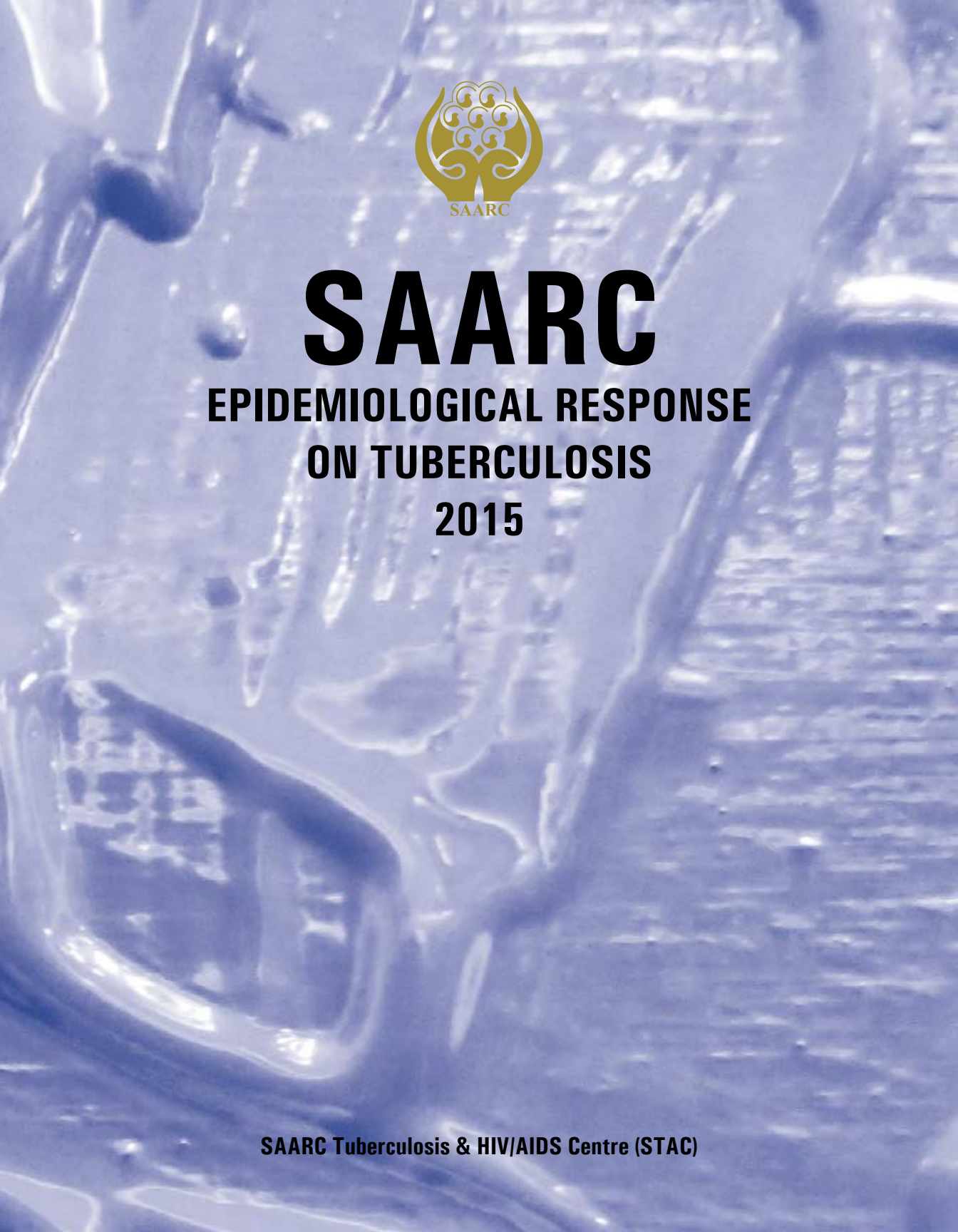

SAARC

EPIDEMIOLOGICAL RESPONSE ON TUBERCULOSIS 2015

SAARC Tuberculosis & HIV/AIDS Centre (STAC)

SAARC

EPIDEMIOLOGICAL RESPONSE ON TUBERCULOSIS

2015

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Printed in Nepal

FOREWORD

The SAARC Region continues to bear a significant burden of tuberculosis despite making significant progress in the global efforts to eliminate TB. Although notified TB cases have been steadily increasing, a decline in the prevalence is seen in all Member States, some reporting more than 50% decline since 1990. With good implementation of DOTS by Member States, the level of "multi-drug resistant" (MDR) TB among newly-detected cases is low. The year 2015 marks the deadline for global TB targets set in the context of the Millennium Development Goals (MDGs), and is a year of transitions: from the MDGs to a new era of Sustainable Development Goals (SDGs), and from the Stop TB Strategy to the End TB Strategy.

