	2011	5	0.02 (0.020–0.020)	0.45 (0.45–0.45)	0.42 (0.170–0.790)	9.4 (3.7–18)	0.34 (0.300–0.380)	7.5 (6.5–8.4)
Israel	1990	4	0.023 (0.023–0.024)	0.52 (0.51–0.54)	0.48 (0.190–0.910)	11 (4.2–20)	0.38 (0.330–0.430)	8.4 (7.4–9.5)
	1995	5	0.047 (0.046–0.049)	0.89 (0.86–0.92)	0.63 (0.250–1.2)	12 (4.7–22)	0.5 (0.440–0.570)	9.4 (8.3–11)
	2000	6	0.031 (0.031–0.032)	0.52 (0.51–0.53)	0.75 (0.300–1.4)	13 (5.0–23)	0.61 (0.540–0.690)	10 (8.9–12)
	2005	7	0.019 (0.018–0.019)	0.28 (0.27–0.29)	0.57 (0.230–1.1)	8.6 (3.4–16)	0.46 (0.400–0.520)	7 (6.1–7.9)
	2009	7	0.016 (0.015–0.016)	0.22 (0.21–0.22)	0.5 (0.200–0.940)	6.9 (2.8–13)	0.41 (0.360–0.470)	5.7 (5.0–6.4)
	2010	7	0.015 (0.015–0.016)	0.2 (0.20–0.21)	0.53 (0.210–0.990)	7.1 (2.8–13)	0.42 (0.370–0.480)	5.7 (5.0–6.4)
	2011	8	0.015 (0.014–0.015)	0.19 (0.19–0.20)	0.53 (0.210–1.0)	7.1 (2.8–13)	0.44 (0.380–0.490)	5.8 (5.1–6.5)
Italy	1990	57	0.57 (0.550–0.590)	1 (0.98–1.0)	5.7 (2.3–11)	9.9 (4.0–19)	4.6 (4.0–5.2)	8 (7.0–9.1)
	1995	57	0.62 (0.600–0.630)	1.1 (1.1–1.1)	7.2 (2.9–14)	13 (5.1–24)	5.8 (5.1–6.6)	10 (9.0–12)
	2000	57	0.49 (0.470–0.510)	0.87 (0.83–0.90)	6.1 (2.4–11)	11 (4.3–20)	4.9 (4.3–5.6)	8.6 (7.6–9.8)
	2005	59	0.37 (0.360–0.380)	0.63 (0.61–0.64)	5.4 (2.1–10)	9.2 (3.6–17)	4.3 (3.8–4.9)	7.4 (6.5–8.4)
	2009	60	0.34 (0.340–0.350)	0.57 (0.56–0.57)	3.6 (1.5–6.8)	6 (2.4–11)	2.9 (2.6–3.3)	4.8 (4.2–5.5)
	2010	61	0.34 (0.340–0.350)	0.57 (0.56–0.58)	2.9 (1.2–5.5)	4.8 (1.9–9.0)	2.4 (2.1–2.7)	3.9 (3.4–4.4)
	2011	61	0.35 (0.340–0.360)	0.58 (0.56–0.59)	2.1 (0.860–4.0)	3.5 (1.4–6.6)	1.7 (1.5–2.0)	2.8 (2.5–3.2)
Kazakhstan	1990	17	1.4 (1.2–1.5)	8.4 (7.5–9.4)	18 (7.3–33)	107 (44–197)	13 (11–15)	79 (66–92)
	1995	16	5.4 (5.0–5.9)	34 (31–37)	110 (51–190)	677 (319–1 170)	51 (43–59)	318 (269–372)
	2000	15	5.6 (5.0–6.3)	38 (33–42)	96 (47–160)	641 (317–1 080)	53 (44–61)	351 (297–411)
	2005	15	3.8 (3.5–4.2)	25 (23–28)	53 (24–92)	347 (157–609)	36 (30–42)	235 (199–275)
	2009	16	2.8 (2.3–3.4)	18 (15–21)	36 (15–66)	224 (92–414)	26 (22–31)	166 (141–195)
	2010	16	2.5 (2.0–3.1)	16 (13–19)	31 (13–58)	195 (79–364)	24 (20–28)	148 (125–172)
	2011	16	2.2 (2.0–2.5)	14 (12–15)	27 (11–51)	168 (66–316)	21 (18–24)	129 (109–151)
Kyrgyzstan	1990	4	0.39 (0.330–0.460)	8.9 (7.5–10)	7.2 (3.5–12)	163 (79–277)	4 (3.3–4.8)	92 (76–109)
	1995	5	0.75 (0.640–0.860)	16 (14–19)	14 (6.8–24)	305 (148–517)	7.7 (6.4–9.2)	168 (138–200)
	2000	5	1.2 (1.1–1.3)	24 (22–27)	22 (11–37)	441 (214–748)	12 (10–15)	249 (205–296)
	2005	5	1 (0.930–1.1)	20 (18–22)	17 (8.3–30)	344 (165–587)	10 (8.6–12)	208 (171–248)
	2009	5	0.77 (0.660–0.890)	15 (13–17)	11 (5.0–21)	218 (96–390)	8 (6.6–9.5)	151 (125–180)
	2010	5	0.72 (0.630–0.820)	14 (12–15)	10 (4.4–19)	195 (83–355)	7.4 (6.1–8.8)	139 (115–166)
	2011	5	0.67 (0.590–0.760)	12 (11–14)	9.4 (3.9–17)	175 (71–324)	6.9 (5.7–8.2)	128 (106–153)
Latvia	1990	3	0.15 (0.150–0.150)	5.7 (5.6–5.8)	2.8 (1.4–4.7)	107 (54–177)	1.5 (1.3–1.7)	57 (50–65)
	1995	2	0.31 (0.300–0.320)	12 (12–13)	5.6 (2.8–9.3)	225 (114–373)	3.1 (2.8–3.5)	126 (111–142)
	2000	2	0.29 (0.280–0.290)	12 (12–12)	4.3 (2.1–7.3)	179 (87–304)	2.9 (2.5–3.3)	121 (106–137)
	2005	2	0.17 (0.170–0.180)	7.5 (7.2–7.7)	2.3 (0.950–4.1)	98 (41–178)	1.7 (1.5–2.0)	75 (66–85)
	2009	2	0.11 (0.110–0.120)	5 (4.7–5.3)	1.3 (0.530–2.5)	60 (23–112)	1.1 (1.0–1.3)	50 (44–57)
	2010	2	0.1 (0.099–0.100)	4.5 (4.4–4.7)	1.2 (0.490–2.3)	55 (22–102)	1 (0.900–1.2)	46 (40–52)
	2011	2	0.093 (0.090–0.095)	4.1 (4.0–4.2)	1.1 (0.460–2.1)	50 (21–93)	0.93 (0.820–1.1)	42 (36–47)
Lithuania	1990	4	0.25 (0.250–0.250)	6.8 (6.7–6.8)	1.8 (0.660–3.6)	49 (18–96)	1.4 (1.2–1.7)	39 (32–46)
	1995	4	0.43 (0.430–0.430)	12 (12–12)	3.6 (1.3–6.9)	98 (36–190)	2.8 (2.4–3.3)	77 (66–90)
	2000	4	0.37 (0.360–0.370)	10 (10–11)	4 (1.6–7.5)	114 (45–215)	3.1 (2.8–3.5)	90 (79–101)
	2005	3	0.34 (0.340–0.340)	10 (9.9–10)	3.3 (1.3–6.2)	96 (37–182)	2.6 (2.2–2.9)	75 (65–86)
	2009	3	0.31 (0.300–0.320)	9.3 (9.0–9.5)	2.8 (1.1–5.3)	83 (32–159)	2.2 (1.9–2.5)	65 (56–75)
	2010	3	0.29 (0.290–0.300)	8.8 (8.7–8.9)	2.6 (1.0–5.0)	79 (30–151)	2.1 (1.8–2.4)	62 (53–72)
	2011	3	0.28 (0.270–0.280)	8.3 (8.3–8.4)	2.5 (0.950–4.7)	75 (29–143)	1.9 (1.7–2.2)	59 (51–68)
Luxembourg	1990	< 1	<0.01 (<0.01–<0.01)	0.33 (0.32–0.34)	0.065 (0.025–0.120)	17 (6.7–32)	0.051 (0.044–0.057)	13 (12–15)
	1995	< 1	<0.01 (<0.01–<0.01)	0.21 (0.20–0.21)	0.052 (0.021–0.098)	13 (5.0–24)	0.041 (0.036–0.047)	10 (8.9–11)
	2000	< 1	<0.01 (<0.01–<0.01)	0.56 (0.55–0.56)	0.057 (0.023–0.110)	13 (5.2–25)	0.045 (0.040–0.051)	10 (9.1–12)
	2005	< 1	<0.01 (<0.01–<0.01)	0.43 (0.42–0.44)	0.049 (0.020–0.092)	11 (4.3–20)	0.039 (0.034–0.044)	8.6 (7.5–9.7)
	2009	< 1	<0.01 (<0.01–<0.01)	0.33 (0.33–0.34)	0.024 (<0.01–0.045)	4.8 (1.9–9.1)	0.019 (0.017–0.022)	3.9 (3.4–4.4)
	2010	< 1	<0.01 (<0.01–<0.01)	0.32 (0.31–0.32)	0.014 (<0.01–0.027)	2.8 (1.1–5.4)	0.012 (0.010–0.013)	2.3 (2.0–2.6)
	2011	< 1	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	<0.01 (<0.01–<0.01)	0.65 (0.26–1.2)	<0.01 (<0.01–<0.01)	0.52 (0.46–0.59)
Malta	1990	< 1	<0.01 (<0.01–<0.01)	0.46 (0.45–0.48)	0.031 (0.012–0.059)	8.5 (3.4–16)	0.025 (0.022–0.028)	6.7 (5.9–7.6)
	1995	< 1	<0.01 (<0.01–<0.01)	0.27 (0.26–0.27)	0.03 (0.012–0.056)	7.7 (3.1–14)	0.024 (0.021–0.027)	6.3 (5.5–7.1)
	2000	< 1	<0.01 (<0.01–<0.01)	0.34 (0.34–0.34)	0.023 (<0.01–0.042)	5.7 (2.3–11)	0.019 (0.016–0.021)	4.7 (4.1–5.3)
	2005	< 1	<0.01 (<0.01–<0.01)	0.3 (0.30–0.31)	0.034 (0.014–0.063)	8.3 (3.4–15)	0.029 (0.025–0.032)	7 (6.1–7.9)
	2009	< 1	<0.01 (<0.01–<0.01)	0.32 (0.32–0.32)	0.045 (0.017–0.087)	11 (4.2–21)	0.038 (0.033–0.043)	9.2 (8.0–10)
	2010	< 1	<0.01 (<0.01–<0.01)	0.3 (0.29–0.32)	0.046 (0.017–0.089)	11 (4.0–21)	0.038 (0.034–0.044)	9.2 (8.1–10)
	2011	< 1	<0.01 (<0.01–<0.01)	0.29 (0.28–0.29)	0.044 (0.016–0.085)	10 (3.8–20)	0.038 (0.033–0.043)	9.1 (8.0–10)
Monaco	1990	< 1	<0.01 (0–<0.01)	0.13 (0–0.53)	<0.01 (<0.01–<0.01)	3.5 (1.4–6.6)	<0.01 (<0.01–<0.01)	2.7 (2.4–3.1)
	1995	< 1	<0.01 (0–<0.01)	0.12 (0–0.49)	<0.01 (<0.01–<0.01)	3.2 (1.3–6.1)	<0.01 (<0.01–<0.01)	2.5 (2.2–2.9)
	2000	< 1	<0.01 (0–<0.01)	<0.1 (0–0.31)	<0.01 (<0.01–<0.01)	2.1 (0.81–3.9)	<0.01 (<0.01–<0.01)	1.6 (1.4–1.8)
	2005	< 1	<0.01 (0–<0.01)	<0.1 (0–0.19)	<0.01 (<0.01–<0.01)	1.2 (0.49–2.4)	<0.01 (<0.01–<0.01)	0.97 (0.85–1.1)
	2009	< 1	<0.01 (0–<0.01)	0.11 (0–0.45)	<0.01 (<0.01–<0.01)	2.9 (1.1–5.6)	<0.01 (<0.01–<0.01)	2.3 (2.0–2.6)
	2010	< 1	<0.01 (0–<0.01)	0.13 (0–0.53)	<0.01 (<0.01–<0.01)	3.5 (1.4–6.6)	<0.01 (<0.01–<0.01)	2.7 (2.4–3.1)
	2011	< 1	<0.01 (0–<0.01)	0.15 (0–0.62)	<0.01 (<0.01–<0.01)	4.1 (1.6–7.7)	<0.01 (<0.01–<0.01)	3.2 (2.8–3.6)

[a] Rates are per 100 000 population.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2011**

			MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
Montenegro	2005	< 1	<0.01 (<0.01–<0.01)	0.55 (0.49–0.60)	0.2 (0.068–0.400)	32 (11–64)	0.17 (0.150–0.190)	27 (23–31)
	2009	< 1	<0.01 (<0.01–<0.01)	0.2 (0.18–0.23)	0.18 (0.072–0.330)	28 (11–52)	0.13 (0.120–0.150)	21 (19–24)
	2010	< 1	<0.01 (<0.01–<0.01)	0.16 (0.14–0.19)	0.15 (0.053–0.290)	23 (8.4–45)	0.12 (0.110–0.140)	19 (17–21)
	2011	< 1	<0.01 (<0.01–<0.01)	0.21 (0.18–0.24)	0.12 (0.037–0.260)	19 (5.8–41)	0.11 (0.094–0.120)	17 (15–19)
Netherlands	1990	15	0.028 (0.028–0.029)	0.19 (0.19–0.20)	2 (0.770–3.7)	13 (5.2–25)	1.5 (1.4–1.8)	10 (9.1–12)
	1995	15	0.041 (0.040–0.042)	0.27 (0.26–0.27)	2.3 (0.920–4.3)	15 (5.9–28)	1.8 (1.6–2.1)	12 (10–13)
	2000	16	0.039 (0.037–0.040)	0.24 (0.24–0.25)	2 (0.780–3.7)	12 (4.9–23)	1.6 (1.4–1.8)	9.9 (8.6–11)
	2005	16	0.033 (0.032–0.033)	0.2 (0.20–0.20)	1.7 (0.660–3.1)	10 (4.1–19)	1.3 (1.2–1.5)	8.1 (7.1–9.2)
	2009	17	0.031 (0.031–0.032)	0.19 (0.19–0.19)	1.5 (0.580–2.7)	8.8 (3.5–16)	1.2 (1.0–1.3)	7 (6.1–7.9)
	2010	17	0.033 (0.032–0.034)	0.2 (0.19–0.20)	1.4 (0.570–2.7)	8.6 (3.4–16)	1.1 (1.0–1.3)	6.9 (6.0–7.8)
	2011	17	0.035 (0.034–0.036)	0.21 (0.20–0.21)	1.4 (0.560–2.7)	8.5 (3.4–16)	1.1 (0.990–1.3)	6.8 (5.9–7.7)
Norway	1990	4	0.02 (0.019–0.020)	0.46 (0.46–0.47)	0.45 (0.170–0.840)	10 (4.1–20)	0.35 (0.310–0.390)	8.2 (7.2–9.3)
	1995	4	0.014 (0.014–0.015)	0.33 (0.32–0.33)	0.34 (0.130–0.640)	7.8 (3.1–15)	0.27 (0.230–0.300)	6.1 (5.3–6.9)
	2000	4	0.011 (0.011–0.012)	0.26 (0.25–0.26)	0.35 (0.140–0.660)	7.8 (3.1–15)	0.28 (0.240–0.310)	6.2 (5.4–7.0)
	2005	5	<0.01 (<0.01–<0.01)	0.16 (0.16–0.16)	0.41 (0.160–0.770)	8.8 (3.5–17)	0.32 (0.280–0.360)	6.9 (6.1–7.9)
	2009	5	<0.01 (<0.01–<0.01)	0.13 (0.13–0.14)	0.4 (0.160–0.740)	8.2 (3.2–15)	0.31 (0.270–0.350)	6.5 (5.7–7.3)
	2010	5	<0.01 (<0.01–<0.01)	0.14 (0.13–0.14)	0.39 (0.150–0.730)	7.9 (3.1–15)	0.31 (0.270–0.350)	6.3 (5.5–7.1)
	2011	5	<0.01 (<0.01–<0.01)	0.15 (0.14–0.15)	0.38 (0.150–0.710)	7.7 (3.0–14)	0.3 (0.260–0.340)	6.1 (5.3–6.9)
Poland	1990	38	1.9 (1.8–2.0)	5 (4.9–5.2)	24 (9.4–45)	63 (25–120)	19 (17–21)	50 (43–56)
	1995	38	1.3 (1.2–1.3)	3.3 (3.1–3.4)	23 (9.0–43)	60 (23–113)	18 (16–20)	47 (41–53)
	2000	38	1.1 (1.0–1.1)	2.8 (2.7–2.9)	17 (6.5–31)	43 (17–82)	13 (11–15)	34 (30–38)
	2005	38	0.87 (0.840–0.910)	2.3 (2.2–2.4)	12 (4.8–23)	32 (13–60)	9.6 (8.4–11)	25 (22–29)
	2009	38	0.79 (0.770–0.820)	2.1 (2.0–2.1)	11 (4.3–21)	29 (11–54)	8.7 (7.6–9.8)	23 (20–26)
	2010	38	0.79 (0.760–0.820)	2.1 (2.0–2.1)	11 (4.3–21)	29 (11–54)	8.6 (7.6–9.8)	23 (20–26)
	2011	38	0.79 (0.750–0.820)	2.1 (2.0–2.1)	11 (4.4–21)	29 (11–55)	8.7 (7.6–9.9)	23 (20–26)
Portugal	1990	10	0.3 (0.280–0.320)	3 (2.8–3.2)	8.9 (3.5–17)	90 (35–169)	7.1 (6.2–8.0)	71 (62–81)
	1995	10	0.38 (0.360–0.400)	3.8 (3.5–4.0)	7.7 (3.1–14)	76 (30–141)	6.3 (5.5–7.1)	62 (54–70)
	2000	10	0.31 (0.280–0.330)	3 (2.8–3.2)	6.2 (2.6–12)	60 (25–112)	5.2 (4.6–5.9)	50 (44–57)
	2005	11	0.19 (0.170–0.200)	1.8 (1.6–1.9)	4.3 (1.9–7.8)	41 (18–74)	3.9 (3.5–4.5)	37 (33–42)
	2009	11	0.14 (0.130–0.150)	1.3 (1.2–1.4)	3.5 (1.4–6.4)	33 (14–60)	3 (2.7–3.4)	28 (25–32)
	2010	11	0.13 (0.130–0.140)	1.2 (1.2–1.3)	3.3 (1.4–6.1)	31 (13–57)	2.8 (2.5–3.2)	26 (23–30)
	2011	11	0.13 (0.120–0.140)	1.2 (1.1–1.3)	3 (1.3–5.6)	29 (12–53)	2.6 (2.3–3.0)	24 (21–28)
Republic of Moldova	1990	4	0.24 (0.230–0.260)	5.6 (5.2–6.0)	3.5 (1.5–6.2)	79 (35–142)	2.3 (1.9–2.8)	54 (44–64)
	1995	4	0.49 (0.460–0.530)	11 (11–12)	8.1 (3.9–14)	187 (90–319)	4.7 (3.9–5.6)	109 (90–130)
	2000	4	0.63 (0.570–0.690)	15 (14–17)	10 (5.0–18)	252 (122–427)	6 (5.0–7.2)	147 (121–175)
	2005	4	0.69 (0.640–0.730)	18 (17–19)	10 (4.5–18)	265 (120–466)	6.6 (5.4–7.9)	175 (144–209)
	2009	4	0.64 (0.610–0.660)	18 (17–18)	8.6 (3.8–15)	239 (107–424)	6.1 (5.0–7.3)	170 (140–202)
	2010	4	0.62 (0.610–0.630)	17 (17–18)	8.4 (3.8–15)	236 (106–417)	5.9 (4.9–7.1)	166 (137–198)
	2011	4	0.6 (0.550–0.640)	17 (16–18)	8.3 (3.8–15)	234 (107–410)	5.7 (4.7–6.8)	161 (133–192)
Romania	1990	23	2 (2.0–2.0)	8.6 (8.6–8.6)	63 (30–110)	272 (131–463)	34 (28–40)	146 (120–174)
	1995	23	2.5 (2.5–2.5)	11 (11–11)	75 (36–130)	330 (159–562)	43 (35–51)	189 (155–226)
	2000	22	2.4 (2.4–2.4)	11 (11–11)	61 (28–110)	275 (126–482)	40 (33–48)	181 (149–216)
	2005	22	1.9 (1.9–1.9)	8.7 (8.7–8.7)	42 (17–80)	194 (76–366)	32 (26–38)	147 (121–175)
	2009	22	1.5 (1.5–1.5)	6.9 (6.8–6.9)	33 (13–63)	155 (62–291)	25 (21–30)	116 (96–139)
	2010	21	1.4 (1.4–1.4)	6.4 (6.4–6.5)	32 (13–59)	149 (62–273)	23 (19–28)	109 (89–130)
	2011	21	1.3 (1.3–1.3)	6 (6.0–6.0)	31 (13–56)	145 (63–261)	22 (18–26)	101 (83–121)
Russian Federation	1990	148	11 (11–11)	7.6 (7.5–7.7)	120 (57–200)	79 (39–134)	70 (59–81)	47 (40–55)
	1995	149	23 (22–24)	15 (15–16)	230 (110–390)	154 (74–262)	140 (120–170)	96 (81–112)
	2000	147	30 (29–31)	21 (20–21)	280 (130–490)	192 (89–334)	190 (160–220)	127 (108–149)
	2005	144	31 (31–32)	22 (21–22)	300 (140–510)	207 (99–354)	190 (160–230)	135 (114–158)
	2009	143	26 (25–27)	18 (17–19)	220 (100–390)	154 (70–271)	160 (140–190)	113 (96–132)
	2010	143	24 (23–25)	17 (16–18)	200 (88–370)	142 (61–257)	150 (130–180)	106 (89–123)
	2011	143	22 (22–23)	16 (15–16)	180 (72–330)	124 (50–229)	140 (120–160)	97 (82–114)
San Marino	1990	< 1			<0.01 (<0.01–<0.01)	8.8 (3.5–17)	<0.01 (<0.01–<0.01)	6.9 (6.0–7.8)
	1995	< 1			<0.01 (<0.01–<0.01)	7.7 (3.0–15)	<0.01 (<0.01–<0.01)	6 (5.3–6.8)
	2000	< 1			<0.01 (<0.01–<0.01)	2 (0.78–3.8)	<0.01 (<0.01–<0.01)	1.6 (1.4–1.8)
	2005	< 1			<0.01 (<0.01–<0.01)	2.4 (0.94–4.5)	<0.01 (<0.01–<0.01)	1.9 (1.6–2.1)
	2009	< 1			<0.01 (<0.01–<0.01)	1.9 (0.74–3.6)	<0.01 (<0.01–<0.01)	1.5 (1.3–1.7)
	2010	< 1			<0.01 (<0.01–<0.01)	1.8 (0.72–3.5)	<0.01 (<0.01–<0.01)	1.4 (1.3–1.6)
	2011	< 1			<0.01 (<0.01–<0.01)	1.8 (0.72–3.5)	<0.01 (<0.01–<0.01)	1.4 (1.2–1.6)
Serbia	2005	10	0.29 (0.250–0.330)	2.9 (2.5–3.3)	3.9 (1.3–8.0)	40 (13–81)	3.4 (3.0–3.8)	34 (30–39)
	2009	10	0.17 (0.150–0.200)	1.7 (1.5–2.0)	2.6 (0.980–5.0)	26 (9.9–51)	2.1 (1.8–2.4)	21 (19–24)
	2010	10	0.17 (0.150–0.190)	1.7 (1.5–2.0)	2.3 (0.690–4.8)	23 (7.0–48)	1.8 (1.6–2.1)	18 (16–21)
	2011	10	0.16 (0.140–0.180)	1.6 (1.4–1.9)	2.4 (0.740–5.1)	25 (7.6–52)	1.6 (1.4–1.8)	16 (14–19)
Serbia & Montenegro	1990	10	0.73 (0.700–0.750)	7.1 (6.9–7.4)	8.9 (2.9–18)	87 (28–178)	6 (4.1–8.4)	59 (40–82)
	1995	11	0.52 (0.500–0.540)	4.8 (4.6–5.0)	9.5 (4.5–16)	88 (41–151)	5.8 (4.7–7.0)	53 (44–64)
	2000	11	0.37 (0.350–0.380)	3.4 (3.3–3.6)	6 (2.5–11)	56 (23–103)	4.3 (3.5–5.1)	40 (32–48)
Slovakia	1990	5	0.14 (0.140–0.140)	2.7 (2.7–2.7)	2.3 (0.910–4.4)	44 (17–83)	1.8 (1.6–2.1)	34 (30–39)
	1995	5	0.08 (0.079–0.080)	1.5 (1.5–1.5)	2.3 (0.900–4.4)	43 (17–81)	1.8 (1.6–2.0)	34 (29–38)
	2000	5	0.053 (0.053–0.053)	0.98 (0.97–0.99)	1.6 (0.610–2.9)	29 (11–54)	1.2 (1.1–1.4)	23 (20–25)
	2005	5	0.05 (0.050–0.051)	0.93 (0.92–0.93)	1.1 (0.410–2.0)	19 (7.6–37)	0.82 (0.720–0.930)	15 (13–17)
	2009	5	0.044 (0.043–0.044)	0.8 (0.79–0.81)	0.69 (0.270–1.3)	13 (4.9–24)	0.54 (0.470–0.610)	9.8 (8.6–11)
	2010	5	0.043 (0.043–0.043)	0.78 (0.78–0.79)	0.59 (0.230–1.1)	11 (4.2–21)	0.46 (0.410–0.530)	8.5 (7.5–9.6)
	2011	5	0.042 (0.042–0.043)	0.77 (0.77–0.78)	0.51 (0.200–0.960)	9.2 (3.6–17)	0.39 (0.350–0.450)	7.2 (6.3–8.2)
Slovenia	1990	2	0.074 (0.073–0.075)	3.8 (3.8–3.9)	1 (0.390–1.9)	52 (20–99)	0.78 (0.690–0.890)	41 (36–46)
	1995	2	0.038 (0.038–0.039)	1.9 (1.9–2.0)	0.8 (0.310–1.5)	41 (16–77)	0.63 (0.550–0.710)	32 (28–36)
	2000	2	0.022 (0.022–0.023)	1.1 (1.1–1.1)	0.57 (0.220–1.1)	29 (11–54)	0.44 (0.390–0.500)	22 (20–25)
	2005	2	0.019 (0.019–0.020)	0.97 (0.96–0.99)	0.36 (0.140–0.680)	18 (7.0–34)	0.28 (0.250–0.320)	14 (12–16)
	2009	2	0.021 (0.021–0.022)	1.1 (1.0–1.1)	0.27 (0.110–0.510)	13 (5.2–25)	0.21 (0.180–0.240)	10 (9.1–12)
	2010	2	0.022 (0.022–0.022)	1.1 (1.1–1.1)	0.25 (0.099–0.480)	12 (4.9–24)	0.2 (0.170–0.220)	9.8 (8.5–11)
	2011	2	0.022 (0.022–0.022)	1.1 (1.1–1.1)	0.24 (0.095–0.460)	12 (4.7–22)	0.19 (0.170–0.210)	9.3 (8.1–11)
Spain	1990	39	0.89 (0.880–0.900)	2.3 (2.3–2.3)	12 (4.7–22)	30 (12–55)	9.5 (8.4–11)	25 (22–28)
	1995	39	0.63 (0.620–0.640)	1.6 (1.6–1.6)	13 (5.1–23)	32 (13–59)	11 (9.2–12)	27 (23–30)
	2000	40	0.43 (0.420–0.440)	1.1 (1.1–1.1)	11 (4.4–20)	27 (11–50)	9 (7.9–10)	22 (20–25)
	2005	43	0.33 (0.320–0.330)	0.76 (0.75–0.77)	9.7 (3.9–18)	22 (9.0–41)	8.1 (7.1–9.1)	19 (16–21)
	2009	46	0.28 (0.270–0.280)	0.6 (0.60–0.61)	9.2 (3.7–17)	20 (8.2–37)	7.6 (6.7–8.6)	17 (15–19)
	2010	46	0.26 (0.260–0.270)	0.57 (0.57–0.58)	8.9 (3.6–17)	19 (7.8–36)	7.4 (6.5–8.4)	16 (14–18)
	2011	46	0.25 (0.250–0.260)	0.55 (0.54–0.56)	8.7 (3.5–16)	19 (7.6–35)	7.2 (6.3–8.1)	15 (14–17)
Sweden	1990	9	0.042 (0.041–0.042)	0.49 (0.48–0.49)	0.83 (0.330–1.6)	9.7 (3.8–18)	0.65 (0.570–0.740)	7.6 (6.7–8.6)
	1995	9	0.039 (0.039–0.040)	0.45 (0.44–0.45)	0.78 (0.310–1.5)	8.8 (3.5–17)	0.61 (0.540–0.700)	7 (6.1–7.9)
	2000	9	0.026 (0.026–0.027)	0.3 (0.29–0.30)	0.6 (0.240–1.1)	6.8 (2.7–13)	0.47 (0.410–0.540)	5.3 (4.7–6.0)
	2005	9	0.017 (0.017–0.017)	0.19 (0.19–0.19)	0.65 (0.250–1.2)	7.2 (2.8–13)	0.51 (0.450–0.580)	5.7 (5.0–6.4)
	2009	9	0.017 (0.016–0.017)	0.18 (0.18–0.18)	0.75 (0.290–1.4)	8 (3.2–15)	0.59 (0.520–0.670)	6.4 (5.6–7.2)
	2010	9	0.017 (0.016–0.017)	0.18 (0.17–0.18)	0.78 (0.310–1.5)	8.3 (3.3–16)	0.61 (0.540–0.700)	6.6 (5.7–7.4)
	2011	9	0.017 (0.017–0.017)	0.18 (0.18–0.18)	0.81 (0.320–1.5)	8.6 (3.4–16)	0.64 (0.560–0.720)	6.8 (5.9–7.7)
Switzerland	1990	7	0.088 (0.087–0.089)	1.3 (1.3–1.3)	1.8 (0.700–3.3)	27 (11–50)	1.4 (1.2–1.6)	21 (19–24)
	1995	7	0.047 (0.046–0.048)	0.67 (0.66–0.68)	1.2 (0.480–2.3)	17 (6.9–32)	0.97 (0.850–1.1)	14 (12–16)
	2000	7	0.028 (0.027–0.028)	0.39 (0.38–0.40)	0.9 (0.360–1.7)	13 (5.0–24)	0.72 (0.630–0.820)	10 (8.8–11)
	2005	7	0.02 (0.019–0.020)	0.26 (0.26–0.27)	0.68 (0.270–1.3)	9.2 (3.6–17)	0.55 (0.480–0.620)	7.4 (6.5–8.4)
	2009	8	0.017 (0.017–0.018)	0.23 (0.22–0.23)	0.52 (0.210–0.980)	6.9 (2.8–13)	0.42 (0.370–0.480)	5.5 (4.8–6.3)
	2010	8	0.017 (0.017–0.017)	0.22 (0.22–0.22)	0.49 (0.200–0.920)	6.4 (2.6–12)	0.39 (0.350–0.450)	5.2 (4.5–5.8)
	2011	8	0.017 (0.016–0.017)	0.22 (0.21–0.22)	0.46 (0.180–0.860)	6 (2.4–11)	0.37 (0.330–0.420)	4.8 (4.2–5.5)
Tajikistan	1990	5	0.3 (0.210–0.410)	5.7 (4.0–7.7)	6.1 (2.9–10)	115 (55–197)	3.7 (3.0–4.4)	70 (58–83)
	1995	6	0.7 (0.490–0.940)	12 (8.5–16)	19 (8.6–34)	332 (150–584)	8.5 (7.0–10)	148 (122–176)
	2000	6	1.1 (0.630–1.7)	18 (10–28)	29 (14–51)	476 (219–831)	14 (11–16)	220 (182–263)
	2005	6	1.1 (0.780–1.4)	16 (12–21)	25 (12–42)	382 (184–650)	13 (11–15)	200 (165–238)
	2009	7	1.1 (0.720–1.4)	15 (11–21)	23 (11–39)	338 (164–574)	13 (11–15)	190 (156–226)
	2010	7	1.1 (0.740–1.5)	16 (11–21)	23 (11–40)	340 (164–579)	13 (11–16)	191 (157–227)
	2011	7	1.1 (0.760–1.5)	16 (11–22)	24 (12–41)	350 (170–593)	13 (11–16)	193 (159–230)

[a] Rates are per 100 000 population.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2011**

	YEAR	POPULATION (MILLIONS)	MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
			NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
The Former Yugoslav Republic of Macedonia	1990	2	0.13 (0.120–0.140)	6.8 (6.3–7.2)	3.4 (1.0–7.2)	178 (54–374)	1.5 (0.950–2.3)	81 (50–119)
	1995	2	0.13 (0.120–0.140)	6.6 (6.2–7.0)	1.6 (0.680–3.0)	82 (35–150)	1.1 (0.930–1.4)	58 (47–69)
	2000	2	0.1 (0.096–0.110)	5.1 (4.8–5.5)	1.2 (0.510–2.2)	60 (25–109)	0.83 (0.680–1.0)	41 (34–50)
	2005	2	0.07 (0.065–0.074)	3.4 (3.2–3.6)	0.66 (0.190–1.4)	33 (9.3–70)	0.6 (0.540–0.670)	30 (27–33)
	2009	2	0.039 (0.036–0.042)	1.9 (1.8–2.1)	0.54 (0.170–1.1)	26 (8.5–54)	0.46 (0.400–0.530)	23 (20–26)
	2010	2	0.032 (0.030–0.034)	1.6 (1.5–1.7)	0.54 (0.200–1.1)	26 (9.7–51)	0.43 (0.370–0.500)	21 (18–24)
	2011	2	0.025 (0.024–0.027)	1.2 (1.1–1.3)	0.57 (0.250–1.0)	27 (12–49)	0.41 (0.350–0.470)	20 (17–23)
Turkey	1990	54	3.2 (0.750–7.5)	6 (1.4–14)	27 (11–51)	51 (20–95)	28 (25–32)	53 (46–60)
	1995	59	2.3 (0.840–4.5)	3.9 (1.4–7.7)	34 (17–57)	58 (28–98)	28 (24–31)	47 (41–53)
	2000	64	1.7 (0.710–3.1)	2.7 (1.1–4.9)	29 (14–49)	45 (22–76)	23 (20–26)	36 (32–41)
	2005	68	0.96 (0.510–1.5)	1.4 (0.75–2.3)	19 (8.7–33)	28 (13–48)	21 (18–24)	31 (27–35)
	2009	72	0.63 (0.200–1.3)	0.88 (0.28–1.8)	18 (8.4–31)	25 (12–43)	19 (17–22)	27 (24–31)
	2010	73	0.58 (0.180–1.2)	0.79 (0.25–1.6)	18 (8.2–31)	24 (11–42)	19 (16–21)	26 (22–29)
	2011	74	0.53 (0.170–1.1)	0.72 (0.23–1.5)	17 (8.1–30)	24 (11–41)	18 (15–20)	24 (21–27)
Turkmenistan	1990	4	0.49 (0.400–0.590)	13 (11–16)	6 (2.8–10)	165 (78–284)	3.7 (3.0–4.4)	101 (82–121)
	1995	4	0.83 (0.720–0.950)	20 (17–23)	12 (5.7–20)	286 (137–488)	6.3 (5.1–7.5)	150 (122–180)
	2000	5	1.3 (0.820–1.8)	28 (18–40)	18 (8.8–32)	411 (196–703)	9.6 (7.8–12)	213 (174–256)
	2005	5	1.1 (0.700–1.6)	23 (15–33)	16 (7.5–27)	329 (157–561)	8.2 (6.7–9.8)	172 (141–207)
	2009	5	0.7 (0.450–1.0)	14 (9.1–20)	8.6 (4.0–15)	173 (81–298)	5.3 (4.3–6.3)	106 (87–127)
	2010	5	0.6 (0.390–0.860)	12 (7.7–17)	6.7 (3.0–12)	134 (59–239)	4.5 (3.7–5.4)	90 (73–108)
	2011	5	0.5 (0.330–0.720)	9.9 (6.4–14)	4.9 (1.8–9.6)	96 (34–188)	3.8 (3.1–4.6)	74 (61–89)
Ukraine	1990	52	4.6 (4.3–4.8)	8.8 (8.4–9.3)	34 (15–60)	66 (30–116)	23 (19–27)	44 (36–52)
	1995	51	7.5 (7.2–7.7)	15 (14–15)	61 (29–100)	119 (57–203)	37 (31–44)	73 (60–86)
	2000	49	10 (10–11)	21 (21–22)	75 (36–130)	154 (74–264)	52 (43–62)	106 (88–126)
	2005	47	11 (11–11)	24 (23–24)	75 (36–130)	161 (76–276)	56 (46–66)	119 (99–141)
	2009	46	9.6 (9.1–10)	21 (20–22)	63 (28–110)	137 (61–243)	48 (39–56)	104 (86–123)
	2010	45	8.9 (8.4–9.3)	20 (19–21)	54 (24–97)	120 (53–213)	44 (37–52)	97 (80–115)
	2011	45	8.1 (7.8–8.3)	18 (17–18)	47 (21–84)	104 (46–187)	40 (33–47)	89 (74–105)
United Kingdom of Great Britain and Northern Ireland	1990	57	0.45 (0.450–0.450)	0.79 (0.79–0.79)	8 (3.0–15)	14 (5.2–27)	6.6 (6.2–7.1)	12 (11–12)
	1995	58	0.61 (0.600–0.620)	1.1 (1.0–1.1)	8.5 (3.3–16)	15 (5.7–28)	6.9 (6.5–7.4)	12 (11–13)
	2000	59	0.44 (0.430–0.440)	0.74 (0.73–0.75)	8.6 (3.4–16)	15 (5.8–27)	7 (6.5–7.4)	12 (11–13)
	2005	60	0.4 (0.390–0.410)	0.66 (0.65–0.68)	12 (5.7–22)	21 (9.5–36)	9.2 (8.6–9.8)	15 (14–16)
	2009	62	0.36 (0.350–0.380)	0.59 (0.57–0.61)	9 (3.1–18)	15 (5.0–29)	7.8 (7.3–8.4)	13 (12–14)
	2010	62	0.35 (0.340–0.370)	0.57 (0.55–0.59)	9.6 (3.6–18)	15 (5.8–30)	8.1 (7.6–8.6)	13 (12–14)
	2011	62	0.35 (0.340–0.350)	0.55 (0.54–0.56)	12 (5.2–20)	19 (8.3–33)	8.8 (8.2–9.4)	14 (13–15)
Uzbekistan	1990	21	1.5 (1.3–1.8)	7.5 (6.6–8.5)	51 (24–87)	248 (118–425)	26 (21–30)	125 (103–148)
	1995	23	2.8 (2.4–3.1)	12 (10–14)	97 (45–170)	423 (197–734)	46 (38–54)	199 (165–237)
	2000	25	4.3 (3.7–4.9)	17 (15–20)	150 (71–270)	618 (286–1 080)	71 (59–84)	286 (237–341)
	2005	26	3.6 (3.2–4.2)	14 (12–16)	120 (58–210)	467 (223–800)	60 (50–72)	233 (192–277)
	2009	27	2.4 (2.0–2.7)	8.7 (7.4–10)	71 (35–120)	263 (128–447)	39 (32–46)	144 (119–171)
	2010	27	2 (1.7–2.3)	7.4 (6.3–8.5)	60 (29–100)	219 (107–370)	34 (28–40)	122 (101–145)
	2011	28	1.7 (1.4–2.0)	6.1 (5.2–7.1)	49 (24–84)	177 (86–301)	28 (23–33)	101 (84–121)

[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2011**

			INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE		CASE DETECTION
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
Albania	1990	3	0.8 (0.580–1.1)	24 (18–32)			653	20	81 (61–110)
	1995	3	0.77 (0.640–0.900)	24 (20–29)			641	20	84 (71–100)
	2000	3	0.7 (0.590–0.810)	23 (19–26)			604	20	87 (75–100)
	2005	3	0.59 (0.500–0.680)	19 (16–22)			506	16	86 (74–100)
	2009	3	0.47 (0.400–0.540)	15 (12–17)			435	14	93 (80–110)
	2010	3	0.45 (0.380–0.520)	14 (12–16)			431	13	97 (83–110)
	2011	3	0.42 (0.360–0.490)	13 (11–15)			422	13	100 (87–120)
Andorra	1990	< 1	0.026 (0.023–0.030)	50 (44–57)			23	44	87 (77–99)
	1995	< 1	0.021 (0.019–0.024)	33 (29–37)					
	2000	< 1	0.011 (<0.01–0.012)	17 (15–19)			12	19	110 (97–130)
	2005	< 1	<0.01 (<0.01–0.011)	12 (11–14)			10	13	110 (93–120)
	2009	< 1	<0.01 (<0.01–<0.01)	8.4 (7.3–9.5)			8	9.6	110 (100–130)
	2010	< 1	<0.01 (<0.01–<0.01)	7.2 (6.3–8.1)			7	8.2	120 (100–130)
	2011	< 1	<0.01 (<0.01–<0.01)	5.9 (5.1–6.6)			3	3.5	59 (52–68)
Armenia	1990	4	0.61 (0.450–0.790)	17 (13–22)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	590	17	97 (74–130)
	1995	3	1.3 (1.1–1.5)	39 (33–46)	<0.01 (<0.01–<0.01)	0.2 (0.10–0.23)	1 000	31	79 (68–94)
	2000	3	1.9 (1.7–2.1)	61 (54–69)	0.021 (0.015–0.027)	0.7 (0.49–0.89)	1 333	43	71 (63–81)
	2005	3	2.4 (2.1–2.7)	77 (68–87)	0.034 (0.025–0.045)	1.1 (0.83–1.5)	2 206	72	93 (83–110)
	2009	3	2.1 (1.8–2.4)	69 (59–79)	0.029 (0.021–0.038)	0.9 (0.68–1.2)	1 560	51	74 (64–86)
	2010	3	1.9 (1.6–2.2)	62 (53–73)	0.026 (0.014–0.042)	0.9 (0.47–1.4)	1 410	46	73 (63–86)
	2011	3	1.7 (1.4–2.0)	55 (45–65)	0.055 (0.038–0.075)	1.8 (1.2–2.4)	1 261	41	74 (63–90)
Austria	1990	8	1.7 (1.5–1.9)	22 (19–24)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 521	20	92 (81–100)
	1995	8	1.6 (1.4–1.8)	20 (17–22)	<0.01 (<0.01–0.012)	0.1 (<0.1–0.15)	1 481	19	96 (84–110)
	2000	8	1.3 (1.1–1.5)	16 (14–18)	0.017 (0.012–0.024)	0.2 (0.15–0.30)	1 185	15	91 (81–100)
	2005	8	1 (0.880–1.1)	12 (11–14)	0.027 (0.019–0.035)	0.3 (0.24–0.43)	928	11	92 (82–110)
	2009	8	0.6 (0.520–0.670)	7.1 (6.2–8.0)	0.024 (0.018–0.031)	0.3 (0.21–0.37)	441	5.3	74 (65–85)
	2010	8	0.46 (0.400–0.520)	5.5 (4.8–6.2)	0.02 (0.015–0.026)	0.2 (0.18–0.30)	358	4.3	78 (69–89)
	2011	8	0.31 (0.270–0.350)	3.7 (3.2–4.2)	0.015 (0.011–0.018)	0.2 (0.13–0.22)	400	4.8	130 (110–150)
Azerbaijan	1990	7	22 (18–26)	305 (252–363)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	2 620	36	12 (10–14)
	1995	8	49 (41–59)	636 (525–758)	0.072 (0.038–0.120)	0.9 (0.49–1.5)	1 630	21	3.3 (2.8–4.0)
	2000	8	55 (46–66)	682 (563–812)	0.32 (0.200–0.480)	4 (2.5–5.9)	5 187	64	9.4 (7.9–11)
	2005	9	29 (24–34)	334 (276–398)	0.32 (0.210–0.460)	3.8 (2.5–5.4)	6 034	70	21 (18–25)
	2009	9	14 (12–17)	154 (127–183)	0.2 (0.130–0.270)	2.2 (1.4–3.0)	7 301	81	52 (44–63)
	2010	9	12 (9.9–14)	131 (108–155)	0.18 (0.120–0.240)	1.9 (1.3–2.7)	6 390	70	53 (45–65)
	2011	9	11 (8.7–13)	113 (93–134)	0.16 (0.110–0.220)	1.7 (1.2–2.4)	6 527	70	62 (52–75)
Belarus	1990	10	3.5 (2.8–4.3)	34 (27–42)	<0.01 (<0.01–<0.01)	0 (0–0)	3 039	30	86 (70–110)
	1995	10	7 (5.9–8.2)	68 (58–79)	<0.01 (<0.01–<0.01)	<0.1 (0–<0.1)	4 854	47	69 (59–82)
	2000	10	8.4 (7.0–10)	84 (69–100)	0.028 (0.017–0.043)	0.3 (0.17–0.42)	6 799	68	81 (68–97)
	2005	10	7.1 (5.4–8.9)	72 (55–91)	0.17 (0.120–0.240)	1.7 (1.2–2.4)	5 308	54	75 (60–98)
	2009	10	6.8 (5.3–8.4)	70 (55–87)	0.25 (0.190–0.320)	2.6 (1.9–3.3)	5 250	54	78 (63–98)
	2010	10	6.7 (5.4–8.2)	70 (56–86)	0.24 (0.170–0.330)	2.5 (1.8–3.4)	5 003	52	74 (61–93)
	2011	10	6.7 (5.5–8.1)	70 (57–84)	0.25 (0.180–0.340)	2.7 (1.9–3.5)	4 697	49	70 (58–86)
Belgium	1990	10	1.8 (1.5–2.0)	18 (16–20)	0.015 (0.013–0.017)	0.2 (0.13–0.17)	1 577	16	89 (79–100)
	1995	10	1.6 (1.4–1.8)	16 (14–18)	0.043 (0.030–0.058)	0.4 (0.30–0.57)	1 380	14	88 (78–100)
	2000	10	1.4 (1.2–1.6)	14 (12–15)	0.061 (0.044–0.080)	0.6 (0.44–0.78)	1 278	13	92 (81–100)
	2005	10	1.2 (1.1–1.4)	12 (10–13)	0.067 (0.049–0.089)	0.7 (0.47–0.85)	1 076	10	88 (78–100)
	2009	11	0.98 (0.860–1.1)	9.2 (8.1–10)	0.046 (0.032–0.061)	0.4 (0.30–0.58)	806	7.6	82 (72–93)
	2010	11	0.93 (0.810–1.1)	8.7 (7.6–9.8)	0.043 (0.031–0.056)	0.4 (0.29–0.52)	814	7.6	88 (77–100)
	2011	11	0.87 (0.760–0.990)	8.1 (7.1–9.2)	0.04 (0.029–0.052)	0.4 (0.27–0.49)			
Bosnia and Herzegovina	1990	4	4 (2.5–5.9)	94 (58–138)			4 073	95	100 (69–160)
	1995	3	2.8 (2.3–3.4)	84 (69–101)			2 132	64	76 (63–93)
	2000	4	2.3 (1.9–2.8)	63 (51–75)			2 476	67	110 (89–130)
	2005	4	2 (1.6–2.4)	52 (43–63)			2 111	56	110 (89–130)
	2009	4	1.9 (1.6–2.2)	50 (43–58)			1 725	46	91 (79–110)
	2010	4	1.9 (1.6–2.1)	50 (43–57)			1 321	35	71 (62–82)
	2011	4	1.8 (1.6–2.1)	49 (42–56)			1 360	36	74 (64–86)
Bulgaria	1990	9	2.9 (2.5–3.3)	33 (29–37)	<0.01 (<0.01–<0.01)	0 (0–0)	2 256	26	78 (68–89)
	1995	8	5.2 (4.5–5.9)	62 (54–71)	<0.01 (<0.01–<0.01)	<0.1 (0–<0.1)	3 245	39	62 (55–71)
	2000	8	4.6 (4.0–5.3)	58 (50–66)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	3 349	42	72 (64–83)
	2005	8	4.1 (3.6–4.7)	53 (46–61)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	3 225	42	78 (69–90)
	2009	8	3.1 (2.7–3.5)	41 (36–47)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	2 683	36	86 (76–99)
	2010	7	2.9 (2.5–3.3)	38 (33–43)	<0.01 (<0.01–0.011)	<0.1 (0–0.14)	2 412	32	84 (74–97)
	2011	7	2.6 (2.3–3.0)	35 (30–40)	<0.01 (<0.01–0.017)	0.1 (<0.1–0.23)	2 172	29	83 (73–96)
Croatia	1990	5	2.7 (2.4–3.1)	60 (53–68)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	2 576	57	95 (84–110)
	1995	5	2.5 (2.2–2.9)	54 (47–61)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.15)	2 114	45	84 (74–96)
	2000	5	1.9 (1.7–2.2)	43 (37–48)	<0.01 (<0.01–0.010)	0.2 (<0.1–0.23)	1 630	36	85 (75–97)
	2005	4	1.3 (1.1–1.4)	29 (25–32)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.21)	1 050	24	82 (73–94)
	2009	4	0.92 (0.810–1.0)	21 (18–24)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.18)	832	19	90 (80–100)
	2010	4	0.84 (0.730–0.950)	19 (17–22)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.17)	688	16	82 (73–94)
	2011	4	0.76 (0.660–0.860)	17 (15–20)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.16)	619	14	82 (72–93)
Cyprus	1990	< 1	0.04 (0.035–0.045)	5.2 (4.6–5.9)			29	3.8	73 (64–83)
	1995	< 1	0.044 (0.039–0.050)	5.1 (4.5–5.8)			36	4.2	82 (72–93)
	2000	< 1	0.042 (0.036–0.047)	4.4 (3.9–5.0)			33	3.5	79 (70–90)
	2005	1	0.039 (0.034–0.044)	3.7 (3.3–4.2)			34	3.3	88 (78–100)
	2009	1	0.043 (0.038–0.049)	4 (3.5–4.5)			43	3.9	99 (88–110)
	2010	1	0.044 (0.038–0.050)	4 (3.5–4.5)			33	3	75 (66–86)
	2011	1	0.044 (0.039–0.050)	4 (3.5–4.5)					
Czech Republic	1990	10	2.2 (2.0–2.5)	22 (19–25)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 937	19	86 (76–98)
	1995	10	2.2 (1.9–2.5)	21 (19–24)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 834	18	83 (73–94)
	2000	10	1.7 (1.5–1.9)	16 (14–19)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 414	14	84 (74–96)
	2005	10	1.1 (0.960–1.2)	11 (9.4–12)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	973	9.5	89 (79–100)
	2009	10	0.78 (0.690–0.890)	7.5 (6.6–8.5)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	638	6.1	82 (72–93)
	2010	10	0.71 (0.620–0.800)	6.8 (5.9–7.6)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	627	6	88 (78–100)
	2011	11	0.64 (0.560–0.720)	6 (5.3–6.8)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)			
Denmark	1990	5	0.36 (0.310–0.400)	6.9 (6.1–7.8)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	350	6.8	98 (87–110)
	1995	5	0.57 (0.500–0.640)	11 (9.5–12)	<0.01 (<0.01–0.013)	0.2 (0.12–0.26)	448	8.6	79 (70–90)
	2000	5	0.6 (0.530–0.680)	11 (9.9–13)	0.016 (0.011–0.022)	0.3 (0.20–0.40)	587	11	98 (86–110)
	2005	5	0.42 (0.360–0.470)	7.7 (6.7–8.7)	0.015 (0.011–0.020)	0.3 (0.20–0.37)	395	7.3	95 (84–110)
	2009	6	0.36 (0.320–0.410)	6.5 (5.7–7.4)	0.016 (<0.01–0.028)	0.3 (0.12–0.52)	294	5.3	81 (72–93)
	2010	6	0.36 (0.320–0.410)	6.5 (5.7–7.3)	0.016 (0.011–0.021)	0.3 (0.20–0.37)	313	5.6	87 (77–99)
	2011	6	0.36 (0.320–0.410)	6.5 (5.7–7.4)	0.016 (0.012–0.021)	0.3 (0.21–0.38)			
Estonia	1990	2	0.39 (0.340–0.440)	25 (22–28)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	423	27	110 (96–120)
	1995	1	0.76 (0.670–0.860)	53 (46–60)	<0.01 (<0.01–<0.01)	0.3 (0.20–0.45)	624	43	82 (72–93)
	2000	1	0.85 (0.750–0.970)	62 (55–70)	0.03 (0.022–0.038)	2.2 (1.6–2.7)	791	58	93 (82–110)
	2005	1	0.57 (0.500–0.650)	42 (37–48)	0.038 (0.026–0.054)	2.9 (1.9–4.0)	479	36	84 (74–96)
	2009	1	0.4 (0.350–0.450)	30 (26–34)	0.042 (0.030–0.057)	3.1 (2.2–4.2)	361	27	90 (80–100)
	2010	1	0.37 (0.320–0.410)	27 (24–31)	0.038 (0.027–0.049)	2.8 (2.0–3.7)	283	21	77 (68–88)
	2011	1	0.33 (0.290–0.380)	25 (22–28)	0.05 (0.036–0.066)	3.7 (2.7–4.9)	296	22	89 (79–100)
Finland	1990	5	0.87 (0.760–0.980)	17 (15–20)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	772	15	89 (79–100)
	1995	5	0.72 (0.630–0.810)	14 (12–16)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.10)	661	13	92 (82–110)
	2000	5	0.6 (0.530–0.680)	12 (10–13)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.13)	527	10	87 (77–100)
	2005	5	0.39 (0.340–0.440)	7.4 (6.5–8.4)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.11)	339	6.5	87 (77–99)
	2009	5	0.38 (0.340–0.440)	7.2 (6.3–8.1)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.12)	519	9.7	130 (120–150)
	2010	5	0.4 (0.350–0.450)	7.5 (6.5–8.4)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.13)	312	5.8	78 (69–89)
	2011	5	0.4 (0.350–0.450)	7.5 (6.5–8.4)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.14)	312	5.8	78 (69–89)
France	1990	57	11 (11–12)	20 (19–21)	0.81 (0.760–0.860)	1.4 (1.3–1.5)	9 030	16	80 (75–85)
	1995	58	10 (9.5–11)	17 (16–19)	0.66 (0.510–0.830)	1.1 (0.88–1.4)	8 723	15	86 (81–92)
	2000	59	7.4 (6.9–7.8)	12 (12–13)	0.55 (0.430–0.690)	0.9 (0.73–1.2)	6 122	10	83 (78–88)
	2005	61	6.3 (5.9–6.7)	10 (9.7–11)	0.5 (0.390–0.620)	0.8 (0.65–1.0)	4 887	8	78 (73–83)
	2009	62	4.2 (3.9–4.5)	6.7 (6.3–7.1)	0.34 (0.270–0.420)	0.6 (0.43–0.68)	2 890	4.6	69 (65–74)
	2010	63	3.5 (3.3–3.7)	5.5 (5.2–5.9)	0.29 (0.240–0.340)	0.5 (0.38–0.54)	2 752	4.4	79 (74–84)
	2011	63	2.7 (2.5–2.9)	4.3 (4.0–4.6)	0.22 (0.180–0.280)	0.4 (0.28–0.44)			