This report is an excellent review of the current status and future plans for the control of TB in the SAARC Region. It includes information on burden of tuberculosis in the SAARC region, including incidence, prevalence, mortality along with the MDR-TB, TB/HIV confection etc. It also covers the information of the year 2014 and has been prepared on the basis of information collected from member countries during the year 2015 and by reviewing other related documents.

This is the thirteenth Report on Tuberculosis (TB) situation of SAARC Region which is being published by SAARC Tuberculosis and HIV/AIDS Centre (STAC) in a series that started in 2003, which includes a compilation of regional and country-specific achievements, challenges and plans. However the name of the report has changed "SAARC Epidemiological Response on Tuberculosis" from year 2014. The main purpose of the report is to provide a comprehensive and up-to-date assessment of the TB epidemic and progress made in TB care and control at Global, SAARC Region and Member States level.

I would like to thank the programme managers and experts within SAARC member countries, who have generated and shared the epidemiological data that has been used in this report.

We look forward to your continued collaboration in our joint efforts to broaden the partnership for control of tuberculosis in the SAARC region.

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Dr. Sharat Chandra Verma
Director
SAARC Tuberculosis and HIV/AIDS Centre

Contents

ABBREVIATIONS

ACSM	:	Advocacy, Communication and Social Mobilization
AIDS	:	Acquired Immuno - Deficiency Syndrome
APHI	:	Afghan Public Health Institute
ART	:	Antiretroviral Treatment
ARTI	:	Annual Risk of Tuberculosis Infection
BCG	:	Bacille-Calmette-Guérin
BHC	:	Basic Health Centre
CB	:	Community-Based
CDR	:	Case Detection Rate
CHC	:	Community Health Centers
CN	:	Concept note
CPT	:	Co-trimoxazole Preventive Therapy
CTB	:	Child TB
DMIS	:	Drug Management Information System
DOTS	:	Directly Observed Treatment Short course
DRS	:	Drug Resistance Survey
DR-TB	:	Drug-resistant tuberculosis
DST	:	Drug Susceptibility Testing
EP	:	Extra-Pulmonary
EQA	:	External Quality Assurance
FDCs	:	Fixed-Dose Combination Drugs
FLD	:	First Line Drug
GDF	:	Global Drug Facility
GF	:	Global Fund to Fight AIDS, Tuberculosis and Malaria
GLC	:	Green Light Committee
GoIRA	:	Government of Islamic Republic of Afghanistan
HBCs	:	High-Burden Countries
HCW	:	Health-Care Worker
HIV	:	Human Immunodeficiency Virus
HPA	:	Health Protection Agency

HRD	:	Human Resources Development
HRM	:	Human Resource Management
ICD	:	International Classification of Diseases
IDPs	:	Internally displaced Populations
IEC	:	Information, Education and Communication
IPT	:	Isoniazid Preventive Therapy
IRLs	:	Intermediate Reference Laboratories
IUATLD	:	International Union Against Tuberculosis and Lung Disease
KAP	:	Knowledge, attitude and practice
LED	:	Light-Emitting Diaode microscopy
LPA	:	Line Probe Assay
M&E	:	Monitoring and Evaluation
MBDC	:	Mycobacterial Disease Control
MDGs	:	Millennium Development Goals
MDR	:	Multi Drug Resistance
MoH	:	Ministry of Health
MoPH	:	Ministry of Public Health
NACO	:	National AIDS Control Organization
NACP	:	National AIDS Control Programme
NFM	:	New Funding Model
NGO	:	Non-Government Organization
NIDCH	:	National Institute of Disease and Chest Hospital
NIRT	:	NIRT National Institute of Research for Tuberculosis, Chennai, India
NPTCCD	:	National Programme for Tuberculosis Control and Chest Diseases
NSP	:	National Strategic Plan
NTC	:	National Tuberculosis Centre
NTI	:	National Tuberculosis Institute
NTP	:	National Tuberculosis Programme
NTRL	:	National TB Reference laboratory
OR	:	Operational research
PAL	:	Practical Approach to Lung Health
PHCC	:	Primary Health Care Centre

PHCs	:	Primary Health Centers
PHIs	:	Public Health Inspectors
PHL	:	Public Health Laboratory
PHS	:	Public Health Services
PLHIV	:	People Living with HIV
PMDT	:	Programmatic Management of Drug-Resistant Tuberculosis
PPM	:	Public-private Mix
PPs	:	Private Practitioners
PTPs	:	Provincial TB Control Programs
PWB	:	Patient-wise box
RNTCP	:	Revised National TB Control Programme
RR-TB	:	Rifampicin resistant tuberculosis
RTRL	:	Regional TB reference laboratory
SAARC	:	South Asian Association for Regional Cooperation
SCC	:	Short Course Chemotherapy
SLD	:	Second Line Drug
SNRL	:	Supranational Reference Laboratory
SOPs	:	Standard Operating Procedures
SRL	:	Supra Reference Laboratory
STAC	:	SAARC TB and HIV/AIDS Centre
STLSs	:	Senior TB Laboratory Supervisors
TB	:	Tuberculosis
ToT	:	Training of Trainers
UHCs	:	Upazila Health Complexes
VCCT	:	Voluntary Counseling and Testing Centre
WHO	:	World Health Organization
XDR	:	Extensively Drug-Resistant Tuberculosis

EXECUTIVE SUMMARY

This is the thirteenth Report on tuberculosis (TB) situation of SAARC Region which is being published by SAARC Tuberculosis and HIV/AIDS Centre (STAC) in a series that started in 2003. However the name of the report has changed "SAARC Epidemiological Response on Tuberculosis" from year 2014.The main purpose of the report is to provide a comprehensive and up-to-date assessment of the TB epidemic and progress made in TB care and control at Global, SAARC Region and Member States level.

The incidence has been falling globally achieving the Millennium Development Goal target. Of estimated 9.6 million new cases of TB (133 per 100 000 population), 6.3 million cases were notified in 2014 of which 2.6 million were New Smear-Positive TB cases.

There were an estimated 13 million prevalent cases in 2014 (174 cases per 100 000 population) globally. An estimated 480 000 people developed MDR-TB and only about quarter of these 123 000 were detected and reported. However, there were an approximately 190 000 deaths from MDR-TB. Among patients with pulmonary TB who were notified in 2014, an estimated 300 000 had MDR-TB.

A total of approximately 1.5 million people died of TB in 2014 and among them 1.1 million deaths were from TB among HIV-negative people and an additional 0.4 million deaths from TB among people who were HIV-positive. The toll comprised 890 000 men, 480 000 women and 140 000 children.

The SAARC region, with an estimated incidence of 3.1 million TB cases, carries 32% of the global burden of TB out of which 2.1 million are estimated to be sputum smear positive infectious cases. Four of the eight Member Countries in the Region are among the 22 high burden countries (Afghanistan, Bangladesh, India and Pakistan) together notified 98% of the region. India alone accounted to 73% of all notifications in the SAARC region.

The case detection rate in the region is 69 % in the year 2014. And out of the sputum smear-positive pulmonary TB in the Region 89% were successfully treated among the 2013 cohort.

The MDR TB cases in the region range from less than one to four percent among new TB cases and it ranges from less than one to almost 35 percent among the retreatment TB cases. In 2014 Pakistan has 4.3% of new tuberculosis cases with MDR-TB, which is highest in the SAARC region. However, in India there were 24,000 new MDR-TB cases among notified pulmonary TB cases. In case of

retreatment Bhutan has 35% of new tuberculosis cases with MDR-TB, which is highest proportion in the SAARC region. However, in India there were 47,000 MDR-TB cases among retreatment TB cases.

In 2014, almost 1 million TB patients with known HIV status has tested in which 44,707 (4%) tested TB patients are HIV-positive among them 92% and 90 % have started CPT and ART in the SAARC region respectively. In the SAARC region, India accounts for highest TB patients with known HIV status followed by Pakistan and Afghanistan. Around 93% of HIV-positive TB patients started CPT and 90% started ART in India at the end of 2014. However Bangladesh, Bhutan and Pakistan have 100 % HIV-positive TB patients started ART. In 2014, Afghanistan, Nepal and Sri-Lanka have initiated HIV-positive people provided with IPT.

As the large number of HIV infected persons are in the SAARC Region particularly in India, Bangladesh and Pakistan with high rates of TB transmission and the presence of high TB prevalence, the HIV epidemic could have significant implications on TB control in the Region. Collaborative TB/ HIV activities are critical in order to ensure that HIV positive TB patients are identified and treated and also to prevent active TB disease in latently infected HIV positive people. HIV testing for TB patients is a critical entry point for both treatment and prevention. There was a significant progress in offering HIV testing for TB patients between 2002 and 2014 as health care providers initiated the “provider initiated HIV testing” for newly diagnosed TB patients.