[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2011**

			INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE		CASE DETECTION
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
Georgia	1990	5	15 (14–17)	280 (250–312)	0.01 (<0.01–0.012)	0.2 (0.17–0.21)	1 537	28	10 (9.0–11)
	1995	5	13 (12–15)	263 (234–293)	0.019 (0.011–0.029)	0.4 (0.22–0.58)	1 625	32	12 (11–14)
	2000	5	12 (11–14)	256 (228–285)	0.035 (0.022–0.051)	0.7 (0.46–1.1)	4 397	93	36 (32–41)
	2005	4	7.8 (7.0–8.7)	175 (156–195)	0.047 (0.031–0.065)	1 (0.70–1.5)	4 501	101	58 (52–65)
	2009	4	5.8 (5.2–6.4)	132 (118–147)	0.063 (0.045–0.085)	1.4 (1.0–1.9)	4 732	108	82 (73–92)
	2010	4	5.6 (5.0–6.2)	128 (114–142)	0.071 (0.058–0.085)	1.6 (1.3–1.9)	4 674	107	84 (75–94)
	2011	4	5.4 (4.8–6.1)	125 (112–140)	0.08 (0.058–0.110)	1.8 (1.3–2.4)	4 547	105	84 (75–94)
Germany	1990	79	17 (15–19)	21 (18–24)	0.22 (0.190–0.250)	0.3 (0.24–0.31)	14 653	19	88 (78–100)
	1995	82	14 (13–16)	18 (15–20)	0.2 (0.130–0.270)	0.2 (0.16–0.33)	12 198	15	85 (75–97)
	2000	82	10 (8.7–11)	12 (11–14)	0.15 (0.100–0.210)	0.2 (0.13–0.25)	9 064	11	91 (80–100)
	2005	83	6.1 (5.4–6.9)	7.4 (6.5–8.4)	0.1 (0.072–0.140)	0.1 (<0.1–0.17)	5 539	6.7	90 (80–100)
	2009	82	4.3 (3.8–4.8)	5.2 (4.6–5.9)	0.082 (0.058–0.110)	0.1 (<0.1–0.13)	3 659	4.4	85 (76–98)
	2010	82	4 (3.5–4.5)	4.8 (4.2–5.4)	0.079 (0.056–0.110)	0.1 (<0.1–0.13)	3 524	4.3	89 (79–100)
	2011	82	3.7 (3.2–4.2)	4.5 (3.9–5.1)	0.076 (0.054–0.100)	<0.1 (<0.1–0.12)	3 528	4.3	96 (84–110)
Greece	1990	10	0.93 (0.810–1.0)	9.1 (8.0–10)	0.014 (0.012–0.016)	0.1 (0.12–0.15)	877	8.6	95 (84–110)
	1995	11	1.1 (0.970–1.2)	10 (9.1–12)	0.017 (0.012–0.024)	0.2 (0.11–0.22)	939	8.8	85 (75–97)
	2000	11	0.86 (0.760–0.980)	7.8 (6.9–8.9)	0.015 (0.011–0.021)	0.1 (0.10–0.19)	703	6.4	82 (72–93)
	2005	11	0.65 (0.570–0.740)	5.9 (5.1–6.6)	0.013 (<0.01–0.018)	0.1 (<0.1–0.16)	626	5.6	96 (85–110)
	2009	11	0.54 (0.470–0.610)	4.7 (4.1–5.3)	0.012 (<0.01–0.015)	0.1 (<0.1–0.14)	465	4.1	87 (77–99)
	2010	11	0.49 (0.430–0.550)	4.3 (3.8–4.9)	0.011 (<0.01–0.014)	<0.1 (<0.1–0.13)	356	3.1	73 (64–83)
	2011	11	0.43 (0.380–0.490)	3.8 (3.3–4.3)	<0.01 (<0.01–0.013)	<0.1 (<0.1–0.11)			
Greenland	1990	< 1	0.099 (0.086–0.110)	178 (156–201)					
	1995	< 1	0.099 (0.087–0.110)	178 (156–201)					
	2000	< 1	0.1 (0.087–0.110)	178 (156–201)					
	2005	< 1	0.1 (0.089–0.110)	178 (156–201)					
	2009	< 1	0.1 (0.089–0.120)	178 (156–201)			63	110	62 (55–71)
	2010	< 1	0.1 (0.089–0.120)	178 (156–201)			114	199	110 (99–130)
	2011	< 1	0.1 (0.089–0.120)	178 (156–201)					
Hungary	1990	10	4 (3.5–4.5)	39 (34–44)	0.053 (0.047–0.060)	0.5 (0.45–0.58)	3 588	35	90 (79–100)
	1995	10	4.9 (4.3–5.6)	48 (42–54)	0.043 (0.028–0.061)	0.4 (0.27–0.59)	4 339	42	88 (78–100)
	2000	10	3.8 (3.3–4.3)	37 (33–42)	0.025 (0.016–0.037)	0.3 (0.16–0.36)	3 073	30	81 (72–92)
	2005	10	2.2 (1.9–2.5)	22 (19–25)	0.016 (0.010–0.022)	0.2 (0.10–0.22)	1 808	18	82 (72–94)
	2009	10	1.7 (1.5–1.9)	17 (15–19)	0.014 (<0.01–0.020)	0.1 (<0.1–0.20)	1 315	13	77 (68–88)
	2010	10	1.7 (1.5–1.9)	17 (15–19)	0.014 (<0.01–0.020)	0.1 (<0.1–0.20)	1 543	15	90 (79–100)
	2011	10	1.8 (1.6–2.0)	18 (16–20)	0.015 (<0.01–0.021)	0.2 (0.10–0.22)			
Iceland	1990	< 1	0.02 (0.017–0.022)	7.7 (6.7–8.7)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	18	7.1	92 (82–110)
	1995	< 1	0.015 (0.013–0.017)	5.7 (5.0–6.5)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.10)	12	4.5	78 (69–89)
	2000	< 1	0.013 (0.011–0.014)	4.5 (3.9–5.1)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.15)	13	4.6	100 (91–120)
	2005	< 1	0.011 (<0.01–0.012)	3.7 (3.3–4.2)	<0.01 (<0.01–<0.01)	0.4 (0–1.5)	10	3.4	91 (80–100)
	2009	< 1	0.014 (0.012–0.015)	4.3 (3.8–4.9)	<0.01 (<0.01–<0.01)	0.1 (0.11–0.19)	11	3.5	81 (71–92)
	2010	< 1	0.015 (0.013–0.017)	4.6 (4.0–5.2)	<0.01 (<0.01–<0.01)	0.2 (0.11–0.20)	22	6.9	150 (130–170)
	2011	< 1	0.016 (0.014–0.018)	4.8 (4.2–5.4)	<0.01 (<0.01–<0.01)	0.2 (0.12–0.21)	8	2.5	51 (45–58)
Ireland	1990	4	0.76 (0.670–0.860)	22 (19–24)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.11)	624	18	82 (72–94)
	1995	4	0.57 (0.500–0.640)	16 (14–18)	<0.01 (<0.01–0.011)	0.2 (0.15–0.31)	458	13	81 (71–92)
	2000	4	0.45 (0.400–0.510)	12 (10–14)	0.012 (<0.01–0.016)	0.3 (0.23–0.42)	386	10	85 (75–97)
	2005	4	0.44 (0.390–0.500)	11 (9.3–12)	0.015 (0.011–0.019)	0.4 (0.26–0.46)	387	9.3	88 (77–100)
	2009	4	0.39 (0.340–0.440)	8.9 (7.8–10)	0.015 (0.011–0.019)	0.3 (0.25–0.43)	340	7.7	87 (77–99)
	2010	4	0.37 (0.320–0.420)	8.2 (7.2–9.3)	0.014 (0.011–0.018)	0.3 (0.24–0.41)	319	7.1	87 (77–99)
	2011	5	0.34 (0.300–0.380)	7.5 (6.5–8.4)	0.013 (<0.01–0.017)	0.3 (0.22–0.38)	281	6.2	83 (74–95)
Israel	1990	4	0.38 (0.330–0.430)	8.4 (7.4–9.5)	<0.01 (<0.01–<0.01)	0.1 (0.10–0.13)	234	5.2	62 (54–70)
	1995	5	0.5 (0.440–0.570)	9.4 (8.3–11)	0.018 (0.012–0.024)	0.3 (0.23–0.45)	398	7.5	79 (70–90)
	2000	6	0.61 (0.540–0.690)	10 (8.9–12)	0.038 (0.024–0.054)	0.6 (0.40–0.89)	537	8.9	88 (77–100)
	2005	7	0.46 (0.400–0.520)	7 (6.1–7.9)	0.025 (0.014–0.039)	0.4 (0.21–0.58)	371	5.6	81 (71–92)
	2009	7	0.41 (0.360–0.470)	5.7 (5.0–6.4)	0.032 (0.019–0.047)	0.4 (0.27–0.64)	347	4.8	84 (74–96)
	2010	7	0.42 (0.370–0.480)	5.7 (5.0–6.4)	0.016 (0.014–0.018)	0.2 (0.19–0.25)	340	4.6	81 (71–92)
	2011	8	0.44 (0.380–0.490)	5.8 (5.1–6.5)	0.027 (0.017–0.040)	0.4 (0.22–0.53)	412	5.4	94 (83–110)
Italy	1990	57	4.6 (4.0–5.2)	8 (7.0–9.1)	0.22 (0.190–0.250)	0.4 (0.34–0.44)	4 246	7.5	93 (82–110)
	1995	57	5.8 (5.1–6.6)	10 (9.0–12)	0.29 (0.220–0.370)	0.5 (0.39–0.66)	5 627	9.9	97 (85–110)
	2000	57	4.9 (4.3–5.6)	8.6 (7.6–9.8)	0.27 (0.210–0.340)	0.5 (0.36–0.60)	3 501	6.1	71 (63–81)
	2005	59	4.3 (3.8–4.9)	7.4 (6.5–8.4)	0.23 (0.180–0.300)	0.4 (0.31–0.51)	3 828	6.5	88 (78–100)
	2009	60	2.9 (2.6–3.3)	4.8 (4.2–5.5)	0.15 (0.120–0.190)	0.3 (0.19–0.32)	2 541	4.2	87 (77–99)
	2010	61	2.4 (2.1–2.7)	3.9 (3.4–4.4)	0.12 (0.093–0.150)	0.2 (0.15–0.26)	1 693	2.8	72 (63–82)
	2011	61	1.7 (1.5–2.0)	2.8 (2.5–3.2)	0.088 (0.067–0.110)	0.1 (0.11–0.18)	1 658	2.7	96 (85–110)
Kazakhstan	1990	17	13 (11–15)	79 (66–92)	<0.01 (<0.01–<0.01)	0 (0–<0.1)	10 969	66	84 (72–100)
	1995	16	51 (43–59)	318 (269–372)	0.034 (0.018–0.055)	0.2 (0.11–0.35)	11 310	71	22 (19–26)
	2000	15	53 (44–61)	351 (297–411)	0.31 (0.210–0.440)	2.1 (1.4–3.0)	25 843	173	49 (42–58)
	2005	15	36 (30–42)	235 (199–275)	0.21 (0.170–0.260)	1.4 (1.1–1.7)	25 512	168	71 (61–85)
	2009	16	26 (22–31)	166 (141–195)	0.26 (0.190–0.350)	1.7 (1.2–2.2)	20 508	129	78 (67–92)
	2010	16	24 (20–28)	148 (125–172)	0.33 (0.270–0.400)	2.1 (1.7–2.5)	19 703	123	83 (71–99)
	2011	16	21 (18–24)	129 (109–151)	0.33 (0.270–0.390)	2 (1.6–2.4)	18 254	113	87 (75–100)
Kyrgyzstan	1990	4	4 (3.3–4.8)	92 (76–109)	<0.01 (<0.01–<0.01)	<0.1 (0–<0.1)	2 306	52	57 (48–69)
	1995	5	7.7 (6.4–9.2)	168 (138–200)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	3 393	74	44 (37–53)
	2000	5	12 (10–15)	249 (205–296)	0.011 (<0.01–0.017)	0.2 (0.12–0.35)	6 205	125	50 (42–61)
	2005	5	10 (8.6–12)	208 (171–248)	0.038 (0.024–0.055)	0.8 (0.49–1.1)	6 329	126	60 (51–73)
	2009	5	8 (6.6–9.5)	151 (125–180)	0.11 (0.082–0.140)	2.1 (1.5–2.7)	5 765	109	72 (61–88)
	2010	5	7.4 (6.1–8.8)	139 (115–166)	0.1 (0.073–0.140)	1.9 (1.4–2.6)	5 652	106	76 (64–92)
	2011	5	6.9 (5.7–8.2)	128 (106–153)	0.12 (0.087–0.160)	2.2 (1.6–2.9)	5 529	103	80 (67–97)
Latvia	1990	3	1.5 (1.3–1.7)	57 (50–65)	<0.01 (<0.01–<0.01)	0.2 (0.16–0.21)	906	34	59 (52–68)
	1995	2	3.1 (2.8–3.5)	126 (111–142)	0.035 (0.024–0.049)	1.4 (0.96–2.0)	1 541	62	49 (43–56)
	2000	2	2.9 (2.5–3.3)	121 (106–137)	0.1 (0.075–0.130)	4.2 (3.1–5.5)	1 982	83	69 (61–78)
	2005	2	1.7 (1.5–2.0)	75 (66–85)	0.075 (0.055–0.099)	3.3 (2.4–4.3)	1 409	61	81 (72–92)
	2009	2	1.1 (1.0–1.3)	50 (44–57)	0.1 (0.076–0.130)	4.4 (3.4–5.6)	951	42	84 (74–95)
	2010	2	1 (0.900–1.2)	46 (40–52)	0.09 (0.072–0.110)	4 (3.2–4.9)	913	41	89 (79–100)
	2011	2	0.93 (0.820–1.1)	42 (36–47)	0.083 (0.066–0.100)	3.7 (2.9–4.6)	864	39	93 (82–110)
Lithuania	1990	4	1.4 (1.2–1.7)	39 (32–46)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 471	40	100 (87–130)
	1995	4	2.8 (2.4–3.3)	77 (66–90)	<0.01 (<0.01–<0.01)	0.2 (<0.1–0.24)	2 362	65	84 (72–99)
	2000	4	3.1 (2.8–3.5)	90 (79–101)	0.014 (<0.01–0.021)	0.4 (0.24–0.59)	2 657	76	85 (75–96)
	2005	3	2.6 (2.2–2.9)	75 (65–86)	0.018 (0.012–0.027)	0.5 (0.35–0.78)	2 114	62	82 (72–95)
	2009	3	2.2 (1.9–2.5)	65 (56–75)	0.019 (0.012–0.027)	0.6 (0.36–0.80)	1 895	57	87 (75–100)
	2010	3	2.1 (1.8–2.4)	62 (53–72)	0.018 (0.012–0.026)	0.6 (0.35–0.78)	1 750	53	85 (73–99)
	2011	3	1.9 (1.7–2.2)	59 (51–68)	0.017 (0.011–0.025)	0.5 (0.34–0.74)	1 745	53	90 (78–100)
Luxembourg	1990	< 1	0.051 (0.044–0.057)	13 (12–15)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.10)	48	13	95 (84–110)
	1995	< 1	0.041 (0.036–0.047)	10 (8.9–11)	<0.01 (<0.01–<0.01)	0.2 (0.14–0.26)	32	7.9	78 (69–89)
	2000	< 1	0.045 (0.040–0.051)	10 (9.1–12)	<0.01 (<0.01–<0.01)	0.3 (0.24–0.43)	44	10	97 (86–110)
	2005	< 1	0.039 (0.034–0.044)	8.6 (7.5–9.7)	<0.01 (<0.01–<0.01)	0.3 (0.23–0.40)	37	8.1	94 (83–110)
	2009	< 1	0.019 (0.017–0.022)	3.9 (3.4–4.4)	<0.01 (<0.01–<0.01)	0.1 (0.11–0.19)			
	2010	< 1	0.012 (0.010–0.013)	2.3 (2.0–2.6)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.11)	24	4.7	210 (180–240)
	2011	< 1	<0.01 (<0.01–<0.01)	0.52 (0.46–0.59)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	11	2.1	410 (360–470)
Malta	1990	< 1	0.025 (0.022–0.028)	6.7 (5.9–7.6)	<0.01 (<0.01–<0.01)	0.2 (0.14–0.18)	13	3.5	53 (47–60)
	1995	< 1	0.024 (0.021–0.027)	6.3 (5.5–7.1)	<0.01 (<0.01–<0.01)	0.4 (0.26–0.57)	11	2.8	45 (40–52)
	2000	< 1	0.019 (0.016–0.021)	4.7 (4.1–5.3)	<0.01 (<0.01–<0.01)	0.5 (0.30–0.63)	16	4	85 (75–97)
	2005	< 1	0.029 (0.025–0.032)	7 (6.1–7.9)	<0.01 (<0.01–<0.01)	0.8 (0.51–1.0)	21	5.1	73 (65–84)
	2009	< 1	0.038 (0.033–0.043)	9.2 (8.0–10)	<0.01 (<0.01–<0.01)	1 (0.24–2.2)	41	9.9	110 (95–120)
	2010	< 1	0.038 (0.034–0.044)	9.2 (8.1–10)	<0.01 (<0.01–0.011)	1.1 (0.20–2.7)	20	4.8	52 (46–59)
	2011	< 1	0.038 (0.033–0.043)	9.1 (8.0–10)	<0.01 (<0.01–0.013)	1.5 (0.50–3.1)	22	5.3	58 (51–66)
Monaco	1990	< 1	<0.01 (<0.01–<0.01)	2.7 (2.4–3.1)			1	3.2	120 (110–140)
	1995	< 1	<0.01 (<0.01–<0.01)	2.5 (2.2–2.9)			1	3	120 (110–140)
	2000	< 1	<0.01 (<0.01–<0.01)	1.6 (1.4–1.8)			0	0	0
	2005	< 1	<0.01 (<0.01–<0.01)	0.97 (0.85–1.1)					
	2009	< 1	<0.01 (<0.01–<0.01)	2.3 (2.0–2.6)					
	2010	< 1	<0.01 (<0.01–<0.01)	2.7 (2.4–3.1)			1	2.8	100 (92–120)
	2011	< 1	<0.01 (<0.01–<0.01)	3.2 (2.8–3.6)					

[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2011**

			INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE		CASE DETECTION
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
Montenegro	2005	< 1	0.17 (0.150–0.190)	27 (23–31)			156	25	93 (82–110)
	2009	< 1	0.13 (0.120–0.150)	21 (19–24)			113	18	85 (75–97)
	2010	< 1	0.12 (0.110–0.140)	19 (17–21)	<0.01 (0–<0.01)	0.2 (0–1.1)	110	17	92 (81–100)
	2011	< 1	0.11 (0.094–0.120)	17 (15–19)			110	17	100 (91–120)
Netherlands	1990	15	1.5 (1.4–1.8)	10 (9.1–12)	0.014 (0.012–0.016)	0.1 (<0.1–0.11)	1 369	9.2	88 (78–100)
	1995	15	1.8 (1.6–2.1)	12 (10–13)	0.038 (0.027–0.051)	0.3 (0.18–0.33)	1 619	10	89 (78–100)
	2000	16	1.6 (1.4–1.8)	9.9 (8.6–11)	0.041 (0.030–0.055)	0.3 (0.19–0.34)	1 244	7.8	80 (70–91)
	2005	16	1.3 (1.2–1.5)	8.1 (7.1–9.2)	0.039 (0.028–0.051)	0.2 (0.17–0.31)	1 127	6.9	85 (75–97)
	2009	17	1.2 (1.0–1.3)	7 (6.1–7.9)	0.036 (0.026–0.046)	0.2 (0.16–0.28)	1 111	6.7	96 (85–110)
	2010	17	1.1 (1.0–1.3)	6.9 (6.0–7.8)	0.035 (0.026–0.046)	0.2 (0.16–0.28)	1 029	6.2	90 (80–100)
	2011	17	1.1 (0.990–1.3)	6.8 (5.9–7.7)	0.035 (0.026–0.046)	0.2 (0.16–0.28)	970	5.8	86 (76–98)
Norway	1990	4	0.35 (0.310–0.390)	8.2 (7.2–9.3)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	285	6.7	82 (72–93)
	1995	4	0.27 (0.230–0.300)	6.1 (5.3–6.9)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.10)	236	5.4	89 (78–100)
	2000	4	0.28 (0.240–0.310)	6.2 (5.4–7.0)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.15)	221	4.9	80 (70–91)
	2005	5	0.32 (0.280–0.360)	6.9 (6.1–7.9)	<0.01 (<0.01–<0.01)	0.1 (0.10–0.18)	269	5.8	84 (74–96)
	2009	5	0.31 (0.270–0.350)	6.5 (5.7–7.3)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.17)	258	5.3	82 (73–94)
	2010	5	0.31 (0.270–0.350)	6.3 (5.5–7.1)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.17)	274	5.6	89 (79–100)
	2011	5	0.3 (0.260–0.340)	6.1 (5.3–6.9)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.16)			
Poland	1990	38	19 (17–21)	50 (43–56)	0.073 (0.064–0.083)	0.2 (0.17–0.22)	16 136	42	86 (76–98)
	1995	38	18 (16–20)	47 (41–53)	0.17 (0.110–0.240)	0.4 (0.29–0.62)	15 958	42	89 (78–100)
	2000	38	13 (11–15)	34 (30–38)	0.17 (0.110–0.230)	0.4 (0.30–0.60)	10 931	29	84 (74–96)
	2005	38	9.6 (8.4–11)	25 (22–29)	0.14 (0.100–0.200)	0.4 (0.26–0.52)	8 203	21	85 (75–97)
	2009	38	8.7 (7.6–9.8)	23 (20–26)	0.14 (0.097–0.190)	0.4 (0.25–0.49)	7 645	20	88 (78–100)
	2010	38	8.6 (7.6–9.8)	23 (20–26)	0.14 (0.097–0.190)	0.4 (0.25–0.50)	7 002	18	81 (72–92)
	2011	38	8.7 (7.6–9.9)	23 (20–26)	0.14 (0.099–0.190)	0.4 (0.26–0.50)	7 946	21	91 (80–100)
Portugal	1990	10	7.1 (6.2–8.0)	71 (62–81)	0.17 (0.150–0.200)	1.7 (1.5–2.0)	6 214	63	88 (78–100)
	1995	10	6.3 (5.5–7.1)	62 (54–70)	0.44 (0.330–0.560)	4.3 (3.2–5.5)	5 577	55	89 (79–100)
	2000	10	5.2 (4.6–5.9)	50 (44–57)	0.56 (0.440–0.710)	5.5 (4.2–6.8)	4 227	41	81 (72–93)
	2005	11	3.9 (3.5–4.5)	37 (33–42)	0.91 (0.780–1.0)	8.6 (7.4–9.9)	3 303	31	84 (74–96)
	2009	11	3 (2.7–3.4)	28 (25–32)	0.48 (0.410–0.560)	4.5 (3.9–5.3)	2 723	26	90 (80–100)
	2010	11	2.8 (2.5–3.2)	26 (23–30)	0.34 (0.280–0.400)	3.2 (2.6–3.7)	2 487	23	88 (78–100)
	2011	11	2.6 (2.3–3.0)	24 (21–28)	0.37 (0.290–0.460)	3.5 (2.7–4.3)			
Republic of Moldova	1990	4	2.3 (1.9–2.8)	54 (44–64)	<0.01 (<0.01–<0.01)	0.2 (0.11–0.19)	1 728	40	74 (62–89)
	1995	4	4.7 (3.9–5.6)	109 (90–130)	0.028 (0.018–0.042)	0.7 (0.41–0.96)	2 925	67	62 (52–75)
	2000	4	6 (5.0–7.2)	147 (121–175)	0.25 (0.180–0.320)	6 (4.4–7.9)	2 935	71	49 (41–59)
	2005	4	6.6 (5.4–7.9)	175 (144–209)	<0.01 (<0.01–0.017)	0.2 (0.10–0.45)	5 141	136	78 (65–95)
	2009	4	6.1 (5.0–7.3)	170 (140–202)	0.31 (0.250–0.380)	8.6 (6.8–11)	4 347	121	71 (60–86)
	2010	4	5.9 (4.9–7.1)	166 (137–198)	0.35 (0.280–0.430)	9.8 (7.8–12)	4 122	115	70 (58–84)
	2011	4	5.7 (4.7–6.8)	161 (133–192)	0.32 (0.260–0.400)	9.1 (7.3–11)	4 208	119	74 (62–89)
Romania	1990	23	34 (28–40)	146 (120–174)	0.1 (0.083–0.120)	0.4 (0.36–0.52)	16 256	70	48 (40–58)
	1995	23	43 (35–51)	189 (155–226)	0.39 (0.250–0.570)	1.7 (1.1–2.5)	23 271	103	54 (45–66)
	2000	22	40 (33–48)	181 (149–216)	0.64 (0.430–0.900)	2.9 (1.9–4.0)	27 470	124	68 (57–83)
	2005	22	32 (26–38)	147 (121–175)	0.57 (0.390–0.790)	2.6 (1.8–3.6)	26 104	120	82 (68–99)
	2009	22	25 (21–30)	116 (96–139)	0.42 (0.290–0.590)	2 (1.3–2.7)	20 868	97	83 (70–100)
	2010	21	23 (19–28)	109 (89–130)	0.39 (0.260–0.540)	1.8 (1.2–2.5)	18 379	86	79 (66–96)
	2011	21	22 (18–26)	101 (83–121)	0.35 (0.240–0.490)	1.6 (1.1–2.3)	16 866	79	78 (65–94)
Russian Federation	1990	148	70 (59–81)	47 (40–55)	<0.01 (0–<0.01)	0 (0–0)	50 641	34	73 (62–86)
	1995	149	140 (120–170)	96 (81–112)	0.033 (0.015–0.057)	<0.1 (<0.1–<0.1)	84 980	57	60 (51–70)
	2000	147	190 (160–220)	127 (108–149)	0.43 (0.260–0.640)	0.3 (0.18–0.43)	140 677	96	75 (65–89)
	2005	144	190 (160–230)	135 (114–158)	7.8 (6.1–9.8)	5.4 (4.2–6.8)	127 930	89	66 (56–78)
	2009	143	160 (140–190)	113 (96–132)	13 (10–16)	9 (7.3–11)	126 227	88	78 (67–92)
	2010	143	150 (130–180)	106 (89–123)	6.5 (5.5–7.6)	4.5 (3.8–5.3)	118 641	83	79 (67–93)
	2011	143	140 (120–160)	97 (82–114)	9.3 (7.4–11)	6.5 (5.1–8.0)	112 910	79	81 (70–96)
San Marino	1990	< 1	<0.01 (<0.01–<0.01)	6.9 (6.0–7.8)			1	4.1	60 (53–69)
	1995	< 1	<0.01 (<0.01–<0.01)	6 (5.3–6.8)			2	7.8	130 (110–150)
	2000	< 1	<0.01 (<0.01–<0.01)	1.6 (1.4–1.8)			1	3.7	240 (210–270)
	2005	< 1	<0.01 (<0.01–<0.01)	1.9 (1.6–2.1)					
	2009	< 1	<0.01 (<0.01–<0.01)	1.5 (1.3–1.7)					
	2010	< 1	<0.01 (<0.01–<0.01)	1.4 (1.3–1.6)					
	2011	< 1	<0.01 (<0.01–<0.01)	1.4 (1.2–1.6)					
Serbia	2005	10	3.4 (3.0–3.8)	34 (30–39)	0.046 (0.041–0.052)	0.5 (0.41–0.53)	3 208	33	95 (84–110)
	2009	10	2.1 (1.8–2.4)	21 (19–24)	0.035 (0.024–0.047)	0.4 (0.25–0.48)	1 879	19	89 (79–100)
	2010	10	1.8 (1.6–2.1)	18 (16–21)	0.031 (0.022–0.042)	0.3 (0.22–0.43)	2 326	24	130 (110–150)
	2011	10	1.6 (1.4–1.8)	16 (14–19)	0.028 (0.020–0.038)	0.3 (0.20–0.39)	2 171	22	130 (120–150)
Serbia & Montenegro	1990	10	6 (4.1–8.4)	59 (40–82)			4 194	41	70 (50–100)
	1995	11	5.8 (4.7–7.0)	53 (44–64)			2 798	26	48 (40–59)
	2000	11	4.3 (3.5–5.1)	40 (32–48)			2 864	27	67 (56–82)
Slovakia	1990	5	1.8 (1.6–2.1)	34 (30–39)	<0.01 (<0.01–<0.01)	0 (0–0)	1 448	27	80 (70–91)
	1995	5	1.8 (1.6–2.0)	34 (29–38)	<0.01 (<0.01–<0.01)	<0.1 (0–<0.1)	1 540	29	86 (76–98)
	2000	5	1.2 (1.1–1.4)	23 (20–25)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	1 010	19	83 (73–95)
	2005	5	0.82 (0.720–0.930)	15 (13–17)	<0.01 (0–<0.01)	<0.1 (0–0.10)	710	13	86 (76–99)
	2009	5	0.54 (0.470–0.610)	9.8 (8.6–11)	<0.01 (0–<0.01)	<0.1 (0–0.10)	438	8	82 (72–93)
	2010	5	0.46 (0.410–0.530)	8.5 (7.5–9.6)	<0.01 (0–<0.01)	<0.1 (0–0.10)	386	7.1	83 (73–95)
	2011	5	0.39 (0.350–0.450)	7.2 (6.3–8.2)			352	6.4	89 (79–100)
Slovenia	1990	2	0.78 (0.690–0.890)	41 (36–46)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	722	37	92 (81–110)
	1995	2	0.63 (0.550–0.710)	32 (28–36)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	525	27	84 (74–96)
	2000	2	0.44 (0.390–0.500)	22 (20–25)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	368	19	83 (73–95)
	2005	2	0.28 (0.250–0.320)	14 (12–16)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	269	13	95 (84–110)
	2009	2	0.21 (0.180–0.240)	10 (9.1–12)			186	9.2	89 (78–100)
	2010	2	0.2 (0.170–0.220)	9.8 (8.5–11)	<0.01 (0–<0.01)	<0.1 (0–0.37)	169	8.3	85 (75–97)
	2011	2	0.19 (0.170–0.210)	9.3 (8.1–11)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	181	8.9	96 (85–110)
Spain	1990	39	9.5 (8.4–11)	25 (22–28)	0.78 (0.680–0.890)	2 (1.8–2.3)	7 600	20	80 (70–91)
	1995	39	11 (9.2–12)	27 (23–30)	1.1 (0.880–1.4)	2.9 (2.2–3.6)	8 764	22	83 (73–95)
	2000	40	9 (7.9–10)	22 (20–25)	0.96 (0.740–1.2)	2.4 (1.8–3.0)	7 993	20	88 (78–100)
	2005	43	8.1 (7.1–9.1)	19 (16–21)	0.8 (0.610–1.0)	1.8 (1.4–2.3)	7 281	17	90 (80–100)
	2009	46	7.6 (6.7–8.6)	17 (15–19)	0.72 (0.550–0.910)	1.6 (1.2–2.0)	6 687	15	88 (77–100)
	2010	46	7.4 (6.5–8.4)	16 (14–18)	0.69 (0.590–0.800)	1.5 (1.3–1.7)	6 377	14	86 (76–98)
	2011	46	7.2 (6.3–8.1)	15 (14–17)	0.66 (0.560–0.760)	1.4 (1.2–1.6)	6 044	13	84 (74–96)
Sweden	1990	9	0.65 (0.570–0.740)	7.6 (6.7–8.6)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	557	6.5	85 (76–98)
	1995	9	0.61 (0.540–0.700)	7 (6.1–7.9)	0.011 (<0.01–0.014)	0.1 (<0.1–0.16)	564	6.4	92 (81–100)
	2000	9	0.47 (0.410–0.540)	5.3 (4.7–6.0)	<0.01 (<0.01–0.013)	0.1 (<0.1–0.15)	417	4.7	88 (78–100)
	2005	9	0.51 (0.450–0.580)	5.7 (5.0–6.4)	0.011 (<0.01–0.015)	0.1 (<0.1–0.16)	539	6	110 (93–120)
	2009	9	0.59 (0.520–0.670)	6.4 (5.6–7.2)	0.013 (<0.01–0.017)	0.1 (0.10–0.18)	515	5.5	87 (77–99)
	2010	9	0.61 (0.540–0.700)	6.6 (5.7–7.4)	0.013 (<0.01–0.017)	0.1 (0.10–0.19)	552	5.9	90 (79–100)
	2011	9	0.64 (0.560–0.720)	6.8 (5.9–7.7)	0.013 (<0.01–0.018)	0.1 (0.10–0.19)	457	4.8	72 (63–82)
Switzerland	1990	7	1.4 (1.2–1.6)	21 (19–24)	0.036 (0.032–0.041)	0.6 (0.48–0.62)	1 278	19	91 (80–100)
	1995	7	0.97 (0.850–1.1)	14 (12–16)	0.038 (0.028–0.049)	0.5 (0.40–0.69)	830	12	85 (75–97)
	2000	7	0.72 (0.630–0.820)	10 (8.8–11)	0.031 (0.023–0.039)	0.4 (0.32–0.55)	404	5.6	56 (49–64)
	2005	7	0.55 (0.480–0.620)	7.4 (6.5–8.4)	0.025 (0.019–0.032)	0.3 (0.26–0.44)	381	5.1	70 (61–79)
	2009	8	0.42 (0.370–0.480)	5.5 (4.8–6.3)	0.021 (0.016–0.026)	0.3 (0.21–0.35)	334	4.4	79 (70–91)
	2010	8	0.39 (0.350–0.450)	5.2 (4.5–5.8)	0.02 (0.015–0.025)	0.3 (0.20–0.33)	322	4.2	82 (72–93)
	2011	8	0.37 (0.330–0.420)	4.8 (4.2–5.5)	0.019 (0.014–0.024)	0.2 (0.19–0.31)	379	4.9	100 (90–120)
Tajikistan	1990	5	3.7 (3.0–4.4)	70 (58–83)	<0.01 (<0.01–<0.01)	0.1 (0.11–0.16)	2 460	46	67 (56–81)
	1995	6	8.5 (7.0–10)	148 (122–176)	0.043 (0.027–0.063)	0.8 (0.47–1.1)	2 029	35	24 (20–29)
	2000	6	14 (11–16)	220 (182–263)	0.19 (0.130–0.260)	3.1 (2.1–4.3)	2 779	45	20 (17–25)
	2005	6	13 (11–15)	200 (165–238)	0.27 (0.190–0.360)	4.2 (3.0–5.7)	5 460	85	42 (35–51)
	2009	7	13 (11–15)	190 (156–226)	0.31 (0.220–0.410)	4.5 (3.2–6.0)	6 125	90	48 (40–58)
	2010	7	13 (11–16)	191 (157–227)	0.32 (0.240–0.420)	4.7 (3.5–6.1)	6 297	92	48 (40–58)
	2011	7	13 (11–16)	193 (159–230)	0.25 (0.190–0.320)	3.6 (2.7–4.5)	6 290	90	47 (39–57)

[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2011**

			INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE		CASE DETECTION
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
The Former Yugoslav Republic of Macedonia	1990	2	1.5 (0.950–2.3)	81 (50–119)					
	1995	2	1.1 (0.930–1.4)	58 (47–69)			786	40	69 (58–85)
	2000	2	0.83 (0.680–1.0)	41 (34–50)			641	32	77 (64–94)
	2005	2	0.6 (0.540–0.670)	30 (27–33)			598	29	99 (90–110)
	2009	2	0.46 (0.400–0.530)	23 (20–26)			450	22	97 (85–110)
	2010	2	0.43 (0.370–0.500)	21 (18–24)			384	19	89 (77–100)
	2011	2	0.41 (0.350–0.470)	20 (17–23)			335	16	83 (72–96)
Turkey	1990	54	28 (25–32)	53 (46–60)	<0.01 (<0.01–<0.01)	0 (0–0)	24 468	45	86 (76–98)
	1995	59	28 (24–31)	47 (41–53)	<0.01 (<0.01–0.011)	<0.1 (0–<0.1)	22 981	39	83 (73–95)
	2000	64	23 (20–26)	36 (32–41)	0.012 (<0.01–0.021)	<0.1 (<0.1–<0.1)	18 038	28	78 (69–89)
	2005	68	21 (18–24)	31 (27–35)	0.02 (0.010–0.033)	<0.1 (<0.1–<0.1)	19 744	29	95 (84–110)
	2009	72	19 (17–22)	27 (24–31)	0.027 (0.014–0.043)	<0.1 (<0.1–<0.1)	16 757	23	86 (76–98)
	2010	73	19 (16–21)	26 (22–29)	0.027 (0.015–0.044)	<0.1 (<0.1–<0.1)	15 879	22	85 (75–97)
	2011	74	18 (15–20)	24 (21–27)	0.027 (0.015–0.044)	<0.1 (<0.1–<0.1)	15 054	20	85 (75–97)
Turkmenistan	1990	4	3.7 (3.0–4.4)	101 (82–121)			2 325	63	63 (52–77)
	1995	4	6.3 (5.1–7.5)	150 (122–180)			1 939	46	31 (26–38)
	2000	5	9.6 (7.8–12)	213 (174–256)			4 038	90	42 (35–51)
	2005	5	8.2 (6.7–9.8)	172 (141–207)			3 191	67	39 (32–48)
	2009	5	5.3 (4.3–6.3)	106 (87–127)			3 157	63	60 (50–73)
	2010	5	4.5 (3.7–5.4)	90 (73–108)			3 230	64	71 (59–87)
	2011	5	3.8 (3.1–4.6)	74 (61–89)					
Ukraine	1990	52	23 (19–27)	44 (36–52)	<0.01 (<0.01–<0.01)	0 (0–<0.1)	16 465	32	73 (61–88)
	1995	51	37 (31–44)	73 (60–86)	0.43 (0.280–0.620)	0.9 (0.55–1.2)	21 459	42	58 (49–70)
	2000	49	52 (43–62)	106 (88–126)	5.5 (4.2–7.0)	11 (8.6–14)	32 945	67	63 (54–76)
	2005	47	56 (46–66)	119 (99–141)	8.1 (6.2–10)	17 (13–22)	39 608	84	71 (60–85)
	2009	46	48 (39–56)	104 (86–123)	5.4 (4.4–6.4)	12 (9.7–14)	36 075	79	76 (64–91)
	2010	45	44 (37–52)	97 (80–115)	7.3 (6.1–8.7)	16 (13–19)	33 857	74	77 (65–93)
	2011	45	40 (33–47)	89 (74–105)	8.1 (6.7–9.6)	18 (15–21)	34 237	76	86 (72–100)
United Kingdom of Great Britain and Northern Ireland	1990	57	6.6 (6.2–7.1)	12 (11–12)	0.069 (0.064–0.075)	0.1 (0.11–0.13)	5 908	10	89 (84–95)
	1995	58	6.9 (6.5–7.4)	12 (11–13)	0.085 (0.059–0.120)	0.2 (0.10–0.20)	6 176	11	89 (84–95)
	2000	59	7 (6.5–7.4)	12 (11–13)	0.12 (0.085–0.160)	0.2 (0.15–0.27)	6 220	11	89 (84–95)
	2005	60	9.2 (8.6–9.8)	15 (14–16)	0.24 (0.180–0.310)	0.4 (0.30–0.52)	8 173	14	89 (84–95)
	2009	62	7.8 (7.3–8.4)	13 (12–14)	0.26 (0.200–0.330)	0.4 (0.32–0.53)	7 008	11	89 (84–95)
	2010	62	8.1 (7.6–8.6)	13 (12–14)	0.27 (0.210–0.340)	0.4 (0.33–0.56)	7 219	12	89 (84–95)
	2011	62	8.8 (8.2–9.4)	14 (13–15)	0.3 (0.220–0.380)	0.5 (0.36–0.60)	7 850	13	89 (84–95)
Uzbekistan	1990	21	26 (21–30)	125 (103–148)	0.072 (0.059–0.085)	0.4 (0.29–0.42)	9 414	46	37 (31–45)
	1995	23	46 (38–54)	199 (165–237)	0.27 (0.190–0.380)	1.2 (0.81–1.7)	9 866	43	22 (18–26)
	2000	25	71 (59–84)	286 (237–341)	0.68 (0.480–0.920)	2.7 (1.9–3.7)	15 750	64	22 (19–27)
	2005	26	60 (50–72)	233 (192–277)	0.25 (0.190–0.310)	1 (0.74–1.2)	21 513	83	36 (30–43)
	2009	27	39 (32–46)	144 (119–171)	0.65 (0.520–0.790)	2.4 (1.9–2.9)	17 540	65	45 (38–54)
	2010	27	34 (28–40)	122 (101–145)	0.7 (0.570–0.860)	2.6 (2.1–3.1)	16 883	62	50 (42–61)
	2011	28	28 (23–33)	101 (84–121)	0.96 (0.780–1.2)	3.5 (2.8–4.2)	14 501	52	52 (43–62)

[a] Rates are per 100 000 population.

TABLE A4.3 **Case notifications, 1990–2011**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2011	YEAR	NEW AND RELAPSE	NEW CASES				RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
				SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN	EXTRA-PULMONARY	OTHER					
Albania		1990	653									–
		1995	641	139	223	226		53		53		38
		2000	604	171	188	234		11	8	19		48
		2005	506	196	134	167		9	34	43		59
		2009	435	171	109	136		19	2	21	10	61
		2010	431	145	105	165	0	16	14	30	0	58
	• 20 13 •	2011	422	180	105	128	0	9	9	18	0	63
Andorra		1990	23									–
		1995										–
		2000	12	1	9	2		0	0	0		10
		2005	10	5	1	4		0	0	0		83
		2009	8	2	4	1	0	1	1	2	0	33
		2010	7	0	4	3	0	0	0	0	0	0
	• 44 3 •	2011	3	1	2	0	0	0	1	1	0	33
Armenia		1990	590									–
		1995	1 000	436	451	75		38		38		49
		2000	1 333	621	505	153		54	22	76		55
		2005	2 206	581	1 049	365		211	116	327		36
		2009	1 560	440	725	299	0	96	446	542	0	38
		2010	1 410	339	639	351	0	81	370	451	0	35
	• 17 41 •	2011	1 261	329	582	289	0	61	321	382	0	36
Austria		1990	1 521									–
		1995	1 481	467	765	249						38
		2000	1 185	324	652	209		0	30	30		33
		2005	928	234	519	175		0	26	26		31
		2009	441	90	268	34	45	4	21	25	245	25
		2010	358	76	213	69	0	0	29	29	301	26
	• 20 5 •	2011	400	94	217	85	0	4	16	20	271	30
Azerbaijan		1990	2 620									–
		1995	1 630	669	620	93		47		47		52
		2000	5 187	890	3 978	245		74	0	74		18
		2005	6 034	1 561	2 508	651		1 314	1 886	3 200		38
		2009	7 301	1 487	3 124	1 261		1 429	955	2 384	2 161	32
		2010	6 390	1 997	2 275	965	0	1 153	844	1 997	1 160	47
	• 36 70 •	2011	6 527	1 426	2 752	1 130	0	1 219	3 290	4 509	0	34
Belarus		1990	3 039									–
		1995	4 854	1 845	2 148	518		343		343		46
		2000	6 799	2 547	2 985	442		825	0	825		46
		2005	5 308	1 235	3 710	363			1 049	1 049		25
		2009	5 250	1 201	3 002	430		617	261	878		29
		2010	5 003	1 269	2 647	429	0	658	456	1 114	95	32
	• 30 49 •	2011	4 697	1 217	2 439	387		654	421	1 075		33
Belgium		1990	1 577									–
		1995	1 380	400	534	366		80		80		43
		2000	1 278	409	454	326		89	0	89		47
		2005	1 076	380	406	290			68	68		48
		2009	806	280	294	107	125				214	49
		2010	814	244	340	230	0		87	87	214	42
	• 16 0 •	2011										–
Bosnia and Herzegovina		1990	4 073									–
		1995	2 132	865	997	140		130		130		46
		2000	2 476	759	1 287	261		169	24	193		37
		2005	2 111	640	1 106	258		107	49	156	0	37
		2009	1 725	609	862	188	0	66	47	113	0	41
		2010	1 321	441	529	161	158	32	69	101	0	45
	• 95 36 •	2011	1 360	547	611	162	0	40	25	65	0	47
Bulgaria		1990	2 256									–
		1995	3 245	1 087	1 709	449						39
		2000	3 349	2 524	0	442		383	0	383		100
		2005	3 225	1 214	1 511	376		124	77	201		45
		2009	2 683	894	892	443	297	157	215	372	13	50
		2010	2 412	806	748	747	0	111	237	348	0	52
	• 26 29 •	2011	2 172	716	708	628	0	120	235	355	0	50
Croatia		1990	2 576									–
		1995	2 114	1 204	703	165		42		42		63
		2000	1 630									–
		2005	1 050	372	575	103		0	94	94		39
		2009	832	302	410	81	0	39	23	62		42
		2010	688	183	382	87		36	7	43		32
	• 57 14 •	2011	619	201	343	75						37
Cyprus		1990	29									–
		1995	36	6	11	13		0		0		35
		2000	33	4	10	17		0		0		29
		2005	34	9	13	12		0	3	3		41
		2009	43	14	15	3	9	2	1	3	11	48
		2010	33	8	12	13	0	0	0	0	28	40
	• 4 0 •	2011										–
Czech Republic		1990	1 937									–
		1995	1 834	487	1 026	300		21		21		32
		2000	1 414	420	679	290		25	0	25		38
		2005	973	308	461	204		0	34	34		40
		2009	638	218	322	54	44				64	40
		2010	627	200	333	94	0	0	51	51	0	38
	• 19 0 •	2011										–
Denmark		1990	350									–
		1995	448	128	186	128		6		6		41
		2000	587	171	244	144		28	0	28		41
		2005	395	129	145	121		0	29	29		47
		2009	294	101	125	25	37	6	4	10	41	45
		2010	313	115	102	39	57		46	46	0	53
	• 7 0 •	2011										–
Estonia		1990	423									–
		1995	624	369	124	60		71		71		75
		2000	791	255	320	67		116	0	116		44
		2005	479	162	217	46		54	40	94		43
		2009	361	135	175	18	3	30	50	80		44
		2010	283	99	134	17	0	33	46	79	0	42
	• 27 22 •	2011	296	123	124	18	0	31	45	76	0	50
Finland		1990	772									–
		1995	661	244	193	224						56
		2000	527	205	136	157		29	0	29		60
		2005	339	130	114	95		0	22	22	0	53
		2009	519	93	198	114	114				14	32
		2010	312	82	146	84	0	0	15	15	0	36
	• 15 6 •	2011	312	82	143	87	0	0	13	13	0	36

[a] Rates are per 100 000 population.