All the SAARC Member States have developed their strategic plans for expansion of TB/HIV collaborative activities and are in the expansion mode. Some SAARC Member States have made significant progress in TB/HIV collaboration, while some are slow on this component.

All the Member States have initiated management of MDR-TB under the National TB Control Programme. While, all the SAARC Member States have initiated management of MDR-TB under the National TB Control Programme, one of the most important constraints to rapid expansion of diagnostic and treatment services for MDR-TB identified by all the SAARC Member States, is laboratory capacity. Constraints in availability and retention of adequately trained human resources, is one of the major concerns of all the SAARC Member States.

1. INTRODUCTION

1.1 Introduction of SAARC

The South Asian Association for Regional Cooperation (SAARC) established on 8th December 1985 comprises of Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. SAARC is a manifestation of the determination of the people of South Asia to work together towards finding solutions to their common problems in a spirit of friendship, trust and understanding and to create an order based on mutual respect, equity and shared benefits. The SAARC Secretariat is supported by different regional centers established in Member States to promote regional cooperation. Among them, SAARC TB and HIV/AIDS Centre is one of the regional centers which is located in Nepal.

1.2 SAARC TB and HIV/AIDS Centre (STAC)

1.2.1 Background

The Heads of State or Government of Member Countries of SAARC at their Fifth Summit held in Male on 22-23 November 1990 decided to establish SAARC Tuberculosis Centre (STC) in Nepal. The Centre was established in 1992 to work for control and prevention of Tuberculosis in the Region. Considering the role played by the centre through its activities on TB/HIV co-infection, the centre was renamed as SAARC Tuberculosis and HIV/AIDS Centre (STAC) by the Thirty-first Session of Standing Committee of SAARC held in Dhaka on November 9-10, 2005 (during the Thirteen SAARC Summit) to work for prevention and control of TB and HIV/AIDS in the SAARC Region by coordinating the efforts of the National Tuberculosis Control Programme and National AIDS Control Programme of the Member States, with the following vision, mission, goal and objective.

1.2.2 Vision

SAARC TB and HIV/AIDS Centre be the leading institute to support and guide SAARC Member States to make the Region free of TB and HIV/AIDS.

1.2.3 Mission

The Mission of the SAARC TB and HIV/AIDS Centre is to support the efforts of National TB and HIV/AIDS Control Programmes through evidence based policy guidance, co-ordination and technical support.

1.2.4 Goal

The goal of the SAARC TB and HIV/AIDS Centre is to minimize the mortality and morbidity due to TB and HIV/AIDS in the Region and to minimize the transmission of both infections until TB and HIV/AIDS cease to be major public health problems in the SAARC Region.

1.2.5 Objective

To work for prevention and control of TB and HIV/AIDS in the SAARC Region by coordinating the efforts of the National TB and National HIV/AIDS Control Programmes of the SAARC Member States.

1.2.6 Role of STAC

One of the main functions of this centre is to collect, collate, analyze and disseminate relevant information in the field of TB and HIV/AIDS in the Region. In this regard, the Centre has been preparing and publishing annual SAARC Regional epidemiological reports on TB and HIV/AIDS for all the Member States and other stakeholders working in the field of TB and HIV/AIDS. Based on this information, progress in achieving Millennium Development Goals (MDGs) in relation to TB and HIV/AIDS in the SAARC Member States can be monitored. In all the Member States, the Government together with its partners from the public and private sectors is committed to further intensify the DOTS programme in order to sustain the achieved success to reach the MDG-related TB control targets.

The New Stop TB strategy embraces the fundamentals of TB control originally framed as DOTS, but extends beyond the TB control (DOTS) activities into other key areas. These include the well-known problems of multi-drug resistant TB or MDR-TB (and now also extensive drug resistance TB, XDR-TB) and of TB associated with HIV/AIDS. The Global Plan of the Stop TB Partnership details the scale at which the six components of the STOP-TB strategy should be implemented in order to achieve the global targets.