TABLE A4.3 **Case notifications, 1990–2011**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2011	YEAR	NEW AND RELAPSE	NEW CASES				RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
				SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN	EXTRA-PULMONARY	OTHER					
France		1990	9 030									–
		1995	8 723	3 449	2 969	2 305						54
		2000	6 122	1 815	1 364	1 665		0		0		57
		2005	4 887	1 941	1 557	1 389		0	371	371	116	55
		2009	2 890	1 019	1 038	439	394					50
		2010	2 752	960	1 015	765	12	0	315	315	2 049	49
	• 16 0 •	2011										–
Georgia		1990	1 537									–
		1995	1 625	221	1 087	121		196		196		17
		2000	4 397	601	2 213	1 324		259	422	681		21
		2005	4 501	1 509	1 524	1 261		207	1 945	2 152	2	50
		2009	4 732	2 055	1 119	1 283	0	275	291	566	955	65
		2010	4 674	2 140	1 088	1 155	0	291	1 118	1 409	4	66
	• 28 105 •	2011	4 547	2 026	1 141	1 056	0	324	986	1 310	0	64
Germany		1990	14 653									–
		1995	12 198	3 852	6 473	1 873						37
		2000	9 064									–
		2005	5 539	1 379	2 801	1 211		148	345	493	161	33
		2009	3 659	1 025	1 765	353	402	114	138	252	635	37
		2010	3 524	910	1 713	789	16	96	271	367	535	35
	• 19 4 •	2011	3 528	942	1 768	728	17	73	223	296	513	35
Greece		1990	877									–
		1995	939									–
		2000	703	235	339	81		48		48		41
		2005	626	197	322	107		0	74	74	67	38
		2009	465	198	196	44	26	1	2	3	121	50
		2010	356	178	129	49	0	0	44	44	89	58
	• 9 0 •	2011										–
Greenland		1990										–
		1995										–
		2000										–
		2005										–
		2009	63	24	30	3		6	0	6		44
		2010	114	38	59	7		10	2	12		39
	• 0 0 •	2011										–
Hungary		1990	3 588									–
		1995	4 339	796	3 292	251						19
		2000	3 073	412	2 361	221		79	292	371		15
		2005	1 808	423	1 137	117		131	216	347		27
		2009	1 315	363	800	51	16	85	126	211	7	31
		2010	1 543	270	1 147	70	0	56	198	254	0	19
	• 35 0 •	2011										–
Iceland		1990	18									–
		1995	12	2	3	7		0		0		40
		2000	13	1	7	4		1	0	1		12
		2005	10	2	3	5		0	1	1		40
		2009	11	3	3	2	2	1	0	1	1	50
		2010	22	6	12	4	0	0	0	0	0	33
	• 7 2 •	2011	8	1	2	5	0	0	1	1	0	33
Ireland		1990	624									–
		1995	458									–
		2000	386	138	150	96		2	20	22		48
		2005	387	130	156	99		2	38	40	36	45
		2009	340	95	119	60	59	7	9	16	139	44
		2010	319	84	122	112	1		31	31	77	41
	• 18 6 •	2011	281	85	110	83	3		28	28	121	44
Israel		1990	234									–
		1995	398									–
		2000	537	216	213	100	0	8	0	8	0	50
		2005	371	142	168	55	0	6	1	7	0	46
		2009	347	119	130	89	0	9	0	9	0	48
		2010	340	103	162	74	0	1	3	4	0	39
	• 5 5 •	2011	412	135	207	66	0	4	6	10	0	39
Italy		1990	4 246									–
		1995	5 627	1 413	2 700	1 514						34
		2000	3 501	687	891	522		269	356	625		44
		2005	3 828	1 275	1 506	1 047		0	293	293	16	46
		2009	2 541	885	863	408	385				1 336	51
		2010	1 693	586	779	328	0	0	74	74	1 482	43
	• 7 3 •	2011	1 658	476	730	452	0	0	69	69	1 167	39
Kazakhstan		1990	10 969									–
		1995	11 310	3 022	5 966	1 002		1 320		1 320		34
		2000	25 843	8 903	11 324	2 555		3 061	2 032	5 093		44
		2005	25 512	6 911	14 472	920		3 209	11 800	15 009	3 117	32
		2009	20 508	5 213	9 319	2 278	0	3 698	5 673	9 371	4 397	36
		2010	19 703	4 769	8 745	2 127	0	4 062	5 151	9 213	3 696	35
	• 66 113 •	2011	18 254	4 306	8 094	1 996	0	3 858	4 822	8 680	0	35
Kyrgyzstan		1990	2 306									–
		1995	3 393	832	1 685	749		127		127		33
		2000	6 205	1 296	2 929	1 683		297	258	555		31
		2005	6 329	1 972	2 141	1 805		411	436	847	0	48
		2009	5 765	1 609	2 267	1 558		331	427	758	166	42
		2010	5 652	1 645	2 028	1 635	0	344	643	987		45
	• 52 103 •	2011	5 529	1 537	2 125	1 518	0	349	725	1 074		42
Latvia		1990	906									–
		1995	1 541	504	693	226		118		118		42
		2000	1 982	637	793	285		267	108	375		45
		2005	1 409	536	554	148		171	34	205		49
		2009	951	367	377	47	39	121	26	147		49
		2010	913	339	400	86	0	88	21	109	0	46
	• 34 39 •	2011	864	293	410	85	0	76	21	97	0	42
Lithuania		1990	1 471									–
		1995	2 362	979	1 049	206		128		128		48
		2000	2 657	776	1 051	503		327	182	509		42
		2005	2 114	964	793	357		0	460	460		55
		2009	1 895	742	702	158	75	218	186	404		51
		2010	1 750	719	633	221	0	177	187	364	1	53
	• 40 53 •	2011	1 745	681	664	187	0	213	156	369	3	51
Luxembourg		1990	48									–
		1995	32									–
		2000	44	21	19	0		4		4		52
		2005	37	14	20	3		0	0	0		41
		2009									27	–
		2010	24	0	18	6	0	0	0	0	5	0
	• 13 2 •	2011	11	4	4	3	0	0	1	1	14	50

[a] Rates are per 100 000 population.

TABLE A4.3 **Case notifications, 1990–2011**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2011	YEAR	NEW AND RELAPSE	NEW CASES				RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
				SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN	EXTRA-PULMONARY	OTHER					
Malta		1990	13									–
		1995	11	5	4	2		0		0		56
		2000	16	5	9	2		0	0	0		36
		2005	21	5	10	6		0	1	1	1	33
		2009	41	12	11	6	12		2	2	1	52
		2010	20	4	6	10	0	0	3	3	9	40
	• 4 5 •	2011	22	7	8	7	0	0	3	3	8	47
Monaco		1990	1									–
		1995	1									–
		2000	0	0	0	0		0	0	0		
		2005										–
		2009										–
		2010	1			1						–
	• 3 0 •	2011										–
Montenegro		2005	156	64	66	13		13	14	27		49
		2009	113	53	43	12	0	5	6	11	1	55
		2010	110	39	49	14	0	8	4	12	0	44
	17 •	2011	110	48	40	12	0	10	2	12	0	55
Netherlands		1990	1 369									–
		1995	1 619	575	1 522	513						27
		2000	1 244	289	528	427		0	70	70		35
		2005	1 127	237	491	385		14	30	44		33
		2009	1 111	203	392	499		17	29	46	20	34
		2010	1 029	176	370	463	4	16	27	43	17	32
	• 9 6 •	2011	970	177	353	425	3	12	26	38	11	33
Norway		1990	285									–
		1995	236	62	57	89		28		28		52
		2000	221	37	103	79		2	10	12		26
		2005	269	48	119	102		0	14	14	7	29
		2009	258	42	125	37	54				105	25
		2010	274	49	110	115	0		42	42	23	31
	• 7 0 •	2011										–
Poland		1990	16 136									–
		1995	15 958	6 955	7 285	647		1 071		1 071		49
		2000	10 931	3 180	6 392	477		882	0	882		33
		2005	8 203	2 823	4 591	789		0	1 077	1 077		38
		2009	7 645	2 658	4 047	408	155	377	311	688	280	40
		2010	7 002	2 484	3 625	501	0	392	507	899	0	41
	• 42 21 •	2011	7 946	2 587	4 344	584	0	431	532	963	0	37
Portugal		1990	6 214									–
		1995	5 577	2 019	1 531	1 759		268		268		57
		2000	4 227	1 863	1 005	1 178		177	304	481		65
		2005	3 303	1 302	974	905		122	228	350	5	57
		2009	2 723	1 043	826	405	326	123	148	271		56
		2010	2 487	912	791	679	16	89	139	228	0	54
	• 63 0 •	2011										–
Republic of Moldova		1990	1 728									–
		1995	2 925	665	1 958	154		148		148		25
		2000	2 935	651	1 788	122		374	0	374		27
		2005	5 141	1 696	2 237	568		640	1 137	1 777		43
		2009	4 347	1 318	2 015	471	0	543	1 120	1 663	124	40
		2010	4 122	1 267	2 073	405	0	377	1 312	1 689	13	38
	• 40 119 •	2011	4 208	1 272	2 140	424	0	372	1 108	1 480	25	37
Romania		1990	16 256									–
		1995	23 271	10 469	8 303	3 422		1 077		1 077		56
		2000	27 470	10 202	10 180	3 474		3 614	156	3 770		50
		2005	26 104	10 801	8 038	3 568		3 697	3 241	6 938	2	57
		2009	20 868	8 987	5 681	2 486	712	3 002	2 399	5 401		61
		2010	18 379	7 951	5 113	2 899	0	2 416	2 699	5 115	0	61
	• 70 79 •	2011	16 866	7 362	4 557	2 634	0	2 313	2 352	4 665	0	62
Russian Federation		1990	50 641									–
		1995	84 980	37 512	42 241	5 227						47
		2000	140 677	27 467	102 228	5 313		5 669	12 478	18 147		21
		2005	127 930	32 605	74 301	12 320		8 704	26 449	35 153		30
		2009	126 227	33 351	72 931	10 945	0	9 000	23 569	32 569	6 426	31
		2010	118 641	31 416	67 894	3 513	7 081	8 737	37 243	45 980	6 669	32
	• 34 79 •	2011	112 910	29 191	65 106	10 023		8 590	46 569	55 159		31
San Marino		1990	1									–
		1995	2									–
		2000	1	1	0	0		0	0	0		100
		2005										–
		2009										–
		2010										–
	• 4 0 •	2011										–
Serbia		2005	3 208	1 105	1 584	479		40	260	300	0	41
		2009	1 879	1 055	488	197	0	139	64	203	652	68
		2010	2 326	977	700	501	0	148	52	200	7	58
	22 •	2011	2 171	905	745	401	0	120	42	162	3	55
	Serbia (without Kosovo)	2005	2 146	873	714	245						55
		2009	1 625	801							5	100
		2010	1 442	690	431	202		119		119		62
		2011	1 296	654	372	155		91		91		64
	Kosovo	2005	1 062	232	596	234						28
		2009	254	254							647	100
		2010	884	287	269	299		29		29		52
		2011	875	251	349	246		29		29		42
Serbia & Montenegro		1990	4 194									–
		1995	2 798	1 497	930	173		198		198		62
	• 41	2000	2 864	0	2 486	175		203	0	203		0
Slovakia		1990	1 448									–
		1995	1 540	788	555	177		20		20		59
		2000	1 010	236	469	203		102	18	120		33
		2005	710	162	356	134		58	50	108		31
		2009	438	121	202	61	22	32	47	79	21	37
		2010	386	112	190	59	0	25	30	55	23	37
	• 27 6 •	2011	352	96	170	57	0	29	21	50	26	36
Slovenia		1990	722									–
		1995	525	303	83	109		30		30		78
		2000	368	145	133	59		31	16	47		52
		2005	269	109	110	30		20	9	29		50
		2009	186	85	70	13	12	6	2	8		55
		2010	169	64	67	30	0	8	3	11	0	49
	• 37 9 •	2011	181	82	73	26	0		11	11	0	53

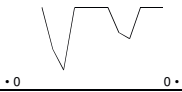
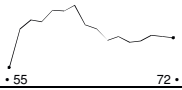
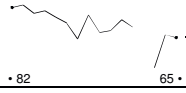
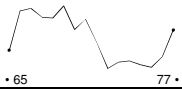
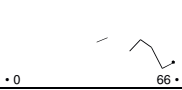
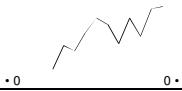
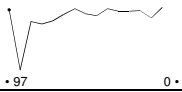
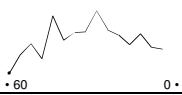
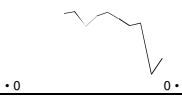
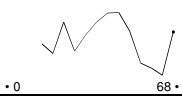
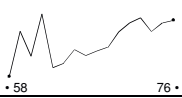
[a] Rates are per 100 000 population.

TABLE A4.3 **Case notifications, 1990–2011**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2011	YEAR	NEW AND RELAPSE	NEW CASES				RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
				SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN	EXTRA-PULMONARY	OTHER					
Spain		1990	7 600									–
		1995	8 764	2 605	6 159							30
		2000	7 993	3 423	4 446	124		0	0	0		43
		2005	7 281	2 511	3 880	890		0	1 078	1 078		39
		2009	6 687	2 236	2 879	1 572					905	44
		2010	6 377	2 076	2 621	1 680	0	0	324	324	388	44
	• 20 13 •	2011	6 044	2 186	2 242	1 616	0	0	370	370	348	49
Sweden		1990	557									–
		1995	564	102	235	216		11		11		30
		2000	417	118	147	152		0	40	40		45
		2005	539	134	208	197		0	30	30		39
		2009	515	107	180	228					112	37
		2010	552	117	226	209	0	0	52	52	71	34
	• 7 5 •	2011	457	99	182	173	0	3	42	45	87	35
Switzerland		1990	1 278									–
		1995	830	185	515	126		5		5		26
		2000	404	86	216	102			63	63	173	28
		2005	381	84	187	110			49	49	133	31
		2009	334	74	163	97			51	51	169	31
		2010	322	82	149	91			40	40	186	35
	• 19 5 •	2011	379	90	170	119			54	54	145	35
Tajikistan		1990	2 460									–
		1995	2 029	1 042	617			370		370		63
		2000	2 779	434	1 918	427						18
		2005	5 460	1 745	2 175	1 417		123	2 066	2 189		45
		2009	6 125	1 972	2 208	1 684		261	272	533	1 085	47
		2010	6 297	2 290	2 038	1 631	0	338	647	985	697	53
	• 46 90 •	2011	6 290	2 174	2 148	1 613	0	355	574	929	745	50
The Former Yugoslav Republic of Macedonia		1990										–
		1995	786	319	376	66		25		25		46
		2000	641	167	308	150		16	0	16		35
		2005	598	178	236	141		43	60	103		43
		2009	450	198	103	116	0	33	23	56	0	66
		2010	384	141	135	92	0	16	36	52	0	51
	• 0 16 •	2011	335	132	99	76	0	28	27	55	0	57
Turkey		1990	24 468									–
		1995	22 981	4 383	17 534	1 064						20
		2000	18 038	4 315	8 544	4 371		808		808		34
		2005	19 744	7 450	5 944	5 359		991	1 559	2 550		56
		2009	16 757	6 007	4 289	5 647	0	814	631	1 445	14	58
		2010	15 879	5 375	4 191	5 617	0	696	672	1 368	0	56
	• 45 20 •	2011	15 054	4 927	3 925	5 565	0	637	625	1 262	0	56
Turkmenistan		1990	2 325									–
		1995	1 939	544	1 327	1		67		67		29
		2000	4 038	1 017	2 709	241		71	1 894	1 965		27
		2005	3 191	995	1 498	656		42	100	142		40
		2009	3 157	1 370	1 223	564						53
		2010	3 230	1 153	1 248	473	274	82		82		48
	• 63 0 •	2011										–
Ukraine		1990	16 465									–
		1995	21 459	8 263	9 793	1 514		1 889		1 889		46
		2000	32 945	10 738	17 258	1 739		3 210	0	3 210		38
		2005	39 608									–
		2009	36 075	13 632	15 934	3 858		2 651	2 826	5 477		46
		2010	33 857	9 976	17 599	3 355	365	2 562	2 552	5 114		36
	• 32 76 •	2011	34 237	10 502	14 106	3 367	3 213	3 049	7 858	10 907	581	43
United Kingdom of Great Britain and Northern Ireland		1990	5 908									–
		1995	6 176		4 162	2 014						–
		2000	6 220	1 204	2 037	2 478		0	0	0		37
		2005	8 173	1 821	2 752	3 600		0	460	460		40
		2009	7 008	1 256	2 462	3 262	28				2 032	34
		2010	7 219	1 201	2 551	3 443	24		576	576	688	32
	• 10 13 •	2011	7 850	1 204	2 827	3 783	36		524	524	589	30
Uzbekistan		1990	9 414									–
		1995	9 866	2 735	5 798	1 333						32
		2000	15 750	3 825	10 142	1 760		23	324	347		27
		2005	21 513	5 695	7 857	6 324		1 637	7 378	9 015		42
		2009	17 540	4 959	6 943	4 667		971	1 480	2 451	2 433	42
		2010	16 883	4 711	6 735	4 288	0	1 149	3 447	4 596	0	41
	• 46 52 •	2011	14 501	4 198	5 958	3 839	0	506	568	1 074	844	41

[a] Rates are per 100 000 population.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Albania		1995	139		–						
		2000	171		–						
		2005	196	196	100	43	35	4	2	5	11
		2008	170	170	100	52	39	4	1	2	4
		2009	171	171	100	64	25	2	1	4	4
	• 0 91 •	2010	145	145	100	49	42	3	0	3	3
Andorra		1995			–						
		2000	1	2	200		50			50	0
		2005	5	5	100	80	0	0	0	0	20
		2008	3	3	100	33	67	0	0	0	0
		2009	2	3	150	33	67	0	0	0	0
	• 0 0 •	2010	0	0	–						
Armenia		1995	436	507	116	52	2	8	36	1	0
		2000	621	447	72	81	6	4	3	7	0
		2005	581	581	100	59	13	3	5	14	4
		2008	487	487	100	62	11	5	6	10	7
		2009	440	440	100	60	12	7	3	8	10
	• 55 72 •	2010	339	339	100	55	16	4	15	8	1
Austria		1995	467	383	82	2	81	10	0	7	1
		2000	324	298	92	0	73	9	0	6	11
		2005	234	230	98	17	58	7	0	7	11
		2008		380	–	7	40	10	13	9	21
		2009	90	226	251	8	59	9	0	8	16
	• 82 65 •	2010	76	206	271	6	59	6	0	6	23
Azerbaijan		1995	669	538	80	58	7		12	19	4
		2000	890	890	100	89	0	1	2	3	4
		2005	1 561	1 561	100	48	11	4	4	12	22
		2008	1 409	1 392	99	48	8	3	2	10	29
		2009	1 487	1 480	100	47	15	3	7	16	12
	• 65 77 •	2010	1 997	1 733	87	43	33	3	4	11	5
Belarus		1995	1 845		–						
		2000	2 547		–						
		2005	1 235		–						
		2008	1 060	1 902	179	68	3	9	7	3	10
		2009	1 201	2 160	180	64	0	10	4	1	20
	• 0 66 •	2010	1 269	2 184	172	66	0	8	22	1	2
Belgium		1995	400		–						
		2000	409	358	88	25	41	10	1	17	6
		2005	380	304	80	21	45	10	0	0	24
		2008	311	502	161	20	55	7	4	9	4
		2009	280	485	173	14	62	8	0	11	4
	• 0 0 •	2010	244		–						
Bosnia and Herzegovina		1995	865	865	100	97	1	0	1	1	1
		2000	759	756	100	77	18	1	1	2	1
		2005	640	1 035	162	93	3	1	0	0	2
		2008	509	757	149	87	5	4	1	1	1
		2009	609	852	140	97	2	0	0	0	0
	• 97 0 •	2010	441		–						
Bulgaria		1995	1 087		–						
		2000	2 524		–						
		2005	1 214	1 342	111	82	3	4	2	7	1
		2008	1 020	1 193	117	79	5	6	2	6	1
		2009	894	1 055	118	78	7	9	2	4	1
	• 0 86 •	2010	806	946	117	84	2	8	2	3	1
Croatia		1995	1 204		–						
		2000			–						
		2005	372	391	105	40	7	7	0	1	45
		2008	328	602	184	46	11	18	3	2	19
		2009	302	234	77	48	15	26	0	3	7
	• 0 75 •	2010	183	181	99	58	17	14	0	4	7
Cyprus		1995	6	6	100	100	0	0	0	0	0
		2000	4		–						
		2005	9	8	89	38	25	12	0	0	25
		2008	6	12	200	33	25	8		17	17
		2009	14	28	200	29	0	0	0	0	71
	• 100 0 •	2010	8		–						
Czech Republic		1995	487	487	100	57	3	0	3	2	35
		2000	420	396	94	59	11	17	1	1	11
		2005	308	315	102	62	10	6	0	2	20
		2008	249	470	189	67	1	21	3	6	2
		2009	218	402	184	66	2	21	0	7	4
	• 60 0 •	2010	200		–						
Denmark		1995	128		–						
		2000	171	110	64	37	49	5	0	0	9
		2005	129	128	99	44	39	6	1	2	8
		2008	106	200	189	16	25	1	1	1	56
		2009	101	175	173	22	31	4	1	1	42
	• 0 0 •	2010	115		–						
Estonia		1995	369		–						
		2000	255	257	101	67	2	11	1	6	12
		2005	162	162	100	70	2	8	1	10	10
		2008	144	259	180	59	1	15	18	6	1
		2009	135	240	178	57	1	15	2	6	18
	• 0 68 •	2010	99	191	193	65	3	10	2	4	17
Finland		1995	244		–						
		2000	205		–						
		2005	130		–						
		2008	104	170	163	46	26	16	6	1	5
		2009	93	227	244	33	34	17	0	1	14
	• 0 74 •	2010	82	184	224	48	27	9	0	2	15
France		1995	3 449		–						
		2000	1 815		–						
		2005	1 941		–						
		2008	1 222		–						
		2009	1 019		–						
	• 0 0 •	2010	960		–						
Georgia		1995	221	221	100	41	18	8	3	29	2
		2000	601	807	134	38	25	3	9	25	0
		2005	1 509	1 489	99	60	13	3	5	13	7
		2008	1 868	2 196	118	53	20	3	12	8	4
		2009	2 055	2 352	114	57	19	3	12	7	3
	• 58 76 •	2010	2 140	2 500	117	59	17	3	12	7	2
Germany		1995	3 852		–						
		2000		454	–	61	16	16	1	2	4
		2005	1 379	1 199	87	39	32	9	0	2	18
		2008	954	2 126	223	33	34	12	7	2	11
		2009	1 025	2 220	217	33	44	12	0	1	9
	• 0 77 •	2010	910	2 064	227	32	44	12	0	2	9

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Greece		1995			–						
		2000	235		–						
		2005	197		–						
		2008	80		–						
		2009	198		–						
	• 0 0 •	2010	178		–						
Greenland		1995			–						
		2000			–						
		2005			–						
		2008			–						
		2009	24		–						
	• 0 0 •	2010	38		–						
Hungary		1995	796		–						
		2000	412	651	158	28	36	10	3	12	11
		2005	423	412	97	32	13	13	12	9	20
		2008	346	602	174	32	21	11	20	7	9
		2009	363	597	164	45	12	10	19	7	7
	• 0 0 •	2010	270		–						
Iceland		1995	2	2	100	0	100	0	0	0	0
		2000	1	2	200	0	100	0	0	0	0
		2005	2	2	100	0	100	0	0	0	0
		2008	2	5	250		80				20
		2009	3	4	133	0	75	0	0	0	25
	• 100 88 •	2010	6	16	267	0	88	6	0	0	6
Ireland		1995			–						
		2000	138	73	53	33	51	12	0	4	0
		2005	130	107	82	3	62	9	3	1	22
		2008	123	188	153	7	69	7		2	15
		2009	95	188	198	5	62	9	0	1	23
	• 0 62 •	2010	84	164	195	0	62	7	0	0	31
Israel		1995			–						
		2000	216	336	156	65	18	15	0	0	1
		2005	142	227	160	69	15	11	0	3	2
		2008	95	178	187	78	11	10	0	1	1
		2009	119	202	170	72	14	10	0	1	3
	• 0 76 •	2010	103	99	96	69	7	11	0	0	13
Italy		1995	1 413	295	21	73	6	3	2	11	4
		2000	687	223	32	37	36	1	0	9	16
		2005	1 275		–						
		2008	938		–						
		2009	885		–						
	• 80 0 •	2010	586		–						
Kazakhstan		1995	3 022		–						
		2000	8 903	8 781	99	76	3	5	10	3	3
		2005	6 911	6 884	100	70	1	5	12	5	8
		2008	6 193	6 167	100	64	0	4	26	4	2
		2009	5 213	5 355	103	62	0	4	30	3	2
	• 0 61 •	2010	4 769	4 919	103	61	0	3	7	2	27
Kyrgyzstan		1995	832		–						
		2000	1 296	1 233	95	73	9	3	4	5	6
		2005	1 972	1 897	96	81	4	3	5	5	2
		2008	1 712	1 640	96	80	5	3	6	5	2
		2009	1 609	1 543	96	79	4	3	4	6	4
	• 0 0 •	2010	1 645		–						
Latvia		1995	504	475	94	61	0	9	3	21	7
		2000	637	637	100	68	4	12	3	7	7
		2005	536	536	100	72	1	11	1	7	8
		2008	400	1 471	368	32	0	4	5	2	57
		2009	367	592	161	72	3	9	1	5	11
	• 61 76 •	2010	339	596	176	72	3	8	1	6	10
Lithuania		1995	979		–						
		2000	776	776	100	73		10	4	12	2
		2005	964	958	99	70	0	11	3	11	6
		2008	884	1 764	200	51	31	7	3	7	0
		2009	742	1 033	139	73	0	10	2	9	6
	• 0 68 •	2010	719	959	133	68	0	11	1	11	8
Luxembourg		1995		37	–	100	0	0	0	0	0
		2000	21		–						
		2005	14	0	0						
		2008	0		–						
		2009			–						
	• 100 0 •	2010	0	14	–	0	0	7	0	0	93
Malta		1995	5	5	100	80	20	0	0	0	0
		2000	5	4	80	0	100	0	0	0	0
		2005	5	5	100	0	100	0	0	0	0
		2008	15	20	133		60	15			25
		2009	12	10	83	0	80	0	0	0	20
	• 100 20 •	2010	4	5	125	0	20	0	0	0	80
Monaco		1995			–						
		2000	0		–						
		2005			–						
		2008			–						
		2009			–						
	• 0 0 •	2010			–						
Montenegro		2005	64	63	98	10	21				70
		2008	65	65	100	52	32	5	0	2	9
		2009	53	78	147	49	37	8	0	4	3
	87 •	2010	39	39	100	46	41	5	0	3	5
Netherlands		1995	575	715	124	17	55	8		5	15
		2000	289	301	104	23	53	6	0	3	15
		2005	237	208	88	9	75	7	0	1	8
		2008	189	467	247	14	71	7		1	7
		2009	203	454	224	11	69	9	0	3	8
	• 72 78 •	2010	176	469	266	1	76	7	0	4	12
Norway		1995	62	87	140	43	34	14	1	8	0
		2000	37	37	100	49	22	14	3	3	11
		2005	48	47	98	62	30	2	0	4	2
		2008	53	105	198	62	22	6	4		7
		2009	42	146	348	45	37	4	1	0	13
	• 77 0 •	2010	49		–						
Poland		1995	6 955		–						
		2000	3 180	214	7	50	22	11	6	6	5
		2005	2 823	2 823	100	65	12	5	1	9	8
		2008	2 650	4 228	160	54	20	7	0	10	9
		2009	2 658	4 391	165	48	19	5	0	10	17
	• 0 65 •	2010	2 484	3 998	161	47	18	6	0	9	20

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Portugal		1995	2 019	1 240	61	45	23	4	4	4	19
		2000	1 863	1 924	103	9	71	6	0	5	9
		2005	1 302	1 393	107	13	76	6	0	4	2
		2008	1 053	1 683	160	11	77		3	2	7
		2009	1 043	1 565	150	9	75	6	0	3	7
	• 69 0 •	2010	912		–						
Republic of Moldova		1995	665		–						
		2000	651	651	100	1	62	0	0	0	37
		2005	1 696	1 690	100	60	2	9	11	11	7
		2008	1 533	1 533	100	54	7	11	8	12	8
		2009	1 318	1 318	100	49	5	10	17	14	5
	• 0 57 •	2010	1 267	1 267	100	52	5	11	5	13	13
Romania		1995	10 469	11 597	111	38	13	6	7	6	31
		2000	10 202	10 158	100	28	42	4	8	8	9
		2005	10 801	10 929	101	71	11	5	4	6	4
		2008	9 511	10 082	106	72	13	5	4	5	2
		2009	8 987	10 737	119	72	14	4	4	6	1
	• 51 84 •	2010	7 951	9 445	119	70	14	5	4	6	2
Russian Federation		1995	37 512	54	0	54	11	15	6	11	4
		2000	27 467	3 616	13	64	4	6	13	9	4
		2005	32 605	25 692	79	55	3	13	14	11	4
		2008	33 949	32 356	95	54	3	12	18	9	4
		2009	33 351	32 316	97	52	3	11	20	8	5
	• 65 53 •	2010	31 416	30 123	96	50	3	12	23	7	5
San Marino		1995			–						
		2000	1	1	100	0	0	100	0	0	0
		2005			–						
		2008			–						
		2009			–						
	• 0 0 •	2010			–						
Serbia		2005	1 105	1 154	104	72	13	5	1	5	4
		2008	1 172	1 391	119	80	6	7	2	4	2
		2009	1 055	1 392	132	80	6	6	1	4	2
	86 •	2010	977	702	72	80	5	7	1	4	2
Serbia & Montenegro		1995	1 497	1 956	131	34	18	2	3	10	33
		2000	0	267	–	82	7	4	0	6	1
Slovakia		1995	788	807	102	64		16		4	16
		2000	236	238	101	81	0	14	1	2	1
		2005	162	158	98	66	26	6	0	1	1
		2008	126	498	395	47	46	5	1	1	0
		2009	121	174	144	82	0	14	0	2	2
	• 64 84 •	2010	112	177	158	84	0	12	0	3	1
Slovenia		1995	303	270	89	64	26	4	2	1	3
		2000	145	145	100	33	51	8	0	5	3
		2005	109	109	100	47	38	12	0	1	3
		2008	81	159	196	38	42	15	1	2	2
		2009	85	149	175	24	63	9	1	1	3
	• 90 85 •	2010	64	123	192	28	57	11	0	1	3
Spain		1995	2 605		–						
		2000	3 423		–						
		2005	2 511		–						
		2008	2 333		–						
		2009	2 236		–						
	• 0 70 •	2010	2 076	3 574	172	39	32	6	0	1	23
Sweden		1995	102		–						
		2000	118	112	95	0	79	11	0	2	8
		2005	134	133	99	0	74	6	1	1	18
		2008	97	221	228		87	6	1	1	4
		2009	107	255	238	0	85	6	0	1	8
	• 0 85 •	2010	117	289	247	70	15	5	0	1	9
Switzerland		1995	185		–						
		2000	86		–						
		2005	84		–						
		2008	64		–						
		2009	74		–						
	• 0 0 •	2010	82		–						
Tajikistan		1995	1 042	348	33	69	18	7	3	2	0
		2000	434	665	153	74	3	15	8	0	0
		2005	1 745	1 729	99	74	9	4	6	7	0
		2008	2 057	2 044	99	76	7	4	7	5	1
		2009	1 972	1 972	100	75	6	4	8	5	1
	• 88 80 •	2010	2 290	2 290	100	76	4	5	11	3	1
The Former Yugoslav Republic of Macedonia		1995	319	222	70	61	9	13	9	9	0
		2000	167	152	91	51	35	4	2	7	1
		2005	178	179	101	62	22	2	0	14	0
		2008	188	188	100	81	7	7	1	2	1
		2009	198	199	101	85	5	4	2	5	0
	• 70 90 •	2010	141	143	101	83	7	4	3	2	1
Turkey		1995	4 383		–						
		2000	4 315	3 461	80	0	73	3	0	6	19
		2005	7 450	7 450	100	45	44	2	0	5	3
		2008	6 993	6 993	100	59	33	3	1	3	2
		2009	6 007	6 007	100	61	30	3	1	2	3
	• 0 91 •	2010	5 375	5 375	100	63	29	3	1	3	2
Turkmenistan		1995	544	544	100	55	18	11	7	2	7
		2000	1 017	1 017	100	79	2	9	6	3	1
		2005	995	995	100	70	14	6	4	5	1
		2008	1 331	1 331	100	83	1	6	6	5	1
		2009	1 370	1 375	100	83	1	5	6	5	1
	• 73 0 •	2010	1 153		–						
Ukraine		1995	8 263	9 564	116	83		6	7		4
		2000	10 738		–						
		2005			–						
		2008	14 574	14 407	99	56	6	12	12	9	5
		2009	13 632	13 111	96	52	7	13	16	8	3
	• 83 60 •	2010	9 976	13 279	133	51	9	13	17	8	3
United Kingdom of Great Britain and Northern Ireland		1995			–						
		2000	1 204		–						
		2005	1 821	1 348	74	0	68	7	0	1	24
		2008	1 286	6 510	506		78	4		1	16
		2009	1 256	2 569	205	0	82	6	0	5	7
	• 0 81 •	2010	1 201	2 602	217	0	81	5	0	6	8
Uzbekistan		1995	2 735	2 598	95	78	0	9	7	4	3
		2000	3 825	1 030	27	27	53	3	6	5	6
		2005	5 695	5 336	94	72	9	6	6	7	1
		2008	5 117	5 117	100	75	6	6	6	4	3
		2009	4 959	4 959	100	77	5	6	5	5	3
	• 78 81 •	2010	4 711	4 711	100	76	5	6	6	5	3

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Albania		1995	53		–						
		2000	19		–						
		2005	43	30	70	37	37	3	0	10	13
		2008	32	28	88	39	36	14	4	4	4
		2009	21	21	100	38	38	10	0	10	5
	• 0 90 •	2010	30	30	100	43	47	3	0	7	0
Andorra		1995			–						
		2000	0		–						
		2005	0		–						
		2008	0	0	–						
		2009	2	2	100	0	100	0	0	0	0
	• 0 0 •	2010	0	0	–						
Armenia		1995	38	6	16	50	0	0	17	33	0
		2000	76	54	71	52	15	7	7	19	0
		2005	327	327	100	13	28	7	12	37	4
		2008	618	534	86	15	36	8	15	21	5
		2009	542	542	100	9	54	8	4	15	10
	• 50 67 •	2010	451	451	100	5	62	6	10	13	4
Austria		1995			–						
		2000	30	10	33	0	80	0	0	0	20
		2005	26	27	104	11	56	11	0	11	11
		2008		11	–	9	27	9	36		18
		2009	25	37	148	3	38	5	0	30	24
	• 0 59 •	2010	29	29	100	14	45	0	0	0	41
Azerbaijan		1995	47		–						
		2000	74	74	100	59	7	5	11	14	4
		2005	3 200	1 314	41	28	9	6	6	13	38
		2008	3 733	3 084	83	18	32	4	6	23	17
		2009	2 384	1 687	71	39	14	6	9	19	13
	• 0 63 •	2010	1 997	4 194	210	14	49	3	4	15	15
Belarus		1995	343		–						
		2000	825		–						
		2005	1 049		–						
		2008	849	815	96	29	30	9	8	3	20
		2009	878	616	70	38	4	13	7	1	37
	• 0 48 •	2010	1 114	792	71	20	28	10	36	1	5
Belgium		1995	80		–						
		2000	89	55	62	16	45	13	0	15	11
		2005	68	47	69	17	21	19	0	0	43
		2008	67	42	63	7	48	10	14	19	2
		2009		76	–	11	57	9	0	12	12
	• 0 0 •	2010	87		–						
Bosnia and Herzegovina		1995	130		–						
		2000	193	122	63	79	15	3	1	2	0
		2005	156	106	68	85	8	4	1	2	1
		2008	67	77	115	70	5	22	1	1	0
		2009	113	116	103	52	32	5	3	3	5
	• 0 0 •	2010	101		–						
Bulgaria		1995			–						
		2000	383		–						
		2005	201	198	99	57	10	7	11	14	2
		2008	313	500	160	16	7	4	3	5	65
		2009	372	384	103	32	38	12	5	8	5
	• 0 64 •	2010	348	348	100	32	31	13	6	12	5
Croatia		1995	42		–						
		2000			–						
		2005	94	92	98	20	13	9	1	1	57
		2008	36		–						
		2009	62	22	35	27	23	36	5	5	5
	• 0 76 •	2010	43	37	86	59	16	14		3	8
Cyprus		1995	0		–						
		2000	0		–						
		2005	3	2	67	0	100	0	0	0	0
		2008	3	5	167	40	20				40
		2009	3	6	200	17	0	0	0	0	83
	• 0 0 •	2010	0		–						
Czech Republic		1995	21		–						
		2000	25	38	152	53	11	8	3	0	26
		2005	34	31	91	16	39	3	0	3	39
		2008	61	56	92	46	16	21	5	5	5
		2009		62	–	34	34	18	0	2	13
	• 0 0 •	2010	51		–						
Denmark		1995	6		–						
		2000	28	15	54	27	60	7	0	0	7
		2005	29	22	76	27	64	5	0	5	0
		2008	37	32	86	16	44			3	38
		2009	10	42	420	12	40	2	2	0	43
	• 0 0 •	2010	46		–						
Estonia		1995	71		–						
		2000	116	59	51	54	2	3	0	3	37
		2005	94	89	95	21	20	3	4	26	25
		2008	90	88	98	36	10	9	23	20	1
		2009	80	82	102	34	17	15	6	9	20
	• 0 40 •	2010	79	81	103	28	11	11	2	15	32
Finland		1995			–						
		2000	29		–						
		2005	22		–						
		2008	19	14	74	36	21	21			21
		2009		14	–	29	7	0	0	0	64
	• 0 46 •	2010	15	13	87	38	8	0	0	0	54
France		1995			–						
		2000	0		–						
		2005	371		–						
		2008	379		–						
		2009			–						
	• 0 0 •	2010	315		–						
Georgia		1995	196	298	152	8	24	12	9	45	2
		2000	681	470	69	23	31	10	8	29	0
		2005	2 152	2 037	95	19	35	7	10	23	6
		2008	1 677	1 542	92	20	29	6	23	14	7
		2009	566	1 521	269	26	34	5	17	15	3
	• 32 62 •	2010	1 409	1 421	101	26	35	5	17	11	4
Germany		1995			–						
		2000		63	–	51	21	16	3	5	5
		2005	493	432	88	30	36	9	0	7	18
		2008	441	190	43	30	29	8	9	5	18
		2009	252	344	137	21	44	12	0	5	17
	• 0 72 •	2010	367	364	99	25	47	12	1	6	10

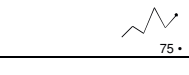
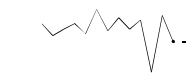
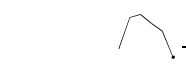
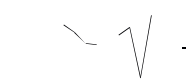
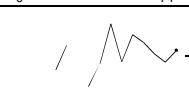
[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Greece		1995			–						
		2000	48		–						
		2005	74		–						
		2008	84		–						
		2009	3		–						
	• 0 0 •	2010	44		–						
Greenland		1995			–						
		2000			–						
		2005			–						
		2008			–						
		2009	6		–						
	• 0 0 •	2010	12		–						
Hungary		1995			–						
		2000	371	122	33	16	20	15	9	11	30
		2005	347	333	96	12	37	13	8	11	18
		2008	285	126	44	29	14	10	28	9	10
		2009	211	208	99	35	26	13	12	6	8
	• 0 0 •	2010	254		–						
Iceland		1995	0		–						
		2000	1	1	100	0	100	0	0	0	0
		2005	1		–						
		2008	0	1	–		100				0
		2009	1	1	100	0	100	0	0	0	0
	• 0 0 •	2010	0	0	–						
Ireland		1995			–						
		2000	22	10	45	40	0	10	10	40	0
		2005	40	14	35	7	57	7	0	0	29
		2008	41	51	124	6	45	6		2	41
		2009	16	52	325	4	58	8	0	0	31
	• 0 38 •	2010	31	34	110	0	38	15	0	3	44
Israel		1995			–						
		2000	8	8	100	12	25	62	0	0	0
		2005	7	7	100	71	14	14	0	0	0
		2008	4	4	100	0	75	0	0	25	0
		2009	9	9	100	56	11	11	0	0	22
	• 0 80 •	2010	4	5	125	80	0	20	0	0	0
Italy		1995		31	–	42	6	26	10	13	3
		2000	625	26	4	31	15	4	12	8	31
		2005	293		–						
		2008	292		–						
		2009			–						
	• 48 0 •	2010	74		–						
Kazakhstan		1995	1 320		–						
		2000	5 093	2 901	57	62	4	10	14	5	5
		2005	15 009	4 085	27	46	1	13	14	6	19
		2008	9 229	8 662	94	24	18	10	32	7	8
		2009	9 371	9 392	100	22	27	9	34	6	3
	• 0 47 •	2010	9 213	8 734	95	23	24	9	4	5	35
Kyrgyzstan		1995	127		–						
		2000	555	278	50	59	15	8	8	6	4
		2005	847	845	100	40	31	8	9	11	1
		2008	756	897	119	36	34	6	10	9	4
		2009	758	924	122	28	43	7	6	7	9
	• 0 0 •	2010	987		–						
Latvia		1995	118		–						
		2000	375	205	55	39	2	19	3	8	29
		2005	205	205	100	50	1	10	1	9	29
		2008	152	293	193	28	0	7	13	2	50
		2009	147	148	101	43	1	14	0	14	28
	• 0 62 •	2010	109	110	101	60	2	6	0	12	20
Lithuania		1995	128		–						
		2000	509	282	55	45	0	21	8	22	5
		2005	460	455	99	27	2	25	4	22	19
		2008	357	354	99	40		22	18	19	1
		2009	404	404	100	30	0	24	5	22	20
	• 0 32 •	2010	364	364	100	31	1	18	4	22	25
Luxembourg		1995			–						
		2000	4		–						
		2005	0		–						
		2008	0		–						
		2009			–						
	• 0 0 •	2010	0	0	–						
Malta		1995	0		–						
		2000	0	1	–	0	100	0	0	0	0
		2005	1	1	100	0	100	0	0	0	0
		2008	7	4	57		50				50
		2009	2	2	100	0	50	0	0	0	50
	• 0 33 •	2010	3	3	100	0	33	0	0	0	67
Monaco		1995			–						
		2000	0		–						
		2005			–						
		2008			–						
		2009			–						
	• 0 0 •	2010			–						
Montenegro		2005	27	10	37		20	20			60
		2008	10	10	100	70	10	10	0	10	0
		2009	11	11	100	45	27	9	0	0	18
	86 •	2010	12	14	117	50	36	0	0	0	14
Netherlands		1995			–						
		2000	70	18	26	28	22	6	0	6	39
		2005	44	28	64	11	68	4	0	7	11
		2008	49	47	96	6	32	6		2	53
		2009	46	49	107	4	67	2	0	4	22
	• 0 66 •	2010	43	44	102	5	61	9	0	7	18
Norway		1995	28		–						
		2000	12	3	25	33	0	67	0	0	0
		2005	14	9	64	44	33	22	0	0	0
		2008	27	28	104	29	43	7	14		7
		2009		30	–	33	47	13	0	0	7
	• 0 0 •	2010	42		–						
Poland		1995	1 071		–						
		2000	882	56	6	64	12	14	0	4	5
		2005	1 077	985	91	22	31	6	0	32	9
		2008	1 020	720	71	43	21	7	1	16	12
		2009	688	942	137	30	32	5	0	14	18
	• 0 61 •	2010	899	899	100	28	33	8	0	10	21

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Portugal		1995	268	133	50	38	17	6	6	9	24
		2000	481	209	43	10	66	4	0	7	14
		2005	350	293	84	8	66	10	1	9	6
		2008	292	178	61	7	69		5	7	12
		2009	271	265	98	7	62	7	0	8	16
	• 55 0 •	2010	228		–						
Republic of Moldova		1995	148		–						
		2000	374	1	0	0	0	0	100	0	0
		2005	1 777	1 713	96	22	19	13	16	17	13
		2008	1 865	1 865	100	16	18	18	12	20	16
		2009	1 663	1 663	100	15	20	15	26	20	4
	• 0 32 •	2010	1 689	1 702	101	15	17	14	5	17	32
Romania		1995	1 077		–						
		2000	3 770	2 605	69	24	20	9	20	17	11
		2005	6 938	6 737	97	39	13	10	10	14	14
		2008	6 012	4 656	77	40	10	10	14	17	8
		2009	5 401	5 391	100	38	19	10	12	16	4
	• 0 55 •	2010	5 115	5 118	100	37	18	11	12	17	5
Russian Federation		1995		12	–	42	17	25	8	8	0
		2000	18 147	1 694	9	25	24	10	21	9	11
		2005	35 153	10 855	31	33	4	16	26	16	5
		2008	94 070	18 070	19	33	3	13	29	14	7
		2009	32 569	16 726	51	31	3	13	32	12	9
	• 58 34 •	2010	45 980	14 609	32	31	4	12	33	12	9
San Marino		1995			–						
		2000	0		–						
		2005			–						
		2008			–						
		2009			–						
	• 0 0 •	2010			–						
Serbia		2005	300	284	95	46	26	10	2	12	3
		2008	280	309	110	49	27	10	1	7	6
		2009	203	244	120	61	13	9	0	12	5
	75 •	2010	200	172	86	56	19	10	1	10	4
Serbia & Montenegro		1995	198		–						
		2000	203	21	10	67	10	10	0	14	0
Slovakia		1995	20		–						
		2000	120	46	38	78	0	11	2	4	4
		2005	108	101	94	50	38	7	0	3	3
		2008	98	170	173	28	20	5	1	1	46
		2009	79	79	100	34	48	14	1	0	3
	• 0 84 •	2010	55	55	100	44	40	15	0	0	2
Slovenia		1995	30		–						
		2000	47	24	51	29	46	4	0	12	8
		2005	29	27	93	44	41	4	0	4	7
		2008	16	22	138	5	32	9	14		41
		2009	8	8	100	12	75	0	0	0	12
	• 0 64 •	2010	11	11	100	18	45	36	0	0	0
Spain		1995			–						
		2000	0		–						
		2005	1 078		–						
		2008	461		–						
		2009			–						
	• 0 56 •	2010	324	351	108	25	31	9	0	2	33
Sweden		1995	11		–						
		2000	40	9	22	0	78	0	0	11	11
		2005	30	16	53	0	75	0	0	0	25
		2008	37	28	76		75	4	7		14
		2009		45	–	0	69	13	0	7	11
	• 0 75 •	2010	52	52	100	21	54	2	0	0	23
Switzerland		1995	5		–						
		2000	63		–						
		2005	49		–						
		2008	53		–						
		2009	51		–						
	• 0 0 •	2010	40		–						
Tajikistan		1995	370		–						
		2000			–						
		2005	2 189	1 762	80	29	47	9	8	6	1
		2008	1 846	1 881	102	32	43	9	8	6	2
		2009	533	1 618	304	29	43	11	10	6	1
	• 0 72 •	2010	985	1 732	176	33	38	11	11	4	1
The Former Yugoslav Republic of Macedonia		1995	25		–						
		2000	16		–						
		2005	103	97	94	24	33	7	2	32	2
		2008	56	56	100	34	38	11	2	12	4
		2009	56	56	100	39	39	7	2	11	2
	• 0 65 •	2010	52	52	100	29	37	17	4	12	2
Turkey		1995			–						
		2000	808		–						
		2005	2 550	1 593	62	24	46	5	2	12	11
		2008	1 689	1 692	100	30	44	4	2	9	10
		2009	1 445	1 459	101	29	44	3	2	9	13
	• 0 69 •	2010	1 368	1 368	100	25	43	5	2	7	17
Turkmenistan		1995	67		–						
		2000	1 965	495	25	66	9	7	11	6	1
		2005	142	142	100	42	26	13	10	9	0
		2008	281	737	262	63	18	7	7	5	0
		2009			–						
	• 0 0 •	2010	82		–						
Ukraine		1995	1 889		–						
		2000	3 210		–						
		2005			–						
		2008	2 093	7 152	342	31	10	16	21	13	8
		2009	5 477	10 424	190	18	29	14	22	12	5
	• 0 0 •	2010	5 114		–						
United Kingdom of Great Britain and Northern Ireland		1995			–						
		2000	0		–						
		2005	460	147	32	0	57	4	0	3	36
		2008	413		–						
		2009		791	–	0	79	7	0	5	9
	• 0 74 •	2010	576	576	100	0	74	7	0	7	12
Uzbekistan		1995			–						
		2000	347	764	220	20	55	8	8	9	0
		2005	9 015	3 999	44	28	41	9	7	14	1
		2008	5 087	5 046	99	24	48	10	7	9	3
		2009	2 451	2 451	100	30	39	11	7	9	5
	• 0 73 •	2010	4 596	4 527	98	25	48	10	5	9	4

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2011**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2011	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Albania		2005	15	81	540	1	1			
		2009	47	211	447	6	3	67	100	3
		2010	42	186	445	0	0			5
	• 15 39 •	2011	39	170	431	2	1	100	100	
Andorra		2005			10					
		2009	0	0	9	0				0
		2010	0	0	7	0				
	– 0 •	2011	0	0	4	0				
Armenia		2005	12	270	2 322	6	2	83	33	
		2009	26	521	2 006	17	3	53	35	0
		2010	70	1 242	1 780	17	1	47	41	
	• 12 95 •	2011	95	1 499	1 582	49	3		80	
Austria		2005			954					
		2009			707					
		2010			688					
	– –	2011			687					
Azerbaijan		2005			7 920					
		2009			10 417					
		2010			8 394					62
	– –	2011			9 817					41
Belarus		2005			6 357	139				
		2009	95	5 227	5 511	190	4			
		2010	93	5 153	5 554	190	4			257
	– 93 •	2011	93	4 747	5 118	217	5			32
Belgium		2005	82	937	1 144	52	6			
		2009	91	930	1 020	43	5			
		2010	87	969	1 115	66	7			
	• 82 –	2011		845		44	5			
Bosnia and Herzegovina		2005			2 160					
		2009	0	0	1 772	0				0
		2010	0	0	1 390	0				
	– 0 •	2011	0	0	1 385	0				0
Bulgaria		2005	1	23	3 302					
		2009	40	1 155	2 911	1	0	0	0	9
		2010	67	1 773	2 649	2	0	0	100	
	• 1 71 •	2011	71	1 698	2 407	5	0	0	100	
Croatia		2005			1 144					
		2009			855					
		2010			695	1				1
	– –	2011			619	4				3
Cyprus		2005	0	0	37	0				
		2009			55					
		2010			61					
	• 0 –	2011								1
Czech Republic		2005	19	189	1 007	2	1			
		2009	23	161	702	6	4			
		2010	26	177	678	5	3			
	• 19 –	2011								
Denmark		2005			424	8				
		2009	61	207	339	9	4			
		2010	0	0	359	0				
	– –	2011								
Estonia		2005	94	490	519	33	7	0		
		2009	92	380	411	40	11	0	57	0
		2010	91	298	329	34	11		47	
	• 94 92 •	2011	92	313	341	47	15		55	
Finland		2005	1	3	361	3	100			
		2009			533	6				
		2010	1	3	327	3	100			
	• 1 1 •	2011	1	3	325	3	100			
France		2005			5 374					
		2009			2 890					
		2010	24	1 233	5 116	121	10			
	– –	2011								
Georgia		2005	10	674	6 448	13	2	54	100	
		2009	22	1 289	5 978	33	3	55	55	
		2010	32	1 841	5 796	35	2	63	77	
	• 10 46 •	2011	46	2 550	5 533	50	2	56	76	61
Germany		2005			6 045					
		2009			4 432					
		2010			4 330					
	– –	2011			4 264					
Greece		2005			767					
		2009			588					
		2010			489					
	– –	2011								
Greenland		2005								
		2009	100	63	63	0	0			
		2010			116					
	– –	2011								
Hungary		2005			2 024					
		2009	0	0	1 448	2				
		2010	0	1	1 741	1	100		100	
	– –	2011		1		1	100		100	
Iceland		2005	91	10	11	1	10	100	100	
		2009	58	7	12	0	0			0
		2010	95	21	22	1	5	0	0	
	• 91 100 •	2011	100	9	9	0	0			
Ireland		2005	6	28	461	11	39			
		2009	26	125	488	11	9			
		2010	23	98	427	15	15			
	• 6 22 •	2011	22	94	430	19	20			
Israel		2005	85	316	372	17	5			
		2009	83	288	347	22	8		36	
		2010	90	308	343	13	4			
	• 85 92 •	2011	92	384	418	24	6			
Italy		2005			4 137					
		2009			3 877					
		2010			3 249					
	– –	2011			2 894					
Kazakhstan		2005	77	31 187	40 429	183	1	41	8	
		2009	97	29 597	30 578	325	1	11	7	1 027
		2010	84	23 854	28 550	333	1	26	8	1 063
	• 77 97 •	2011	97	22 480	23 076	352	2	20	9	1 329

TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2011**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2011	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Kyrgyzstan		2005			6 765					
		2009	100	6 358	6 358	88	1	100	22	58
		2010	3	183	6 295	183	100	68	37	
	– 2 •	2011	2	153	6 254					4
Latvia		2005	85	1 226	1 443	53	4		55	
		2009	85	830	977	73	9		60	0
		2010	80	748	934	71	9		76	
	• 85 –	2011			885	71		41	66	
Lithuania		2005			2 574	7				
		2009			2 081	14				
		2010			1 938	19				
	– –	2011			1 904					
Luxembourg		2005			37					
		2009			27					
		2010			29					
	– –	2011			26					
Malta		2005	4	1	23	0	0			
		2009	86	38	44	4	11			
		2010	81	26	32	3	12			0
	• 4 91 •	2011	91	30	33	5	17			4
Monaco		2005								
		2009								
		2010			1					
	– –	2011								
Montenegro		2005	5	8	170	0	0			
		2009	76	91	120	0	0			0
		2010	74	84	114	1	1	0	100	
	• 5 82 •	2011	82	92	112	0	0			
Netherlands		2005	22	252	1 157	61	24			
		2009	33	380	1 160	42	11			54
		2010	38	413	1 073	48	12			21
	• 22 46 •	2011	46	460	1 007	31	7			
Norway		2005	0	0	290					
		2009			363					
		2010			339					
	• 0 –	2011								
Poland		2005			9 280					
		2009	0	27	8 236	27	100			
		2010	0	22	7 509	22	100			
	– 0 •	2011	0	26	8 478	26	100			
Portugal		2005	70	2 485	3 536	571	23			
		2009	86	2 455	2 871	392	16	100	100	
		2010	65	1 720	2 626	303	18	100	100	
	• 70 –	2011								
Republic of Moldova		2005	103	6 469	6 278	9	0			
		2009	91	5 107	5 591	260	5			
		2010	95	5 192	5 447	308	6	10	31	0
	• 103 94 •	2011	94	5 017	5 341	285	6			
Romania		2005	37	10 860	29 347	160	1			
		2009	28	6 443	23 267	214	3	38	82	188
		2010	37	7 833	21 078	241	3	41	89	133
	• 37 46 •	2011	46	8 870	19 218	240	3	33	88	145
Russian Federation		2005	55	85 537	154 379	3 533	4			
		2009	100	156 222	156 222	7 064	5		77	10 451
		2010		84 669	162 553	3 633			199	
	• 55 –	2011		79 494	159 479	4 104				
San Marino		2005								
		2009								
		2010								
	– –	2011								
Serbia		2005	0	3	3 468	3	100	433	400	
		2009	0	5	2 595	5	100		100	
		2010	1	16	2 385	12	75	0	100	4
	• 0 3 •	2011	3	67	2 216	6	9	0	100	
Slovakia		2005	95	720	760	1	0	0	100	
		2009	99	500	506	1	0	0	100	0
		2010	100	439	439	1	0	100	100	0
	• 95 100 •	2011	100	399	399	0	0			
Slovenia		2005	38	107	278	0	0			
		2009	71	134	188	0	0			
		2010	76	130	172	1	1			
	• 38 77 •	2011	77	147	192	0	0			
Spain		2005			8 359					
		2009	47	3 599	7 592	425	12			
		2010	69	4 909	7 089	456	9			
	– 67 •	2011	67	4 542	6 762	415	9			
Sweden		2005	0	0	569					
		2009			627					
		2010			675					
	• 0 –	2011			586					
Switzerland		2005			563					
		2009			554					
		2010			548					
	– –	2011			578					
Tajikistan		2005	9	670	7 526	1	0	0	0	
		2009	50	3 714	7 482	49	1	0	45	0
		2010	53	4 049	7 641	100	2	73	54	0
	• 9 82 •	2011	82	6 241	7 609	115	2	70	57	315
The Former Yugoslav Republic of Macedonia		2005	0	2	658	2	100	0	100	
		2009	9	43	473	0	0			0
		2010	9	39	420	0	0			0
	• 0 12 •	2011	12	45	362	0	0			0
Turkey		2005	0	0	21 303	0				
		2009	0	1	17 402	1	100			
		2010	4	581	16 551	14	2	36	64	
	• 0 46 •	2011	46	7 241	15 679	29	0	48	93	
Turkmenistan		2005			3 291					
		2009			3 157					
		2010	100	3 230	3 230	0	0			
	– –	2011								
Ukraine		2005			39 608	1 526		0		
		2009	86	33 424	38 901	3 771	11	57	32	4 980
		2010	95	34 621	36 409	5 752	17		39	5 029
	– 74 •	2011	74	31 776	42 676	5 893	19		44	
United Kingdom of Great Britain and Northern Ireland		2005			8 633					
		2009			9 040					
		2010			8 483	378				
	– –	2011			8 963					
Uzbekistan		2005	124	35 801	28 891	147	0	0	0	
		2009	100	21 453	21 453	357	2	25	10	1 056
		2010	100	20 330	20 330	427	2	92	37	
	• 124 100 •	2011	100	15 913	15 913	546	3	96	32	2 630

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2011**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
				ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
Albania	2005	1			161	75		12	28
	2009	0			119	58		9	43
	2010	2			186	76		19	63
	2011	5	7.8 (1.6–14)	2.9 (0.36–10)	194	87	4.9 (1.1–11)	11	61
Andorra	2005	0			9	150			–
	2009	0			2	67		1	50
	2010	0			4	100		0	–
	2011	0	0 (0–0)	0 (0–1.8)	1	100	0 (0–0.98)	1	100
Armenia	2005	162			576	99		182	56
	2009	156			480	110		200	37
	2010	177			361	87		99	22
	2011	79	250 (220–280)	86 (65–110)	439	96	170 (140–190)	90	24
Austria	2005	13			570	110		16	62
	2009	22			265	110		23	92
	2010	15			203	99		15	52
	2011	19	12 (3.9–19)	7.7 (2.5–18)	257	95	4.0 (0.87–9.6)	11	55
Azerbaijan	2005	800			453	29		366	11
	2009					–			–
	2010	552			801	19		960	48
	2011	722	3 400 (3 200–3 700)	930 (790–1 100)		–	2 500 (2 300–2 700)		–
Belarus	2005					–			–
	2009	1342			2071	96		1754	200
	2010	1576			1972	90		1697	150
	2011	1594	2 000 (1 900–2 100)	1 200 (1 100–1 300)	2084	94	810 (780–850)	948	88
Belgium	2005	11			588	89		41	60
	2009	10			621	120		56	–
	2010	19			466	97		52	60
	2011	15	–	–		–	–		–
Bosnia and Herzegovina	2005	11			1035	100		106	68
	2009	2			854	100		66	58
	2010	2			600	100		47	47
	2011	7	3.3 (0–7.9)	1.9 (<0.1–11)	704	99	1.4 (<0.1–7.3)	41	63
Bulgaria	2005	47			482	40		691	340
	2009	43			716	62		128	34
	2010	56			801	85		165	47
	2011	55	120 (90–150)	28 (16–46)	588	62	91 (66–120)	145	41
Croatia	2005	6			586	100		61	65
	2009	7			476	110		41	66
	2010	0				–			–
	2011	8	0.89 (<0.1–4.9)	0.89 (<0.1–4.9)	353	96	–	40	–
Cyprus	2005	1			16	84		0	0
	2009	4			27	96		4	130
	2010	0			14	70		0	–
	2011		–	–		–	–		–
Czech Republic	2005	13			562	100		20	59
	2009	8			413	100		39	–
	2010	9			352	97		28	55
	2011		–	–		–	–		–
Denmark	2005	5			307	140		18	62
	2009	2			209	120		33	330
	2010	2			209	98		30	65
	2011		–	–		–	–		–
Estonia	2005	79			316	110		71	76
	2009	86			245	100		62	78
	2010	63			197	100		61	77
	2011	78	100 (83–120)	56 (43–72)	210	100	44 (33–54)	52	68
Finland	2005	3			198	85		22	100
	2009	6			295	130		7	–
	2010	6			184	96		7	47
	2011	5	6.7 (0.93–13)	4.9 (1.3–12)	237	97	1.9 (<0.1–7.5)	8	62
France	2005	24			1291	47		112	30
	2009	30			2890	180		106	–
	2010	23			1187	120		91	29
	2011		–	–		–	–		–
Georgia	2005	195			799	53		515	24
	2009	369			1777	76		594	100
	2010	359			1987	80		558	40
	2011	475	760 (700–820)	340 (300–390)	2197	83	420 (370–460)	675	52
Germany	2005	105			3094	98		251	51
	2009	61			2343	110		151	60
	2010	48			2215	110		184	50
	2011	56	100 (60–150)	68 (33–120)	2357	91	36 (23–54)	145	49
Greece	2005	12			497	170		0	0
	2009	14			140	49		14	470
	2010	2			115	37		15	34
	2011		–	–		–	–		–
Greenland	2005					–			–
	2009					–			–
	2010	1				–			–
	2011		–	–		–	–		–
Hungary	2005	26			442	62		88	25
	2009	20			486	76		55	26
	2010	19			474	92		80	31
	2011	30	–	–		–	–		–
Iceland	2005	0			7	140		1	100
	2009	0			6	120		1	100
	2010	0			19	120		0	–
	2011	0	0.12 (0.10–0.15)	0 (0–1.8)	4	80	0.12 (0.10–0.15)	0	0
Ireland	2005	3			200	110		10	25
	2009	0			162	110		12	75
	2010	2			200	130		22	71
	2011	3	2.5 (0–7.3)	0 (0–4.3)	166	81	2.5 (<0.1–12)	14	50
Israel	2005	16			259	110		6	86
	2009	6			258	130		8	89
	2010	12			245	120		2	50
	2011	11	14 (5.9–22)	13 (6.1–23)	275	99	1.3 (<0.1–5.3)	9	90
Italy	2005					–			–
	2009					–			–
	2010	87			836	140		279	380
	2011		48 (34–61)	39 (27–54)		–	8.6 (6.0–12)		–
Kazakhstan	2005					–			–
	2009	3644			4140	64		4413	47
	2010	7387			5214	100		4655	51
	2011	7408	8 200 (8 000–8 400)	3 800 (3 600–3 900)	5293	83	4 500 (4 300–4 600)	4790	55
Kyrgyzstan	2005	989			837	20		152	18
	2009	785			677	42		263	35
	2010	566			225	14		264	27
	2011	806	1 500 (1 400–1 700)	970 (830–1 100)	451	29	550 (490–620)	232	22

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).
[b] BACT+VE = bacteriologically-positive cases.

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2011**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
				ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
Latvia	2005	160			873	100		182	89
	2009	131			618	100		134	91
	2010	87			613	100		102	94
	2011	105	120 (96–140)	89 (70–110)	562	96	28 (19–39)	82	85
Lithuania	2005	338			1293	100		440	96
	2009	322			1074	100		404	100
	2010	310			959	100		360	99
	2011	296	360 (320–390)	170 (140–200)	1031	100	190 (170–210)	369	100
Luxembourg	2005	0			36	110			–
	2009	0				–			–
	2010	0			17	120		0	–
	2011	2	0.14 (<0.1–0.21)	0.14 (<0.1–0.20)	7	100	0 (0–0.98)	1	100
Malta	2005	0			11	140			–
	2009	0			17	130		0	0
	2010	1			11	220		2	67
	2011	0	0.64 (0.50–0.78)	0.27 (0.15–0.38)	17	89	0.37 (0.30–0.44)	0	0
Monaco	2005					–			–
	2009					–			–
	2010				1	–			–
	2011		–	–		–	–		–
Montenegro	2005	2			82	88		14	52
	2009	1			80	100		9	82
	2010	0			61	100		12	100
	2011	1	1.5 (0–4.5)	1.5 (<0.1–8.3)	57	100	0 (0–3.0)	13	110
Netherlands	2005	7			709	130		30	68
	2009	20			720	160		30	65
	2010	11			741	160		29	67
	2011	15	11 (4.8–17)	9.2 (4.8–16)	695	99	1.7 (<0.1–8.7)	22	58
Norway	2005	3			193	150		8	57
	2009	8			210	150		20	–
	2010	8			139	100		21	50
	2011	4	–	–		–	–		–
Poland	2005	72			5409	120			–
	2009	0				–			–
	2010	30			3238	81		468	52
	2011	38	68 (46–89)	35 (21–53)	4017	80	33 (20–52)	521	54
Portugal	2005	28			1407	77		172	49
	2009	22			1391	87		148	55
	2010	19			982	77		94	41
	2011		–	–		–	–		–
Republic of Moldova	2005	338			536	32		652	37
	2009	1069			1284	73		1129	68
	2010	1082			1381	49		1140	67
	2011	1001	1 600 (1 500–1 700)	660 (570–760)	1379	74	940 (890–980)	1006	68
Romania	2005	530			1594	13		1300	19
	2009	435			2226	20		1641	30
	2010	502			3338	39		2011	39
	2011	485	850 (650–1 000)	340 (220–500)	3482	38	510 (380–680)	1974	42
Russian Federation	2005					–			–
	2009	14686			36888	76		6798	21
	2010	13692			35862	72		13405	29
	2011	13785	44 000 (40 000–48 000)	19 000 (17 000–21 000)	34007	78	25 000 (23 000–29 000)	13620	25
San Marino	2005					–			–
	2009					–			–
	2010					–			–
	2011		–	–		–	–		–
Serbia	2005	9			1112	76		121	40
	2009					–			–
	2010	12			811	67		113	56
	2011	9	20 (8.6–31)	8.1 (2.2–21)	863	91	11 (5.0–22)	100	62
Slovakia	2005	8			248	82		56	52
	2009	1			191	100		36	46
	2010	1			185	100		32	58
	2011	5	5.3 (0–11)	3.6 (0.44–13)	147	92	1.7 (<0.1–8.9)	29	58
Slovenia	2005	1			217	110		28	97
	2009	1			167	110		8	100
	2010	0			123	100		9	82
	2011	0	0 (0–0)	0 (0–4.6)	171	100	0 (0–3.7)	11	100
Spain	2005					–			–
	2009	56			1147	33		383	–
	2010	49			1009	34		110	34
	2011	41	36 (15–58)	9.9 (1.2–35)	1013	24	26 (12–49)	96	26
Sweden	2005	4			425	150		17	57
	2009	13			424	170		35	–
	2010	18			288	100		24	46
	2011	17	18 (8.9–27)	8.8 (4.0–16)	375	100	9.4 (3.2–19)	31	69
Switzerland	2005	5			326	150		30	61
	2009				269	130		41	80
	2010	9			270	130		33	82
	2011	8	6.3 (0.96–12)	0.86 (<0.1–4.7)	304	98	5.4 (1.5–13)	40	74
Tajikistan	2005					–			–
	2009	319			833	42		580	110
	2010	333			160	7.0		223	23
	2011	604	1 000 (910–1 200)	540 (420–670)	161	7.4	500 (450–550)	415	45
The Former Yugoslav Republic of Macedonia	2005	4			106	51		19	18
	2009	1			191	80		28	50
	2010	7			153	110		28	54
	2011	1	2.2 (0–6.4)	0 (0–6.5)	130	72	2.2 (<0.1–11)	25	45
Turkey	2005	191			3237	38		508	20
	2009	222			3714	52		599	41
	2010	250			4342	64		615	45
	2011	262	560 (240–880)	83 (10–300)	4221	63	470 (190–810)	602	48
Turkmenistan	2005					–			–
	2009	39			164	12		111	–
	2010	38			81	7.0		63	77
	2011	158	–	–	306	–	–	156	–
Ukraine	2005					–			–
	2009	3482			12007	88		6348	120
	2010	5336			9194	66		4840	95
	2011	4305	9 300 (8 500–10 000)	4 400 (3 800–5 100)	10352	61	4 800 (4 400–5 300)	4413	40
United Kingdom of Great Britain and Northern Ireland	2005	39			3428	100		271	59
	2009	58			3957	150		364	–
	2010	60			3970	150		247	43
	2011	81	71 (55–87)	54 (42–70)	4549	95	16 (8.7–27)	234	45
Uzbekistan	2005	86			0	0		435	4.8
	2009	654			571	12		732	30
	2010	1023			2845	60		1180	26
	2011	1385	3 000 (2 700–3 400)	2 400 (1 800–3 000)	484	9.5	670 (560–760)	123	11

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).

[b] BACT+VE = bacteriologically-positive cases.

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2011**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Albania	1995	0	0	0	0	19	40	30		0	1	0	0	13	20	16		1.8
	2000	2	19	21	14	24	19	16		3	11	10	8	8	5	11		2.1
	2005	0	26	21	16	31	20	37	0	0	3	9	5	5	5	18	0	3.4
	2010	0	28	17	14	16	16	15	0	2	11	7	6	3	2	8	0	2.7
	2011	0	29	26	18	30	9	22	0	1	14	10	6	2	1	12	0	2.9
Andorra	1995																	–
	2000	0	0	1	0	0	0	0										–
	2005	0	0	1	1	0	0	0	0	0	1	1	1	0	0	0	0	0.67
	2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
	2011	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	–
Armenia	1995	1	18	16	11	10	8	1		1	1	7	2	1	1			5.0
	2000	2	152	130	131	63	26	21		1	24	27	24	8	8	4		5.5
	2005	3	170	104	83	84	30	24	0	3	27	21	10	11	4	7	0	6.0
	2010	0	36	75	49	68	27	15	0	1	24	17	4	7	8	8	0	3.9
	2011	0	28	65	52	71	42	8	0	0	19	16	9	7	7	5	0	4.2
Austria	1995	4	37	95	82	89	71	73		6	22	52	32	21	18	59		2.1
	2000	1	17	30	59	42	23	41		1	11	22	12	11	6	22		2.5
	2005	1	32	23	22	41	24	30	0	0	13	11	8	3	5	10	0	3.5
	2010	0	4	4	12	13	8	10	0	1	5	4	2	2	5	6	0	2.0
	2011	0	8	11	9	13	11	13	0	0	11	6	4	1	3	4	0	2.2
Azerbaijan	1995	0	13	29	14	6	4	1		0	5	18	0	0	0	0		2.9
	2000	0	9	24	33	42	30	0		0	3	3	6	3	0	0		9.2
	2005	77	109	297	215	209	187	88	0	90	64	98	47	32	24	24	0	3.1
	2010	0	328	371	267	280	30	27		3	141	100	57	73	9	18		3.2
	2011																	–
Belarus	1995																	–
	2000																	–
	2005		71	180	273	287	118	62			25	53	50	43	11	62		4.1
	2010	0	65	173	224	293	163	58	0	1	28	52	56	37	28	91	0	3.3
	2011	1	53	156	228	290	138	48		3	37	67	47	39	27	83		3.0
Belgium	1995	3	23	49	63	52	54	102		3	12	24	32	17	10	34		2.6
	2000	3	20	57	39	55	32	56		6	15	15	19	4	13	27		2.6
	2005	1	26	50	32	27	15	47	0	2	27	31	15	12	4	23	0	1.7
	2010	4	20	39	30	29	21	19	0	6	13	18	19	11	5	10	0	2.0
	2011																	–
Bosnia and Herzegovina	1995	0	15	61	90	140	139	100		0	40	67	64	49	77	23		1.7
	2000	4	56	82	99	66	58	77		4	30	46	29	29	48	124		1.4
	2005	1	22	58	61	78	44	80	1	2	35	39	33	28	28	130	0	1.2
	2010	1	27	37	34	61	46	51	0	0	27	19	16	10	18	94	0	1.4
	2011	2	33	32	52	75	61	62	0	3	17	27	17	13	25	128	0	1.4
Bulgaria	1995																	–
	2000	0	13	16	20	3	9	10		0	11	14	7	3	4	6		1.6
	2005	9	98	150	195	195	150	136	0	9	90	111	59	29	37	70	0	2.3
	2010	1	40	115	143	133	90	65	0	3	42	59	43	23	15	34	0	2.7
	2011	2	38	100	110	122	92	61	0	2	41	40	36	28	14	30	0	2.7
Croatia	1995	6	38	97	210	132	178	141		10	50	57	57	38	60	130		2.0
	2000																	–
	2005	1	24	27	48	72	47	34	0	1	12	18	15	11	6	56	0	2.1
	2010	0	10	19	18	38	25	24		1	3	8	4	2	1	30		2.7
	2011	0	12	5	20	31	31	21	0	0	12	14	14	8	7	26	0	1.5
Cyprus	1995	0	1	1	0	1	1	2		0	1	1	1	2	0	1		1.0
	2000																	–
	2005	0	3	1	1	1	0	1	0	0	1	0	0	0	0	0	0	7.0
	2010	0	2	1	0	0	0	0	0	0	0	3	1	0	0	0	1	0.60
	2011																	–
Czech Republic	1995	2	10	22	83	88	53	90		0	9	11	20	13	19	88		2.2
	2000	0	7	31	52	89	61	59		0	15	13	9	10	7	57		2.7
	2005	0	8	24	57	55	45	46	0	0	3	14	16	7	5	28	0	3.2
	2010	0	12	19	36	29	29	19	0	0	6	10	11	7	2	20	0	2.6
	2011																	–
Denmark	1995	0	7	16	28	18	9	11		2	7	13	8	4	3	2		2.3
	2000	5	10	20	24	16	11	14		5	16	15	14	6	7	8		1.4
	2005	0	12	12	18	23	9	7	0	2	11	5	13	9	3	5	0	1.7
	2010	0	8	22	10	13	16	2	0	0	4	5	15	8	8	4	0	1.6
	2011																	–
Estonia	1995																	–
	2000	0	6	31	53	56	35	15		0	9	11	14	11	4	10		3.3
	2005	0	9	25	19	40	12	7	0	0	6	11	8	11	6	8	0	2.2
	2010	0	3	7	21	25	12	8	0	0	3	5	3	3	6	3	0	3.3
	2011	0	4	22	16	14	18	13	0	0	4	8	12	3	3	6	0	2.4
Finland	1995	1	1	10	25	28	24	61		1	1	6	7	4	10	65		1.6
	2000	0	3	8	22	19	28	53		0	1	5	3	4	6	49		2.0
	2005	1	5	4	3	14	11	25	0	0	3	4	1	0	6	20	0	1.9
	2010	0	10	6	8	9	8	18	0	0	3	2	4	1	2	11	0	2.6
	2011	0	1	4	4	7	11	27	0	1	2	3	5	3	1	13	0	1.9
France	1995	30	156	431	502	414	297	496		36	138	226	176	90	92	365		2.1
	2000	10	136	248	247	211	125	244		18	108	127	89	46	43	155		2.1
	2005	12	127	212	222	196	134	205	0	16	104	134	82	56	38	180	0	1.8
	2010	10	60	139	114	99	76	110	0	10	47	76	49	45	25	97	0	1.7
	2011																	–
Georgia	1995	2	20	30	25	40	18	12		2	8	17	17	18	7	5		2.0
	2000	4	76	111	113	63	45	28		1	49	37	33	17	10	5		2.9
	2005	0	226	272	268	207	76	60		4	109	105	58	46	17	47		2.9
	2010	5	340	529	341	264	143	77	0	5	135	118	62	52	28	41	0	3.9
	2011	5	271	478	333	251	139	93	0	8	136	132	59	32	35	54	0	3.4
Germany	1995	14	179	453	539	460	442	625		17	115	251	167	89	104	397		2.4
	2000																	–
	2005	6	59	113	171	167	92	167	0	4	51	104	73	43	37	103	0	1.9
	2010	1	43	92	97	141	87	136	0	3	44	63	61	38	26	76	0	1.9
	2011	1	43	95	106	141	68	127	0	2	44	90	59	54	26	85	0	1.6
Greece	1995																	–
	2000	1	10	22	32	24	19	46		0	2	9	10	5	6	25		2.7
	2005	1	14	25	22	14	12	23	5	0	13	18	8	7	2	17	0	1.8
	2010	1	19	27	20	18	19	22	3	3	2	13	4	4	4	15	1	2.8
	2011																	–
Greenland	1995																	–
	2000																	–
	2005																	–
	2010	0	5	7	5	5	2	2	0	1	5	0	0	4	2	0	0	2.2
	2011																	–
Hungary	1995																	–
	2000	0	8	24	85	104	58	27		1	7	17	19	22	10	30		2.9
	2005	0	6	24	67	117	67	39	0	1	5	13	11	22	15	33	0	3.2
	2010	1	9	15	36	51	52	23	0	0	9	16	14	9	15	20	0	2.3
	2011																	–

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2011**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Iceland	1995	0	0	0	0	0	0	1		0	0	0	0	0	0	1		1.0
	2000									0		1						–
	2005	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	–
	2010	0	0	1	0	3	0	0	0	0	0	1	1	0	0	0	0	2.0
	2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	–
Ireland	1995																	–
	2000	0	10	7	7	6	4	12		0	13	8	13	6	7	15		0.74
	2005	1	6	10	21	10	7	6	0	0	9	10	3	3	0	8	0	1.8
	2010	0	8	18	4	11	5	11	0	0	7	8	2	3	2	5	0	2.1
	2011	0	7	9	10	11	7	8	0	0	8	7	7	8	2	1	0	1.6
Israel	1995																	–
	2000	0	20	26	23	23	13	38	0	3	10	16	6	3	3	32	0	2.0
	2005	1	4	15	18	15	5	26	0	0	6	14	7	7	5	19	0	1.4
	2010	1	13	28	12	8	4	6	0	0	1	8	10	2	0	10	0	2.3
	2011	0	29	30	11	5	9	9	0	0	10	10	7	4	4	7	0	2.2
Italy	1995	9	59	202	157	94	124	289		7	52	93	57	40	51	168		2.0
	2000	12	63	96	75	58	54	112		6	38	58	33	13	19	39		2.3
	2005	8	93	191	137	101	61	115	24	3	80	145	56	25	19	70	9	1.8
	2010	14	40	75	66	32	31	58	2	25	41	57	41	22	22	54	6	1.2
	2011	13	32	47	50	36	23	58	1	10	31	51	40	17	14	52	1	1.2
Kazakhstan	1995																	–
	2000	36	1 057	1 409	1 379	923	439	218		84	999	1 079	599	275	202	204		1.6
	2005	31	917	1 142	983	795	274	175	0	46	751	767	436	286	121	187	0	1.7
	2010	15	675	754	595	511	251	127	0	33	566	520	263	205	122	132	0	1.6
	2011	6	602	716	516	515	235	91	0	15	439	495	260	190	109	117	0	1.6
Kyrgyzstan	1995	3	109	171	165	65	38	30		1	70	94	34	18	15	19		2.3
	2000	4	128	227	205	115	52	46		6	128	146	100	41	30	29		1.6
	2005	1	247	303	269	194	66	84	0	15	215	236	141	70	33	98	0	1.4
	2010	5	261	260	188	141	64	48	0	5	223	199	98	71	40	42	0	1.4
	2011	6	225	204	179	168	77	41	0	13	200	191	84	60	50	39	0	1.4
Latvia	1995	0	20	44	71	70	40	30		0	22	49	55	47	27	29		1.2
	2000	0	53	106	124	111	64	34		2	25	41	27	28	7	15		3.4
	2005	1	22	71	104	117	55	34	0	0	17	31	31	23	18	12	0	3.1
	2010	0	20	44	65	71	39	15	0	0	6	19	25	12	10	13	0	3.0
	2011	0	11	42	58	50	33	18	0	0	7	16	19	14	12	13	0	2.6
Lithuania	1995	4	46	132	225	176	90	77		5	6	53	45	32	16	42		3.8
	2000	1	38	97	145	155	74	68		0	20	37	39	32	22	48		2.9
	2005	0	42	118	186	187	108	67	0	1	25	41	57	49	23	54	0	2.8
	2010	1	34	75	128	157	89	54	0	1	20	36	31	43	18	32	0	3.0
	2011	1	25	52	126	158	77	55	0	0	20	31	37	38	16	45	0	2.6
Luxembourg	1995																	–
	2000																	–
	2005	0	0	2	2	1	1	2	0	0	0	2	1	1	1	0	0	1.6
	2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
	2011	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	3.0
Malta	1995	0	0	0	1	0	0	0		0	0	1	0	0	1	2		0.25
	2000	0	1	0	1	1	0	1										–
	2005	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	–
	2010	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	3.0
	2011	0	2	4	0	0	0	0	0	0	1	0	0	0	0	0	0	6.0
Monaco	1995																	–
	2000																	–
	2005																	–
	2010																	–
	2011																	–
Montenegro	2005	0	3	5	7	15	4	8	0	0	0	7	3	4	0	8	0	1.9
	2010	0	1	1	4	4	7	1	0	1	3	3	2	3	1	8	0	0.86
	2011	0	1	2	8	11	7	3	0	1	4	2	4	3	1	1	0	2.0
Netherlands	1995	22	79	119	75	28	9	10		24	56	50	13	10	8	7		2.0
	2000	0	34	63	41	25	10	21		4	29	22	16	9	5	10		2.0
	2005	0	23	42	23	26	14	19	0	3	14	19	11	9	1	4	0	2.4
	2010	0	22	29	22	20	9	17	0	1	9	14	13	5	4	11	0	2.1
	2011	2	22	35	19	23	14	13	0	2	13	13	7	7	4	3	0	2.6
Norway	1995	0	4	8	6	3	5	12		0	4	7	2	0	3	8		1.6
	2000	0	1	9	3	6	2	4		1	3	1			2	5		2.1
	2005	0	9	4	6	4	4	3	0	0	4	7	2	1	0	3	0	1.8
	2010	0	9	9	7	1	4	2	0	0	5	7	3	2	0	0	0	1.9
	2011																	–
Poland	1995	3	122	295	795	565	369	377		4	129	163	225	111	107	414		2.2
	2000	1	99	303	812	782	361	434		1	99	158	211	170	82	421		2.4
	2005	3	109	199	389	639	292	310	0	3	95	142	112	151	63	316	0	2.2
	2010	3	70	205	310	574	393	237	0	2	59	118	82	104	82	245	0	2.6
	2011	5	69	187	314	560	439	275	0	1	67	96	90	130	99	255	0	2.5
Portugal	1995	11	215	363	328	200	173	164		7	139	172	87	33	42	85		2.6
	2000	8	147	375	349	208	140	140		5	114	154	87	41	25	64		2.8
	2005	5	85	227	284	181	90	93	5	7	67	109	66	29	11	42	1	2.9
	2010	3	55	110	199	152	70	76	0	3	54	62	54	36	10	28	0	2.7
	2011																	–
Republic of Moldova	1995	0	55	115	166	95	65	15		2	42	38	31	19	10	12		3.3
	2000	2	52	31	36	13	13	6		1	16	32	45	23	14	6		1.1
	2005	2	211	337	345	313	106	31	0	3	97	92	57	61	23	18	0	3.8
	2010	0	119	243	244	248	113	21	0	6	47	90	46	47	23	20	0	3.5
	2011	2	94	257	250	267	107	21	0	3	66	79	51	41	20	14	0	3.6
Romania	1995	387	1 662	2 322	3 608	2 587	1 751	784		355	1 352	1 240	871	479	396	417		2.6
	2000	46	832	1 508	1 799	1 684	916	533		53	701	766	484	341	207	321		2.5
	2005	36	752	1 511	1 786	1 999	952	638	4	55	758	780	493	374	219	442	2	2.5
	2010	21	669	865	1 336	1 293	895	567	0	40	503	477	400	275	172	438	0	2.4
	2011	19	623	807	1 189	1 099	833	540	0	27	473	513	403	212	198	426	0	2.3
Russian Federation	1995																	–
	2000	1	295	526	596	402	151	54		1	43	73	74	38	31	44		6.7
	2005																	–
	2010	8	2 228	6 276	5 571	5 361	2 787	920	0	28	1 247	2 554	1 719	1 182	745	790	0	2.8
	2011	15	1 826	5 726	5 338	4 928	2 664	845		36	1 139	2 394	1 643	1 166	719	752		2.7
San Marino	1995																	–
	2000							1										–
	2005																	–
	2010																	–
	2011																	–
Serbia	2005	3	62	96	118	156	112	132	0	6	69	76	55	49	22	149	0	1.6
	2010	2	76	70	93	116	83	109	0	5	66	74	46	39	34	164	0	1.3
	2011	2	60	73	74	122	112	101	0	5	46	59	43	30	20	129	0	1.6
Serbia & Montenegro	1995	10	108	204	317	296	350	386		11	127	167	133	83	158	275		1.8
	2000																	–
Slovakia	1995	4	18	44	123	108	63	152		5	16	17	22	24	33	159		1.9
	2000	2	6	15	31	50	16	32		0	5	9	7	5	4	54		1.8
	2005	0	3	13	16	25	25	20	0	0	1	8	9	5	6	27	0	1.8
	2010	1	7	7	18	17	17	15	0	0	1	6	7	2	3	11	0	2.7
	2011	0	6	8	6	20	16	13	0	0	2	3	4	6	1	11	0	2.6

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2011**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Slovenia	1995	1	13	39	63	36	26	27		0	7	24	11	9	5	42		2.1
	2000	0	3	11	36	22	14	17		0	3	9	3	4	3	20		2.5
	2005	0	4	10	16	15	11	14	0	0	4	4	6	5	4	16	0	1.8
	2010	0	4	7	10	9	6	12	0	0	1	5	2	4	1	3	0	3.0
	2011	0	3	9	16	12	8	5	0	0	0	5	4	2	1	17	0	1.8
Spain	1995	22	132	337	242	150	112	228		23	90	129	64	39	34	98		2.6
	2000																	–
	2005	13	166	394	367	230	140	230	2	10	142	252	151	63	24	108	2	2.1
	2010	6	139	306	291	286	146	184	1	14	130	251	151	54	23	76	0	1.9
	2011	15	135	325	292	277	162	197	2	15	142	249	161	75	30	100	0	1.8
Sweden	1995	1	5	12	8	5	4	27		0	10	13	5	5	4	14		1.2
	2000	0	9	10	12	11	4	25		1	9	8	10	2	2	15		1.5
	2005	0	7	21	16	10	5	16	0	1	10	15	12	5	3	13	0	1.3
	2010	1	10	28	8	5	5	13	0	2	9	16	11	4	2	3	0	1.5
	2011	1	14	15	12	8	3	8	0	0	12	9	10	2	2	3	0	1.6
Switzerland	1995	0	12	23	26	23	13	27		1	13	20	9	1	2	15		2.0
	2000	0	5	17	10	7	6	6	0	1	8	11	7	2	1	5	0	1.5
	2005	2	8	10	11	11	2	7	0	0	6	11	8	3	1	4	0	1.5
	2010	0	6	12	9	6	5	8	0	0	7	15	6	4	1	3	0	1.3
	2011	2	8	16	10	13	7	3	0	2	6	13	2	4	2	2	0	1.9
Tajikistan	1995																	–
	2000																	–
	2005	8	308	279	164	104	54	48	0	26	225	185	151	89	43	53	0	1.2
	2010	12	398	366	214	129	93	74	0	23	320	272	111	109	87	82	0	1.3
	2011	8	343	365	181	128	75	77	0	31	314	229	104	100	105	114	0	1.2
The Former Yugoslav Republic of Macedonia	1995	2	15	42	45	33	29	24		2	32	30	20	11	17	17		1.5
	2000	5	8	14	20	19	20	14		1	15	14	17	5	5	10		1.5
	2005	2	14	20	23	20	18	13	1	2	17	13	10	7	5	13	0	1.7
	2010	0	6	19	24	24	12	11	0	0	9	12	7	7	4	6	0	2.1
	2011	3	17	11	19	21	10	6	0	1	14	9	6	3	1	11	0	1.9
Turkey	1995																	–
	2000																	–
	2005	33	1 148	1 295	1 028	963	534	429	0	50	699	474	243	175	166	213	0	2.7
	2010	23	631	779	703	778	514	407	0	33	485	384	193	141	101	203	0	2.5
	2011	22	550	693	608	696	482	412	0	25	409	385	195	117	121	212	0	2.4
Turkmenistan	1995	1	11	188	0	79	30	0		2	15	146	0	47	25	0		1.3
	2000	16	103	185	144	127	31	21		19	73	140	76	31	34	17		1.6
	2005	2	148	181	146	97	51	13	0	3	100	101	72	46	27	8	0	1.8
	2010	1	130	212	183	141	51	26		2	112	112	74	46	38	25		1.8
	2011																	–
Ukraine	1995	10	385	1 076	2 064	1 515	1 087	437		21	314	380	327	182	185	280		3.9
	2000	21	693	1 552	2 385	2 007	1 062	532		41	487	590	447	298	218	405		3.3
	2005																	–
	2010								7 417								2 559	2.9
	2011	8	539	1 991	2 209	1 796	881	377	0	11	348	741	603	388	230	380	0	2.9
United Kingdom of Great Britain and Northern Ireland	1995																	–
	2000	8	86	130	96	87	75	138		9	95	114	60	31	31	67		1.5
	2005	9	135	200	166	95	95	124	0	14	115	163	80	39	28	83	1	1.6
	2010	7	132	169	135	108	60	108	0	15	110	131	81	42	40	58	0	1.5
	2011	3	137	193	137	97	69	100	0	19	120	129	75	45	26	49	0	1.6
Uzbekistan	1995																	–
	2000	6	351	749	510	346	213	107		11	261	547	288	213	112	111		1.5
	2005	25	596	831	723	522	263	313		40	538	597	375	288	217	367		1.4
	2010	8	487	574	529	479	293	297	0	22	365	512	308	248	239	350	0	1.3
	2011	8	378	493	453	440	306	253	0	11	335	418	233	245	293	332	0	1.2

TABLE A4.9 **Laboratories, NTP services, drug management and infection control, 2011**

	LABORATORIES								FREE THROUGH NTP			
	SMEAR LABS PER 100K POPULATION	% OF SMEAR LABS USING LED[a]	CULTURE LABS PER 5M POPULATION	DST[b] LABS PER 5M POPULATION	LPA[c] LABS PER 5M POPULATION	NUMBER OF LABS USING XPERT MTB/RIF	SECOND-LINE DST AVAILABLE	NRL[d]	TB DIAGNOSIS	FIRST-LINE DRUGS	RIFAMPICIN USED THROUGHOUT TREATMENT	TB NOTIF. RATE PER 100 000 HEALTH-CARE WORKERS
Albania	0.5	0	1.6	1.6	1.6	0	No	yes	Yes (if TB is confirmed)	yes	Yes	
Andorra	9.3	–	464.2	464.2			In and out of country	yes	Yes (all suspects)	yes	Yes	
Armenia	1.0	0	1.6	1.6	1.6	0	In country	yes	Yes (all suspects)	yes	Yes	
Austria		–										
Azerbaijan	0.7	–	3.2	1.1	1.1	1		yes	Yes (all suspects)	yes	Yes	
Belarus	2.1	2	21.4	10.5	0.5	0	In country	yes	Yes (all suspects)	yes	Yes	49
Belgium	1.1	–	53.0	7	3.7	6		yes	Yes (all suspects)	yes	Yes	
Bosnia and Herzegovina	0.4	13	17.3	5.3	4	0	Out of country	yes	Yes (all suspects)	yes	Yes	
Bulgaria	0.5	–	22.2	8.7	2	0	In country	yes	Yes (all suspects)	yes	Yes	
Croatia	0.3	0	15.9	6.8	1.1	1		yes	Yes (all suspects)	yes	Yes	
Cyprus		–										
Czech Republic	0.5	–	22.8	8.1	8.1		In country	yes	Yes (all suspects)	yes	Yes	
Denmark		–										
Estonia	0.4	40	7.5	7.5	7.5	2	In country	yes	Yes (all suspects)	yes	Yes	12
Finland	0.4	–	10.2	0.9	4.6	3		yes	Yes (all suspects)	yes	Yes	
France		–					In country	yes	Yes (all suspects)	yes	Yes	
Georgia	0.7	–	2.3	1.2	1.2	1	In country	yes	Yes (all suspects)	yes	Yes	
Germany	0.3	–	11.5	5.1				yes	Yes (all suspects)	yes	Yes	
Greece		–										
Greenland		–										
Hungary	0.1	0	6.5	3.5	1	2	In country	yes	Yes (all suspects)	yes	Yes	
Iceland	0.3	100	15.4	15.4	15.4	0	Out of country	yes	Yes (if TB is confirmed)	yes	Yes	
Ireland	0.3	8	14.4	3.3	3.3	2	Out of country	yes	Yes (all suspects)	No	Yes	
Israel	0.3	–	12.6	1.3	0.7	1	In country	yes	Yes (all suspects)	yes	Yes	
Italy		–										
Kazakhstan	2.9	0	30.9	6.8	3.1	0	No	yes	Yes (all suspects)	yes	Yes	
Kyrgyzstan	2.3	0	3.7	2.8				yes	Yes (all suspects)	yes	Yes	
Latvia	0.7	0	8.9	2.2	2.2	1	In country	yes	Yes (all suspects)	yes	Yes	
Lithuania	0.4	0	9.1	9.1	3	5	In and out of country	yes	Yes (all suspects)	yes	Yes	32
Luxembourg	0.2	100	9.7	9.7	9.7	1	Out of country	yes	Yes (all suspects)	yes	Yes	
Malta	0.2	–	12.0	0	0		Out of country	No	Yes (all suspects)	yes	Yes	
Monaco		–										
Montenegro	0.2	0	7.9	7.9	0	0	Out of country	No	Yes (if TB is confirmed)	yes	Yes	
Netherlands	0.3	–	11.1	3	0.3	2	In country	yes	Yes (all suspects)	No	Yes	
Norway	0.4	0	10.2	3	4.1	0	In and out of country	yes	Yes (all suspects)	yes	Yes	
Poland	0.2	0	11.1	6.1	1.4	3	In country	yes	Yes (all suspects)	yes	Yes	
Portugal		–										
Republic of Moldova	1.7	–	5.6	5.6	4.2			yes	Yes (all suspects)	yes	Yes	
Romania	0.5	0	16.3	10	0	0	In country	yes	Yes (all suspects)	yes	Yes	57
Russian Federation	2.6	–	4.1				In country	No	Yes (all suspects)	yes	Yes	185
San Marino		–										
Serbia	0.3	0	14.7	2	0.5	0	Out of country	yes	Yes (if TB is confirmed)	yes	Yes	11
Slovakia	<0.1	80	4.6	1.8	0	0	In country	yes	Yes (all suspects)	yes	Yes	
Slovenia	0.1	0	7.4	2.5	2.5	1	In and out of country	yes	Yes (all suspects)	yes	Yes	
Spain		–						yes	Yes (all suspects)	yes	Yes	
Sweden	<0.1	40	2.6	2.6	2.6	0	In country	yes	Yes (all suspects)	yes	Yes	
Switzerland	0.5	–	15.6	6.5	0	14	In country	yes	No	No	Yes	
Tajikistan	1.3	0	2.1	0.7	1.4	2	Out of country	yes	Yes (if TB is confirmed)	yes	Yes	37
The Former Yugoslav Republic of Macedonia	0.4	0	12.1	2.4	0	0	Out of country	yes	Yes (if TB is confirmed)	yes	Yes	7
Turkey	0.5	–	10.6	4.8	0.6	18	In country	yes	Yes (all suspects)	yes	Yes	27
Turkmenistan		–										
Ukraine	1.9	–	9.1	4.6	0	0		yes	Yes (all suspects)	yes	Yes	64
United Kingdom of Great Britain and Northern Ireland	0.3	–	10.1	1.7	1	16	In country	yes	Yes (all suspects)	yes	Yes	
Uzbekistan	1.2	1	1.3	0.4	0.5	0	In country	yes	Yes (all suspects)	yes	Yes	47

[a] LED = Light emitting diode microscopes
[b] DST = Drug susceptibility testing
[c] LPA = Line probe assay
[d] NRL = National Reference Laboratory

SOUTH-EAST ASIA REGION

Table A4.1 Estimates of the burden of disease caused by TB, 1990–2011 241

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Estimates of mortality, prevalence and incidence

Estimated values are shown as best estimates followed by lower and upper bounds. The lower and upper bounds are defined as the 2.5th and 97.5th centiles of outcome distributions produced in simulations. See Annex 1 for further details.

Estimated numbers are shown rounded to two significant figures. Estimated rates are shown rounded to three significant figures unless the value is under 100, in which case rates are shown rounded to two significant figures. Blank cells indicate that estimates are not available.

Estimates for all years are recalculated as new information becomes available and techniques are refined, so they may differ from those published in previous reports in this series. Estimates published in previous global TB control reports should no longer be used.

Data source

Data shown in this annex are taken from the WHO global TB database on 25 September 2012. Data shown in the main part of the report were taken from the database in July 2012. As a result, data in this annex may differ slightly from those in the main part of the report.

Data can be downloaded from **www.who.int/tb/data**.