2. GLOBAL BURDEN OF TUBERCULOSIS

2.1 Basic facts about 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. Overall, a relatively small proportion (5–15%) of the estimated 2–3 billion people infected with *M. tuberculosis* will develop TB disease during their lifetime. However, the probability of developing TB is much higher among people infected with HIV. The most common method for diagnosing TB worldwide remains sputum smear microscopy (developed more than 100 years ago), in which bacteria are observed in sputum samples examined under a microscope. However, developments in TB diagnostics in the last few years mean that the use of rapid molecular tests to diagnose TB and drug-resistant TB is increasing, and some countries are phasing out use of smear microscopy for diagnostic (as opposed to treatment monitoring) purposes. In countries with more developed laboratory capacity, cases of TB are also diagnosed via culture methods (the current reference standard).

Without treatment, the death rate is high. Studies from the pre-chemotherapy era found that about 70% of people with sputum smear positive pulmonary TB died within 10 years, and that this figure was 20% among culture-positive (but smear-negative) cases of pulmonary TB.

Effective drug treatments were first developed in the 1940s. The most effective first-line anti-TB drug, rifampicin, became available in the 1960s. The currently recommended treatment for new cases of drug-susceptible TB is a six-month regimen of four first-line drugs: isoniazid, rifampicin, ethambutol and pyrazinamide. Treatment success rates of 85% or more for new cases are regularly reported to WHO by its Member States. 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 more toxic drugs. For most patients with MDR-TB, the current regimens recommended by WHO treatment duration lasts 20 months, and treatment success rates are much lower.

New TB drugs are now emerging from the pipeline, and combination regimens that include new compounds are being tested in clinical trials. There are several TB vaccines in Phase I or Phase II trials. For the time being, however, a vaccine that is effective in preventing TB in adults remains elusive.

2.2 The Stop TB Strategy at a glance (2006–2015)

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 (defined as <1 case per 1 million population per year)
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 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 (PAL) 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 (PPM) 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.	

2.3 The End TB Strategy at a glance (2016–2035)

VISION	**A WORLD FREE OF TB** - zero deaths, disease and suffering due to TB			
GOAL	**END THE GLOBAL TB EPIDEMIC**			
INDICATORS	**MILESTONES**		**TARGETS**	
	2020	2025	SDG 2030[a]	End TB 2035
Reduction in number of TB deaths compared with 2015 (%)	35%	75%	90%	95%
Reduction in TB incidence rate compared with 2015 (%)	20% (<85/100 000)	50% (<55/100 000)	80% (<20/100 000)	90% (<10/100 000)
TB-affected families facing catastrophic costs due to TB (%)	0	0	0	0
PRINCIPLES				
1. Government stewardship and accountability, with monitoring and evaluation 2. Strong coalition with civil society organizations and communities 3. Protection and promotion of human rights, ethics and equity 4. Adaptation of the strategy and targets at country level, with global collaboration				
PILLARS AND COMPONENTS				
1. INTEGRATED, PATIENT-CENTRED CARE AND PREVENTION A. Early diagnosis of TB including universal drug-susceptibility testing, and systematic screening of contacts and high-risk groups B. Treatment of all people with TB including drug-resistant TB, and patient support C. Collaborative TB/HIV activities, and management of co-morbidities D. Preventive treatment of persons at high risk, and vaccination against TB				
2. BOLD POLICIES AND SUPPORTIVE SYSTEMS A. Political commitment with adequate resources for TB care and prevention B. Engagement of communities, civil society organizations, and public and private care providers C. Universal health coverage policy, and regulatory frameworks for case notification, vital registration, quality and rational use of medicines, and infection control D. Social protection, poverty alleviation and actions on other determinants of TB				
3. INTENSIFIED RESEARCH AND INNOVATION A. Discovery, development and rapid uptake of new tools, interventions and strategies B. Research to optimize implementation and impact, and promote innovations				

[a] Targets linked to the Sustainable Development Goals (SDGs)

2.4 Global Epidemiology

Tuberculosis (TB) is a major global health problem. It causes ill-health among millions of people each year and ranks alongside the human immunodeficiency virus (HIV) as a leading cause of death worldwide. In 2014, there were an estimated 9.6 million new TB cases: 5.4 million among men, 3.2 million among women and 1.0 million among children. There were also 1.5 million TB deaths (1.1 million among HIV-negative people and 0.4 million among HIV-positive people), of which approximately 890 000 were men, 480 000 were women and 140 000 were children. The number of TB deaths is unacceptably high: with a timely diagnosis and correct treatment, almost all people with TB can be cured.