Country notes

India

Estimates for India have not yet been officially approved by the Ministry of Health and Family Welfare, Government of India and should therefore be considered provisional.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2011**

			MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
Bangladesh	1990	105	64 (21–130)	61 (20–124)	530 (190–1 000)	501 (183–974)	240 (150–350)	225 (139–331)
	1995	117	70 (27–130)	60 (23–114)	580 (270–1 000)	496 (227–868)	260 (220–320)	225 (184–270)
	2000	130	74 (29–140)	57 (22–108)	620 (290–1 100)	481 (222–838)	290 (240–350)	225 (184–270)
	2005	141	71 (29–130)	51 (21–94)	620 (300–1 100)	444 (211–762)	320 (260–380)	225 (184–270)
	2009	147	68 (28–120)	46 (19–84)	610 (300–1 000)	416 (202–707)	330 (270–400)	225 (184–269)
	2010	149	68 (29–120)	45 (19–83)	610 (300–1 000)	413 (199–704)	330 (270–400)	225 (185–268)
	2011	150	68 (29–120)	45 (19–82)	620 (300–1 100)	411 (199–698)	340 (280–400)	225 (185–268)
Bhutan	1990	< 1	1.2 (0.470–2.3)	219 (84–416)	10 (4.5–17)	1 780 (813–3 120)	4.4 (3.8–5.0)	784 (673–903)
	1995	< 1	0.68 (0.280–1.3)	131 (54–241)	5.9 (2.8–9.9)	1 130 (547–1 920)	2.9 (2.5–3.4)	561 (482–646)
	2000	< 1	0.44 (0.190–0.790)	78 (34–139)	4.1 (2.0–6.9)	718 (358–1 200)	2.3 (2.0–2.6)	402 (345–463)
	2005	< 1	0.36 (0.160–0.640)	55 (24–97)	3.3 (1.7–5.6)	505 (251–846)	1.9 (1.6–2.2)	287 (247–331)
	2009	< 1	0.22 (0.100–0.390)	31 (14–54)	2.3 (1.1–4.0)	326 (154–561)	1.6 (1.3–1.8)	220 (189–253)
	2010	< 1	0.18 (0.079–0.310)	24 (11–43)	2 (0.880–3.6)	279 (121–502)	1.5 (1.3–1.7)	206 (177–237)
	2011	< 1	0.13 (0.047–0.250)	17 (6.3–34)	1.7 (0.600–3.4)	230 (81–454)	1.4 (1.2–1.6)	192 (165–222)
Democratic People's Republic of Korea	1990	20	4.7 (4.4–5.1)	23 (22–25)	150 (56–300)	768 (278–1 500)	69 (43–100)	344 (212–508)
	1995	22	4.4 (4.1–4.8)	20 (19–22)	160 (74–280)	738 (341–1 280)	75 (61–90)	344 (282–414)
	2000	23	3.9 (3.6–4.2)	17 (16–18)	150 (73–260)	669 (318–1 150)	79 (64–95)	344 (282–414)
	2005	24	3.3 (3.0–3.5)	14 (13–15)	140 (66–240)	582 (277–999)	82 (67–98)	344 (282–414)
	2009	24	2.2 (2.1–2.3)	9 (8.5–9.6)	100 (38–200)	431 (156–842)	84 (72–96)	345 (296–398)
	2010	24	1.9 (1.7–2.0)	7.7 (7.1–8.3)	92 (27–200)	377 (111–804)	84 (72–97)	345 (296–397)
	2011	24	1.6 (1.4–1.7)	6.4 (5.9–6.9)	100 (31–220)	422 (126–892)	84 (72–97)	345 (296–397)
India	1990	874	340 (220–480)	38 (25–55)	4 100 (3 600–4 500)	465 (415–518)	1 900 (1 600–2 200)	216 (182–254)
	1995	964	370 (240–530)	38 (25–55)	4 500 (4 000–5 000)	465 (414–519)	2 100 (1 800–2 400)	216 (189–245)
	2000	1 054	410 (260–590)	39 (25–56)	4 600 (4 000–5 300)	438 (382–498)	2 300 (2 100–2 500)	216 (195–239)
	2005	1 140	410 (290–540)	36 (26–48)	4 200 (3 400–5 100)	365 (295–443)	2 400 (2 100–2 600)	209 (188–231)
	2009	1 208	350 (220–500)	29 (18–41)	3 500 (2 500–4 700)	289 (204–388)	2 300 (2 100–2 500)	190 (171–210)
	2010	1 225	320 (210–470)	27 (17–38)	3 300 (2 200–4 600)	269 (181–374)	2 300 (2 100–2 500)	185 (167–204)
	2011	1 241	300 (190–430)	24 (15–35)	3 100 (2 100–4 300)	249 (168–346)	2 200 (2 000–2 500)	181 (163–199)
Indonesia	1990	184	98 (36–190)	53 (19–104)	820 (350–1 500)	445 (188–810)	380 (270–500)	206 (149–271)
	1995	199	120 (44–240)	61 (22–119)	970 (410–1 800)	485 (205–882)	410 (320–510)	205 (159–256)
	2000	213	120 (45–230)	56 (21–107)	970 (440–1 700)	457 (204–809)	440 (350–530)	204 (164–249)
	2005	227	85 (36–150)	37 (16–68)	790 (380–1 400)	349 (165–599)	450 (360–550)	199 (160–242)
	2009	237	68 (30–120)	29 (13–51)	700 (320–1 200)	293 (136–509)	450 (370–540)	191 (158–227)
	2010	240	66 (29–120)	28 (12–49)	680 (320–1 200)	285 (132–496)	450 (380–540)	189 (156–224)
	2011	242	65 (29–120)	27 (12–48)	680 (310–1 200)	281 (130–489)	450 (370–540)	187 (155–222)
Maldives	1990	< 1	0.049 (0.042–0.058)	23 (19–26)	0.66 (0.240–1.3)	299 (107–586)	0.33 (0.200–0.480)	150 (92–221)
	1995	< 1	0.027 (0.023–0.031)	11 (9.1–13)	0.38 (0.170–0.670)	152 (68–269)	0.26 (0.220–0.300)	105 (90–122)
	2000	< 1	0.018 (0.013–0.024)	6.6 (4.7–8.8)	0.3 (0.130–0.540)	110 (49–196)	0.2 (0.160–0.240)	74 (60–89)
	2005	< 1	<0.01 (<0.01–<0.01)	2.2 (1.8–2.6)	0.22 (0.090–0.390)	73 (30–133)	0.15 (0.130–0.180)	52 (42–62)
	2009	< 1	<0.01 (<0.01–<0.01)	1.8 (1.5–2.1)	0.16 (0.065–0.300)	51 (21–95)	0.12 (0.110–0.140)	39 (34–44)
	2010	< 1	<0.01 (<0.01–<0.01)	2.1 (1.7–2.4)	0.15 (0.059–0.280)	47 (19–88)	0.11 (0.098–0.130)	36 (31–41)
	2011	< 1	<0.01 (<0.01–<0.01)	2.5 (2.1–2.9)	0.14 (0.056–0.260)	44 (18–83)	0.11 (0.093–0.120)	34 (29–39)
Myanmar	1990	39	44 (16–88)	113 (40–223)	350 (160–610)	894 (414–1 550)	150 (110–200)	393 (290–512)
	1995	42	48 (17–94)	115 (41–224)	370 (180–630)	881 (421–1 500)	170 (130–210)	404 (314–505)
	2000	45	47 (18–89)	104 (39–199)	370 (190–620)	831 (415–1 390)	190 (150–220)	412 (333–498)
	2005	46	31 (13–55)	66 (29–118)	300 (150–490)	647 (333–1 060)	190 (160–220)	403 (340–472)
	2009	48	24 (11–42)	50 (23–87)	260 (200–330)	544 (420–685)	180 (160–210)	388 (335–445)
	2010	48	23 (11–41)	49 (22–85)	250 (190–320)	525 (404–661)	180 (160–210)	384 (329–444)
	2011	48	23 (11–40)	48 (22–84)	240 (190–310)	506 (390–637)	180 (160–210)	381 (326–439)
Nepal	1990	19	7.9 (2.6–16)	41 (14–85)	67 (24–130)	349 (128–679)	31 (19–46)	163 (101–241)
	1995	22	6.5 (2.8–12)	30 (13–55)	61 (29–100)	284 (137–485)	35 (29–42)	163 (133–196)
	2000	24	5.6 (2.4–10)	23 (9.8–41)	59 (26–110)	242 (107–431)	40 (33–48)	163 (133–196)
	2005	27	6 (2.6–11)	22 (9.4–40)	65 (28–120)	237 (104–424)	45 (36–53)	163 (133–196)
	2009	29	6.7 (2.9–12)	23 (9.8–41)	71 (32–130)	241 (108–427)	48 (39–57)	163 (134–195)
	2010	30	6.9 (3.0–12)	23 (10–41)	73 (33–130)	242 (109–427)	49 (40–58)	163 (135–194)
	2011	30	7 (3.1–13)	23 (10–41)	74 (33–130)	243 (110–428)	50 (41–59)	163 (135–194)
Sri Lanka	1990	17	1.3 (0.710–2.0)	7.3 (4.1–11)	19 (6.4–39)	110 (37–223)	11 (7.2–17)	66 (42–96)
	1995	18	1.7 (1.0–2.6)	9.4 (5.6–14)	21 (10–37)	118 (56–201)	12 (9.9–14)	66 (54–79)
	2000	19	1.9 (1.1–2.8)	9.9 (5.9–15)	20 (9.4–35)	107 (50–185)	12 (10–15)	66 (54–79)
	2005	20	1.4 (0.820–2.2)	7.3 (4.1–11)	20 (9.2–36)	102 (46–179)	13 (11–16)	66 (54–79)
	2009	21	1.2 (0.670–1.8)	5.7 (3.2–8.9)	21 (9.6–37)	101 (46–178)	14 (11–16)	66 (54–79)
	2010	21	1.1 (0.650–1.8)	5.5 (3.1–8.6)	21 (9.6–37)	101 (46–177)	14 (11–16)	66 (55–79)
	2011	21	1.1 (0.640–1.8)	5.4 (3.0–8.3)	21 (9.7–37)	101 (46–176)	14 (11–17)	66 (55–79)
Thailand	1990	57	11 (4.8–20)	19 (8.5–34)	110 (55–190)	199 (96–337)	79 (65–94)	138 (114–164)
	1995	60	11 (4.7–20)	19 (7.9–34)	110 (55–180)	182 (92–301)	78 (64–92)	130 (107–155)
	2000	63	20 (7.9–37)	31 (13–58)	170 (85–300)	276 (135–468)	110 (89–130)	171 (141–203)
	2005	67	15 (6.6–28)	23 (9.9–41)	150 (75–250)	226 (112–380)	100 (85–120)	154 (127–184)
	2009	69	11 (4.9–20)	16 (7.2–29)	120 (58–210)	178 (85–304)	91 (75–110)	132 (109–157)
	2010	69	11 (4.6–19)	15 (6.7–27)	120 (55–200)	169 (79–293)	89 (73–110)	128 (106–153)
	2011	70	9.8 (4.2–18)	14 (6.1–25)	110 (51–200)	161 (73–282)	86 (71–100)	124 (102–147)
Timor-Leste	2005	1	0.66 (0.270–1.2)	65 (27–120)	7.3 (3.1–13)	719 (304–1 310)	5 (4.1–6.1)	498 (406–601)
	2009	1	0.71 (0.290–1.3)	64 (27–118)	7.8 (3.3–14)	710 (299–1 290)	5.5 (4.5–6.6)	498 (407–598)
	2010	1	0.68 (0.280–1.3)	60 (24–112)	7.7 (3.1–14)	688 (279–1 280)	5.6 (4.6–6.7)	498 (409–596)
	2011	1	0.72 (0.300–1.3)	63 (26–115)	8.1 (3.3–15)	701 (290–1 290)	5.7 (4.7–6.9)	498 (409–596)

[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2011**

			INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE		CASE DETECTION
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
Bangladesh	1990	105	240 (150–350)	225 (139–331)	0.067 (0.041–0.099)	<0.1 (<0.1–<0.1)	48 673	46	21 (14–33)
	1995	117	260 (220–320)	225 (184–270)	0.089 (0.039–0.160)	<0.1 (<0.1–0.14)	56 437	48	21 (18–26)
	2000	130	290 (240–350)	225 (184–270)	0.19 (0.089–0.320)	0.1 (<0.1–0.25)	75 557	58	26 (22–32)
	2005	141	320 (260–380)	225 (184–270)	0.39 (0.200–0.640)	0.3 (0.14–0.45)	123 118	88	39 (32–48)
	2009	147	330 (270–400)	225 (184–269)	0.56 (0.300–0.900)	0.4 (0.20–0.61)	160 875	109	49 (41–59)
	2010	149	330 (270–400)	225 (185–268)	0.6 (0.320–0.960)	0.4 (0.22–0.64)	153 892	103	46 (39–56)
	2011	150	340 (280–400)	225 (185–268)	0.63 (0.340–1.0)	0.4 (0.23–0.67)	150 899	100	45 (37–54)
Bhutan	1990	< 1	4.4 (3.8–5.0)	784 (673–903)	<0.01 (<0.01–<0.01)	0.1 (0.12–0.16)	1 154	207	26 (23–31)
	1995	< 1	2.9 (2.5–3.4)	561 (482–646)	<0.01 (<0.01–<0.01)	0.4 (0.18–0.64)	1 299	250	45 (39–52)
	2000	< 1	2.3 (2.0–2.6)	402 (345–463)	<0.01 (<0.01–<0.01)	1.1 (0.61–1.6)	1 140	200	50 (43–58)
	2005	< 1	1.9 (1.6–2.2)	287 (247–331)	0.019 (0.012–0.027)	2.8 (1.9–4.0)	1 007	153	53 (46–62)
	2009	< 1	1.6 (1.3–1.8)	220 (189–253)	0.039 (0.028–0.052)	5.4 (3.9–7.3)	1 125	158	72 (62–84)
	2010	< 1	1.5 (1.3–1.7)	206 (177–237)	0.045 (0.032–0.059)	6.2 (4.5–8.1)	1 311	181	88 (76–100)
	2011	< 1	1.4 (1.2–1.6)	192 (165–222)	0.05 (0.037–0.066)	6.8 (5.0–8.9)	1 235	167	87 (75–100)
Democratic People's Republic of Korea	1990	20	69 (43–100)	344 (212–508)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)			
	1995	22	75 (61–90)	344 (282–414)	0.052 (0.025–0.089)	0.2 (0.11–0.41)			
	2000	23	79 (64–95)	344 (282–414)	0.089 (0.045–0.150)	0.4 (0.20–0.64)	34 131	149	43 (36–53)
	2005	24	82 (67–98)	344 (282–414)	0.11 (0.054–0.170)	0.4 (0.23–0.73)	42 722	180	52 (43–64)
	2009	24	84 (72–96)	345 (296–398)	0.11 (0.059–0.180)	0.5 (0.24–0.74)	76 336	315	91 (79–110)
	2010	24	84 (72–97)	345 (296–397)	0.11 (0.060–0.180)	0.5 (0.25–0.75)	84 648	348	100 (88–120)
	2011	24	84 (72–97)	345 (296–397)	0.11 (0.061–0.190)	0.5 (0.25–0.76)	91 433	374	110 (94–130)
India	1990	874	1 900 (1 600–2 200)	216 (182–254)	11 (9.3–13)	1.3 (1.1–1.5)	1 519 182	174	80 (69–96)
	1995	964	2 100 (1 800–2 400)	216 (189–245)	60 (43–78)	6.2 (4.5–8.1)	1 218 183	126	58 (51–67)
	2000	1 054	2 300 (2 100–2 500)	216 (195–239)	120 (94–150)	11 (8.9–14)	1 115 718	106	49 (44–54)
	2005	1 140	2 400 (2 100–2 600)	209 (188–231)	130 (98–160)	11 (8.6–14)	1 156 248	101	49 (44–54)
	2009	1 208	2 300 (2 100–2 500)	190 (171–210)	100 (80–130)	8.6 (6.6–11)	1 351 913	112	59 (53–65)
	2010	1 225	2 300 (2 100–2 500)	185 (167–204)	99 (76–120)	8.1 (6.2–10)	1 339 866	109	59 (54–65)
	2011	1 241	2 200 (2 000–2 500)	181 (163–199)	94 (72–120)	7.6 (5.8–9.6)	1 323 949	107	59 (54–65)
Indonesia	1990	184	380 (270–500)	206 (149–271)	<0.01 (0–<0.01)	0 (0–0)	74 470	40	20 (15–27)
	1995	199	410 (320–510)	205 (159–256)	<0.01 (<0.01–0.017)	0 (0–<0.1)	35 529	18	8.7 (7.0–11)
	2000	213	440 (350–530)	204 (164–249)	0.21 (0.095–0.370)	0.1 (<0.1–0.17)	84 591	40	19 (16–24)
	2005	227	450 (360–550)	199 (160–242)	5.2 (3.3–7.4)	2.3 (1.5–3.3)	254 601	112	56 (46–70)
	2009	237	450 (370–540)	191 (158–227)	12 (8.5–16)	5.1 (3.6–6.8)	292 754	123	65 (54–78)
	2010	240	450 (380–540)	189 (156–224)	14 (9.6–18)	5.7 (4.0–7.6)	300 659	125	66 (56–80)
	2011	242	450 (370–540)	187 (155–222)	15 (11–20)	6.2 (4.4–8.3)	318 949	132	70 (59–85)
Maldives	1990	< 1	0.33 (0.200–0.480)	150 (92–221)	<0.01 (<0.01–<0.01)	0.5 (0.30–0.71)	152	69	46 (31–75)
	1995	< 1	0.26 (0.220–0.300)	105 (90–122)	<0.01 (<0.01–<0.01)	0.4 (0.22–0.56)	231	93	88 (76–100)
	2000	< 1	0.2 (0.160–0.240)	74 (60–89)	<0.01 (<0.01–<0.01)	0.3 (0.15–0.39)	132	48	65 (55–80)
	2005	< 1	0.15 (0.130–0.180)	52 (42–62)	<0.01 (<0.01–<0.01)	0.2 (<0.1–0.24)	122	41	80 (67–97)
	2009	< 1	0.12 (0.110–0.140)	39 (34–44)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.15)	100	32	82 (72–95)
	2010	< 1	0.11 (0.098–0.130)	36 (31–41)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.13)	95	30	83 (73–97)
	2011	< 1	0.11 (0.093–0.120)	34 (29–39)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.12)	87	27	81 (70–94)
Myanmar	1990	39	150 (110–200)	393 (290–512)	2.8 (2.0–3.6)	7 (5.2–9.2)	12 416	32	8 (6.2–11)
	1995	42	170 (130–210)	404 (314–505)	8.2 (5.8–11)	20 (14–26)	18 229	43	11 (8.6–14)
	2000	45	190 (150–220)	412 (333–498)	16 (12–20)	35 (26–45)	30 840	69	17 (14–21)
	2005	46	190 (160–220)	403 (340–472)	19 (15–24)	41 (32–51)	107 009	231	57 (49–68)
	2009	48	180 (160–210)	388 (335–445)	17 (13–21)	36 (28–44)	128 343	270	69 (61–80)
	2010	48	180 (160–210)	384 (329–444)	16 (13–20)	34 (27–43)	131 590	274	71 (62–83)
	2011	48	180 (160–210)	381 (326–439)	18 (15–22)	38 (31–45)	136 737	283	74 (64–87)
Nepal	1990	19	31 (19–46)	163 (101–241)	<0.01 (<0.01–0.011)	<0.1 (<0.1–<0.1)	10 142	53	33 (22–53)
	1995	22	35 (29–42)	163 (133–196)	0.073 (0.045–0.110)	0.3 (0.21–0.50)	19 804	92	56 (47–69)
	2000	24	40 (33–48)	163 (133–196)	0.44 (0.310–0.590)	1.8 (1.3–2.4)	29 519	121	74 (62–91)
	2005	27	45 (36–53)	163 (133–196)	0.95 (0.700–1.2)	3.5 (2.6–4.5)	33 448	123	75 (63–92)
	2009	29	48 (39–57)	163 (134–195)	0.88 (0.650–1.2)	3 (2.2–3.9)	34 888	119	73 (61–88)
	2010	30	49 (40–58)	163 (135–194)	0.83 (0.600–1.1)	2.8 (2.0–3.7)	35 114	117	72 (60–87)
	2011	30	50 (41–59)	163 (135–194)	0.78 (0.570–1.0)	2.5 (1.9–3.3)	35 434	116	71 (60–86)
Sri Lanka	1990	17	11 (7.2–17)	66 (42–96)	0.016 (0.010–0.024)	0.1 (<0.1–0.14)	6 666	38	58 (40–92)
	1995	18	12 (9.9–14)	66 (54–79)	0.031 (0.016–0.051)	0.2 (<0.1–0.28)	5 956	33	49 (41–60)
	2000	19	12 (10–15)	66 (54–79)	0.055 (0.031–0.088)	0.3 (0.16–0.47)	8 413	45	68 (56–83)
	2005	20	13 (11–16)	66 (54–79)	0.094 (0.054–0.140)	0.5 (0.27–0.72)	9 249	47	70 (59–86)
	2009	21	14 (11–16)	66 (54–79)	0.14 (0.098–0.180)	0.7 (0.47–0.88)	9 314	45	68 (57–83)
	2010	21	14 (11–16)	66 (55–79)	0.14 (0.083–0.210)	0.7 (0.40–0.99)	9 547	46	69 (58–84)
	2011	21	14 (11–17)	66 (55–79)	0.15 (0.090–0.220)	0.7 (0.43–1.1)	9 755	46	70 (59–85)
Thailand	1990	57	79 (65–94)	138 (114–164)	11 (8.7–13)	19 (15–23)	46 510	81	59 (50–71)
	1995	60	78 (64–92)	130 (107–155)	21 (17–26)	36 (29–44)	45 428	76	59 (49–71)
	2000	63	110 (89–130)	171 (141–203)	25 (20–31)	40 (32–49)	34 187	54	32 (27–38)
	2005	67	100 (85–120)	154 (127–184)	19 (15–24)	28 (22–35)	57 895	87	56 (47–68)
	2009	69	91 (75–110)	132 (109–157)	15 (12–18)	22 (18–26)	63 975	93	71 (59–85)
	2010	69	89 (73–110)	128 (106–153)	14 (12–17)	21 (17–25)	66 397	96	75 (63–91)
	2011	70	86 (71–100)	124 (102–147)	13 (10–15)	18 (15–22)	65 824	95	76 (64–93)
Timor-Leste	2005	1	5 (4.1–6.1)	498 (406–601)			3 767	373	75 (62–92)
	2009	1	5.5 (4.5–6.6)	498 (407–598)			4 748	432	87 (72–110)
	2010	1	5.6 (4.6–6.7)	498 (409–596)					
	2011	1	5.7 (4.7–6.9)	498 (409–596)			4 386	380	76 (64–93)

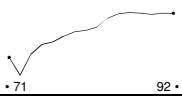
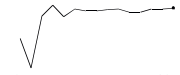
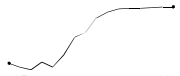
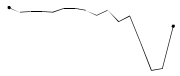
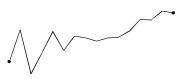
[a] Rates are per 100 000 population.

TABLE A4.3 **Case notifications, 1990–2011**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2011	YEAR	NEW AND RELAPSE	NEW CASES				RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
				SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN	EXTRA-PULMONARY	OTHER					
Bangladesh		1990	48 673									–
		1995	56 437	20 524	19 297	2 060		729		729		52
		2000	75 557	38 484	29 396	5 914		1 763		1 763		57
		2005	123 118	84 848	23 076	11 318		3 876		3 876		79
		2009	160 875	109 402	25 375	21 999		4 099		4 099		81
		2010	153 892	105 772	21 625	23 506	0	2 989	4 806	7 795	0	83
	• 46 100 •	2011	150 899	98 948	21 921	27 329	0	2 701	4 665	7 366	3 459	82
Bhutan		1990	1 154									–
		1995	1 299	367	657	265		10		10		36
		2000	1 140	347	430	363		36		36		45
		2005	1 007	308	272	387		40	11	51		53
		2009	1 125	434	285	355	0	51	25	76	0	60
		2010	1 311	457	275	518	0	61	21	82	0	62
	• 207 167 •	2011	1 235	382	225	573	0	55	15	70	0	63
Democratic People's Republic of Korea		1990										–
		1995										–
		2000	34 131	16 440	13 801	3 787		103		103		54
		2005	42 722	17 796	18 123	5 381	58	1 364	7 752	9 116		50
		2009	76 336	29 366	32 491	12 232	0	2 247	12 329	14 576		47
		2010	84 648	31 240	36 285	13 715		3 408	11 650	15 058		46
	• 0 374 •	2011	91 433	31 279	37 457	16 828		5 869	7 638	13 507		46
India		1990	1 519 182									–
		1995	1 218 183	264 515	880 589	68 979		690		690		23
		2000	1 115 718	349 374	650 345	98 006		17 993	80 072	98 065		35
		2005	1 156 248	508 890	399 066	171 838	1 381	75 073	148 580	223 653	0	56
		2009	1 351 913	624 617	384 113	233 026	1 796	108 361	181 395	289 756		62
		2010	1 339 866	630 165	366 381	231 121	1 508	110 691	182 281	292 972		63
	• 174 107 •	2011	1 323 949	642 321	340 203	226 965	1 952	112 508	191 923	304 431		65
Indonesia		1990	74 470									–
		1995	35 529	31 768	34	0		106		106		100
		2000	84 591	52 338	15 035	833		1 448		1 448		78
		2005	254 601	158 640	85 373	6 142		4 446		4 446		65
		2009	292 754	169 213	108 616	11 215		3 710	1 978	5 688		61
		2010	300 659	183 366	101 247	11 659	0	4 387	2 202	6 589	0	64
	• 40 132 •	2011	318 949	197 797	101 750	14 054		5 348	2 359	7 707		66
Maldives		1990	152									–
		1995	231	114	89	18		10		10		56
		2000	132	65	31	32		4	0	4		68
		2005	122	66	23	29	0	4	1	5	0	74
		2009	100	45	13	41	0	1	4	5	0	78
		2010	95	41	20	33	0	1	2	3	0	67
	• 69 27 •	2011	87	47	12	28	0	0	1	1	0	80
Myanmar		1990	12 416									–
		1995	18 229	8 681	7 058	653		1 837		1 837		55
		2000	30 840	17 254	8 659	2 304		2 623		2 623		67
		2005	107 009	36 541	35 601	30 252		4 615	982	5 597		51
		2009	128 343	41 357	50 919	31 509		4 558	5 159	9 717		45
		2010	131 590	42 318	56 840	27 976		4 456	5 813	10 269		43
	• 32 283 •	2011	136 737	42 324	62 038	27 769		4 606	6 403	11 009		41
Nepal		1990	10 142									–
		1995	19 804	8 591	7 938	2 489		786		786		52
		2000	29 519	13 683	9 074	4 955		1 807		1 807		60
		2005	33 448	14 617	9 474	7 013	0	2 344	629	2 973		61
		2009	34 888	15 442	9 794	7 054		2 598	519	3 117		61
		2010	35 114	15 569	9 718	7 210	0	2 617	495	3 112	0	62
	• 53 116 •	2011	35 434	15 000	9 662	7 484	926	2 362	520	2 882	0	61
Sri Lanka		1990	6 666	2 769	3 241	656						46
		1995	5 956	3 049	1 677	982		248		248		65
		2000	8 413	4 314	2 261	1 561		277	372	649		66
		2005	9 249	4 868	2 198	1 917	0	266	244	510	202	69
		2009	9 314	4 764	1 996	2 358		196	213	409	261	70
		2010	9 547	4 635	2 145	2 548	0	219	161	380	387	68
	• 38 46 •	2011	9 755	4 490	2 405	2 612	0	248	147	395	426	65
Thailand		1990	46 510									–
		1995	45 428	20 273	22 606	1 419		1 130		1 130		47
		2000	34 187	17 754	12 439	2 953		1 041		1 041		59
		2005	57 895	29 762	18 837	7 501		1 795		1 795		61
		2009	63 975	32 810	20 058	9 143		1 964	1 965	3 929		62
		2010	66 397	33 450	20 927	10 135	0	1 885	1 111	2 996	731	62
	• 81 95 •	2011	65 824	33 169	20 726	10 014	0	1 915	1 852	3 767	0	62
Timor-Leste		2005	3 767	1 035	2 142	554		36	16	52		33
		2009	4 748	1 206	3 095	406	0	41	11	52	0	28
		2010										–
	380 •	2011	4 386	1 610	2 401	337	0	38	31	69	0	40

[a] Rates are per 100 000 population.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Bangladesh		1995	20 524	10 867	53	66	5	5	2	10	12
		2000	38 484	38 484	100	77	4	4	1	9	5
		2005	84 848	84 848	100	91	1	4	1	2	2
		2008	106 373	106 089	100	90	2	4	1	2	2
		2009	109 402	109 075	100	91	1	4	1	2	2
	• 71 92 •	2010	105 772	105 659	100	90	1	4	1	2	2
Bhutan		1995	367	433	118	78	20	0	0	1	1
		2000	347	347	100	75	15	4	3	3	0
		2005	308	340	110	84	7	5	3	1	0
		2008	351	354	101	89	2	3	3	0	3
		2009	434	434	100	86	6	3	3	2	0
	• 97 90 •	2010	457	454	99	87	3	3	3	1	2
Democratic People's Republic of Korea		1995			–						
		2000	16 440	14 571	89	73	9	3	7	5	3
		2005	17 796	17 796	100	84	5	2	4	2	2
		2008	28 026	28 026	100	83	6	2	4	2	2
		2009	29 366	29 366	100	85	5	2	4	2	2
	• 0 90 •	2010	31 240	31 240	100	86	4	3	4	2	1
India		1995	264 515	264 722	100	1	25	0	0	0	75
		2000	349 374	349 328	100	31	4	1	1	7	57
		2005	508 890	507 204	100	83	2	5	2	7	1
		2008	615 977	615 977	100	85	2	4	2	6	1
		2009	624 617	624 617	100	85	2	4	2	6	1
	• 25 88 •	2010	630 165	630 165	100	85	3	4	2	6	1
Indonesia		1995	31 768	3 018	10	73	18	2	0	6	1
		2000	52 338	52 338	100	70	17	2	1	4	5
		2005	158 640	158 640	100	83	8	2	1	4	2
		2008	166 376	166 376	100	83	8	2	1	4	2
		2009	169 213	169 213	100	84	7	2	1	4	2
	• 91 90 •	2010	183 366	183 366	100	84	7	2	1	4	3
Maldives		1995	114	114	100	96	2	3	0	0	0
		2000	65	59	91	97	0	2	0	0	2
		2005	66	70	106	86	0	6	0	3	6
		2008	53	53	100	45		4		11	40
		2009	45	45	100	47	0	2	2	4	44
	• 97 82 •	2010	41	44	107	82	0	9	2	0	7
Myanmar		1995	8 681	7 872	91	53	14	4	4	18	7
		2000	17 254	16 792	97	73	9	5	2	9	2
		2005	36 541	36 652	100	77	7	6	3	5	2
		2008	41 248	41 247	100	78	8	6	3	5	2
		2009	41 357	41 811	101	77	8	6	3	5	2
	• 67 86 •	2010	42 318	42 200	100	77	8	5	3	4	2
Nepal		1995	8 591	8 053	94	56	17	3	2	18	6
		2000	13 683	12 992	95	79	5	5	1	7	2
		2005	14 617	14 617	100	87	1	5	1	3	2
		2008	14 640	14 640	100	86	3	4	1	3	3
		2009	15 442	15 468	100	87	3	4	1	3	2
	• 73 90 •	2010	15 569	15 569	100	88	2	3	1	3	3
Sri Lanka		1995	3 049	3 058	100	75	4	3	0	13	4
		2000	4 314	4 314	100	75	4	4	1	15	2
		2005	4 868	4 841	99	83	3	5	1	6	1
		2008	4 683	4 646	99	81	4	6	2	7	1
		2009	4 764	4 754	100	83	3	6	2	4	3
	• 79 86 •	2010	4 635	4 635	100	83	4	7	1	4	1
Thailand		1995	20 273	20 273	100	36	28	2	0	9	24
		2000	17 754	23 061	130	65	3	8	2	7	15
		2005	29 762	29 919	101	70	5	8	2	7	9
		2008	28 788	33 078	115	76	7	7	2	4	4
		2009	32 810	27 597	84	81	5	7	1	3	2
	• 64 85 •	2010	33 450	30 317	91	79	6	7	2	3	2
Timor-Leste		2005	1 035	1 035	100	61	21	5	1	11	2
		2008	867	867	100	73	12	5	0	7	3
		2009	1 206		–						
	88 •	2010		1 530	–	80	8	4	1	4	4

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Bangladesh		1995	729	1 179	162	71	3	5	8	11	2
		2000	1 763	1 815	103	70	2	4	2	7	14
		2005	3 876	3 876	100	73	6	4	2	5	9
		2008	6 991		–						
		2009	4 099	6 637	162	66	16	6	2	5	6
	• 75 80 •	2010	7 795	7 814	100	47	33	5	2	5	8
Bhutan		1995	10	22	220	50	9	0	23	14	5
		2000	36		–						
		2005	51	52	102	65	10	6	8	2	10
		2008	70	70	100	76	3	3	16	1	1
		2009	76	76	100	70	12	8	7	3	1
	• 59 84 •	2010	82	81	99	78	6	1	7	5	2
Democratic People's Republic of Korea		1995			–						
		2000	103	1 285	1 248	75	11	2	4	2	5
		2005	9 116	9 116	100	70	6	3	12	5	4
		2008	14 170	14 170	100	75	8	3	10	3	2
		2009	14 576	14 576	100	74	9	2	11	2	2
	• 0 84 •	2010	15 058	15 058	100	76	8	4	8	3	2
India		1995	690	551	80	64	6	4	3	13	9
		2000	98 065	48 133	49	55	15	7	5	16	2
		2005	223 653	224 143	100	47	24	7	4	16	1
		2008	289 285	289 285	100	45	29	7	4	13	2
		2009	289 756	289 756	100	45	29	7	4	13	1
	• 70 74 •	2010	292 972	292 972	100	45	30	7	4	13	2
Indonesia		1995	106	76	72	22	9	0	0	1	67
		2000	1 448	2 530	175	50	22	3	3	7	15
		2005	4 446	4 812	108	63	15	3	4	8	7
		2008	5 430	5 430	100	50	21	4	3	14	7
		2009	5 688	5 687	100	53	20	4	3	12	8
	• 32 73 •	2010	6 589	6 589	100	53	20	5	3	11	8
Maldives		1995	10		–						
		2000	4	5	125	100					0
		2005	5	5	100	80	20	0	0	0	0
		2008	2	0	0						
		2009	5	1	20	0	0	0	0	0	100
	• 0 0 •	2010	3	0	0						
Myanmar		1995	1 837	1 443	79	55	8	4	4	19	9
		2000	2 623	3 001	114	65	9	7	4	12	3
		2005	5 597	6 556	117	58	14	10	6	7	5
		2008	9 009	8 631	96	46	27	12	5	7	3
		2009	9 717	9 540	98	44	28	11	5	7	4
	• 64 73 •	2010	10 269	10 106	98	41	32	11	5	7	3
Nepal		1995	786		–						
		2000	1 807	2 047	113	73	3	4	8	7	4
		2005	2 973	2 973	100	81	2	4	6	4	3
		2008	2 954	1 954	66	71	4	10	5	5	5
		2009	3 117	3 063	98	82	3	6	3	4	3
	• 0 85 •	2010	3 112	3 112	100	82	3	5	3	4	4
Sri Lanka		1995	248		–						
		2000	649	521	80	44	20	6	1	26	3
		2005	510	504	99	67	5	5	2	18	3
		2008	394	393	100	64	7	8	2	15	5
		2009	409	408	100	66	7	8	1	13	5
	• 0 77 •	2010	380	380	100	71	6	7	2	9	4
Thailand		1995	1 130		–						
		2000	1 041		–						
		2005	1 795	2 285	127	52	6	12	5	7	18
		2008	3 956	3 468	88	54	12	9	4	7	14
		2009	3 929	2 542	65	58	10	11	5	7	9
	• 0 66 •	2010	2 996	2 580	86	55	11	12	5	7	10
Timor-Leste		2005	52	56	108	96	0	2	0	2	0
		2008	35	35	100	57	14	11	6	11	0
		2009	52		–						
	86 •	2010		56	–	77	9	2	4	7	2

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2011**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2011	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Bangladesh		2005	0	0	123 118					
		2009	1	1 446	160 875	1	0	100	100	
		2010	1	1 778	158 698	4	0	100	100	64
	• 0 1 •	2011	1	1 900	159 023	81	4	100	100	0
Bhutan		2005	0	0	1 018	1		0	0	
		2009	12	136	1 150	2	1	0	100	
		2010			1 332					
	• 0 –	2011			1 250					
Democratic People's Republic of Korea		2005			50 474					
		2009	0	0	88 665	0				0
		2010	0	0	96 298	0				
	– 0 •	2011	0	0	99 071	0				
India		2005	2	29 488	1 304 828	6 411	22			
		2009	17	258 037	1 533 308	36 483	14	89	50	
		2010	32	480 752	1 522 147	41 476	9	90	57	
	• 2 45 •	2011	45	688 530	1 515 872	44 702	6	91	59	
Indonesia		2005			254 601					
		2009	1	2 782	294 732	479	17		42	0
		2010	1	2 751	302 861	1 106	40	63	29	
	– 1 •	2011	1	3 511	321 308	1 280	36	92	42	
Maldives		2005			123					
		2009	0	0	104	0				0
		2010	0	0	97	0				0
	– 0 •	2011	0	0	88	0				
Myanmar		2005	2	2 109	107 991	611	29	50	31	0
		2009	3	4 174	133 502	1 015	24	97	67	333
		2010	3	4 362	137 403	961	22	100	94	514
	• 2 3 •	2011	3	4 496	143 140	900	20	100	80	361
Nepal		2005	0	0	34 077					
		2009			35 407					
		2010	0	0	35 609	0				
	• 0 0 •	2011	0	0	35 954	0				
Sri Lanka		2005			9 695	2		0	0	
		2009	19	1 897	9 788	0	0			5
		2010	10	1 015	10 095	13	1	100	54	3
	– 18 •	2011	18	1 832	10 328	21	1	71	100	7
Thailand		2005			57 895					
		2009	75	49 657	65 940	8 109	16	72	50	127
		2010	82	55 692	68 239	8 959	16	71	54	
	– 74 •	2011	74	49 770	67 676	7 326	15	75	59	
Timor-Leste		2005	0	0	3 783					
		2009	2	108	4 759	0	0			2
		2010								
	• 0 6 •	2011	6	276	4 417	4	1			

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2011**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
				ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
Bangladesh	2005					–			–
	2009					–			–
	2010	339				–		339	4.3
	2011	509	3 800 (2 900–4 800)	1 700 (850–3 000)	71	<0.1	2 100 (1 700–2 500)	761	10
Bhutan	2005	2			2	0.65		3	5.9
	2009	8			7	1.6		8	11
	2010	17			108	24		30	37
	2011	21	24 (20–27)	13 (11–15)	48	13	11 (8.5–13)	26	37
Democratic People's Republic of Korea	2005					–			–
	2009					–			–
	2010					–			–
	2011	37	3 500 (3 000–4 100)	1 400 (1 200–1 700)		–	2 100 (1 600–2 600)	43	0.32
India	2005	34				–			–
	2009	1660				–		3454	1.2
	2010	2967				–			–
	2011	4237	66 000 (58 000–73 000)	21 000 (15 000–27 000)		–	45 000 (40 000–50 000)		–
Indonesia	2005					–			–
	2009					–			–
	2010	182			0	0		324	4.9
	2011	383	6 600 (5 000–8 200)	5 700 (4 200–7 500)	5	<0.1	920 (620–1 300)	695	9.0
Maldives	2005					–			–
	2009					–			–
	2010	0			0	0		0	0
	2011	0	1.4 (1.2–1.6)	1.2 (1.1–1.5)	0	0	0.16 (0.12–0.19)	0	0
Myanmar	2005					–			–
	2009	815				–		962	9.9
	2010	192				–			–
	2011	690	5 500 (4 200–6 800)	4 400 (3 200–5 800)		–	1 100 (760–1 500)		–
Nepal	2005					–			–
	2009	69			130	0.84		220	7.1
	2010	229			126	0.81		193	6.2
	2011	213	1 100 (740–1 400)	730 (460–1 100)	0	0	340 (210–510)	0	0
Sri Lanka	2005	32			659	12		417	82
	2009	4			813	17		419	100
	2010	11			839	18		378	99
	2011	13	21 (0–46)	12 (0.31–68)	1080	24	8.7 (4.0–16)	408	100
Thailand	2005					–			–
	2009					–			–
	2010					–			–
	2011	510	2 200 (1 700–2 700)	890 (540–1 400)		–	1 300 (1 000–1 600)		–
Timor-Leste	2005					–			–
	2009	4			0	0		6	12
	2010	5				–			–
	2011	2	95 (79–110)	84 (72–100)	0	0	11 (8.3–13)	2	2.9

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).
[b] BACT+VE = bacteriologically-positive cases.

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2011**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Bangladesh	1995	29	505	983	1 001	748	648	424		64	309	546	360	236	132	38		2.6
	2000	256	3 640	5 643	5 750	4 718	3 667	2 837		495	3 029	3 238	2 247	1 315	778	370		2.3
	2005	524	8 170	10 443	11 423	11 038	8 476	7 453		751	6 776	6 785	5 538	3 960	2 281	1 230		2.1
	2010	365	10 460	12 535	11 409	12 758	11 176	11 536	0	653	9 221	8 279	6 185	5 458	3 484	2 250	0	2.0
	2011	309	9 606	11 616	10 152	11 728	10 746	11 301	0	623	8 849	7 679	5 683	4 946	3 457	2 253	0	2.0
Bhutan	1995	2	42	65	36	35	24	11		12	43	44	25	12	9	8		1.4
	2000	6	65	41	30	24	12	2		7	57	34	31	23	3	2		1.1
	2005	1	47	58	26	23	14	12		9	45	38	13	11	9	2		1.4
	2010		108	50	25	12	26	13	0	17	104	45	18	18	10	9	0	1.1
	2011	2	88	39	26	14	20	19		2	92	40	19	12	4	5		1.2
Democratic People's Republic of Korea	1995																	–
	2000	293	928	1 508	2 927	2 519	1 167	651		167	683	1 121	2 004	1 524	591	357		1.6
	2005	167	1 409	2 422	2 688	2 040	1 185	485		166	1 127	1 756	1 890	1 381	764	336		1.4
	2010	447	2 524	4 046	4 849	4 061	2 629	1 153		407	1 493	2 461	2 910	2 276	1 347	637		1.7
	2011	314	2 218	4 066	5 493	4 542	2 474	1 024		227	1 390	2 264	3 093	2 409	1 271	494		1.8
India	1995	16	334	391	287	216	123	68		32	179	169	80	49	30	11		2.6
	2000	1 588	20 963	31 090	30 829	24 230	15 308	8 534		2 250	14 495	17 287	11 768	7 516	4 594	2 697		2.2
	2005	3 185	62 620	74 678	76 870	64 843	43 038	24 726		6 292	45 136	45 629	28 577	17 042	10 513	5 408		2.2
	2010	4 871	78 278	82 757	90 440	81 210	60 766	38 442		8 544	53 415	49 425	34 035	22 719	15 527	9 735		2.3
	2011	4 649	78 096	82 762	89 706	82 921	63 625	42 443		8 336	53 958	49 227	34 698	23 977	17 182	10 731		2.2
Indonesia	1995	6	203	297	306	302	228	109		16	160	244	282	192	90	33		1.4
	2000																	–
	2005	846	15 215	20 906	18 401	17 847	13 509	6 390		946	13 916	16 393	13 022	10 927	7 539	2 783		1.4
	2010	714	16 501	24 645	21 090	20 977	17 329	7 910	0	816	14 800	17 838	14 629	13 142	9 524	3 451	0	1.5
	2011	787	17 406	25 429	22 353	22 885	19 404	9 089		927	15 840	18 703	15 900	14 533	10 556	3 985		1.5
Maldives	1995	1	28	11	10	8	10	6		1	13	8	4	6	6	2		1.8
	2000	0	9	10	2	5	5	3		0	11	4	5	4	5	2		1.1
	2005	0	9	8	5	6	6	5		1	10	7	1	2	2	4		1.4
	2010	0	8	6	0	4	5	6	0	1	2	3	4	1	0	1	0	2.4
	2011	0	12	7	3	8	1	3	0	0	4	3	1	2	1	2	0	2.6
Myanmar	1995	42	713	1 423	1 401	977	677	298		58	535	729	729	450	343	154		1.8
	2000	88	1 459	2 636	2 781	2 161	1 235	836		72	1 040	1 592	1 397	987	592	378		1.8
	2005	132	3 401	5 877	5 888	4 585	2 557	1 764		147	2 376	3 047	2 563	2 101	1 218	885		2.0
	2010	106	3 043	6 578	6 688	5 607	3 632	2 308		196	2 452	3 454	2 752	2 525	1 838	1 139		1.9
	2011	120	2 923	6 182	6 319	5 680	3 954	2 500		187	2 401	3 317	2 760	2 554	2 010	1 407		1.9
Nepal	1995																	–
	2000	170	1 904	1 763	1 713	1 491	1 294	772		176	1 267	1 078	833	575	419	228		2.0
	2005	148	1 946	1 685	1 722	1 806	1 759	820		195	1 208	1 111	797	658	532	230		2.1
	2010	165	2 110	1 832	1 724	1 856	1 857	1 126	0	192	1 177	1 036	819	681	642	352	0	2.2
	2011	245	1 914	1 755	1 723	1 732	1 710	1 180	0	247	1 182	978	752	624	604	354	0	2.2
Sri Lanka	1995	10	163	361	519	521	365	261		15	207	206	142	122	81	56		2.7
	2000	25	266	459	695	793	484	360		23	312	264	176	202	144	113		2.5
	2005	9	341	520	724	918	657	424		19	295	261	189	200	154	130		2.9
	2010	14	268	539	602	884	683	448		15	255	233	171	183	186	154		2.9
	2011	12	246	459	585	828	653	479	0	13	270	217	191	192	191	154	0	2.7
Thailand	1995	59	1 191	2 936	2 948	2 434	2 607	2 346		52	741	888	782	936	1 175	1 178		2.5
	2000	27	859	2 570	2 380	2 117	1 908	2 213		32	624	1 035	780	873	1 016	1 321		2.1
	2005	44	1 344	3 814	4 393	4 003	2 831	3 407		57	907	1 662	1 334	1 367	1 259	1 938		2.3
	2010	55	1 506	3 695	5 253	5 042	3 625	4 189		82	1 087	1 930	1 749	1 467	1 494	2 276		2.3
	2011	38	1 546	3 650	5 139	5 140	3 734	4 080		76	1 214	1 773	1 658	1 586	1 402	2 133		2.4
Timor-Leste	2005	8	136	149	116	119	52	47		8	127	90	76	60	18	29		1.5
	2010																	–
	2011	14	199	177	137	114	99	146	0	16	176	182	113	85	77	75	0	1.2

TABLE A4.9 **Laboratories, NTP services, drug management and infection control, 2011**

	LABORATORIES								FREE THROUGH NTP		RIFAMPICIN USED THROUGHOUT TREATMENT	TB NOTIF. RATE PER 100 000 HEALTH-CARE WORKERS
	SMEAR LABS PER 100K POPULATION	% OF SMEAR LABS USING LED[a]	CULTURE LABS PER 5M POPULATION	DST[b] LABS PER 5M POPULATION	LPA[c] LABS PER 5M POPULATION	NUMBER OF LABS USING XPERT MTB/RIF	SECOND-LINE DST AVAILABLE	NRL[d]	TB DIAGNOSIS	FIRST-LINE DRUGS		
Bangladesh	0.7	1	<0.1	<0.1	0	0	Out of country	yes	Yes (all suspects)	yes	Yes	
Bhutan	4.6	–	6.8	6.8			Out of country	yes	Yes (if TB is confirmed)	yes	Yes	
Democratic People's Republic of Korea	1.2	0	0.2	0.2	0	0			Yes (all suspects)	yes	No	
India	1.0	2	0.1	0.1	<0.1	18	In country	yes	Yes (for smear-positive TB)	yes	Yes	
Indonesia	2.3	0	0.9	0.1	<0.1	5	In country	yes	Yes (other criteria)	yes	Yes	
Maldives	21.9	0	15.6	0	0	0	Out of country	No	Yes (all suspects)	yes	Yes	
Myanmar	0.9	0	0.2	0.2	0.2	2	Out of country	yes	Yes (all suspects)	yes	Yes	
Nepal	1.7	100	0.5	0.3	0	0		No	Yes (all suspects)	yes	Yes	
Sri Lanka	1.0	0	0.5	0.2	0	0	Out of country	yes	Yes (all suspects)	yes	Yes	39
Thailand	1.6	1	4.7	1.1	0.1	11	In and out of country	yes	Yes (all suspects)	Don't know	Yes	
Timor-Leste	1.6	0	0	0	0	0	Out of country	yes	Yes (all suspects)	yes	No	

[a] LED = Light emitting diode microscopes
[b] DST = Drug susceptibility testing
[c] LPA = Line probe assay
[d] NRL = National Reference Laboratory

WESTERN PACIFIC REGION

Table A4.1 Estimates of the burden of disease caused by TB, 1990–2011 253

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Estimates of mortality, prevalence and incidence

Estimated values are shown as best estimates followed by lower and upper bounds. The lower and upper bounds are defined as the 2.5th and 97.5th centiles of outcome distributions produced in simulations. See Annex 1 for further details.

Estimated numbers are shown rounded to two significant figures. Estimated rates are shown rounded to three significant figures unless the value is under 100, in which case rates are shown rounded to two significant figures. Blank cells indicate that estimates are not available.

Estimates for all years are recalculated as new information becomes available and techniques are refined, so they may differ from those published in previous reports in this series. Estimates published in previous global TB control reports should no longer be used.

Data source

Data shown in this annex are taken from the WHO global TB database on 25 September 2012. Data shown in the main part of the report were taken from the database in July 2012. As a result, data in this annex may differ slightly from those in the main part of the report.

Data can be downloaded from **www.who.int/tb/data**.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2011**

			MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
American Samoa	1990	< 1	<0.01 (<0.01–<0.01)	5 (2.1–9.1)	0.022 (0.010–0.037)	46 (22–79)	0.012 (<0.01–0.015)	26 (21–31)
	1995	< 1	<0.01 (<0.01–<0.01)	2.4 (0.99–4.4)	0.011 (<0.01–0.019)	21 (10–37)	<0.01 (<0.01–<0.01)	12 (9.4–14)
	2000	< 1	<0.01 (<0.01–<0.01)	0.84 (0.33–1.6)	<0.01 (<0.01–0.010)	9.6 (3.8–18)	<0.01 (<0.01–<0.01)	6.9 (5.6–8.4)
	2005	< 1	<0.01 (<0.01–<0.01)	2.5 (1.1–4.6)	0.015 (<0.01–0.025)	23 (11–40)	<0.01 (<0.01–<0.01)	13 (10–15)
	2009	< 1	<0.01 (<0.01–<0.01)	1.1 (0.33–2.4)	<0.01 (<0.01–0.016)	12 (4.0–24)	<0.01 (<0.01–<0.01)	7.9 (6.4–9.6)
	2010	< 1	<0.01 (<0.01–<0.01)	1.2 (0.34–2.6)	<0.01 (<0.01–0.018)	12 (3.9–26)	<0.01 (<0.01–<0.01)	7.8 (6.3–9.4)
	2011	< 1	<0.01 (<0.01–<0.01)	1.3 (0.42–2.8)	<0.01 (<0.01–0.018)	13 (4.5–26)	<0.01 (<0.01–<0.01)	7.8 (6.3–9.4)
Australia	1990	17	0.067 (0.066–0.068)	0.39 (0.39–0.40)	1.4 (0.550–2.6)	8.2 (3.2–15)	1.1 (0.980–1.3)	6.5 (5.7–7.4)
	1995	18	0.04 (0.039–0.041)	0.22 (0.21–0.23)	1.5 (0.600–2.9)	8.5 (3.3–16)	1.2 (1.1–1.4)	6.7 (5.9–7.6)
	2000	19	0.035 (0.035–0.035)	0.18 (0.18–0.19)	1.5 (0.580–2.8)	7.7 (3.0–14)	1.2 (1.0–1.3)	6.1 (5.3–6.9)
	2005	20	0.042 (0.042–0.043)	0.21 (0.20–0.21)	1.5 (0.610–2.9)	7.6 (3.0–14)	1.2 (1.1–1.4)	6 (5.3–6.8)
	2009	22	0.043 (0.043–0.044)	0.2 (0.20–0.20)	1.7 (0.660–3.2)	7.7 (3.0–14)	1.3 (1.2–1.5)	6.1 (5.4–6.9)
	2010	22	0.043 (0.042–0.044)	0.19 (0.19–0.20)	1.7 (0.670–3.2)	7.6 (3.0–14)	1.4 (1.2–1.5)	6.1 (5.3–6.9)
	2011	23	0.042 (0.041–0.043)	0.19 (0.18–0.19)	1.7 (0.680–3.2)	7.6 (3.0–14)	1.4 (1.2–1.5)	6 (5.3–6.8)
Brunei Darussalam	1990	< 1	0.011 (0.011–0.012)	4.4 (4.2–4.7)	0.23 (0.089–0.430)	90 (35–171)	0.18 (0.160–0.200)	71 (62–80)
	1995	< 1	<0.01 (<0.01–<0.01)	3 (2.9–3.2)	0.26 (0.100–0.490)	89 (35–168)	0.2 (0.180–0.230)	69 (61–78)
	2000	< 1	0.01 (0.010–0.011)	3.2 (3.1–3.3)	0.36 (0.140–0.670)	109 (43–206)	0.28 (0.240–0.310)	85 (75–96)
	2005	< 1	0.012 (0.011–0.012)	3.2 (3.0–3.4)	0.29 (0.110–0.540)	79 (31–150)	0.23 (0.200–0.260)	62 (55–70)
	2009	< 1	0.011 (<0.01–0.011)	2.7 (2.5–2.9)	0.31 (0.120–0.590)	80 (31–150)	0.24 (0.210–0.280)	63 (55–71)
	2010	< 1	0.01 (<0.01–0.011)	2.6 (2.5–2.7)	0.34 (0.130–0.630)	84 (33–159)	0.26 (0.230–0.300)	66 (58–74)
	2011	< 1	0.01 (<0.01–0.011)	2.5 (2.4–2.7)	0.36 (0.140–0.680)	89 (35–168)	0.28 (0.250–0.320)	70 (61–79)
Cambodia	1990	10	15 (5.3–29)	155 (56–305)	160 (100–230)	1 670 (1 060–2 410)	55 (40–73)	580 (423–761)
	1995	11	15 (5.7–29)	135 (51–259)	190 (140–240)	1 670 (1 220–2 180)	65 (50–81)	578 (448–724)
	2000	12	16 (6.2–30)	128 (50–243)	200 (160–240)	1 620 (1 310–1 960)	72 (57–88)	577 (458–710)
	2005	13	12 (5.3–23)	93 (40–169)	160 (140–190)	1 230 (1 020–1 460)	68 (57–81)	510 (424–604)
	2009	14	9.8 (4.5–17)	70 (32–124)	130 (110–150)	937 (787–1 100)	63 (54–73)	451 (387–520)
	2010	14	9.3 (4.3–16)	66 (30–115)	120 (100–140)	875 (737–1 020)	62 (53–71)	437 (376–503)
	2011	14	9.1 (4.2–16)	63 (29–111)	120 (99–140)	817 (690–954)	61 (52–70)	424 (364–489)
China	1990	1 145	210 (190–240)	19 (16–21)	2 500 (2 300–2 600)	215 (201–230)	1 700 (1 400–2 200)	153 (121–189)
	1995	1 214	160 (130–200)	13 (11–16)	2 400 (2 100–2 600)	195 (176–216)	1 600 (1 300–1 900)	129 (106–154)
	2000	1 269	110 (82–140)	8.7 (6.5–11)	2 200 (1 900–2 500)	170 (146–196)	1 400 (1 200–1 600)	109 (92–126)
	2005	1 308	74 (72–77)	5.7 (5.5–5.9)	1 800 (1 600–2 100)	140 (121–160)	1 200 (1 000–1 400)	92 (80–105)
	2009	1 335	55 (53–57)	4.1 (4.0–4.3)	1 500 (1 300–1 700)	112 (97–128)	1 100 (940–1 200)	80 (70–91)
	2010	1 341	51 (49–53)	3.8 (3.7–3.9)	1 500 (1 300–1 700)	108 (94–123)	1 000 (910–1 200)	78 (68–88)
	2011	1 348	47 (45–49)	3.5 (3.4–3.6)	1 400 (1 200–1 600)	104 (91–119)	1 000 (890–1 100)	75 (66–85)
China, Hong Kong SAR	1990	6	0.54 (0.540–0.550)	9.4 (9.3–9.5)	9.4 (3.7–18)	163 (63–307)	7.3 (6.4–8.3)	127 (111–143)
	1995	6	0.33 (0.330–0.330)	5.4 (5.3–5.4)	9.6 (3.8–18)	157 (61–297)	7.5 (6.6–8.5)	122 (107–139)
	2000	7	0.3 (0.300–0.300)	4.5 (4.4–4.5)	9.6 (3.7–18)	142 (55–269)	7.5 (6.6–8.5)	111 (97–125)
	2005	7	0.24 (0.240–0.240)	3.5 (3.5–3.6)	8.3 (3.3–16)	122 (48–231)	6.5 (5.7–7.4)	96 (84–108)
	2009	7	0.22 (0.220–0.230)	3.2 (3.2–3.3)	7.5 (3.0–14)	108 (42–203)	5.9 (5.2–6.7)	84 (74–96)
	2010	7	0.23 (0.230–0.230)	3.2 (3.2–3.3)	7.3 (2.9–14)	104 (41–196)	5.7 (5.0–6.5)	81 (71–92)
	2011	7	0.23 (0.230–0.230)	3.3 (3.2–3.3)	7.1 (2.8–13)	99 (39–187)	5.5 (4.8–6.3)	78 (68–88)
China, Macao SAR	1990	< 1	0.034 (0.033–0.035)	9.5 (9.2–9.7)	0.41 (0.160–0.780)	115 (45–217)	0.32 (0.280–0.360)	89 (78–101)
	1995	< 1	0.021 (0.020–0.021)	5.2 (5.0–5.3)	0.64 (0.250–1.2)	161 (63–305)	0.5 (0.440–0.570)	126 (110–142)
	2000	< 1	0.019 (0.018–0.019)	4.4 (4.2–4.5)	0.68 (0.270–1.3)	158 (62–299)	0.53 (0.470–0.600)	123 (108–140)
	2005	< 1	0.015 (0.015–0.015)	3.1 (3.0–3.2)	0.52 (0.200–0.980)	107 (42–203)	0.4 (0.350–0.460)	84 (73–95)
	2009	< 1	0.014 (0.014–0.014)	2.6 (2.6–2.7)	0.5 (0.200–0.940)	94 (37–178)	0.39 (0.340–0.440)	73 (64–83)
	2010	< 1	0.014 (0.014–0.015)	2.6 (2.5–2.7)	0.51 (0.200–0.960)	93 (37–176)	0.4 (0.350–0.450)	73 (64–83)
	2011	< 1	0.015 (0.014–0.015)	2.6 (2.5–2.7)	0.52 (0.200–0.980)	94 (37–177)	0.41 (0.360–0.460)	73 (64–83)
Cook Islands	1990	< 1	<0.01 (<0.01–<0.01)	1.2 (0.51–2.1)	<0.01 (<0.01–<0.01)	14 (5.6–27)	<0.01 (<0.01–<0.01)	11 (9.9–13)
	1995	< 1	<0.01 (<0.01–<0.01)	1.9 (0.80–3.4)	<0.01 (<0.01–<0.01)	23 (8.8–43)	<0.01 (<0.01–<0.01)	18 (16–20)
	2000	< 1	<0.01 (<0.01–<0.01)	0.85 (0.37–1.5)	<0.01 (<0.01–<0.01)	10 (4.0–20)	<0.01 (<0.01–<0.01)	8.1 (7.1–9.2)
	2005	< 1	<0.01 (<0.01–<0.01)	0.66 (0.29–1.2)	<0.01 (<0.01–<0.01)	8.1 (3.1–15)	<0.01 (<0.01–<0.01)	6.3 (5.5–7.2)
	2009	< 1	<0.01 (<0.01–<0.01)	0.67 (0.29–1.2)	<0.01 (<0.01–<0.01)	8.2 (3.2–16)	<0.01 (<0.01–<0.01)	6.4 (5.6–7.3)
	2010	< 1	<0.01 (<0.01–<0.01)	0.66 (0.28–1.2)	<0.01 (<0.01–<0.01)	8 (3.1–15)	<0.01 (<0.01–<0.01)	6.3 (5.5–7.1)
	2011	< 1	<0.01 (0–<0.01)	0.55 (<0.1–2.0)	<0.01 (<0.01–<0.01)	7.7 (1.1–20)	<0.01 (<0.01–<0.01)	6 (5.3–6.8)
Fiji	1990	< 1	0.055 (0.043–0.067)	7.5 (5.9–9.2)	1.7 (0.810–2.9)	232 (112–395)	0.81 (0.710–0.920)	112 (98–126)
	1995	< 1	0.04 (0.032–0.050)	5.2 (4.1–6.4)	1.2 (0.600–2.1)	157 (77–265)	0.6 (0.530–0.680)	77 (68–87)
	2000	< 1	0.03 (0.024–0.037)	3.7 (2.9–4.5)	0.87 (0.430–1.5)	107 (53–179)	0.44 (0.390–0.500)	54 (48–62)
	2005	< 1	0.022 (0.017–0.027)	2.7 (2.1–3.3)	0.63 (0.310–1.1)	77 (38–128)	0.33 (0.290–0.370)	40 (35–45)
	2009	< 1	0.017 (0.017–0.018)	2 (2.0–2.1)	0.43 (0.210–0.710)	50 (25–83)	0.26 (0.220–0.290)	30 (26–34)
	2010	< 1	0.016 (0.013–0.020)	1.9 (1.5–2.3)	0.36 (0.170–0.610)	42 (20–71)	0.24 (0.210–0.270)	28 (24–32)
	2011	< 1	0.015 (0.012–0.019)	1.8 (1.4–2.2)	0.29 (0.110–0.540)	33 (13–62)	0.23 (0.200–0.260)	26 (23–29)
French Polynesia	1990	< 1	<0.01 (<0.01–0.012)	1.5 (<0.1–6.1)	0.078 (0.031–0.150)	40 (16–76)	0.061 (0.053–0.069)	31 (27–35)
	1995	< 1	<0.01 (<0.01–0.020)	2.4 (<0.1–9.4)	0.13 (0.052–0.250)	62 (24–116)	0.1 (0.091–0.120)	48 (42–54)
	2000	< 1	<0.01 (<0.01–0.017)	1.8 (<0.1–7.1)	0.11 (0.044–0.210)	47 (18–89)	0.087 (0.076–0.098)	37 (32–41)
	2005	< 1	<0.01 (<0.01–0.013)	1.3 (<0.1–5.0)	0.084 (0.033–0.160)	33 (13–63)	0.066 (0.058–0.075)	26 (23–29)
	2009	< 1	<0.01 (<0.01–0.012)	1.2 (<0.1–4.6)	0.081 (0.031–0.150)	30 (12–57)	0.063 (0.055–0.071)	24 (21–27)
	2010	< 1	<0.01 (<0.01–0.012)	1.1 (<0.1–4.5)	0.081 (0.032–0.150)	30 (12–56)	0.063 (0.055–0.071)	23 (20–26)
	2011	< 1	<0.01 (<0.01–0.012)	1.1 (<0.1–4.5)	0.081 (0.032–0.150)	29 (12–56)	0.063 (0.055–0.071)	23 (20–26)
Guam	1990	< 1	<0.01 (<0.01–0.012)	2.3 (<0.1–9.1)	0.08 (0.031–0.150)	60 (24–113)	0.062 (0.055–0.070)	47 (41–53)
	1995	< 1	<0.01 (<0.01–0.018)	3 (<0.1–12)	0.11 (0.045–0.220)	79 (31–149)	0.09 (0.079–0.100)	62 (54–70)
	2000	< 1	<0.01 (<0.01–0.012)	2 (<0.1–8.0)	0.082 (0.032–0.150)	53 (21–100)	0.063 (0.056–0.072)	41 (36–46)
	2005	< 1	<0.01 (<0.01–0.012)	1.7 (<0.1–6.9)	0.076 (0.029–0.140)	45 (17–85)	0.059 (0.052–0.067)	35 (31–40)
	2009	< 1	<0.01 (<0.01–0.018)	2.6 (<0.1–10)	0.12 (0.047–0.230)	67 (26–127)	0.093 (0.082–0.110)	52 (46–59)
	2010	< 1	<0.01 (<0.01–0.020)	2.8 (<0.1–11)	0.13 (0.052–0.250)	75 (29–141)	0.11 (0.092–0.120)	59 (51–66)
	2011	< 1	<0.01 (<0.01–0.023)	3.2 (<0.1–13)	0.15 (0.060–0.290)	84 (33–159)	0.12 (0.100–0.130)	65 (57–74)
Japan	1990	122	4.2 (4.1–4.3)	3.4 (3.4–3.5)	76 (30–140)	63 (25–118)	60 (52–67)	49 (43–55)
	1995	124	3.1 (3.1–3.2)	2.5 (2.5–2.5)	66 (26–120)	53 (21–100)	52 (45–58)	41 (36–47)
	2000	126	2.7 (2.7–2.8)	2.2 (2.1–2.2)	57 (22–110)	45 (18–85)	44 (39–50)	35 (31–40)
	2005	126	2.4 (2.3–2.4)	1.9 (1.8–1.9)	41 (16–77)	32 (13–61)	32 (28–36)	25 (22–28)
	2009	127	2.2 (2.2–2.3)	1.8 (1.7–1.8)	34 (13–64)	27 (10–51)	27 (23–30)	21 (18–24)
	2010	127	2.2 (2.1–2.2)	1.7 (1.7–1.8)	33 (13–63)	26 (10–50)	26 (23–29)	21 (18–23)
	2011	126	2.2 (2.1–2.2)	1.7 (1.7–1.7)	33 (13–62)	26 (10–49)	26 (23–29)	20 (18–23)
Kiribati	1990	< 1	0.031 (0.019–0.046)	43 (26–64)	0.18 (0.083–0.330)	257 (116–454)	0.084 (0.066–0.100)	116 (93–143)
	1995	< 1	0.026 (0.018–0.034)	33 (24–44)	0.59 (0.260–1.0)	761 (336–1 360)	0.39 (0.320–0.470)	505 (410–609)
	2000	< 1	0.016 (0.012–0.020)	19 (14–24)	0.42 (0.150–0.810)	497 (184–961)	0.31 (0.250–0.380)	372 (296–456)
	2005	< 1	<0.01 (<0.01–0.014)	10 (6.1–15)	0.7 (0.320–1.2)	759 (343–1 340)	0.45 (0.360–0.540)	488 (396–588)
	2009	< 1	<0.01 (<0.01–<0.01)	5.9 (3.6–8.9)	0.54 (0.210–1.0)	548 (218–1 030)	0.4 (0.330–0.480)	408 (335–487)
	2010	< 1	<0.01 (<0.01–<0.01)	5 (3.0–7.5)	0.47 (0.170–0.930)	476 (169–938)	0.37 (0.300–0.450)	370 (298–450)
	2011	< 1	<0.01 (<0.01–<0.01)	4.2 (2.5–6.2)	0.47 (0.170–0.910)	462 (167–903)	0.36 (0.290–0.430)	356 (289–430)
Lao People's Democratic Republic	1990	4	1.7 (1.1–2.5)	41 (25–60)	62 (31–100)	1 490 (739–2 500)	21 (13–30)	492 (304–725)
	1995	5	1.4 (0.850–2.0)	29 (18–42)	59 (31–94)	1 220 (653–1 960)	19 (12–28)	403 (249–593)
	2000	5	1.1 (0.690–1.6)	21 (13–31)	51 (29–79)	961 (553–1 480)	18 (11–26)	330 (204–486)
	2005	6	0.9 (0.560–1.3)	16 (9.7–23)	43 (26–63)	739 (453–1 090)	16 (9.6–23)	270 (167–398)
	2009	6	0.77 (0.480–1.1)	13 (7.8–19)	36 (23–52)	596 (381–858)	14 (8.7–21)	230 (142–339)
	2010	6	0.74 (0.460–1.1)	12 (7.3–17)	35 (23–51)	569 (367–815)	14 (8.5–20)	221 (137–326)
	2011	6	0.71 (0.440–1.0)	11 (6.9–17)	34 (22–48)	540 (353–767)	13 (8.3–20)	213 (131–313)
Malaysia	1990	18	1.5 (0.670–2.5)	8 (3.7–14)	41 (21–68)	227 (116–374)	23 (21–26)	127 (113–142)
	1995	21	1.4 (0.670–2.5)	7 (3.2–12)	37 (19–60)	177 (92–290)	22 (20–25)	108 (97–120)
	2000	23	1.6 (0.700–2.9)	6.9 (3.0–12)	32 (17–54)	138 (71–229)	22 (20–24)	95 (86–103)
	2005	26	1.6 (0.840–2.6)	6.2 (3.2–10)	31 (16–51)	119 (61–196)	22 (21–24)	86 (79–94)
	2009	28	1.6 (0.760–2.8)	5.8 (2.7–10)	31 (15–52)	109 (53–185)	23 (21–25)	83 (76–90)
	2010	28	1.6 (0.760–2.9)	5.8 (2.7–10)	30 (14–52)	106 (50–183)	23 (21–25)	82 (75–89)
	2011	29	1.7 (0.770–2.9)	5.7 (2.7–10)	29 (13–52)	101 (45–180)	23 (21–25)	81 (74–88)
Marshall Islands	1990	< 1	0.01 (<0.01–0.045)	21 (0.12–94)	0.12 (<0.01–0.480)	261 (4.2–1 020)	0.065 (<0.01–0.190)	137 (14–396)
	1995	< 1	0.014 (<0.01–0.053)	27 (0.43–104)	0.16 (<0.01–0.540)	322 (18–1 050)	0.097 (0.024–0.220)	190 (46–432)
	2000	< 1	0.032 (0.011–0.066)	62 (20–127)	0.28 (0.100–0.550)	539 (195–1 050)	0.14 (0.084–0.200)	263 (161–389)
	2005	< 1	0.027 (<0.01–0.100)	51 (1.1–192)	0.32 (0.019–1.0)	613 (36–1 970)	0.19 (0.050–0.420)	363 (96–803)
	2009	< 1	0.035 (<0.01–0.120)	65 (2.1–231)	0.41 (0.033–1.2)	770 (62–2 330)	0.25 (0.076–0.530)	471 (143–990)
	2010	< 1	0.035 (<0.01–0.160)	65 (0.21–297)	0.46 (0.014–1.7)	855 (26–3 060)	0.27 (0.052–0.670)	502 (97–1 230)
	2011	< 1	0.041 (<0.01–0.170)	74 (0.59–312)	0.51 (0.018–1.8)	924 (32–3 230)	0.29 (0.057–0.720)	536 (103–1 320)

[a] Rates are per 100 000 population.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2011**

			MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
Micronesia (Federated States of)	1990	< 1	0.013 (0–0.150)	14 (0–155)	0.44 (<0.01–1.9)	455 (3.0–1 950)	0.36 (0.100–0.800)	379 (104–827)
	1995	< 1	0.075 (0.023–0.160)	70 (21–148)	0.68 (0.220–1.4)	632 (205–1 290)	0.35 (0.200–0.540)	325 (185–505)
	2000	< 1	0.069 (0.026–0.130)	65 (24–125)	0.6 (0.250–1.1)	561 (238–1 020)	0.3 (0.210–0.400)	279 (200–371)
	2005	< 1	0.054 (0.019–0.110)	50 (17–98)	0.49 (0.190–0.940)	450 (172–858)	0.26 (0.170–0.370)	240 (158–338)
	2009	< 1	0.036 (<0.01–0.094)	32 (4.8–85)	0.38 (0.075–0.940)	347 (68–846)	0.23 (0.110–0.400)	212 (101–365)
	2010	< 1	0.03 (<0.01–0.095)	27 (2.0–86)	0.36 (0.051–0.950)	322 (46–859)	0.23 (0.098–0.410)	206 (89–371)
	2011	< 1	0.026 (<0.01–0.092)	23 (0.77–83)	0.33 (0.039–0.920)	294 (35–821)	0.22 (0.096–0.400)	200 (86–360)
Mongolia	1990	2	0.36 (0.330–0.390)	16 (15–18)	20 (9.2–36)	934 (420–1 650)	8.9 (7.6–10)	405 (345–470)
	1995	2	0.29 (0.270–0.310)	13 (12–14)	14 (7.1–24)	623 (307–1 050)	7.2 (6.3–8.2)	314 (274–356)
	2000	2	0.22 (0.200–0.240)	9 (8.3–9.8)	10 (5.3–17)	433 (221–713)	6.1 (5.5–6.8)	254 (228–281)
	2005	3	0.16 (0.150–0.180)	6.5 (5.9–7.0)	8 (3.7–14)	315 (145–548)	5.7 (5.3–6.2)	225 (207–243)
	2009	3	0.14 (0.130–0.160)	5.3 (4.9–5.8)	8.7 (4.2–15)	322 (154–551)	6.1 (5.6–6.5)	224 (208–240)
	2010	3	0.14 (0.130–0.150)	5.2 (4.7–5.6)	9.3 (4.6–16)	336 (167–563)	6.2 (5.7–6.6)	224 (209–240)
	2011	3	0.14 (0.130–0.150)	5 (4.6–5.5)	9.8 (4.9–16)	348 (176–578)	6.2 (5.8–6.7)	223 (208–239)
Nauru	1990	< 1	<0.01 (<0.01–<0.01)	9.3 (4.0–17)	0.01 (<0.01–0.020)	114 (45–216)	<0.01 (<0.01–<0.01)	89 (78–101)
	1995	< 1	<0.01 (<0.01–<0.01)	4.1 (1.8–7.3)	<0.01 (<0.01–<0.01)	50 (19–94)	<0.01 (<0.01–<0.01)	39 (34–44)
	2000	< 1	<0.01 (<0.01–<0.01)	3.3 (1.4–6.0)	<0.01 (<0.01–<0.01)	41 (16–77)	<0.01 (<0.01–<0.01)	32 (28–36)
	2005	< 1	<0.01 (<0.01–<0.01)	8.1 (3.5–15)	0.01 (<0.01–0.019)	99 (39–188)	<0.01 (<0.01–<0.01)	78 (68–88)
	2009	< 1	<0.01 (<0.01–<0.01)	6.3 (2.7–11)	<0.01 (<0.01–0.015)	77 (30–145)	<0.01 (<0.01–<0.01)	60 (53–68)
	2010	< 1	<0.01 (<0.01–<0.01)	5 (2.2–9.0)	<0.01 (<0.01–0.012)	61 (24–116)	<0.01 (<0.01–<0.01)	48 (42–54)
	2011	< 1	<0.01 (<0.01–<0.01)	3.4 (1.5–6.2)	<0.01 (<0.01–<0.01)	42 (16–79)	<0.01 (<0.01–<0.01)	33 (28–37)
New Caledonia	1990	< 1	<0.01 (<0.01–0.033)	4.9 (<0.1–19)	0.22 (0.085–0.410)	128 (50–241)	0.17 (0.150–0.190)	99 (87–112)
	1995	< 1	<0.01 (<0.01–0.023)	3 (<0.1–12)	0.15 (0.058–0.280)	78 (30–147)	0.12 (0.100–0.130)	61 (53–69)
	2000	< 1	<0.01 (<0.01–0.017)	2 (<0.1–8.1)	0.11 (0.044–0.210)	53 (21–101)	0.088 (0.077–0.099)	41 (36–47)
	2005	< 1	<0.01 (<0.01–0.011)	1.2 (<0.1–4.7)	0.071 (0.028–0.130)	31 (12–58)	0.056 (0.049–0.063)	24 (21–27)
	2009	< 1	<0.01 (<0.01–0.011)	1.1 (<0.1–4.3)	0.07 (0.028–0.130)	28 (11–54)	0.055 (0.048–0.062)	22 (19–25)
	2010	< 1	<0.01 (<0.01–0.011)	1.1 (<0.1–4.5)	0.074 (0.029–0.140)	30 (12–56)	0.058 (0.051–0.066)	23 (20–26)
	2011	< 1	<0.01 (<0.01–0.012)	1.2 (<0.1–4.8)	0.081 (0.032–0.150)	32 (12–60)	0.063 (0.055–0.071)	25 (22–28)
New Zealand	1990	3	0.02 (0.020–0.020)	0.59 (0.58–0.60)	0.48 (0.190–0.910)	14 (5.5–27)	0.38 (0.330–0.430)	11 (9.7–13)
	1995	4	0.016 (0.016–0.016)	0.43 (0.43–0.43)	0.51 (0.200–0.960)	14 (5.5–26)	0.4 (0.350–0.450)	11 (9.6–12)
	2000	4	<0.01 (<0.01–<0.01)	0.25 (0.25–0.25)	0.55 (0.210–1.0)	14 (5.6–27)	0.43 (0.380–0.490)	11 (9.7–13)
	2005	4	<0.01 (<0.01–<0.01)	0.2 (0.20–0.21)	0.49 (0.190–0.930)	12 (4.7–22)	0.39 (0.340–0.440)	9.4 (8.2–11)
	2009	4	<0.01 (<0.01–<0.01)	0.15 (0.15–0.16)	0.44 (0.170–0.830)	10 (4.0–19)	0.35 (0.300–0.390)	8 (7.0–9.1)
	2010	4	<0.01 (<0.01–<0.01)	0.14 (0.14–0.14)	0.43 (0.170–0.820)	9.9 (3.9–19)	0.34 (0.300–0.390)	7.8 (6.8–8.8)
	2011	4	<0.01 (<0.01–<0.01)	0.12 (0.12–0.12)	0.43 (0.170–0.810)	9.7 (3.8–18)	0.34 (0.290–0.380)	7.6 (6.7–8.6)
Niue	1990	< 1	<0.01 (<0.01–<0.01)	4.4 (1.9–7.9)	<0.01 (<0.01–<0.01)	54 (21–102)	<0.01 (<0.01–<0.01)	42 (37–48)
	1995	< 1	<0.01 (<0.01–<0.01)	4.9 (2.1–8.9)	<0.01 (<0.01–<0.01)	60 (23–114)	<0.01 (<0.01–<0.01)	47 (41–53)
	2000	< 1	<0.01 (<0.01–<0.01)	5.1 (2.2–9.3)	<0.01 (<0.01–<0.01)	63 (25–119)	<0.01 (<0.01–<0.01)	49 (43–56)
	2005	< 1	<0.01 (<0.01–<0.01)	2.4 (1.0–4.4)	<0.01 (<0.01–<0.01)	30 (12–56)	<0.01 (<0.01–<0.01)	23 (20–26)
	2009	< 1	<0.01 (<0.01–<0.01)	1.7 (0.72–3.0)	<0.01 (<0.01–<0.01)	20 (8.0–38)	<0.01 (<0.01–<0.01)	16 (14–18)
	2010	< 1	<0.01 (<0.01–<0.01)	2.7 (1.2–4.9)	<0.01 (<0.01–<0.01)	33 (13–63)	<0.01 (<0.01–<0.01)	26 (23–29)
	2011	< 1	<0.01 (<0.01–<0.01)	4.2 (1.8–7.6)	<0.01 (<0.01–<0.01)	52 (20–98)	<0.01 (<0.01–<0.01)	40 (35–46)
Northern Mariana Islands	1990	< 1	<0.01 (<0.01–<0.01)	4.5 (<0.1–18)	0.051 (0.020–0.097)	117 (46–221)	0.04 (0.035–0.045)	91 (80–103)
	1995	< 1	<0.01 (<0.01–0.015)	6.3 (<0.1–25)	0.095 (0.038–0.180)	166 (65–312)	0.074 (0.065–0.084)	129 (113–146)
	2000	< 1	<0.01 (<0.01–0.016)	5.9 (<0.1–24)	0.11 (0.041–0.200)	155 (60–292)	0.082 (0.072–0.093)	120 (105–136)
	2005	< 1	<0.01 (<0.01–0.011)	3.9 (<0.1–16)	0.07 (0.027–0.130)	103 (40–196)	0.054 (0.047–0.061)	80 (70–91)
	2009	< 1	<0.01 (<0.01–<0.01)	3.2 (<0.1–13)	0.052 (0.020–0.099)	85 (33–161)	0.041 (0.036–0.046)	66 (58–75)
	2010	< 1	<0.01 (<0.01–<0.01)	3.1 (<0.1–12)	0.049 (0.019–0.094)	81 (31–154)	0.038 (0.034–0.043)	63 (55–71)
	2011	< 1	<0.01 (<0.01–<0.01)	2.9 (<0.1–12)	0.047 (0.018–0.089)	77 (30–146)	0.037 (0.032–0.042)	60 (53–68)
Palau	1990	< 1	<0.01 (<0.01–<0.01)	4.5 (1.5–9.2)	<0.01 (<0.01–0.017)	57 (20–114)	<0.01 (<0.01–<0.01)	45 (36–54)
	1995	< 1	<0.01 (<0.01–<0.01)	17 (6.2–32)	0.034 (0.013–0.065)	196 (75–375)	0.025 (0.021–0.031)	147 (119–178)
	2000	< 1	<0.01 (<0.01–<0.01)	26 (11–47)	0.049 (0.023–0.085)	257 (120–445)	0.03 (0.024–0.036)	156 (127–189)
	2005	< 1	<0.01 (<0.01–<0.01)	9.3 (3.5–18)	0.02 (<0.01–0.037)	99 (39–187)	0.013 (0.011–0.016)	67 (54–81)
	2009	< 1	<0.01 (<0.01–<0.01)	23 (9.6–42)	0.044 (0.020–0.076)	216 (101–376)	0.025 (0.021–0.031)	125 (101–151)
	2010	< 1	<0.01 (<0.01–<0.01)	20 (8.4–37)	0.041 (0.018–0.072)	200 (90–353)	0.025 (0.021–0.031)	124 (100–150)
	2011	< 1	<0.01 (<0.01–<0.01)	26 (12–48)	0.053 (0.025–0.090)	256 (122–439)	0.032 (0.026–0.038)	153 (126–183)
Papua New Guinea	1990	4	3.4 (1.1–6.8)	82 (28–164)	28 (11–54)	678 (261–1 290)	13 (8.5–18)	308 (203–435)
	1995	5	2.9 (1.0–5.9)	63 (22–124)	27 (11–51)	574 (223–1 090)	15 (10–21)	322 (212–453)
	2000	5	2.8 (0.890–5.7)	52 (17–106)	29 (10–56)	530 (193–1 030)	19 (12–26)	349 (230–492)
	2005	6	3.3 (1.1–6.8)	55 (18–111)	34 (12–65)	552 (204–1 070)	22 (14–31)	358 (236–505)
	2009	7	3.6 (1.2–7.3)	54 (18–109)	36 (13–71)	544 (200–1 060)	24 (16–33)	351 (231–495)
	2010	7	3.6 (1.2–7.4)	53 (17–108)	37 (14–72)	538 (198–1 040)	24 (16–34)	348 (229–491)
	2011	7	3.7 (1.2–7.5)	53 (17–107)	37 (14–73)	534 (196–1 040)	24 (16–34)	346 (228–488)
Philippines	1990	62	36 (32–39)	58 (52–64)	620 (470–780)	1 000 (768–1 270)	240 (150–360)	393 (243–580)
	1995	69	34 (29–39)	49 (42–56)	630 (480–790)	904 (692–1 140)	250 (200–300)	360 (294–432)
	2000	77	32 (30–34)	41 (38–44)	600 (480–740)	775 (616–953)	250 (210–310)	329 (269–395)
	2005	86	30 (28–32)	35 (33–37)	540 (470–620)	633 (544–729)	260 (210–310)	301 (246–361)
	2009	92	28 (25–31)	31 (28–34)	480 (420–540)	520 (459–584)	260 (210–310)	280 (230–335)
	2010	93	28 (25–31)	30 (27–33)	470 (410–530)	502 (441–566)	260 (210–310)	275 (227–328)
	2011	95	28 (25–31)	29 (26–33)	460 (400–520)	484 (425–546)	260 (210–310)	270 (223–322)
Republic of Korea	1990	43	3.5 (0.049–14)	8.2 (0.11–33)	96 (78–110)	223 (182–267)	72 (63–81)	167 (147–190)
	1995	45	2.2 (0.030–8.8)	4.9 (<0.1–20)	90 (74–110)	202 (166–243)	45 (39–51)	101 (88–114)
	2000	46	1.8 (0.025–7.1)	3.9 (<0.1–15)	85 (69–100)	184 (150–221)	36 (32–41)	79 (69–89)
	2005	47	2 (0.028–8.1)	4.3 (<0.1–17)	79 (64–94)	167 (136–201)	42 (36–47)	88 (78–100)
	2009	48	2.2 (0.031–8.9)	4.7 (<0.1–19)	74 (61–89)	155 (126–186)	46 (40–52)	96 (84–108)
	2010	48	2.3 (0.032–9.1)	4.8 (<0.1–19)	73 (60–88)	152 (124–182)	47 (41–53)	98 (86–110)
	2011	48	2.3 (0.033–9.3)	4.9 (<0.1–19)	72 (59–87)	149 (121–179)	48 (42–55)	100 (87–113)
Samoa	1990	< 1	<0.01 (<0.01–0.014)	4.9 (2.0–9.0)	0.085 (0.037–0.150)	53 (23–96)	0.058 (0.047–0.070)	36 (29–44)
	1995	< 1	<0.01 (<0.01–0.013)	4 (1.5–7.6)	0.073 (0.029–0.140)	43 (17–81)	0.05 (0.039–0.063)	30 (23–37)
	2000	< 1	<0.01 (<0.01–0.011)	3.3 (1.2–6.4)	0.062 (0.024–0.120)	35 (14–66)	0.041 (0.031–0.054)	23 (17–30)
	2005	< 1	<0.01 (<0.01–<0.01)	2 (0.78–3.9)	0.042 (0.016–0.080)	23 (9.1–44)	0.031 (0.025–0.038)	17 (14–21)
	2009	< 1	<0.01 (<0.01–<0.01)	1.5 (0.62–2.8)	0.031 (0.013–0.057)	17 (7.0–31)	0.022 (0.018–0.027)	12 (9.9–15)
	2010	< 1	<0.01 (<0.01–<0.01)	1.3 (0.53–2.4)	0.027 (0.011–0.051)	15 (6.0–28)	0.02 (0.016–0.024)	11 (8.9–13)
	2011	< 1	<0.01 (<0.01–<0.01)	1.1 (0.41–2.0)	0.023 (<0.01–0.045)	13 (4.8–24)	0.018 (0.014–0.021)	9.6 (7.9–11)
Singapore	1990	3	0.14 (0.130–0.140)	4.5 (4.4–4.7)	2.4 (0.940–4.5)	79 (31–150)	1.9 (1.7–2.1)	63 (55–71)
	1995	3	0.15 (0.140–0.160)	4.3 (4.0–4.5)	2.8 (1.1–5.2)	79 (31–149)	2.2 (1.9–2.5)	63 (55–71)
	2000	4	0.12 (0.110–0.140)	3.2 (2.8–3.6)	2.5 (1.0–4.8)	65 (26–122)	2 (1.8–2.3)	52 (46–59)
	2005	4	0.1 (0.088–0.120)	2.5 (2.1–2.9)	2 (0.790–3.7)	46 (18–87)	1.6 (1.4–1.8)	37 (33–42)
	2009	5	0.096 (0.075–0.120)	1.9 (1.5–2.4)	2.2 (0.860–4.0)	44 (17–82)	1.7 (1.5–2.0)	35 (31–40)
	2010	5	0.094 (0.084–0.100)	1.8 (1.7–2.0)	2.3 (0.900–4.3)	45 (18–84)	1.8 (1.6–2.1)	36 (31–40)
	2011	5	0.092 (0.083–0.100)	1.8 (1.6–2.0)	2.4 (0.950–4.4)	46 (18–86)	1.9 (1.7–2.2)	37 (32–42)
Solomon Islands	1990	< 1	0.22 (0.071–0.440)	70 (23–142)	1.9 (0.690–3.7)	615 (222–1 200)	0.97 (0.600–1.4)	312 (193–460)
	1995	< 1	0.19 (0.078–0.350)	54 (22–100)	1.7 (0.800–2.9)	472 (224–809)	0.86 (0.700–1.0)	240 (196–288)
	2000	< 1	0.17 (0.070–0.320)	42 (17–77)	1.5 (0.710–2.6)	364 (173–625)	0.75 (0.620–0.910)	185 (151–222)
	2005	< 1	0.13 (0.054–0.230)	27 (12–49)	1.2 (0.570–2.0)	251 (121–429)	0.67 (0.550–0.800)	142 (116–171)
	2009	< 1	0.098 (0.043–0.170)	19 (8.1–33)	0.97 (0.460–1.7)	185 (87–319)	0.6 (0.490–0.720)	115 (94–137)
	2010	< 1	0.092 (0.041–0.160)	17 (7.5–31)	0.93 (0.430–1.6)	172 (80–299)	0.58 (0.480–0.700)	108 (89–129)
	2011	< 1	0.089 (0.039–0.160)	16 (7.1–29)	0.9 (0.410–1.6)	162 (75–283)	0.57 (0.470–0.680)	103 (85–123)
Tokelau	1990	< 1	<0.01 (<0.01–<0.01)	6.5 (1.5–15)	<0.01 (<0.01–<0.01)	87 (26–185)	<0.01 (<0.01–<0.01)	72 (57–90)
	1995	< 1	<0.01 (0–<0.01)	3.1 (0–20)	<0.01 (<0.01–<0.01)	53 (2.0–186)	<0.01 (<0.01–<0.01)	39 (13–80)
	2000	< 1	<0.01 (<0.01–<0.01)	4.1 (0.58–11)	<0.01 (<0.01–<0.01)	32 (5.4–82)	<0.01 (<0.01–<0.01)	13 (3.5–28)
	2005	< 1						
	2009	< 1						
	2010	< 1						
	2011	< 1						
Tonga	1990	< 1	<0.01 (<0.01–<0.01)	5.9 (2.6–10)	0.056 (0.027–0.097)	59 (28–102)	0.036 (0.030–0.042)	38 (32–45)
	1995	< 1	<0.01 (<0.01–<0.01)	4.2 (1.8–7.5)	0.045 (0.019–0.081)	46 (20–84)	0.032 (0.027–0.037)	33 (28–39)
	2000	< 1	<0.01 (<0.01–<0.01)	3.3 (1.2–6.6)	0.038 (0.014–0.072)	39 (15–74)	0.027 (0.021–0.034)	28 (22–35)
	2005	< 1	<0.01 (<0.01–<0.01)	2.9 (1.2–5.5)	0.033 (0.013–0.060)	32 (13–60)	0.023 (0.018–0.028)	22 (18–27)
	2009	< 1	<0.01 (<0.01–<0.01)	2.7 (1.2–5.0)	0.029 (0.013–0.052)	28 (12–50)	0.019 (0.016–0.021)	18 (16–20)
	2010	< 1	<0.01 (<0.01–<0.01)	2.8 (1.1–5.2)	0.029 (0.013–0.051)	28 (12–49)	0.017 (0.015–0.020)	17 (14–20)
	2011	< 1	<0.01 (<0.01–<0.01)	2.9 (1.2–5.4)	0.029 (0.013–0.050)	27 (12–48)	0.016 (0.014–0.019)	16 (13–18)

[a] Rates are per 100 000 population.

TABLE A4.1 **Estimates of the burden of disease caused by TB, 1990–2011**

	YEAR	POPULATION (MILLIONS)	MORTALITY (EXCLUDING HIV)		PREVALENCE (INCLUDING HIV)		INCIDENCE (INCLUDING HIV)	
			NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]
Tuvalu	1990	< 1	<0.01 (<0.01–0.018)	97 (32–196)	0.084 (0.030–0.160)	933 (336–1 830)	0.048 (0.031–0.069)	536 (347–766)
	1995	< 1	<0.01 (<0.01–0.017)	61 (4.9–187)	0.065 (<0.01–0.170)	700 (96–1 880)	0.04 (0.017–0.074)	437 (181–805)
	2000	< 1	<0.01 (<0.01–0.013)	67 (22–135)	0.06 (0.022–0.120)	633 (231–1 230)	0.034 (0.022–0.048)	357 (231–510)
	2005	< 1	<0.01 (<0.01–<0.01)	49 (17–97)	0.047 (0.018–0.090)	484 (181–931)	0.028 (0.019–0.039)	291 (198–402)
	2009	< 1	<0.01 (<0.01–<0.01)	38 (6.4–98)	0.04 (<0.01–0.095)	405 (86–967)	0.024 (0.012–0.041)	247 (121–418)
	2010	< 1	<0.01 (<0.01–<0.01)	38 (9.4–87)	0.039 (0.011–0.084)	393 (109–853)	0.023 (0.013–0.036)	237 (135–368)
	2011	< 1	<0.01 (<0.01–<0.01)	37 (9.4–84)	0.037 (0.011–0.081)	381 (109–819)	0.022 (0.013–0.035)	228 (130–353)
Vanuatu	1990	< 1	0.015 (<0.01–0.036)	10 (2.1–25)	0.21 (0.059–0.470)	146 (40–319)	0.19 (0.150–0.230)	127 (103–154)
	1995	< 1			0.16 (0.047–0.340)	94 (28–199)	0.11 (0.085–0.130)	63 (51–76)
	2000	< 1	0.028 (0.012–0.051)	15 (6.4–28)	0.3 (0.130–0.540)	162 (70–292)	0.2 (0.160–0.250)	110 (89–132)
	2005	< 1	0.029 (0.013–0.052)	14 (6.0–25)	0.29 (0.130–0.490)	135 (64–233)	0.17 (0.140–0.210)	83 (68–99)
	2009	< 1	0.018 (<0.01–0.033)	7.7 (3.2–14)	0.2 (0.097–0.350)	87 (42–149)	0.17 (0.140–0.200)	72 (59–86)
	2010	< 1	0.024 (0.010–0.043)	10 (4.4–18)	0.25 (0.110–0.440)	105 (47–185)	0.17 (0.140–0.200)	69 (57–83)
	2011	< 1	0.022 (<0.01–0.039)	8.8 (3.8–16)	0.24 (0.100–0.430)	97 (42–175)	0.16 (0.140–0.200)	67 (55–80)
Viet Nam	1990	67	31 (12–59)	46 (18–87)	270 (120–480)	403 (180–714)	140 (100–170)	204 (155–261)
	1995	74	32 (13–60)	43 (17–81)	290 (130–510)	387 (174–685)	150 (110–190)	204 (155–261)
	2000	79	28 (11–53)	36 (14–67)	270 (120–480)	344 (153–612)	160 (120–210)	205 (156–261)
	2005	83	29 (11–53)	34 (14–64)	280 (120–490)	333 (148–592)	170 (130–220)	204 (155–260)
	2009	87	30 (12–55)	34 (14–63)	290 (130–500)	328 (148–579)	170 (130–220)	200 (153–254)
	2010	88	30 (12–56)	34 (14–63)	290 (130–510)	328 (149–577)	180 (130–220)	199 (153–251)
	2011	89	30 (12–55)	33 (14–62)	290 (130–500)	323 (148–563)	180 (140–220)	199 (153–250)
Wallis and Futuna Islands	1990	< 1	<0.01 (<0.01–<0.01)	16 (6.8–29)	0.027 (0.011–0.051)	194 (76–367)	0.021 (0.018–0.024)	151 (133–171)
	1995	< 1	<0.01 (<0.01–<0.01)	7 (3.0–13)	0.012 (<0.01–0.023)	85 (33–161)	<0.01 (<0.01–0.011)	67 (58–75)
	2000	< 1	<0.01 (<0.01–<0.01)	6.4 (2.8–12)	0.011 (<0.01–0.021)	78 (31–148)	<0.01 (<0.01–0.010)	61 (53–69)
	2005	< 1	<0.01 (<0.01–<0.01)	7.2 (3.1–13)	0.013 (<0.01–0.024)	88 (34–167)	<0.01 (<0.01–0.011)	69 (60–78)
	2009	< 1	<0.01 (<0.01–<0.01)	4.2 (1.8–7.5)	<0.01 (<0.01–0.013)	51 (20–97)	<0.01 (<0.01–<0.01)	40 (35–45)
	2010	< 1	<0.01 (<0.01–<0.01)	3.2 (1.4–5.8)	<0.01 (<0.01–0.010)	39 (15–74)	<0.01 (<0.01–<0.01)	31 (27–35)
	2011	< 1	<0.01 (<0.01–<0.01)	2.1 (0.65–4.4)	<0.01 (<0.01–<0.01)	26 (8.9–53)	<0.01 (<0.01–<0.01)	21 (18–23)

[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2011**

			INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE		CASE DETECTION
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
American Samoa	1990	< 1	0.012 (<0.01–0.015)	26 (21–31)			9	19	75 (62–93)
	1995	< 1	<0.01 (<0.01–<0.01)	12 (9.4–14)					
	2000	< 1	<0.01 (<0.01–<0.01)	6.9 (5.6–8.4)			3	5.2	75 (62–93)
	2005	< 1	<0.01 (<0.01–<0.01)	13 (10–15)			6	9.5	75 (62–93)
	2009	< 1	<0.01 (<0.01–<0.01)	7.9 (6.4–9.6)			4	5.9	75 (62–93)
	2010	< 1	<0.01 (<0.01–<0.01)	7.8 (6.3–9.4)			4	5.8	75 (62–93)
	2011	< 1	<0.01 (<0.01–<0.01)	7.8 (6.3–9.4)			3	4.3	55 (46–68)
Australia	1990	17	1.1 (0.980–1.3)	6.5 (5.7–7.4)	0.032 (0.028–0.036)	0.2 (0.16–0.21)	1 016	5.9	91 (80–100)
	1995	18	1.2 (1.1–1.4)	6.7 (5.9–7.6)	0.032 (0.022–0.044)	0.2 (0.12–0.24)	1 073	5.9	88 (78–100)
	2000	19	1.2 (1.0–1.3)	6.1 (5.3–6.9)	0.031 (0.021–0.042)	0.2 (0.11–0.22)	1 043	5.4	90 (79–100)
	2005	20	1.2 (1.1–1.4)	6 (5.3–6.8)	0.038 (0.027–0.051)	0.2 (0.13–0.25)	1 046	5.1	85 (75–97)
	2009	22	1.3 (1.2–1.5)	6.1 (5.4–6.9)	0.046 (0.033–0.061)	0.2 (0.15–0.28)	1 217	5.6	91 (80–100)
	2010	22	1.4 (1.2–1.5)	6.1 (5.3–6.9)	0.047 (0.029–0.070)	0.2 (0.13–0.31)	1 187	5.3	88 (77–100)
	2011	23	1.4 (1.2–1.5)	6 (5.3–6.8)	0.035 (0.019–0.055)	0.2 (<0.1–0.24)	1 222	5.4	90 (79–100)
Brunei Darussalam	1990	< 1	0.18 (0.160–0.200)	71 (62–80)			143	57	80 (71–92)
	1995	< 1	0.2 (0.180–0.230)	69 (61–78)					
	2000	< 1	0.28 (0.240–0.310)	85 (75–96)			307	94	110 (98–130)
	2005	< 1	0.23 (0.200–0.260)	62 (55–70)	<0.01 (<0.01–<0.01)	0.8 (<0.1–2.5)	163	45	72 (64–82)
	2009	< 1	0.24 (0.210–0.280)	63 (55–71)	<0.01 (<0.01–<0.01)	0.6 (<0.1–1.9)	213	54	87 (77–99)
	2010	< 1	0.26 (0.230–0.300)	66 (58–74)	<0.01 (0–<0.01)	0.3 (0–1.4)	237	59	90 (80–100)
	2011	< 1	0.28 (0.250–0.320)	70 (61–79)	<0.01 (<0.01–0.010)	0.9 (0.13–2.5)	230	57	81 (71–92)
Cambodia	1990	10	55 (40–73)	580 (423–761)	1.9 (1.4–2.5)	20 (14–26)	6 501	68	12 (9.0–16)
	1995	11	65 (50–81)	578 (448–724)	7 (5.2–9.1)	63 (46–82)	14 603	131	23 (18–29)
	2000	12	72 (57–88)	577 (458–710)	8.4 (6.3–11)	68 (51–87)	18 891	152	26 (21–33)
	2005	13	68 (57–81)	510 (424–604)	5.8 (4.5–7.4)	44 (34–55)	35 535	266	52 (44–63)
	2009	14	63 (54–73)	451 (387–520)	4 (2.9–5.2)	28 (21–37)	39 202	280	62 (54–73)
	2010	14	62 (53–71)	437 (376–503)	4 (3.5–4.7)	29 (24–33)	40 460	286	65 (57–76)
	2011	14	61 (52–70)	424 (364–489)	3.1 (2.6–3.6)	22 (18–25)	38 555	270	64 (55–74)
China	1990	1 145	1 700 (1 400–2 200)	153 (121–189)	0.32 (0.210–0.460)	<0.1 (<0.1–<0.1)	375 481	33	21 (17–27)
	1995	1 214	1 600 (1 300–1 900)	129 (106–154)	3.8 (2.1–5.9)	0.3 (0.17–0.49)	515 764	42	33 (28–40)
	2000	1 269	1 400 (1 200–1 600)	109 (92–126)	7.1 (4.4–10)	0.6 (0.34–0.83)	454 372	36	33 (28–39)
	2005	1 308	1 200 (1 000–1 400)	92 (80–105)	11 (7.2–16)	0.8 (0.55–1.2)	894 428	68	74 (65–85)
	2009	1 335	1 100 (940–1 200)	80 (70–91)	13 (8.5–17)	0.9 (0.63–1.3)	965 257	72	90 (79–100)
	2010	1 341	1 000 (910–1 200)	78 (68–88)	13 (8.5–17)	0.9 (0.64–1.3)	908 399	68	87 (77–99)
	2011	1 348	1 000 (890–1 100)	75 (66–85)	13 (8.6–17)	0.9 (0.63–1.3)	899 669	67	89 (79–100)
China, Hong Kong SAR	1990	6	7.3 (6.4–8.3)	127 (111–143)			6 510	112	89 (78–100)
	1995	6	7.5 (6.6–8.5)	122 (107–139)			6 212	101	83 (73–94)
	2000	7	7.5 (6.6–8.5)	111 (97–125)			6 015	89	80 (71–92)
	2005	7	6.5 (5.7–7.4)	96 (84–108)	0.054 (0.036–0.076)	0.8 (0.53–1.1)	5 660	83	87 (77–99)
	2009	7	5.9 (5.2–6.7)	84 (74–96)	0.057 (0.039–0.078)	0.8 (0.55–1.1)	5 160	74	87 (77–100)
	2010	7	5.7 (5.0–6.5)	81 (71–92)	0.036 (0.022–0.053)	0.5 (0.31–0.75)	4 935	70	86 (76–98)
	2011	7	5.5 (4.8–6.3)	78 (68–88)	0.05 (0.033–0.070)	0.7 (0.46–0.98)	4 739	67	86 (76–98)
China, Macao SAR	1990	< 1	0.32 (0.280–0.360)	89 (78–101)			343	95	110 (94–120)
	1995	< 1	0.5 (0.440–0.570)	126 (110–142)			402	101	80 (71–92)
	2000	< 1	0.53 (0.470–0.600)	123 (108–140)			449	104	84 (74–96)
	2005	< 1	0.4 (0.350–0.460)	84 (73–95)	<0.01 (0–<0.01)	0.2 (0–1.1)	355	74	88 (78–100)
	2009	< 1	0.39 (0.340–0.440)	73 (64–83)	<0.01 (0–<0.01)	0.2 (0–1.1)	308	58	79 (70–90)
	2010	< 1	0.4 (0.350–0.450)	73 (64–83)	<0.01 (<0.01–<0.01)	0.6 (<0.1–1.5)	368	68	93 (82–110)
	2011	< 1	0.41 (0.360–0.460)	73 (64–83)	<0.01 (<0.01–<0.01)	0.4 (<0.1–1.3)	341	61	84 (74–95)
Cook Islands	1990	< 1	<0.01 (<0.01–<0.01)	11 (9.9–13)			0	0	0
	1995	< 1	<0.01 (<0.01–<0.01)	18 (16–20)			2	11	62 (54–70)
	2000	< 1	<0.01 (<0.01–<0.01)	8.1 (7.1–9.2)			1	5.6	69 (61–79)
	2005	< 1	<0.01 (<0.01–<0.01)	6.3 (5.5–7.2)			1	5.2	81 (72–93)
	2009	< 1	<0.01 (<0.01–<0.01)	6.4 (5.6–7.3)			2	9.9	150 (140–180)
	2010	< 1	<0.01 (<0.01–<0.01)	6.3 (5.5–7.1)			0	0	0
	2011	< 1	<0.01 (<0.01–<0.01)	6 (5.3–6.8)			1	4.9	82 (72–93)
Fiji	1990	< 1	0.81 (0.710–0.920)	112 (98–126)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	226	31	28 (25–32)
	1995	< 1	0.6 (0.530–0.680)	77 (68–87)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.12)	203	26	34 (30–39)
	2000	< 1	0.44 (0.390–0.500)	54 (48–62)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.19)	144	18	33 (29–37)
	2005	< 1	0.33 (0.290–0.370)	40 (35–45)	<0.01 (0–0.012)	0.3 (0–1.5)	132	16	41 (36–46)
	2009	< 1	0.26 (0.220–0.290)	30 (26–34)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–0.15)	144	17	56 (50–64)
	2010	< 1	0.24 (0.210–0.270)	28 (24–32)	<0.01 (<0.01–0.012)	0.5 (<0.1–1.4)	189	22	79 (70–90)
	2011	< 1	0.23 (0.200–0.260)	26 (23–29)	<0.01 (<0.01–0.011)	0.5 (<0.1–1.3)	208	24	92 (81–110)
French Polynesia	1990	< 1	0.061 (0.053–0.069)	31 (27–35)			59	30	97 (86–110)
	1995	< 1	0.1 (0.091–0.120)	48 (42–54)					
	2000	< 1	0.087 (0.076–0.098)	37 (32–41)			62	26	71 (63–81)
	2005	< 1	0.066 (0.058–0.075)	26 (23–29)			63	25	96 (85–110)
	2009	< 1	0.063 (0.055–0.071)	24 (21–27)			53	20	84 (74–96)
	2010	< 1	0.063 (0.055–0.071)	23 (20–26)			41	15	65 (58–74)
	2011	< 1	0.063 (0.055–0.071)	23 (20–26)			64	23	100 (90–120)
Guam	1990	< 1	0.062 (0.055–0.070)	47 (41–53)					
	1995	< 1	0.09 (0.079–0.100)	62 (54–70)					
	2000	< 1	0.063 (0.056–0.072)	41 (36–46)			54	35	85 (75–97)
	2005	< 1	0.059 (0.052–0.067)	35 (31–40)			63	37	110 (94–120)
	2009	< 1	0.093 (0.082–0.110)	52 (46–59)			102	57	110 (97–130)
	2010	< 1	0.11 (0.092–0.120)	59 (51–66)	<0.01 (0–<0.01)	0.9 (0–4.4)	101	56	96 (85–110)
	2011	< 1	0.12 (0.100–0.130)	65 (57–74)			81	44	68 (60–78)
Japan	1990	122	60 (52–67)	49 (43–55)	0.19 (0.170–0.220)	0.2 (0.14–0.18)	51 821	42	87 (77–99)
	1995	124	52 (45–58)	41 (36–47)	0.18 (0.095–0.290)	0.1 (<0.1–0.23)	43 078	35	83 (74–95)
	2000	126	44 (39–50)	35 (31–40)	0.17 (0.089–0.260)	0.1 (<0.1–0.21)	39 384	31	89 (79–100)
	2005	126	32 (28–36)	25 (22–28)	0.13 (0.069–0.200)	0.1 (<0.1–0.16)	27 194	22	86 (76–98)
	2009	127	27 (23–30)	21 (18–24)	0.11 (0.080–0.150)	<0.1 (<0.1–0.12)	23 631	19	89 (78–100)
	2010	127	26 (23–29)	21 (18–23)	0.11 (0.082–0.150)	<0.1 (<0.1–0.12)	22 693	18	87 (77–99)
	2011	126	26 (23–29)	20 (18–23)	0.11 (0.061–0.180)	<0.1 (<0.1–0.14)	22 119	17	86 (76–98)
Kiribati	1990	< 1	0.084 (0.066–0.100)	116 (93–143)			68	95	81 (66–100)
	1995	< 1	0.39 (0.320–0.470)	505 (410–609)					
	2000	< 1	0.31 (0.250–0.380)	372 (296–456)			252	300	81 (66–100)
	2005	< 1	0.45 (0.360–0.540)	488 (396–588)			332	361	74 (61–91)
	2009	< 1	0.4 (0.330–0.480)	408 (335–487)	<0.01 (<0.01–0.017)	5.4 (0.30–18)	278	284	70 (58–85)
	2010	< 1	0.37 (0.300–0.450)	370 (298–450)	<0.01 (<0.01–<0.01)	2.5 (1.8–3.4)	286	287	78 (64–96)
	2011	< 1	0.36 (0.290–0.430)	356 (289–430)			343	339	95 (79–120)
Lao People's Democratic Republic	1990	4	21 (13–30)	492 (304–725)	0.011 (<0.01–0.016)	0.3 (0.15–0.38)	1 826	44	8.8 (6.0–14)
	1995	5	19 (12–28)	403 (249–593)	0.065 (0.031–0.110)	1.4 (0.65–2.3)	830	17	4.3 (2.9–6.9)
	2000	5	18 (11–26)	330 (204–486)	0.21 (0.110–0.340)	3.9 (2.1–6.4)	2 227	42	13 (8.6–21)
	2005	6	16 (9.6–23)	270 (167–398)	0.36 (0.200–0.560)	6.2 (3.4–9.7)	3 699	64	24 (16–38)
	2009	6	14 (8.7–21)	230 (142–339)	0.44 (0.250–0.690)	7.2 (4.1–11)	3 848	63	27 (19–44)
	2010	6	14 (8.5–20)	221 (137–326)	0.46 (0.260–0.710)	7.3 (4.1–11)	3 999	64	29 (20–47)
	2011	6	13 (8.3–20)	213 (131–313)	0.47 (0.260–0.730)	7.4 (4.2–12)	4 306	68	32 (22–52)
Malaysia	1990	18	23 (21–26)	127 (113–142)	0.39 (0.340–0.450)	2.2 (1.9–2.5)	11 702	64	51 (45–57)
	1995	21	22 (20–25)	108 (97–120)	1.4 (1.0–1.7)	6.5 (4.9–8.4)	11 778	57	53 (48–58)
	2000	23	22 (20–24)	95 (86–103)	1.9 (1.5–2.4)	8 (6.2–10)	15 057	64	68 (62–75)
	2005	26	22 (21–24)	86 (79–94)	2.8 (2.6–3.1)	11 (9.8–12)	15 342	59	68 (63–75)
	2009	28	23 (21–25)	83 (76–90)	2.5 (2.3–2.8)	8.9 (8.1–9.8)	17 341	62	75 (69–82)
	2010	28	23 (21–25)	82 (75–89)	2.2 (2.0–2.4)	7.6 (6.9–8.3)	18 517	65	80 (73–87)
	2011	29	23 (21–25)	81 (74–88)	2.1 (1.9–2.3)	7.2 (6.5–7.9)	19 808	69	85 (78–92)
Marshall Islands	1990	< 1	0.065 (<0.01–0.190)	137 (14–396)					
	1995	< 1	0.097 (0.024–0.220)	190 (46–432)					
	2000	< 1	0.14 (0.084–0.200)	263 (161–389)			34	65	25 (17–41)
	2005	< 1	0.19 (0.050–0.420)	363 (96–803)			111	213	59 (27–220)
	2009	< 1	0.25 (0.076–0.530)	471 (143–990)	<0.01 (<0.01–0.020)	9.6 (0.18–37)	135	253	54 (26–180)
	2010	< 1	0.27 (0.052–0.670)	502 (97–1 230)			190	352	70 (29–360)
	2011	< 1	0.29 (0.057–0.720)	536 (103–1 320)	<0.01 (0–0.020)	6.1 (0–36)	139	254	47 (19–250)

[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2011**

			INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE		CASE DETECTION
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
Micronesia (Federated States of)	1990	< 1	0.36 (0.100–0.800)	379 (104–827)			367	381	100 (46–370)
	1995	< 1	0.35 (0.200–0.540)	325 (185–505)			172	160	49 (32–87)
	2000	< 1	0.3 (0.210–0.400)	279 (200–371)			91	85	30 (23–43)
	2005	< 1	0.26 (0.170–0.370)	240 (158–338)			98	90	37 (26–57)
	2009	< 1	0.23 (0.110–0.400)	212 (101–365)			148	134	63 (37–130)
	2010	< 1	0.23 (0.098–0.410)	206 (89–371)			160	144	70 (39–160)
	2011	< 1	0.22 (0.096–0.400)	200 (86–360)			148	133	66 (37–150)
Mongolia	1990	2	8.9 (7.6–10)	405 (345–470)	0 (0–<0.01)	0 (0–0)	1 659	76	19 (16–22)
	1995	2	7.2 (6.3–8.2)	314 (274–356)	<0.01 (0–<0.01)	0 (0–0)	2 780	121	38 (34–44)
	2000	2	6.1 (5.5–6.8)	254 (228–281)	<0.01 (<0.01–<0.01)	0 (0–0)	3 109	129	51 (46–57)
	2005	3	5.7 (5.3–6.2)	225 (207–243)	<0.01 (<0.01–<0.01)	<0.1 (<0.1–<0.1)	4 601	181	80 (74–87)
	2009	3	6.1 (5.6–6.5)	224 (208–240)			4 481	165	74 (69–79)
	2010	3	6.2 (5.7–6.6)	224 (209–240)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.35)	4 458	162	72 (67–78)
	2011	3	6.2 (5.8–6.7)	223 (208–239)	<0.01 (<0.01–0.013)	0.2 (<0.1–0.45)	4 217	151	68 (63–73)
Nauru	1990	< 1	<0.01 (<0.01–<0.01)	89 (78–101)			7	76	86 (76–98)
	1995	< 1	<0.01 (<0.01–<0.01)	39 (34–44)					
	2000	< 1	<0.01 (<0.01–<0.01)	32 (28–36)			4	40	130 (110–140)
	2005	< 1	<0.01 (<0.01–<0.01)	78 (68–88)			11	109	140 (120–160)
	2009	< 1	<0.01 (<0.01–<0.01)	60 (53–68)			4	39	65 (58–75)
	2010	< 1	<0.01 (<0.01–<0.01)	48 (42–54)			3	29	61 (54–70)
	2011	< 1	<0.01 (<0.01–<0.01)	33 (28–37)			5	49	150 (130–170)
New Caledonia	1990	< 1	0.17 (0.150–0.190)	99 (87–112)			143	84	85 (75–97)
	1995	< 1	0.12 (0.100–0.130)	61 (53–69)			87	46	75 (67–86)
	2000	< 1	0.088 (0.077–0.099)	41 (36–47)			94	44	110 (95–120)
	2005	< 1	0.056 (0.049–0.063)	24 (21–27)			47	20	85 (75–97)
	2009	< 1	0.055 (0.048–0.062)	22 (19–25)			54	22	99 (87–110)
	2010	< 1	0.058 (0.051–0.066)	23 (20–26)			49	20	84 (75–96)
	2011	< 1	0.063 (0.055–0.071)	25 (22–28)			52	20	83 (73–94)
New Zealand	1990	3	0.38 (0.330–0.430)	11 (9.7–13)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.12)	348	10	92 (82–110)
	1995	4	0.4 (0.350–0.450)	11 (9.6–12)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.15)	391	11	97 (86–110)
	2000	4	0.43 (0.380–0.490)	11 (9.7–13)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.18)	344	8.9	80 (71–92)
	2005	4	0.39 (0.340–0.440)	9.4 (8.2–11)	<0.01 (<0.01–<0.01)	0.1 (0.10–0.20)	332	8	85 (76–98)
	2009	4	0.35 (0.300–0.390)	8 (7.0–9.1)	<0.01 (<0.01–<0.01)	0.1 (<0.1–0.18)	298	6.9	86 (76–98)
	2010	4	0.34 (0.300–0.390)	7.8 (6.8–8.8)	<0.01 (<0.01–0.015)	0.1 (<0.1–0.34)	301	6.9	88 (78–100)
	2011	4	0.34 (0.290–0.380)	7.6 (6.7–8.6)	<0.01 (<0.01–0.013)	<0.1 (0–0.29)	305	6.9	91 (80–100)
Niue	1990	< 1	<0.01 (<0.01–<0.01)	42 (37–48)			0	0	0
	1995	< 1	<0.01 (<0.01–<0.01)	47 (41–53)			0	0	0
	2000	< 1	<0.01 (<0.01–<0.01)	49 (43–56)			0	0	0
	2005	< 1	<0.01 (<0.01–<0.01)	23 (20–26)			0	0	0
	2009	< 1	<0.01 (<0.01–<0.01)	16 (14–18)			0	0	0
	2010	< 1	<0.01 (<0.01–<0.01)	26 (23–29)			0	0	0
	2011	< 1	<0.01 (<0.01–<0.01)	40 (35–46)			1	70	170 (150–200)
Northern Mariana Islands	1990	< 1	0.04 (0.035–0.045)	91 (80–103)			28	64	70 (62–80)
	1995	< 1	0.074 (0.065–0.084)	129 (113–146)			48	83	65 (57–74)
	2000	< 1	0.082 (0.072–0.093)	120 (105–136)			75	110	91 (80–100)
	2005	< 1	0.054 (0.047–0.061)	80 (70–91)			57	85	110 (93–120)
	2009	< 1	0.041 (0.036–0.046)	66 (58–75)			38	62	93 (82–110)
	2010	< 1	0.038 (0.034–0.043)	63 (55–71)			32	53	83 (74–95)
	2011	< 1	0.037 (0.032–0.042)	60 (53–68)			33	54	90 (79–100)
Palau	1990	< 1	<0.01 (<0.01–<0.01)	45 (36–54)					
	1995	< 1	0.025 (0.021–0.031)	147 (119–178)			19	110	75 (62–93)
	2000	< 1	0.03 (0.024–0.036)	156 (127–189)					
	2005	< 1	0.013 (0.011–0.016)	67 (54–81)			10	50	75 (62–93)
	2009	< 1	0.025 (0.021–0.031)	125 (101–151)			19	93	75 (62–93)
	2010	< 1	0.025 (0.021–0.031)	124 (100–150)			19	93	75 (62–93)
	2011	< 1	0.032 (0.026–0.038)	153 (126–183)			12	58	38 (32–46)
Papua New Guinea	1990	4	13 (8.5–18)	308 (203–435)	0.25 (0.160–0.350)	5.9 (3.9–8.3)	2 497	60	19 (14–30)
	1995	5	15 (10–21)	322 (212–453)	0.92 (0.570–1.4)	20 (12–29)	8 041	171	53 (38–80)
	2000	5	19 (12–26)	349 (230–492)	1.7 (1.1–2.5)	32 (20–47)	10 520	196	56 (40–85)
	2005	6	22 (14–31)	358 (236–505)	2.1 (1.3–3.1)	35 (22–50)	12 564	206	58 (41–87)
	2009	7	24 (16–33)	351 (231–495)	2.1 (1.3–3.1)	31 (20–46)	12 306	184	52 (37–79)
	2010	7	24 (16–34)	348 (229–491)	2.1 (1.3–3.1)	31 (19–45)	14 531	212	61 (43–92)
	2011	7	24 (16–34)	346 (228–488)	2.1 (1.3–3.1)	30 (19–44)	14 893	212	61 (44–93)
Philippines	1990	62	240 (150–360)	393 (243–580)	0.033 (0.020–0.049)	<0.1 (<0.1–<0.1)	317 008	514	130 (89–210)
	1995	69	250 (200–300)	360 (294–432)	0.072 (0.030–0.130)	0.1 (<0.1–0.19)	119 186	172	48 (40–59)
	2000	77	250 (210–310)	329 (269–395)	0.17 (0.079–0.290)	0.2 (0.10–0.37)	119 914	155	47 (39–58)
	2005	86	260 (210–310)	301 (246–361)	0.39 (0.200–0.630)	0.5 (0.24–0.73)	137 100	160	53 (44–65)
	2009	92	260 (210–310)	280 (230–335)	0.75 (0.430–1.2)	0.8 (0.47–1.3)	146 565	160	57 (48–70)
	2010	93	260 (210–310)	275 (227–328)	0.89 (0.520–1.4)	1 (0.55–1.5)	166 323	178	65 (54–79)
	2011	95	260 (210–310)	270 (223–322)	1.1 (0.650–1.6)	1.1 (0.68–1.7)	195 560	206	76 (64–93)
Republic of Korea	1990	43	72 (63–81)	167 (147–190)	0.1 (0.086–0.120)	0.2 (0.20–0.29)	63 904	149	89 (78–100)
	1995	45	45 (39–51)	101 (88–114)	0.079 (0.044–0.130)	0.2 (0.10–0.28)	42 117	94	94 (83–110)
	2000	46	36 (32–41)	79 (69–89)	0.076 (0.043–0.120)	0.2 (<0.1–0.26)	21 782	47	60 (53–69)
	2005	47	42 (36–47)	88 (78–100)	0.23 (0.140–0.340)	0.5 (0.31–0.71)	38 290	81	92 (81–110)
	2009	48	46 (40–52)	96 (84–108)	0.32 (0.200–0.460)	0.7 (0.42–0.95)	38 741	81	84 (75–96)
	2010	48	47 (41–53)	98 (86–110)	0.34 (0.220–0.480)	0.7 (0.45–1.0)	41 889	87	89 (79–100)
	2011	48	48 (42–55)	100 (87–113)	0.35 (0.230–0.500)	0.7 (0.47–1.0)	42 589	88	88 (78–100)
Samoa	1990	< 1	0.058 (0.047–0.070)	36 (29–44)			44	27	76 (63–94)
	1995	< 1	0.05 (0.039–0.063)	30 (23–37)			45	27	90 (72–120)
	2000	< 1	0.041 (0.031–0.054)	23 (17–30)			43	24	100 (80–140)
	2005	< 1	0.031 (0.025–0.038)	17 (14–21)			24	13	78 (64–97)
	2009	< 1	0.022 (0.018–0.027)	12 (9.9–15)			16	8.8	73 (60–89)
	2010	< 1	0.02 (0.016–0.024)	11 (8.9–13)			14	7.6	71 (59–86)
	2011	< 1	0.018 (0.014–0.021)	9.6 (7.9–11)			20	11	110 (95–140)
Singapore	1990	3	1.9 (1.7–2.1)	63 (55–71)	0.019 (0.016–0.022)	0.6 (0.55–0.72)	1 591	53	84 (74–96)
	1995	3	2.2 (1.9–2.5)	63 (55–71)	0.077 (0.052–0.110)	2.2 (1.5–3.0)	1 889	54	86 (76–98)
	2000	4	2 (1.8–2.3)	52 (46–59)	0.092 (0.064–0.130)	2.3 (1.6–3.2)	1 728	44	85 (75–97)
	2005	4	1.6 (1.4–1.8)	37 (33–42)	0.07 (0.048–0.095)	1.6 (1.1–2.2)	1 356	32	86 (76–98)
	2009	5	1.7 (1.5–2.0)	35 (31–40)	0.08 (0.058–0.110)	1.6 (1.2–2.1)	1 525	31	88 (78–100)
	2010	5	1.8 (1.6–2.1)	36 (31–40)	0.077 (0.055–0.100)	1.5 (1.1–2.0)	1 560	31	86 (76–98)
	2011	5	1.9 (1.7–2.2)	37 (32–42)	0.086 (0.063–0.110)	1.7 (1.2–2.2)	1 641	32	86 (76–98)
Solomon Islands	1990	< 1	0.97 (0.600–1.4)	312 (193–460)			382	123	40 (27–64)
	1995	< 1	0.86 (0.700–1.0)	240 (196–288)			352	99	41 (34–50)
	2000	< 1	0.75 (0.620–0.910)	185 (151–222)			302	74	40 (33–49)
	2005	< 1	0.67 (0.550–0.800)	142 (116–171)			397	85	60 (50–73)
	2009	< 1	0.6 (0.490–0.720)	115 (94–137)			366	70	61 (51–74)
	2010	< 1	0.58 (0.480–0.700)	108 (89–129)			338	63	58 (49–70)
	2011	< 1	0.57 (0.470–0.680)	103 (85–123)			398	72	70 (59–85)
Tokelau	1990	< 1	<0.01 (<0.01–<0.01)	72 (57–90)			1	62	86 (69–110)
	1995	< 1	<0.01 (<0.01–<0.01)	39 (13–80)			2	132	340 (160–1 000)
	2000	< 1	<0.01 (<0.01–<0.01)	13 (3.5–28)			0	0	0
	2005	< 1					0	0	
	2009	< 1					0	0	
	2010	< 1					0	0	
	2011	< 1					0	0	
Tonga	1990	< 1	0.036 (0.030–0.042)	38 (32–45)			23	24	64 (54–76)
	1995	< 1	0.032 (0.027–0.037)	33 (28–39)			20	21	63 (54–75)
	2000	< 1	0.027 (0.021–0.034)	28 (22–35)			24	25	88 (70–110)
	2005	< 1	0.023 (0.018–0.028)	22 (18–27)			18	18	79 (65–99)
	2009	< 1	0.019 (0.016–0.021)	18 (16–20)			8	7.7	43 (39–49)
	2010	< 1	0.017 (0.015–0.020)	17 (14–20)			11	11	63 (54–75)
	2011	< 1	0.016 (0.014–0.019)	16 (13–18)			9	8.6	55 (47–66)

[a] Rates are per 100 000 population.

TABLE A4.2 **Incidence, notification and case detection rates, all forms, 1990–2011**

			INCIDENCE (INCLUDING HIV)		INCIDENCE HIV-POSITIVE		NOTIFIED NEW AND RELAPSE		CASE DETECTION
	YEAR	POPULATION (MILLIONS)	NUMBER (THOUSANDS)	RATE[a]	NUMBER (THOUSANDS)	RATE[a]	NUMBER	RATE[a]	PERCENT
Tuvalu	1990	< 1	0.048 (0.031–0.069)	536 (347–766)			23	255	48 (33–74)
	1995	< 1	0.04 (0.017–0.074)	437 (181–805)			36	390	89 (48–220)
	2000	< 1	0.034 (0.022–0.048)	357 (231–510)			16	170	48 (33–74)
	2005	< 1	0.028 (0.019–0.039)	291 (198–402)			12	124	43 (31–63)
	2009	< 1	0.024 (0.012–0.041)	247 (121–418)			18	184	74 (44–150)
	2010	< 1	0.023 (0.013–0.036)	237 (135–368)			14	142	60 (39–110)
	2011	< 1	0.022 (0.013–0.035)	228 (130–353)			12	122	53 (35–94)
Vanuatu	1990	< 1	0.19 (0.150–0.230)	127 (103–154)			140	95	75 (62–93)
	1995	< 1	0.11 (0.085–0.130)	63 (51–76)			79	47	75 (62–93)
	2000	< 1	0.2 (0.160–0.250)	110 (89–132)			152	82	75 (62–93)
	2005	< 1	0.17 (0.140–0.210)	83 (68–99)			76	36	44 (36–53)
	2009	< 1	0.17 (0.140–0.200)	72 (59–86)	0.05 (0.036–0.067)	22 (15–29)	134	57	80 (67–97)
	2010	< 1	0.17 (0.140–0.200)	69 (57–83)			116	48	70 (58–85)
	2011	< 1	0.16 (0.140–0.200)	67 (55–80)			110	45	67 (56–81)
Viet Nam	1990	67	140 (100–170)	204 (155–261)	<0.01 (<0.01–0.015)	<0.1 (<0.1–<0.1)	50 203	75	37 (29–48)
	1995	74	150 (110–190)	204 (155–261)	0.12 (0.058–0.210)	0.2 (<0.1–0.29)	55 739	75	37 (29–49)
	2000	79	160 (120–210)	205 (156–261)	3.2 (2.1–4.5)	4 (2.6–5.8)	89 792	114	56 (44–73)
	2005	83	170 (130–220)	204 (155–260)	8.5 (5.9–12)	10 (7.1–14)	94 916	114	56 (44–74)
	2009	87	170 (130–220)	200 (153–254)	10 (7.1–14)	12 (8.1–16)	95 036	109	55 (43–71)
	2010	88	180 (130–220)	199 (153–251)	10 (7.3–14)	12 (8.3–16)	94 867	108	54 (43–70)
	2011	89	180 (140–220)	199 (153–250)	14 (11–18)	16 (12–20)	98 804	111	56 (44–73)
Wallis and Futuna Islands	1990	< 1	0.021 (0.018–0.024)	151 (133–171)					
	1995	< 1	<0.01 (<0.01–0.011)	67 (58–75)			6	42	64 (56–73)
	2000	< 1	<0.01 (<0.01–0.010)	61 (53–69)					
	2005	< 1	<0.01 (<0.01–0.011)	69 (60–78)			7	49	71 (63–82)
	2009	< 1	<0.01 (<0.01–<0.01)	40 (35–45)			9	66	160 (150–190)
	2010	< 1	<0.01 (<0.01–<0.01)	31 (27–35)					
	2011	< 1	<0.01 (<0.01–<0.01)	21 (18–23)			2	15	72 (64–83)

[a] Rates are per 100 000 population.

TABLE A4.3 **Case notifications, 1990–2011**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2011	YEAR	NEW AND RELAPSE	NEW CASES				RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
				SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN	EXTRA-PULMONARY	OTHER					
American Samoa		1990	9									–
		1995										–
		2000	3	2	0	1		0		0		100
		2005	6	3	2	0	0	1	0	1	0	60
		2009	4	0	2	2	0	0	0	0	0	0
		2010	4	0	3	1	0	0	0	0	0	0
	• 19 4 •	2011	3	0	3	0	0	0	0	0	0	0
Australia		1990	1 016									–
		1995	1 073									–
		2000	1 043	251	362	369		17		17		41
		2005	1 046	241	339	450		16	27	43		42
		2009	1 217	267	391	511	7	41	20	61	77	41
		2010	1 187	274	410	457	5	41	24	65	70	40
	• 6 5 •	2011	1 222	301	436	463	2	20	29	49	17	41
Brunei Darussalam		1990	143									–
		1995										–
		2000	307	84	166	42		15		15		34
		2005	163	101	30	27		5	0	5	0	77
		2009	213	140	18	49	6	0	0	0	0	89
		2010	237	146	30	43	13	5	0	5	0	83
	• 57 57 •	2011	230	109	52	48	13	8	0	8	0	68
Cambodia		1990	6 501									–
		1995	14 603	11 101	1 465	1 428		605		605		88
		2000	18 891	14 822	1 108	2 147		814		814		93
		2005	35 535	21 001	7 057	6 759		718	588	1 306		75
		2009	39 202	17 863	8 378	12 529	0	432	997	1 429	0	68
		2010	40 460	17 454	8 301	14 239	0	466	1 168	1 634	0	68
	• 68 270 •	2011	38 555	15 812	7 686	14 690	0	367	1 115	1 482	0	67
China		1990	375 481									–
		1995	515 764	134 488	203 088	1 560		18 693		18 693		40
		2000	454 372	204 765	229 943			19 664	53 480	73 144		47
		2005	894 428	472 719	329 157	42 845		49 707	90 780	140 487	5 301	59
		2009	965 257	449 152	439 399	34 169	0	42 537	17 046	59 583	0	51
		2010	908 399	429 899	432 868	6 325	0	39 307	14 909	54 216	0	50
	• 33 67 •	2011	899 669	377 005	481 514	6 540	0	34 610	12 215	46 825	0	44
China, Hong Kong SAR		1990	6 510									–
		1995	6 212									–
		2000	6 015	1 940	3 115	772		188	594	782		38
		2005	5 660	1 561	3 179	701	0	219	500	719	0	33
		2009	5 160	1 444	2 673	722	0	321	188	509	0	35
		2010	4 935	1 475	2 352	792	0	316	197	513	0	39
	• 112 67 •	2011	4 739	1 380	2 244	815	0	300	187	487	0	38
China, Macao SAR		1990	343									–
		1995	402	141	94	70		49		49		60
		2000	449	160	180	50		12		12		47
		2005	355	136	162	43	0	14	17	31	43	46
		2009	308	116	130	45	0	17	28	45	35	47
		2010	368	123	175	49	0	21	39	60	26	41
	• 95 61 •	2011	341	148	126	46	0	21	2	23	39	54
Cook Islands		1990	0	0	0	0	0	0	0	0	0	
		1995	2	2	0	0	0	0	0	0	0	100
		2000	1	0	1	0	0	0	0	0	0	0
		2005	1	1	0	0	0	0	0	0	0	100
		2009	2	1	1	0	0	0	0	0	0	50
		2010	0	0	0	0	0	0	0	0	0	
	• 0 5 •	2011	1	1	0	0	0	0	0	0	0	100
Fiji		1990	226	84	105	37						44
		1995	203	68	99	34		2	0	2		41
		2000	144	62	42	40		0	0	0		60
		2005	132	63	29	40						68
		2009	144	83	21	38	0	2	0	2	0	80
		2010	189	89	45	45	0	10	2	12	0	66
	• 31 24 •	2011	208	106	58	41	0	3	5	8	0	65
French Polynesia		1990	59									–
		1995										–
		2000	62	29	19	10		1		1		60
		2005	63	21	25	14		3	0	3	0	46
		2009	53	17	17	14	0	5	0	5	0	50
		2010	41	13	18	6	0	4	0	4	0	42
	• 30 23 •	2011	64	22	27	13	0	2	0	2	0	45
Guam		1990										–
		1995										–
		2000	54	43	5	6		1		1		90
		2005	63	27	26	9	0	1	1	2	0	51
		2009	102	31	60	10	0	1	0	1	0	34
		2010	101	39	51	9	0	2	0	2	0	43
	• 0 44 •	2011	81	28	39	11	0	3	0	3	1	42
Japan		1990	51 821									–
		1995	43 078	14 367	25 172	2 803		736		736		36
		2000	39 384	11 853	19 118	7 046		1 367		1 367		38
		2005	27 194	10 931	10 056	5 340		867	1 125	1 992		52
		2009	23 631	8 853	8 591	4 975		1 212	539	1 751		51
		2010	22 693	8 237	8 630	4 632	0	1 194	568	1 762		49
	• 42 17 •	2011	22 119	7 937	8 231	4 826	0	1 125	562	1 687	0	49
Kiribati		1990	68									–
		1995										–
		2000	252	54	47	106		3		3		53
		2005	332	124	79	126		3	7	10		61
		2009	278	145	70	59	0	4	0	4	0	67
		2010	286	118	91	71	0	6	8	14	0	56
	• 95 339 •	2011	343	140	109	87	0	7	11	18	0	56
Lao People's Democratic Republic		1990	1 826									–
		1995	830	478	404	95		2		2		54
		2000	2 227	1 526	457	180		64		64		77
		2005	3 699	2 801	484	275		139	41	180	67	85
		2009	3 848	3 034	368	292	0	154	30	184	52	89
		2010	3 999	3 119	394	323		163	22	185	62	89
	• 44 68 •	2011	4 306	3 271	516	349		170	27	197	54	86
Malaysia		1990	11 702									–
		1995	11 778	6 688	4 021	1 069		210		210		62
		2000	15 057	8 156	5 517	1 384		0		0		60
		2005	15 342	8 446	4 862	1 702	0	332	651	983	73	63
		2009	17 341	9 981	4 596	2 344	0	420	761	1 181	0	68
		2010	18 517	11 135	4 338	2 545	0	499	820	1 319	0	72
	• 64 69 •	2011	19 808	11 862	4 501	2 888	0	557	858	1 415	0	72

[a] Rates are per 100 000 population.

TABLE A4.3 **Case notifications, 1990–2011**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2011	YEAR	NEW AND RELAPSE	NEW CASES				RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
				SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN	EXTRA-PULMONARY	OTHER					
Marshall Islands		1990										–
		1995										–
		2000	34	11	25	9		0		0		31
		2005	111	48	31	28		4	1	5	0	61
		2009	135	52	71	12	0	0	2	2	6	42
		2010	190	59	64	65	0	2	8	10	3	48
	• 0 254 •	2011	139	44	30	57	0	8	12	20	0	59
Micronesia (Federated States of)		1990	367									–
		1995	172	9	79	18		2		2		10
		2000	91	15	69	4		3		3		18
		2005	98	32	35	19	5	7	14	21		48
		2009	148	61	47	38	0	2	7	9	0	56
		2010	160	53	79	25	0	3	10	13	4	40
	• 381 133 •	2011	148	45	73	28	0	2	2	4	0	38
Mongolia		1990	1 659									–
		1995	2 780	455	1 330	976		82		82		25
		2000	3 109	1 389	732	862		126		126		65
		2005	4 601	1 868	897	1 620	0	216	125	341	0	68
		2009	4 481	1 809	726	1 683	0	263	306	569	0	71
		2010	4 458	1 837	701	1 675	0	245	343	588	0	72
	• 76 151 •	2011	4 217	1 723	684	1 578	0	232	316	548	0	72
Nauru		1990	7									–
		1995										–
		2000	4	4	0	0		0		0		100
		2005	11	0	11							0
		2009	4	1	1	2	0	0	0	0	0	50
		2010	3	1	1	1	0	0	0	0	0	50
	• 76 49 •	2011	5	3	1	1	0	0	0	0	0	75
New Caledonia		1990	143									–
		1995	87	21	81	9		4		4		21
		2000	94	20	15	29		4		4		57
		2005	47	16	15	15		1	6	7	0	52
		2009	54	15	26	13	0	0	9	9	0	37
		2010	49	20	16	13	0		8	8	0	56
	• 84 20 •	2011	52	13	18	19	0	2	0	2	0	42
New Zealand		1990	348									–
		1995	391	78	222	34		4		4		26
		2000	344	74	133	130		7	0	7		36
		2005	332	83	114	95	29	11	8	19		42
		2009	298	90	90	102	11	5	4	9		50
		2010	301	86	68	134	6	7	4	11		56
	• 10 7 •	2011	305	88	81	121	13	2	4	6		52
Niue		1990	0									–
		1995	0	0	1			0		0		0
		2000	0	0	0							
		2005	0	0								
		2009	0	0	0	0						
		2010	0	0	0	0	0	0	0	0	0	
	• 0 70 •	2011	1	0	0	0	1	0	0	0	0	
Northern Mariana Islands		1990	28									–
		1995	48	14	26	8		0		0		35
		2000	75	27	37	11		0		0		42
		2005	57	15	35	7	0	0	0	0	0	30
		2009	38	16	16	6	0	0	0	0	0	50
		2010	32	17	13	2	0	0	0	0	0	57
	• 64 54 •	2011	33	15	16	2	0	0	0	0	0	48
Palau		1990										–
		1995	19	9	6	4		0		0		60
		2000										–
		2005	10	3	6	1		0	0	0		33
		2009	19	6	9	4	0	0	0	0	0	40
		2010	19	9	10	0	0	0	0	0	0	47
	• 0 58 •	2011	12	4	6	1	0	1	0	1	0	40
Papua New Guinea		1990	2 497									–
		1995	8 041	1 652	3 767	2 349		273		273		30
		2000	10 520	1 933	4 405	3 227		955		955		30
		2005	12 564	1 805	5 105	4 198		1 456		1 456		26
		2009	12 306	2 238	4 768	4 826		474	914	1 388		32
		2010	14 531	2 584	5 907	5 798		242	1 582	1 824		30
	• 60 212 •	2011	14 893	1 882	6 494	6 373	0	144	1 431	1 575	0	22
Philippines		1990	317 008									–
		1995	119 186	94 768	140 712	8		8		8		40
		2000	119 914	67 056	52 858							56
		2005	137 100	81 647	50 347	1 149	0	3 957		3 957		62
		2009	146 565	88 806	52 041	2 745	0	2 973	6 602	9 575	0	63
		2010	166 323	89 198	72 440	1 610	0	3 075	8 066	11 141	0	55
	• 514 206 •	2011	195 560	93 580	96 529	2 234	0	3 217	10 528	13 745	0	49
Republic of Korea		1990	63 904									–
		1995	42 117	11 754	19 360			2 082		2 082		38
		2000	21 782	8 216	11 304			2 262		2 262		42
		2005	38 290	11 638	18 460	5 171	0	3 021	4 077	7 098	4 602	39
		2009	38 741	11 285	17 634	6 923	0	2 899	3 981	6 880	4 577	39
		2010	41 889	11 596	18 660	8 795	0	2 838	4 038	6 876	2 174	38
	• 149 88 •	2011	42 589	11 714	18 386	9 457	0	3 032	4 238	7 270	3 664	39
Samoa		1990	44									–
		1995	45	15	30	6		0		0		33
		2000	43	13	18	12		0		0		42
		2005	24	11	8	5	0	0	0	0	0	58
		2009	16	8	5	3	0	0	0	0	0	62
		2010	14	6	5	3	0	0	0	0	0	55
	• 27 11 •	2011	20	6	12	2	0	0	0	0		33
Singapore		1990	1 591									–
		1995	1 889	455	1 187	127		120		120		28
		2000	1 728	248	869	165		55		55		22
		2005	1 356	552	570	174	0	60	93	153	20	49
		2009	1 525	552	655	235	0	83	49	132	0	46
		2010	1 560	530	735	213	0	82	48	130	0	42
	• 53 32 •	2011	1 641	592	717	224	0	108	54	162	0	45
Solomon Islands		1990	382									–
		1995	352	109	133	97		13		13		45
		2000	302	109	128	65		0		0		46
		2005	397	169	161	62	0	5	0	5	0	51
		2009	366	138	86	140	0	2	0	2	0	62
		2010	338	133	98	105	0	2	3	5	0	58
	• 123 72 •	2011	398	159	108	127	0	4	7	11	0	60

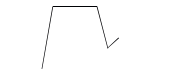
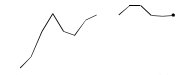
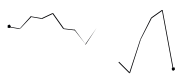
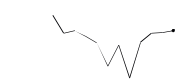
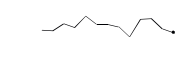
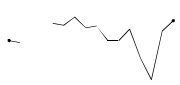
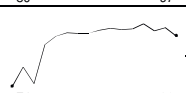
[a] Rates are per 100 000 population.

TABLE A4.3 **Case notifications, 1990–2011**

	NEW AND RELAPSE NOTIFICATION RATE[a] 1990–2011	YEAR	NEW AND RELAPSE	NEW CASES				RELAPSE	RE-TREAT EXCL. RELAPSE	TOTAL RETREAT	HISTORY UNKNOWN	% SMEAR-POS AMONG NEW PULM
				SMEAR-POSITIVE	SMEAR-NEGATIVE/ UNKNOWN	EXTRA-PULMONARY	OTHER					
Tokelau		1990	1									–
		1995	2	1	1	0		0		0		50
		2000	0	0	0	0		0		0		
		2005	0	0	0	0	0	0	0	0	0	
		2009	0	0	0	0	0	0	0	0	0	
		2010	0	0	0	0	0	0	0	0	0	
	• 62 0 •	2011	0	0	0	0	0	0	0	0	0	
Tonga		1990	23									–
		1995	20	9	2	9		0		0		82
		2000	24	15	5	3		1		1		75
		2005	18	11	3	4						79
		2009	8	6	1	1	0	0	0	0	0	86
		2010	11	6	3	2	0	0	0	0	0	67
	• 24 9 •	2011	9	6	3	0	0	0	0	0	0	67
Tuvalu		1990	23									–
		1995	36	6	13	16		1		1		32
		2000	16	0	7	7						0
		2005	12	5	3	4			3	3		62
		2009	18	8	0	10	0	0	0	0	0	100
		2010	14	5	2	7	0	0	0	0	0	71
	• 255 122 •	2011	12	4	4	4	0	0	1	1	0	50
Vanuatu		1990	140									–
		1995	79	30	27	21		1		1		53
		2000	152	63	56	28		5		5		53
		2005	76	35	21	17	0	3	5	8	0	62
		2009	134	47	24	62	0	1	2	3	0	66
		2010	116	44	33	35	3	1	0	1	0	57
	• 95 45 •	2011	110	49	14	46	0	1	2	3	0	78
Viet Nam		1990	50 203									–
		1995	55 739	37 550	8 379	6 194		3 616		3 616		82
		2000	89 792	53 169	17 993	13 137		5 493		5 493		75
		2005	94 916	55 492	16 429	16 670	0	6 325	976	7 301	0	77
		2009	95 036	51 291	18 612	18 333	0	6 800	1 331	8 131	1 825	73
		2010	94 867	52 145	18 237	17 651	0	6 834	1 574	8 408	2 581	74
	• 0 15 •	2011	98 804	50 751	20 373	18 077	2 678	6 925	1 714	8 639		71
Wallis and Futuna		1990										–
Islands		1995	6	3	2	0		1		1		60
		2000										–
		2005	7	1	6							14
		2009	9	2	7	0	0	0	0	0	0	22
		2010										–
	• 0 0 •	2011	2	2	0	0	0	0	0	0	0	100

[a] Rates are per 100 000 population.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
American Samoa		1995		4	–	100	0	0	0	0	0
		2000	2	2	100	0	100	0	0	0	0
		2005	3	4	133	75					25
		2008	0	0	–						
		2009	0	3	–	0	100	0	0	0	0
	• 100 0 •	2010	0	0	–						
Australia		1995			–						
		2000	251	238	95	27	45	9	0	3	16
		2005	241	241	100	12	68	10		2	8
		2008	299	587	196	7	73	6	1	1	12
		2009	267	606	227	6	73	3	0	1	16
	• 0 80 •	2010	274	629	230	8	72	3	0	2	15
Brunei Darussalam		1995			–						
		2000	84	84	100	42	21	17	0	4	17
		2005	101	101	100	66	5	7	0	2	20
		2008	132	164	124	64	23	8	0	1	4
		2009	140	164	117	63	8	9	0	0	20
	• 0 81 •	2010	146	176	121	61	20	7	0	0	12
Cambodia		1995	11 101	4 363	39	83	8	2	1	4	2
		2000	14 822	14 775	100	88	4	4	0	4	1
		2005	21 001	21 001	100	89	4	3	0	2	2
		2008	19 860	19 811	100	92	3	2	0	1	2
		2009	17 863	17 863	100	92	3	2	0	1	1
	• 91 94 •	2010	17 454	17 454	100	91	3	2	0	1	2
China		1995	134 488	131 413	98	72	22	2	1	1	3
		2000	204 765	213 766	104	93		1	2	1	3
		2005	472 719	472 719	100	92	2	2	1	1	3
		2008	462 596	464 151	100	92	2	1	1	1	3
		2009	449 152	449 039	100	93	2	1	1	1	2
	• 93 96 •	2010	429 899	429 790	100	94	2	1	1	0	2
China, Hong Kong SAR		1995			–						
		2000	1 940	1 940	100	55	5	5	6	4	24
		2005	1 561	1 561	100	60	3	5	9	3	20
		2008	1 459	1 448	99	58	10	17	0	4	11
		2009	1 444	1 441	100	59	11	15	0	3	12
	• 0 68 •	2010	1 475	1 487	101	57	11	15	0	4	13
China, Macao SAR		1995	141		–						
		2000	160	160	100	81	8	6	0	4	1
		2005	136	136	100	93	0	4	0	1	3
		2008	139	246	177	89	0	5	0	1	4
		2009	116	115	99	86	2	3	0	2	7
	• 0 93 •	2010	123	219	178	93	0	3	0	1	3
Cook Islands		1995	2	2	100	100	0	0	0	0	0
		2000	0		–						
		2005	1	1	100	100	0	0	0	0	0
		2008	2	2	100	50	0	0	0	50	0
		2009	1	0	0						
	• 100 0 •	2010	0	0	–						
Fiji		1995	68	73	107	78	8	7	0	3	4
		2000	62	62	100	81	5	5	0	8	2
		2005	63	68	108	71	0	10	0	10	9
		2008	78	82	105	82	9	6	0	1	2
		2009	83	79	95	89	5	4	0	1	1
	• 86 67 •	2010	89	89	100	65	2	6	0	24	3
French Polynesia		1995		33	–	67	0	3	0	21	9
		2000	29	62	214	0	97	2	2	0	0
		2005	21	18	86		89	11	0	0	0
		2008	20	28	140		96	4	0	0	0
		2009	17	18	106		89	6	0	6	0
	• 67 92 •	2010	13	13	100	92	0	8	0	0	0
Guam		1995			–						
		2000	43	43	100	93	0	7	0	0	0
		2005	27	27	100	85	0	11	0	0	4
		2008	31	31	100	90	0	6	0	0	3
		2009	31	47	152	96	0	2	0	0	2
	• 0 84 •	2010	39	51	131	84	0	16	0	0	0
Japan		1995	14 367		–						
		2000	11 853	10 348	87	30	15	5	4	1	44
		2005	10 931	10 931	100	38	22	11	3	1	26
		2008	8 995	8 999	100	18	30	19	1	4	28
		2009	8 853	8 772	99	21	31	19	1	4	24
	• 0 52 •	2010	8 237	8 242	100	20	32	21	1	3	24
Kiribati		1995		31	–	45	42	13			0
		2000	54	54	100	83	7	7	2	0	0
		2005	124	123	99	62	31	7	0	1	0
		2008	147	146	99	93	3	4	0	0	0
		2009	145	144	99	84	13	3	0	0	0
	• 87 93 •	2010	118	117	99	88	5	5	2	0	0
Lao People's Democratic Republic		1995	478	343	72	62	8	6	2	19	4
		2000	1 526	1 588	104	68	9	7	0	9	7
		2005	2 801	2 802	100	85	5	5	1	3	1
		2008	3 075	3 075	100	92	1	5	0	1	0
		2009	3 034	3 034	100	91	2	4	1	2	1
	• 70 91 •	2010	3 119	3 119	100	89	3	6	0	2	0
Malaysia		1995	6 688	13 398	200	69	0	6	2	8	14
		2000	8 156	7 915	97	0	78	8	0	10	4
		2005	8 446	8 446	100	69	1	9	0	5	16
		2008	10 441	9 757	93	78	1	8	0	4	11
		2009	9 981	9 981	100	78	1	9	0	4	9
	• 69 80 •	2010	11 135	11 135	100	79	1	9	0	4	7
Marshall Islands		1995		163	–	3	21	7	0	67	1
		2000	11	11	100	64	27	0	0	9	0
		2005	48	47	98	85	2	2		2	9
		2008	28	35	125	91	6	0	0	3	0
		2009	52	58	112	71	14	9	0	3	3
	• 25 80 •	2010	59	71	120	63	17	8	0	1	10
Micronesia (Federated States of)		1995	9	10	111	80	0	10	0	10	0
		2000	15	14	93	93	0	7	0	0	0
		2005	32	20	62	75	5	10	5	0	5
		2008	38	59	155	39	8	2	0	2	49
		2009	61	60	98	65	23	3	2	0	7
	• 80 97 •	2010	53	59	111	97	0	3	0	0	0
Mongolia		1995	455	455	100	66	7	8	6	10	2
		2000	1 389	1 389	100	83	4	3	3	4	3
		2005	1 868	1 868	100	82	6	3	5	3	2
		2008	1 838	1 838	100	84	3	3	7	2	1
		2009	1 809	1 809	100	84	4	2	7	2	0
	• 74 86 •	2010	1 837	1 837	100	83	3	2	8	3	0

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.4 **Treatment outcomes, new smear-positive cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Nauru		1995			–						
		2000	4	4	100	25					75
		2005	0	3	–	0	67	33	0	0	0
		2008	2	3	150	33	67	0	0	0	0
		2009	1	0	0						
	• 0 67 •	2010	1	3	300	0	67	0	0	0	33
New Caledonia		1995	21	32	152	75		12		3	9
		2000	20	45	225	33	56	9		2	0
		2005	16	16	100	88	6	6	0	0	0
		2008	9	11	122	9	73	9	9	0	0
		2009	15	15	100	0	93	0	0	7	0
	• 75 76 •	2010	20	21	105	0	76	19	0	5	0
New Zealand		1995	78		–						
		2000	74	73	99	5	25	23			47
		2005	83	84	101	0	60	6	0	1	33
		2008	101	98	97	0	73	8	0	3	15
		2009	90	92	102		76	7		1	16
	• 0 74 •	2010	86	86	100		74	17			8
Niue		1995	0		–						
		2000	0		–						
		2005	0	0	–						
		2008	0	0	–						
		2009	0		–						
	• 0 0 •	2010	0	0	–						
Northern Mariana Islands		1995	14		–						
		2000	27	27	100	81	0	0	0	0	19
		2005	15	15	100	73	0	0	0	0	27
		2008	13	13	100		77	8	0	0	15
		2009	16	16	100	0	81	0	0	0	19
	• 0 82 •	2010	17	17	100	0	82	0	0	0	18
Palau		1995	9	9	100	56	11	0	0	11	22
		2000			–						
		2005	3	3	100	100	0	0	0	0	0
		2008		0	–						
		2009	6	8	133	62	12	25	0	0	0
	• 67 88 •	2010	9	16	178	75	12	12	0	0	0
Papua New Guinea		1995	1 652	4 904	297		56	4	0	15	25
		2000	1 933	422	22	39	24	2	0	26	9
		2005	1 805	1 292	72	57	14	4	1	19	5
		2008	2 323	2 259	97	58	7	4	2	16	13
		2009	2 238	2 584	115	58	13	4	2	16	6
	• 56 58 •	2010	2 584	2 530	98	48	10	3	2	14	23
Philippines		1995	94 768	90 297	95	54	6	1	1	5	34
		2000	67 056	50 196	75	73	15	2	1	6	3
		2005	81 647	81 125	99	82	7	2	1	4	3
		2008	85 025	85 025	100	80	8	2	1	4	5
		2009	88 806	88 806	100	82	7	2	1	4	4
	• 60 91 •	2010	89 198	89 198	100	85	7	2	1	4	2
Republic of Korea		1995	11 754	11 675	99	74	2	2	3	5	14
		2000	8 216	3 231	39	81	2	2	1	3	12
		2005	11 638	3 752	32	81	2	1	1	4	11
		2008	11 048	4 056	37	82	2	1	0	3	12
		2009	11 285	3 813	34	81	2	1	1	3	12
	• 76 89 •	2010	11 596	2 828	24	85	4	1	0	3	6
Samoa		1995	15	15	100	13	67	20	0	0	0
		2000	13	13	100	85	8	8	0	0	0
		2005	11	11	100	91	0	9	0	0	0
		2008	6	7	117	71	0	29	0	0	0
		2009	8	10	125	90	0	10	0	0	0
	• 80 100 •	2010	6	6	100	100	0	0	0	0	0
Singapore		1995	455	122	27	71	15	2	0	11	0
		2000	248	242	98		71	14	0	14	0
		2005	552	548	99		83	14	0	2	1
		2008	525	951	181	62	19	16	0	0	2
		2009	552	937	170	65	17	15	0	1	2
	• 86 80 •	2010	530	948	179	62	17	17	0	1	3
Solomon Islands		1995	109	368	338		65	6	0	4	26
		2000	109	109	100	73	7	5	0	4	11
		2005	169	169	100	56	30	8	0	4	2
		2008	140	140	100	82	11	2	0	1	3
		2009	138	138	100	67	22	4	1	3	3
	• 65 87 •	2010	133	133	100	57	30	1	3	5	4
Tokelau		1995	1		–						
		2000	0		–						
		2005	0		–						
		2008	0		–						
		2009	0	0	–						
	• 0 0 •	2010	0		–						
Tonga		1995	9	20	222	75	0	10	5	0	10
		2000	15	15	100	93	0	0	7	0	0
		2005	11	11	100	73	0	18	0	0	9
		2008	11	11	100	100	0	0	0	0	0
		2009	6	6	100	83	0	17	0	0	0
	• 75 83 •	2010	6	6	100	83	0	17	0	0	0
Tuvalu		1995	6		–						
		2000	0	7	–		86			14	0
		2005	5	6	120	100	0	0	0	0	0
		2008	9	9	100	67	11	11	0	11	0
		2009	8	8	100	88	0	0	0	0	12
	• 0 100 •	2010	5	5	100	100					0
Vanuatu		1995	30	13	43	38	46	15	0	0	0
		2000	63	26	41	77	12	8	0	4	0
		2005	35	42	120	64	17	10	7	2	0
		2008	45	43	96	63	28	5	2	2	0
		2009	47	47	100	81	15	4	0	0	0
	• 85 80 •	2010	44	44	100	66	14	16	0	2	2
Viet Nam		1995	37 550	38 189	102	84	5	3	2	4	2
		2000	53 169	53 169	100	90	2	3	1	2	2
		2005	55 492	55 492	100	90	2	3	1	1	2
		2008	53 484	53 482	100	90	2	3	1	2	2
		2009	51 291	51 387	100	90	2	3	1	2	2
	• 89 92 •	2010	52 145	52 147	100	91	2	3	1	2	2
Wallis and Futuna Islands		1995	3		–						
		2000			–						
		2005	1		–						
		2008		3	–	100	0	0	0	0	0
		2009	2		–						
	• 0 100 •	2010		2	–	0	100	0	0	0	0

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
American Samoa		1995			–						
		2000	0		–						
		2005	1	1	100		100				0
		2008	0	0	–						
		2009	0	0	–						
	• 0 0 •	2010	0	0	–						
Australia		1995			–						
		2000	17	11	65	9	73	9	0	0	9
		2005	43	43	100	16	56	5		5	19
		2008	43	50	116	4	62	12	0	2	20
		2009	61	65	107	6	60	3	2	8	22
	• 0 69 •	2010	65	58	89	5	64	5	0	3	22
Brunei Darussalam		1995			–						
		2000	15		–						
		2005	5	5	100	40	40	20	0	0	0
		2008	12	12	100	50	33	8	0	0	8
		2009	0	0	–						
	• 0 100 •	2010	5	5	100	100	0	0	0	0	0
Cambodia		1995	605	436	72	59	26	5	3	3	4
		2000	814	827	102	85	5	6	1	4	0
		2005	1 306	1 306	100	49	27	9	2	3	11
		2008	1 435	597	42	74	5	7	5	3	6
		2009	1 429	1 429	100	34	45	3	1	1	15
	• 85 75 •	2010	1 634	1 524	93	30	44	4	1	1	20
China		1995	18 693	54 052	289	90	2	2	3	1	1
		2000	73 144	43 252	59	86	2	1	1	1	8
		2005	140 487	89 239	64	85	5	3	3	1	4
		2008	102 079	64 023	63	85	4	2	2	1	5
		2009	59 583	59 853	100	86	4	2	2	1	4
	• 92 90 •	2010	54 216	54 469	100	86	4	2	2	1	5
China, Hong Kong SAR		1995			–						
		2000	782	218	28	27	26	4	17	18	8
		2005	719	716	100	40	18	4	9	7	22
		2008	561	526	94	21	45	13	0	5	16
		2009	509	481	94	26	38	15	0	6	14
	• 0 68 •	2010	513	512	100	34	34	12	0	4	16
China, Macao SAR		1995	49		–						
		2000	12	37	308	68	16	11	0	5	0
		2005	31	37	119	51	24	11	0	0	14
		2008	38	38	100	55	26	3	0	3	13
		2009	45	46	102	43	35	11	0	7	4
	• 0 66 •	2010	60	35	58	51	14	14	0	11	9
Cook Islands		1995	0		–						
		2000	0		–						
		2005	0	0	–						
		2008	0	0	–						
		2009	0	0	–						
	• 0 0 •	2010	0	0	–						
Fiji		1995	2		–						
		2000	0		–						
		2005		0	–						
		2008	4	0	0						
		2009	2	5	250	40	40	20	0	0	0
	• 0 67 •	2010	12	12	100	50	17	17	0	17	0
French Polynesia		1995		2	–	50	0	50	0	0	0
		2000	1		–						
		2005	3	4	133		75	25			0
		2008	2	4	200		75	0	0	25	0
		2009	5	5	100	0	100	0	0	0	0
	• 50 75 •	2010	4	4	100	0	75	25	0	0	0
Guam		1995			–						
		2000	1		–						
		2005	2	2	100	50	0	0	0	50	0
		2008	1	0	0						
		2009	1	1	100	100	0	0	0	0	0
	• 0 100 •	2010	2	2	100	100	0	0	0	0	0
Japan		1995	736		–						
		2000	1 367	1 169	86	31	15	5	6	1	41
		2005	1 992	1 992	100	29	16	8	2	2	43
		2008	1 836	1 547	84	14	30	16	1	8	31
		2009	1 751	1 452	83	15	32	15	1	6	31
	• 0 47 •	2010	1 762	1 466	83	14	32	17	1	5	31
Kiribati		1995			–						
		2000	3	9	300	89	0	11	0	0	0
		2005	10	3	30	100					0
		2008	17	17	100	53	24	12	0	12	0
		2009	4	6	150	83	17	0	0	0	0
	• 0 70 •	2010	14	20	143	25	45	30	0	0	0
Lao People's Democratic Republic		1995	2	1	50	100	0	0	0	0	0
		2000	64	64	100	41	8	11	8	11	22
		2005	180	181	101	75	12	6	2	5	1
		2008	179	153	85	86	3	9	1	0	1
		2009	184	184	100	85	3	8	2	1	0
	• 100 82 •	2010	185	184	99	76	7	12	3	3	0
Malaysia		1995	210		–						
		2000	0		–						
		2005	983	1 056	107	46	9	8	1	9	27
		2008	1 054	1 171	111	36	26	11	1	5	22
		2009	1 181	1 181	100	33	27	9	1	6	23
	• 0 59 •	2010	1 319	1 319	100	35	24	12	1	12	17
Marshall Islands		1995			–						
		2000	0		–						
		2005	5	20	400	60	10				30
		2008	7	2	29	0	50	50	0	0	0
		2009	2	8	400	12	75	0	0	12	0
	• 0 50 •	2010	10	4	40	25	25	50	0	0	0
Micronesia (Federated States of)		1995	2	9	450	100	0	0	0	0	0
		2000	3	20	667	25	60	5	10	0	0
		2005	21	9	43	11	89				0
		2008	5	5	100	40	20	20	0	0	20
		2009	9	16	178	0	19	75	0	0	6
	• 100 30 •	2010	13	10	77	20	10	10	0	20	40
Mongolia		1995	82	23	28	61	0	9	13	13	4
		2000	126	126	100	57	14	8	8	7	6
		2005	341	443	130	39	34	9	11	4	3
		2008	544	385	71	51	22	6	16	4	1
		2009	569	380	67	60	13	4	17	4	2
	• 61 80 •	2010	588	234	40	19	61	9	6	2	4

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.5 **Treatment outcomes, retreatment cases, 1995–2010**

	TREATMENT SUCCESS (%)[a] 1995–2010	YEAR	NUMBER NOTIFIED	SIZE OF COHORT	COHORT AS % NOTIFIED	% OF COHORT					
						CURED	COMPLETED	DIED	FAILED	DEFAULTED	NOT EVALUATED
Nauru		1995			–						
		2000	0		–						
		2005		0	–						
		2008	3	0	0						
		2009	0	1	–	100					0
	• 0 0 •	2010	0	0	–						
New Caledonia		1995	4	4	100	100					0
		2000	4		–						
		2005	7	7	100	86	0	14	0	0	0
		2008	4	5	125	0	40	40	20	0	0
		2009	9	9	100	0	89	0	0	0	11
	• 100 88 •	2010	8	8	100	0	88	12	0	0	0
New Zealand		1995	4		–						
		2000	7	23	329	0	30	4			65
		2005	19	18	95	0	67	0	0	0	33
		2008	11	11	100	0	91	0	0	0	9
		2009	9	9	100		67	11			22
	• 0 73 •	2010	11	11	100		73	18			9
Niue		1995	0		–						
		2000			–						
		2005		0	–						
		2008	0	0	–						
		2009			–						
	• 0 0 •	2010	0	0	–						
Northern Mariana Islands		1995	0		–						
		2000	0		–						
		2005	0	0	–						
		2008	2	0	0						
		2009	0	0	–						
	• 0 0 •	2010	0	0	–						
Palau		1995	0		–						
		2000			–						
		2005	0	0	–						
		2008		0	–						
		2009	0	0	–						
	• 0 0 •	2010	0	0	–						
Papua New Guinea		1995	273		–						
		2000	955	68	7	29	35	4	1	21	9
		2005	1 456	65	4	42	14	15	6	20	3
		2008	1 799		–						
		2009	1 388	530	38	36	22	5	5	29	3
	• 0 46 •	2010	1 824	444	24	35	11	5	5	18	27
Philippines		1995	8		–						
		2000			–						
		2005	3 957		–						
		2008	8 866	3 819	43	56	15	4	4	7	14
		2009	9 575	4 362	46	48	13	4	4	5	26
	• 0 69 •	2010	11 141	4 554	41	53	15	5	5	6	16
Republic of Korea		1995	2 082	2 004	96	39	1	1	2	3	53
		2000	2 262	131	6	59	2	3	3	12	21
		2005	7 098	3 331	47	72	3	2	0	6	18
		2008	6 310	2 476	39	74	2	1	1	6	16
		2009	6 880	2 420	35	69	3	2	1	5	21
	• 40 79 •	2010	6 876	1 813	26	76	4	2	0	6	12
Samoa		1995	0		–						
		2000	0		–						
		2005	0	0	–						
		2008	0	0	–						
		2009	0	0	–						
	• 0 0 •	2010	0	0	–						
Singapore		1995	120		–						
		2000	55		–						
		2005	153	149	97		79	15	0	5	1
		2008	151	149	99	40	30	22	0	3	5
		2009	132	130	98	37	39	20	0	1	3
	• 0 78 •	2010	130	127	98	47	31	17	0	2	3
Solomon Islands		1995	13		–						
		2000	0		–						
		2005	5	5	100	20	40	20	20	0	0
		2008	14	14	100	79	21	0	0	0	0
		2009	2	2	100	50	50	0	0	0	0
	• 0 80 •	2010	5	5	100	80	0	20	0	0	0
Tokelau		1995	0		–						
		2000	0		–						
		2005	0		–						
		2008	0		–						
		2009	0	0	–						
	• 0 0 •	2010	0		–						
Tonga		1995	0	9	–	100	0	0	0	0	0
		2000	1	1	100	100					0
		2005		0	–						
		2008	0	0	–						
		2009	0	0	–						
	• 100 0 •	2010	0	0	–						
Tuvalu		1995	1		–						
		2000			–						
		2005	3	0	0						
		2008	2	0	0						
		2009	0	0	–						
	• 0 0 •	2010	0	0	–						
Vanuatu		1995	1		–						
		2000	5	5	100	100	0	0	0	0	0
		2005	8	0	0						
		2008	1	1	100	0	0	100	0	0	0
		2009	3	3	100	100	0	0	0	0	0
	• 0 100 •	2010	1	1	100	100	0	0	0	0	0
Viet Nam		1995	3 616	2 384	66	80	2	5	8	2	4
		2000	5 493	8 806	160	74	5	6	5	3	7
		2005	7 301	7 374	101	79	4	5	6	3	3
		2008	7 534	7 534	100	80	3	5	5	3	3
		2009	8 131	357	4	67	6	8	2	10	7
	• 81 69 •	2010	8 408	398	5	61	8	8	4	12	6
Wallis and Futuna Islands		1995	1		–						
		2000			–						
		2005			–						
		2008		0	–						
		2009	0		–						
	• 0 0 •	2010		0	–						

[a] TREATMENT SUCCESS = percent cured + percent completed then rounded to the nearest digit.

TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2011**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2011	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
American Samoa		2005	0	0	6					
		2009	100	4	4	0	0			0
		2010	75	3	4	0	0			
	• 0 100 •	2011	100	3	3	0	0			
Australia		2005	42	448	1 073	22	5	9	0	
		2009	49	648	1 314	23	4			
		2010	54	686	1 281	24	3			
	• 42 56 •	2011	56	709	1 268	17	2			
Brunei Darussalam		2005	100	163	163	2	1	0	0	
		2009	100	213	213	2	1	100	100	
		2010	100	237	237	1	0	100	100	2
	• 100 100 •	2011	100	230	230	3	1	100	100	0
Cambodia		2005	3	1 044	36 123	86	8			
		2009	70	28 264	40 199	3 597	13	30	15	66
		2010	77	32 236	41 628	2 112	7	65	45	491
	• 3 82 •	2011	82	32 544	39 670	1 650	5	88	79	1 305
China		2005			990 509					
		2009	6	63 227	982 303	2 511	4	87	43	
		2010	16	145 919	923 308	4 542	3		45	
	– 23 •	2011	23	208 681	911 884	4 715	2		36	
China, Hong Kong SAR		2005	68	4 209	6 160	35	1	49	54	
		2009	74	3 953	5 348	38	1	29	26	78
		2010	75	3 833	5 132	24	1	17	29	
	• 68 74 •	2011	74	3 656	4 926	33	1			
China, Macao SAR		2005	91	378	415	1	0	0	100	
		2009	90	335	371	1	0	0	0	1
		2010	92	399	433	3	1	33	33	
	• 91 94 •	2011	94	358	382	2	1	50	50	
Cook Islands		2005	0	0	1	0				
		2009	0	0	2	0				0
		2010		0	0	0				
	• 0 100 •	2011	100	1	1	0	0			
Fiji		2005	100	132	132	1	1	0	0	
		2009	48	69	144	0	0			0
		2010	82	157	191	3	2	100	100	0
	• 100 75 •	2011	75	160	213	3	2	100		
French Polynesia		2005	48	30	63	0	0			
		2009	23	12	53	0	0			0
		2010	27	11	41	0	0			
	• 48 27 •	2011	27	17	64	1	6	100	100	
Guam		2005	72	46	64	0	0			
		2009	63	64	102	0	0			0
		2010	62	63	101	1	2	100	100	
	• 72 55 •	2011	55	45	82	0	0			
Japan		2005			28 319					
		2009	51	12 429	24 170	52	0			
		2010	52	12 098	23 261	53	0			
	– 49 •	2011	49	11 221	22 681	75	1			
Kiribati		2005	13	44	339	2	5	0	0	
		2009	54	151	278	2	1	100	0	
		2010	54	159	294	0	0			2
	• 13 77 •	2011	77	274	354	0	0			
Lao People's Democratic Republic		2005			3 807					
		2009	17	686	3 930	179	26	89		
		2010	38	1 533	4 083	182	12	100		
	– 47 •	2011	47	2 058	4 387	218	11	100		
Malaysia		2005	73	11 661	16 066	1 468	13			
		2009	84	15 192	18 102	1 644	11	10	10	0
		2010	91	17 577	19 337	1 628	9	22	22	
	• 73 89 •	2011	89	18 472	20 666	1 629	9	48	46	
Marshall Islands		2005	77	86	112	0	0			
		2009	69	98	143	2	2	0	100	0
		2010	68	137	201	0	0			
	• 77 58 •	2011	58	88	151	1	1	0	100	
Micronesia (Federated States of)		2005	6	7	112	0	0			
		2009	46	72	155	0	0			0
		2010	49	85	174	0	0			
	• 6 73 •	2011	73	110	150	0	0			
Mongolia		2005	0	1	4 726	1	100	100	100	
		2009	83	3 993	4 787	0	0			0
		2010	89	4 256	4 801	2	0	100	100	0
	• 0 80 •	2011	80	3 612	4 533	3	0	100	100	0
Nauru		2005	0	0	11	0				
		2009	0	0	4	0				0
		2010	0	0	3	0				
	• 0 0 •	2011	0	0	5	0				
New Caledonia		2005	40	21	53	0	0			
		2009	0	0	63	0				
		2010	0	0	57	0				
	• 40 0 •	2011	0	0	52					
New Zealand		2005	41	140	340	8	6			
		2009	46	140	302	3	2			
		2010	60	183	305	3	2			
	• 41 56 •	2011	56	172	309	2	1			
Niue		2005		0	0	0				
		2009		0	0	0				0
		2010		0	0	0				
	– 100 •	2011	100	1	1	0	0			
Northern Mariana Islands		2005	98	56	57	0	0			
		2009	87	33	38	0	0			0
		2010	100	32	32	0	0			
	• 98 94 •	2011	94	31	33	0	0			
Palau		2005	90	9	10	0	0			
		2009	100	19	19	0	0			0
		2010	95	18	19	0	0			
	• 90 50 •	2011	50	6	12	1	17	0	0	
Papua New Guinea		2005			12 564					
		2009	7	888	13 220	91	10			
		2010	13	2 122	16 113	222	10			135
	– 29 •	2011	29	4 671	16 324	531	11			256
Philippines		2005			137 100					
		2009	1	1 136	153 167	1	0	0	0	1
		2010	1	1 634	174 389	2	0	0	0	16
	– 2 •	2011	2	3 917	206 088	9	0			226

TABLE A4.6 **HIV testing and provision of CPT, ART and IPT, 2005–2011**

	% OF TB PATIENTS WITH KNOWN HIV STATUS 2005–2011	YEAR	% OF TB PATIENTS WITH KNOWN HIV STATUS	NUMBER OF TB PATIENTS WITH KNOWN HIV STATUS	PATIENTS NOTIFIED (NEW AND RETREAT)	NUMBER OF HIV-POSITIVE TB PATIENTS	% OF TESTED TB PATIENTS HIV-POSITIVE	% OF HIV-POSITIVE TB PATIENTS ON CPT	% OF HIV-POSITIVE TB PATIENTS ON ART	NUMBER OF HIV-POSITIVE PEOPLE PROVIDED IPT
Republic of Korea		2005			46 969					
		2009			47 299	96				
		2010			48 101	135				
	– –	2011			50 491	129				
Samoa		2005	0	0	24	0				
		2009	12	2	16	0	0			
		2010	21	3	14	0	0			0
	• 0 5 •	2011	5	1	20	0	0			
Singapore		2005			1 469					
		2009	71	1 121	1 574	52	5			
		2010	74	1 184	1 608	50	4			
	– 79 •	2011	79	1 331	1 695	60	5			
Solomon Islands		2005	0	0	397	0				
		2009	0	0	366	0				0
		2010	11	39	341	0	0			0
	• 0 17 •	2011	17	70	405	0	0			
Tokelau		2005		0	0	0				
		2009		0	0	0				
		2010		0	0	0				
	– –	2011		0	0	0				
Tonga		2005			18					
		2009	100	8	8	0	0			0
		2010	73	8	11	0	0			
	– 100 •	2011	100	9	9	0	0			
Tuvalu		2005	0	0	15	0				
		2009	0	0	18	0				0
		2010	0	0	14	0				
	• 0 0 •	2011	0	0	13	0				
Vanuatu		2005	0	0	81	0				
		2009	0	0	136	0				0
		2010	8	9	116	0	0			
	• 0 50 •	2011	50	56	112	0	0			
Viet Nam		2005	15	14 128	95 892	595	4			
		2009	36	34 907	98 192	5 934	17	89	6	1 500
		2010	43	42 356	99 022	3 515	8	62	43	1 317
	• 15 59 •	2011	59	59 176	100 518	4 703	8	72	48	
Wallis and Futuna		2005			7	0				
Islands		2009	100	9	9	0	0			0
		2010		10		0	0			
	– 400 •	2011	400	8	2	0	0			

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2011**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
				ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
American Samoa	2005					–			–
	2009	0			0	–		0	–
	2010	0			0	–		0	–
	2011	0	0.15 (0.11–0.18)	0.15 (0.11–0.18)	1	–	0 (0–0)	0	–
Australia	2005	12				–			–
	2009	31				–			–
	2010	33			868	160		48	74
	2011	28	29 (17–41)	16 (8.7–26)	652	99	13 (5.7–23)	26	53
Brunei Darussalam	2005					–			–
	2009	0			164	100		13	–
	2010	0			181	100		5	100
	2011	0	0 (0–0)	0 (0–3.1)	205	130	0 (0–3.0)	8	100
Cambodia	2005					–			–
	2009	2				–			–
	2010	31			5	<0.1		93	5.7
	2011	56	490 (260–720)	330 (170–590)	18	<0.1	160 (60–320)	190	13
China	2005					–			–
	2009	474				–			–
	2010	2792				–			–
	2011	1601	61 000 (54 000–68 000)	49 000 (39 000–61 000)	9940	2.6	12 000 (10 000–14 000)		–
China, Hong Kong SAR	2005	41			3271	96		163	23
	2009	21			2056	73		234	46
	2010	28			1897	61		211	41
	2011	23	45 (27–63)	31 (18–49)	1992	79	14 (5.2–30)	207	43
China, Macao SAR	2005	9			265	190		19	61
	2009	3			201	100		27	60
	2010	6			221	89		39	65
	2011	5	5.2 (0.68–9.7)	4.2 (1.2–11)	258	110	0.96 (<0.1–4.9)	24	100
Cook Islands	2005					–			–
	2009	0			0	0		0	–
	2010	0			0	–		0	–
	2011	0	<0.1 (<0.1–<0.1)	<0.1 (<0.1–<0.1)	0	0	0 (0–0)	0	–
Fiji	2005					–			–
	2009	0			0	0		2	100
	2010	0			4	4.5		4	33
	2011	0	0 (0–0)	0 (0–13)	18	17	0 (0–7.8)	0	0
French Polynesia	2005	0				–		3	100
	2009	0			42	110		4	80
	2010	0			27	87		4	100
	2011	0	0 (0–0)	0 (0–3.7)	47	110	0 (0–2.0)	1	50
Guam	2005	1			39	110		0	0
	2009	1			50	110		1	100
	2010	2			56	110		2	100
	2011	0	0 (0–0)	0 (0–5.5)	43	110	0 (0–2.5)	2	67
Japan	2005					–			–
	2009					–			–
	2010	68			7684	54		694	39
	2011	60	280 (210–350)	110 (68–180)	7400	51	170 (120–220)	670	40
Kiribati	2005	1			1	0.81			–
	2009					–			–
	2010	0			0	0		0	0
	2011	0	16 (13–19)	12 (9.2–15)		–	4.2 (3.5–4.8)		–
Lao People's Democratic Republic	2005					–			–
	2009					–			–
	2010	2				–			–
	2011	4	230 (190–280)	190 (140–230)		–	46 (39–52)		–
Malaysia	2005	1			15010	180		1056	110
	2009	55				–			–
	2010	64				–			–
	2011	141	16 (0–48)	16 (0.41–91)		–	0 (0–290)		–
Marshall Islands	2005	2			52	110		3	60
	2009	1			40	69		1	50
	2010	1			68	96		3	30
	2011	1	1.5 (0–4.4)	1.5 (<0.1–7.9)	50	100	0 (0–12)	4	20
Micronesia (Federated States of)	2005	1			35	110		21	100
	2009	3			48	79		2	22
	2010	1			50	70		3	23
	2011	1	6.7 (5.3–8.1)	5.8 (4.4–7.2)	44	98	0.93 (0.79–1.1)	0	0
Mongolia	2005	0			0	0		16	4.7
	2009	168			121	6.7		508	89
	2010	187			40	2.2		561	95
	2011	185	200 (170–230)	33 (17–39)	157	9.1	170 (140–190)	602	110
Nauru	2005					–			–
	2009	0			0	0		0	–
	2010					–			–
	2011	0	0.20 (0.15–0.24)	0.20 (0.15–0.24)	0	0	0 (0–0)		–
New Caledonia	2005					–			–
	2009	0			43	140		1	11
	2010	0			20	62		0	0
	2011	0	0.25 (0.20–0.30)	0 (0–4.4)	24	140	0.25 (0.20–0.30)	0	0
New Zealand	2005	4			247	150		14	74
	2009	7			237	150		8	89
	2010	4				–			–
	2011		5.4 (1.5–9.2)	4.6 (1.7–9.9)		–	0.75 (<0.1–3.2)		–
Niue	2005					–			–
	2009	0				–			–
	2010	0				–			–
	2011	0	<0.1 (<0.1–<0.1)	<0.1 (<0.1–<0.1)		–	0 (0–0)		–
Northern Mariana Islands	2005	2			24	100		1	–
	2009	0			21	130		0	–
	2010	0			17	100		0	–
	2011	0	0 (0–5.5)	0 (0–5.5)	19	100	0 (0–0)	0	–
Palau	2005	0			3	100		0	–
	2009	0				–			–
	2010	0			11	58		0	–
	2011	1	1.5 (0–3.8)	1.3 (<0.1–5.3)	8	100	0.23 (0.20–0.27)	0	0
Papua New Guinea	2005					–			–
	2009					–			–
	2010					–			–
	2011	15	780 (660–890)	410 (310–510)		–	370 (310–420)		–
Philippines	2005	274			4	<0.1		138	3.5
	2009	1073			1242	1.4		36	0.38
	2010	522			3	<0.1		297	2.7
	2011	1148	11 000 (8 000–13 000)	7 700 (5 500–10 000)	25	<0.1	2 900 (2 000–4 000)	2325	17

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).

[b] BACT+VE = bacteriologically-positive cases.

TABLE A4.7 **Testing for MDR-TB and number of confirmed cases of MDR-TB, 2005–2011**

	YEAR	TOTAL CONFIRMED CASES OF MDR-TB[a]	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NEW PULMONARY CASES			PREVIOUSLY TREATED CASES		
				ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF BACT+VE[b] TESTED FOR MDR-TB	% OF BACT+VE[b] TESTED FOR MDR-TB	ESTIMATED CASES OF MDR-TB AMONG NOTIFIED	NUMBER OF NOTIFIED TESTED FOR MDR-TB	% OF NOTIFIED TESTED FOR MDR-TB
Republic of Korea	2005					–			–
	2009					–			–
	2010	450				–			–
	2011	516	1 800 (1 500–2 200)	810 (630–1 000)	3431	17	1 000 (740–1 400)	968	13
Samoa	2005					–			–
	2009					–			–
	2010	0			0	0		0	–
	2011	0	0.88 (0.67–1.1)	0.88 (0.67–1.1)		–	0 (0–0)		–
Singapore	2005	3			895	96		105	69
	2009	3			915	98		85	64
	2010	3			923	97		79	61
	2011	6	8.2 (1.7–15)	8.2 (3.0–18)	952	97	0 (0–5.6)	104	64
Solomon Islands	2005					–			–
	2009	0			5	3.6		15	750
	2010	0			1	0.75		1	20
	2011	0	16 (12–19)	13 (9.9–16)	0	0	2.6 (2.2–2.9)	0	0
Tokelau	2005					–			–
	2009					–			–
	2010	0			0	–		0	–
	2011		0 (0–0)	0 (0–0)		–	0 (0–0)		–
Tonga	2005					–			–
	2009					–			–
	2010	0			0	0		0	–
	2011	0	0.44 (0.33–0.55)	0.44 (0.33–0.55)	0	0	0 (0–0)	0	–
Tuvalu	2005					–			–
	2009	0			0	0		0	–
	2010	0			0	0		0	–
	2011	0	0.62 (0.52–0.72)	0.39 (0.30–0.49)		–	0.23 (0.20–0.27)		–
Vanuatu	2005					–			–
	2009	0			0	0		0	0
	2010	0				–			–
	2011	0	0.70 (0.60–0.80)	0 (0–7.5)	0	0	0.70 (0.59–0.80)	0	0
Viet Nam	2005					–			–
	2009	217				–			–
	2010	101				–			–
	2011	601	3 700 (2 900–4 400)	2 000 (1 500–2 700)		–	1 700 (1 200–2 200)		–
Wallis and Futuna Islands	2005					–			–
	2009					–			–
	2010					–			–
	2011	0	0.10 (<0.1–0.12)	0.10 (<0.1–0.12)	0	0	0 (0–0)	0	–

[a] TOTAL CONFIRMED CASES OF MDR-TB includes cases with unknown previous treatment history (i.e. not included under NEW CASES or PREVIOUSLY TREATED CASES).
[b] BACT+VE = bacteriologically-positive cases.

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2011**

		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
American Samoa	1995																	–
	2000					1	1							1				2.0
	2005											1		2				–
	2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
	2011																	–
Australia	1995																	–
	2000	3	16	35	25	24	19	49		0	15	19	12	15	5	14		2.1
	2005	0	32	27	23	11	12	30		2	18	26	11	10	6	14		1.6
	2010	2	42	33	22	25	9	27	0	4	36	43	12	2	5	12	0	1.4
	2011	2	38	44	26	19	12	37	0	3	26	40	23	7	7	17	0	1.4
Brunei Darussalam	1995																	–
	2000	0	6	4	15	5	7	15		0	4	6	9	6	3	4		1.6
	2005	0	9	19	19	12	9	0		0	9	11	8	3	2	0		2.1
	2010	0	17	15	13	18	7	18	0	2	7	15	12	8	4	10	0	1.5
	2011	0	11	11	11	10	11	13	0	2	5	9	6	7	3	10	0	1.6
Cambodia	1995	161	453	1 244	1 147	1 253	1 257	707		123	388	1 133	1 435	1 426	1 180	578		0.99
	2000	26	519	1 323	1 618	1 456	1 373	1 058		38	457	1 157	1 649	1 798	1 459	892		0.99
	2005	49	894	1 600	2 349	2 043	1 964	1 811		45	790	1 413	2 089	2 323	2 058	1 573		1.0
	2010	39	750	1 564	1 760	2 105	1 531	1 599		60	752	1 321	1 303	1 732	1 607	1 331		1.2
	2011	34	791	1 469	1 557	1 972	1 439	1 339		39	690	1 211	1 092	1 528	1 473	1 242		1.2
China	1995	1 102	12 791	18 306	15 487	13 105	13 489	10 130		1 169	10 890	13 250	8 376	5 679	4 579	2 841		1.8
	2000	1 131	19 111	29 399	25 206	25 593	21 429	21 771		1 420	14 536	18 496	12 377	9 899	7 102	6 296		2.0
	2005	1 416	43 005	49 558	55 400	54 872	53 822	69 779		1 864	31 180	27 759	24 728	19 889	18 203	21 244		2.3
	2010	759	42 851	38 880	50 246	52 925	56 754	64 514	0	926	27 064	21 022	20 422	16 075	17 441	20 020	0	2.5
	2011	645	37 514	34 597	43 087	47 949	51 315	55 881	0	733	22 859	18 347	17 119	14 103	15 218	17 638	0	2.6
China, Hong Kong SAR	1995																	–
	2000	4	78	102	160	211	236	578		5	65	115	86	44	45	211		2.4
	2005	3	76	84	108	200	168	453		3	67	81	92	57	34	135		2.3
	2010	2	52	84	99	184	166	413	0	3	49	101	76	64	49	133	0	2.1
	2011	2	72	52	63	172	189	384	0	3	56	89	69	60	53	116	0	2.1
China, Macao SAR	1995	0	7	19	20	13	12	16		0	9	18	12	4	5	6		1.6
	2000	0	10	8	25	22	9	17		0	10	4	6	6	3	13		2.2
	2005	3	6	9	21	23	17	22		0	5	9	7	8	1	5		2.9
	2010	0	17	5	7	22	20	11	0	0	7	6	10	5	7	6	0	2.0
	2011	0	20	22	22	47	39	24	0	0	28	25	17	18	6	6	0	1.7
Cook Islands	1995	0	0	0	0	0	1	0		0	0	0	0	1	0	0		1.0
	2000	0	0	0	0	0	0	0		0	0	0	0	0	0	0		–
	2005	0	1	0	0	0	0	0		0	0	0	0	0	0	0		–
	2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
	2011	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	–
Fiji	1995	0	8	10	9	4	2	3		1	10	9	2	3	4	3		1.1
	2000	0	8	6	13	5	4	2		0	7	5	7	1	4	0		1.6
	2005	7	9	18	18	14	16	6		7	7	9	6	4	6	5		2.0
	2010	1	7	15	11	6	2	4	0	1	11	12	5	1	8	5	0	1.1
	2011	0	12	16	8	9	9	4	0	1	13	17	7	5	2	3	0	1.2
French Polynesia	1995																	–
	2000	1	3	3	4	4	4	3		1	4	1	0	1	0	0		3.1
	2005	0	2	2	2	0	4	2		0	2	3	0	1	1	3		1.2
	2010	0	3	1	0	1	1	1	0	0	1	1	0	3	0	1	0	1.2
	2011	0	3	1	1	5	1	3	0	0	3	3	0	1	0	1	0	1.8
Guam	1995																	–
	2000	2	1	6	6	9	6	9		0	3	1	2	5	2	2		2.6
	2005	0	2	4	4	2	2	4		0	3	1	1	2	0	2		2.0
	2010	0	2	3	5	5	7	3	0	1	0	4	3	3	0	3	0	1.8
	2011	0	1	0	2	7	4	4	0	0	1	1	1	0	3	4	0	1.8
Japan	1995	15	342	627	995	1 847	2 059	4 089		14	258	476	298	476	637	2 234		2.3
	2000	2	246	572	676	1 494	1 509	3 816		5	222	464	213	292	384	1 958		2.4
	2005	9	197	488	605	868	1 418	3 867		5	187	428	249	224	309	2 077		2.1
	2010	1	128	252	382	469	911	3 326		6	89	232	194	155	183	1 909		2.0
	2011	0	96	215	367	465	812	3 256	0	5	94	213	203	148	223	1 840	0	1.9
Kiribati	1995																	–
	2000	2	9	3	3	3	8	2		2	5	6	3	4	1	3		1.2
	2005	3	15	15	12	17	4	1		5	22	12	7	7	3	1		1.2
	2010	3	27	13	10	9	6	2	0	5	15	7	4	8	5	4	0	1.5
	2011	4	17	9	3	10	9	3	0	6	26	12	9	16	12	4	0	0.65
Lao People's Democratic Republic	1995	6	56	71	68	78	90	55		3	49	49	69	54	52	26		1.4
	2000	7	92	128	166	201	177	176		10	59	95	131	122	91	71		1.6
	2005	13	136	223	296	373	300	352		7	101	186	205	244	192	178		1.5
	2010	8	157	254	287	416	385	380		13	133	152	215	269	225	225		1.5
	2011	8	145	275	323	474	416	375		14	141	204	208	267	215	206		1.6
Malaysia	1995	59	640	879	775	788	374	1 072		58	446	448	345	316	149	339		2.2
	2000	32	694	1 138	1 177	908	814	891		41	464	564	424	367	356	286		2.3
	2005	244	1 179	2 218	2 277	1 980	1 427	1 507		208	1 044	1 061	947	816	586	572		2.1
	2010	129	884	1 438	1 599	1 453	967	981	0	152	704	881	592	542	425	388	0	2.0
	2011	63	948	1 564	1 559	1 594	1 245	1 054	0	77	837	876	584	599	459	403	0	2.1
Marshall Islands	1995																	–
	2000	3	5	4	1	3	5	3		7	7	3	0	2	2	0		1.1
	2005	2	4	4	5	6	1	1		1	9	2	4	3	4	2		0.92
	2010	0	10	1	4	6	6	2	0	5	9	2	2	4	8	0	0	0.97
	2011	1	7	2	3	3	3	1	0	1	5	8	2	5	2	1	0	0.83
Micronesia (Federated States of)	1995	0	1	0	3	1	0	0		0	0	1	0	0	0	1		2.5
	2000	0	2	0	1	0	0	1		4	3	1	1	0	1	1		0.36
	2005																	–
	2010	3	8	1	2	4	4	0	0	5	8	9	3	4	2	0	0	0.71
	2011	4	8	5	6	2	0	1	0	5	5	2	3	1	2	1	0	1.4
Mongolia	1995	37	99	111	68	19	13	15		30	70	78	33	15	9	25		1.4
	2000	6	181	260	171	68	38	23		32	200	213	113	41	26	17		1.2
	2005	7	271	253	232	147	52	36		15	320	270	145	63	32	25		1.1
	2010	3	285	255	231	154	50	40	0	12	296	246	112	83	42	28	0	1.2
	2011	2	246	289	205	170	71	41	0	10	250	192	121	61	40	25	0	1.5
Nauru	1995																	–
	2000					1								1	1			0.50
	2005																	–
	2010	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	–
	2011	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	2.0
New Caledonia	1995	3	2	3	4	2	2	3		2	1	1	3	3	0	1		1.7
	2000	1	1	3	4	2	3	4		1	8	1	1	3	2	4		0.90
	2005	0	2	1	0	0	3	0		0	1	2	1	2	0	4		0.60
	2010	0	1	2	3	1	4	3	0	0	1	0	1	0	1	3	0	2.3
	2011	0	0	0	3	1	2	3	0	0	0	1	1	0	1	1	0	2.2
New Zealand	1995	0	4	3	3	5	7	7		1	2	3	4	2	2	4		1.6
	2000	0	6	5	6	8	10	7		1	6	6	5	0	4	10		1.3
	2005	4	6	10	6	6	5	10		1	11	9	6	6	1	2		1.3
	2010	0	6	13	4	6	5	11	0	2	12	7	6	5	3	6	0	1.1
	2011	1	12	5	5	7	7	11	0	4	8	8	4	5	3	8	0	1.2

TABLE A4.8 **New smear-positive case notification by age and sex, 1995–2011**

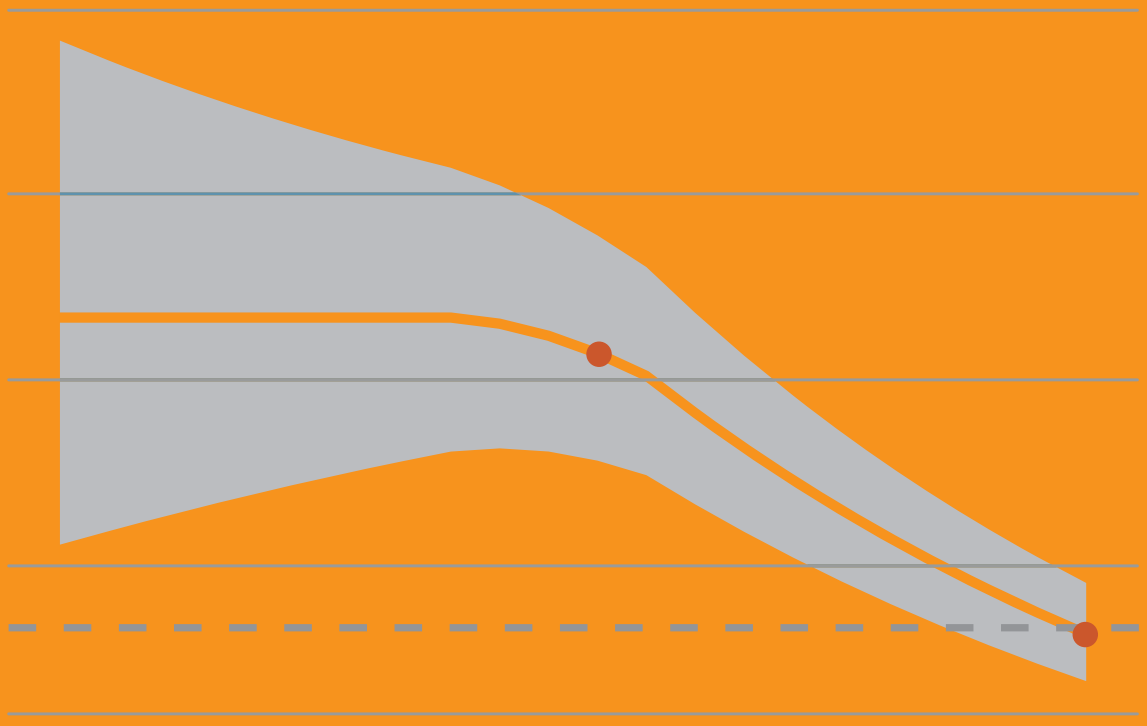
		MALE								FEMALE								
	YEAR	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	0–14	15–24	25–34	35–44	45–54	55–64	65+	UN-KNOWN	MALE:FEMALE RATIO
Niue	1995																	–
	2000																	–
	2005	0	0	0	0	0	0	0		0	0	0	0	0	0	0		–
	2010																	–
	2011																	–
Northern Mariana Islands	1995	1	1	3	5	10	3	3		0	0	2	6	4	1	1		1.9
	2000	1	4	8	9	9	3	2		0	10	17	7	3	1	1		0.92
	2005	0	0	1	3	4	1	2		0	0	0	1	1	1	1		2.8
	2010	0	2	0	0	3	3	0	0	0	2	0	1	3	2	1	0	0.89
	2011	0	0	0	0	1	5	3	0	0	0	1	0	2	3	0	0	1.5
Palau	1995	0	2	3	0	2	1	0		0	0	0	0	1	0	0		8.0
	2000																	–
	2005			2				1										–
	2010	0	1	2	1	1	1	1	0	1	0	1	1	0	0	0	0	2.3
	2011	0	0	0	1	0	2	0	0	0	0	1	0	0	0	0	0	3.0
Papua New Guinea	1995																	–
	2000	8	87	70	30	21	12	5		6	77	45	21	15	5	1		1.4
	2005	28	183	205	108	94	48	12		38	200	204	124	65	35	2		1.0
	2010	37	279	260	196	135	87	27		64	313	292	191	97	52	9		1.0
	2011	50	278	265	152	122	71	18		53	302	272	146	97	55	15		1.0
Philippines	1995	2	43	56	61	46	47	26		1	20	32	26	20	19	11		2.2
	2000																	–
	2005	482	7 358	11 275	13 253	12 531	7 646	4 279		374	3 710	5 268	5 565	4 603	3 274	2 029		2.3
	2010	511	9 320	12 224	13 716	13 651	8 923	4 742	0	454	4 825	5 489	5 301	4 643	3 329	2 070	0	2.4
	2011	573	9 725	12 804	14 474	14 002	9 568	4 845		448	5 155	5 848	5 521	4 880	3 501	2 236		2.4
Republic of Korea	1995	27	1 131	1 613	1 425	1 207	1 307	1 225		46	908	863	431	296	408	867		2.1
	2000	19	821	1 085	988	853	731	901		25	546	544	393	220	295	795		1.9
	2005	22	687	1 171	1 326	1 336	1 005	1 669		27	590	842	491	370	373	1 729		1.6
	2010	22	537	705	1 049	1 496	1 029	1 997	0	23	472	686	509	487	368	2 216	0	1.4
	2011	13	491	712	1 019	1 414	1 145	2 132	0	37	446	688	520	432	421	2 244	0	1.4
Samoa	1995	0	1	1	1	0	3	2		1	2	2	0	0	1	1		1.1
	2000	0	3	1	1	1	2	1		0	2	1	1	0	0	0		2.2
	2005	0	4	0	1	1	0	0		0	2	0	2	0	1	0		1.2
	2010		1	1			1		3				2		1		3	1.0
	2011	0	1	0	0	0	0	0	0	0	2	1	0	1	0	1	0	0.20
Singapore	1995	0	9	40	60	62	70	94		1	8	18	21	22	19	31		2.8
	2000	1	8	9	34	51	26	64		1	9	8	7	9	5	16		3.5
	2005	0	8	25	61	94	96	118		0	5	20	33	29	20	43		2.7
	2010	0	11	21	38	105	86	120	0	1	15	21	26	21	21	44	0	2.6
	2011	0	21	21	44	108	119	126	0	0	11	25	23	23	20	51	0	2.9
Solomon Islands	1995	2	14	6	5	7	9	3		3	17	11	7	12	13	0		0.73
	2000	3	13	4	8	8	10	6		8	15	13	7	7	5	2		0.91
	2005	4	14	18	9	15	12	11		9	23	21	12	11	9	1		0.97
	2010	4	16	18	16	8	3	3	0	4	19	17	11	5	4	5	0	1.0
	2011	3	15	22	12	7	8	6	0	3	13	27	15	10	16	2	0	0.85
Tokelau	1995																	–
	2000																	–
	2005																	–
	2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–
	2011																	–
Tonga	1995	0	1	0	0	0	1	2		0	0	1	1	0	2	1		0.80
	2000		2	1	1		1	5			1	1	1		1	1		2.0
	2005	0	2	1	0	2	1	0		0	2	1	0	0	2	0		1.2
	2010	0	0	0	1	0	1	3	0	0	0	0	0	1	0	0	0	5.0
	2011	0	0	1	0	0	0	1	0	2	0	1	1	0	0	0	0	0.50
Tuvalu	1995	1	0	1	0	0	1	0		0	1	1	0	0	1	0		1.0
	2000																	–
	2005					1	1				1				2			0.67
	2010	0	1	0	0	1	2	0		0	0	1	0	0	0	0		4.0
	2011	1	1				1							1				3.0
Vanuatu	1995	0	6	2	5	3	4	0		0	5	0	2	3	0	0		2.0
	2000	2	7	5	1	10	5	2		5	3	15	7	3	3	1		0.86
	2005	1	4	5	5	0	4	1		0	5	1	2	4	1	2		1.3
	2010	4	6	3	1	5	2	0	0	3	5	3	3	5	3	1	0	0.91
	2011	2	3	4	6	5	4	2	0	0	5	7	5	4	2	0	0	1.1
Viet Nam	1995																	–
	2000	51	2 367	6 147	8 209	6 713	5 150	7 712		64	1 334	2 320	2 754	2 594	2 847	4 907		2.2
	2005	54	3 408	7 105	8 738	8 606	4 958	7 573		47	1 747	2 293	2 116	2 298	2 023	4 604		2.7
	2010	59	3 205	7 036	7 851	8 564	5 790	6 248	0	53	1 870	2 454	1 681	1 864	1 863	3 751	0	2.9
	2011	61	3 099	6 677	7 763	8 474	6 107	5 821	0	64	1 863	2 325	1 681	1 814	1 878	3 124	0	3.0
Wallis and Futuna Islands	1995																	–
	2000																	–
	2005																	–
	2010																	–
	2011						2											–

TABLE A4.9 **Laboratories, NTP services, drug management and infection control, 2011**

	LABORATORIES								FREE THROUGH NTP			
	SMEAR LABS PER 100K POPULATION	% OF SMEAR LABS USING LED[a]	CULTURE LABS PER 5M POPULATION	DST[b] LABS PER 5M POPULATION	LPA[c] LABS PER 5M POPULATION	NUMBER OF LABS USING XPERT MTB/RIF	SECOND-LINE DST AVAILABLE	NRL[d]	TB DIAGNOSIS	FIRST-LINE DRUGS	RIFAMPICIN USED THROUGHOUT TREATMENT	TB NOTIF. RATE PER 100 000 HEALTH-CARE WORKERS
American Samoa		–					No	No	Yes (all suspects)	yes	Yes	
Australia		–					In country	yes	Yes (all suspects)	yes	Yes	
Brunei Darussalam	0.2	0	12.3	12.3	12.3	0		yes	Yes (all suspects)	yes	Yes	56
Cambodia	1.5	9	1.0	0.3	0	1	Out of country	yes	Yes (all suspects)	yes	Yes	
China	0.2	2	2.2	0.7	<0.1	16	In country	yes	Yes (all suspects)	yes	Yes	
China, Hong Kong SAR	0.4	3	14.0	2.1	7.7	9	In country	yes	Yes (all suspects)	yes	Yes	23
China, Macao SAR		–						No	Yes (all suspects)	yes	Yes	87
Cook Islands		–					Out of country	yes	Yes (if TB is confirmed)	yes	Yes	
Fiji	0.5	0	5.8	0	0	0	Out of country	yes	Yes (all suspects)	yes	Yes	102
French Polynesia		–					Out of country	yes	Yes (if TB is confirmed)	yes	Yes	
Guam		–					In country	yes	Yes (if TB is confirmed)	yes	Yes	
Japan		–					In country	yes	Yes (for certain income groups)	No	Yes	
Kiribati	2.0	0	0	0	0	0	Out of country	No	Yes (all suspects)	yes	Yes	494
Lao People's Democratic Republic	2.5	0	2.4	0	0	0	Out of country	yes	Yes (all suspects)	yes	No	1 818
Malaysia	2.5	0	6.2	1.2	0.3	0	In country	yes	Yes (all suspects)	yes	Yes	97
Marshall Islands	5.5	33	91.2	91.2	91.2	0	Out of country	No	Yes (all suspects)	yes	Yes	
Micronesia (Federated States of)	3.6	100	0	0	0	0	Out of country	yes	Yes (all suspects)	yes	Yes	
Mongolia	1.3	8	3.6	1.8	1.8	0	In country	yes	Yes (all suspects)	yes	Yes	116
Nauru		–					Out of country	yes	Yes (all suspects)	yes	Yes	
New Caledonia		–					Out of country	yes	Yes (all suspects)	yes	Yes	
New Zealand		–					In country	yes	Yes (all suspects)	yes	Yes	
Niue		–					Out of country	yes	Yes (all suspects)	yes	Yes	
Northern Mariana Islands		–					Out of country	No	Yes (all suspects)	yes	Yes	
Palau	4.9	100	242.6	242.6	242.6	1	Out of country	yes	Yes (all suspects)	yes	Yes	0
Papua New Guinea	1.9	0	0	0	0	1	Out of country	yes	Yes (all suspects)	yes	Yes	
Philippines	2.1	0	0.5	0.1	<0.1	14	In country	yes	Yes (all suspects)	yes	Yes	
Republic of Korea	1.0	0	51.7	0.7	2.1	2		yes	Yes (all suspects)	yes	Yes	192
Samoa		–					Out of country	yes	Yes (if TB is confirmed)	yes	Yes	
Singapore		–					In country	yes	No	No	Yes	
Solomon Islands	1.6	0	0	0	0	0	Out of country	yes	Yes (all suspects)	yes	Yes	78
Tokelau		–					No	No	Yes (all suspects)	No	No	
Tonga		–					Out of country	yes	Yes (all suspects)	yes	Yes	
Tuvalu		–						yes	Yes (for smear-positive TB)	yes	Yes	
Vanuatu	4.5	0	0	0	0	0	No	yes	Yes (all suspects)	yes	Yes	91
Viet Nam	0.9	0	1.4	0.1	0.1	2	In country	yes	Yes (if TB is confirmed)	yes	No	
Wallis and Futuna Islands		–					No	yes	Yes (all suspects)	yes	Yes	

[a] LED = Light emitting diode microscopes
[b] DST = Drug susceptibility testing
[c] LPA = Line probe assay
[d] NRL = National Reference Laboratory

The World Health Organization monitors the global tuberculosis epidemic in support of national TB control programmes.



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