Table 01: Global Epidemiological Burden of TB (2014)

S. No.	Indicators	Estimated Number (rates)
1	Population	7.2 billion
2	Estimated Incidence	9.6 million (133 cases/100 000)
3	Estimated Prevalence	13 million (174 cases/100 000)
7	Estimated Deaths Due to TB	1.5 million (16 cases/100 000)
4	CDR of all form of TB	63%
5	Treatment Success Rate (2013 cohort)	86%
6	Cases Enrolled on MDR-TB Treatment	0.11 million
8	HIV Positive in incident TB cases	1.2 million

Source: Global Tuberculosis Report, WHO-2015

The MDG target of halting and reversing TB incidence by 2015 was achieved globally, in all six WHO regions and in 16 of the 22 high TB burden countries (HBCs).

Globally, the TB mortality rate in 2015 was 47% lower than in 1990: the target of a 50% reduction was almost met. The target was achieved in four WHO Regions (the exceptions were the African and European regions), and in 11 HBCs. The TB prevalence rate in 2015 was 42% lower than in 1990. The target of a 50% reduction was met in three WHO regions and in nine HBCs.

Table 02: Global Estimated incidence and Notified New Cases of TB (2014)

WHO Regions	Estimated Incidence ('000)	Total Notified	New or Previous treatment history unknown			Relapse			Percentage of pulmonary cases bacteriologically confirmed
			Pulmonary bacteriologically confirmed	Pulmonary clinical diagnosed	Extra Pulmonary	Pulmonary bacteriologically confirmed	Pulmonary clinical diagnosed	Extra Pulmonary	
Africa Region	2700	1342400	635560	399155	212057	39782	11217	3081	62
Region of Americas	280	228476	127864	40746	32501	10193	2918	1021	76
Eastern Mediterranean Region	740	465677	183630	151696	103959	12368	866	874	56
European Region	340	321421	112416	76759	39175	23935	11483	2290	61
South East Asia Region	4000	2580605	1188654	632418	389819	152498	117970	715	64
Western Pacific Region	1600	1375572	449845	734179	103085	44354	3037	1316	40
Global	**9660**	**6314151**	**2697969**	**2034953**	**880596**	**283130**	**147491**	**9297**	**58**

Source: Global Tuberculosis Report, WHO-2015

2.4.1 Incidence of TB

In 2014, there were an estimated 9.6 million incident cases of TB (range, 9.1 million–10.0 million) globally, equivalent to 133 cases per 100 000 population. The absolute number of incident cases is falling slowly, at an average rate of 1.5% per year 2000−2014 and 2.1% between 2013 and 2014. The cumulative reduction in the TB incidence rate 2000–2014 was 18%. The incidence rate was relatively stable from 1990 up until around 2000, and then started to fall (Figure 01), achieving the MDG target far ahead of the 2015 deadline. The MDG target has also been met in all six WHO regions and in 16 of the 22 HBCs.

2.4.2 Prevalence of TB

There were an estimated 13 million prevalent cases (range, 11 million–14 million) of TB in 2014, equivalent to 174 cases per 100 000 population. By the end of 2015, it is estimated that the prevalence rate will have fallen 42% globally since 1990 (Figure 01). Among the 22 HBCs, nine are assessed to have met the target of a 50% reduction from 1990 levels.

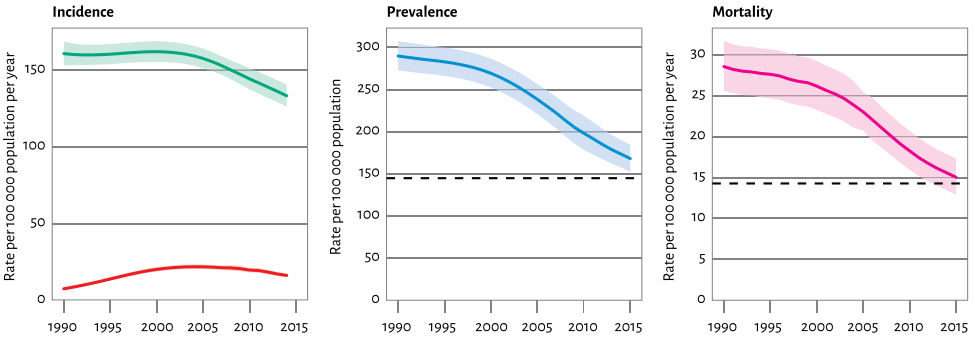
2.4.3 TB Mortality

There were an estimated 1.5 million TB deaths in 2014: 1.1 million among HIV-negative people and 390,000 among HIV-positive people (TB deaths among HIV-positive people are classified as HIV deaths in ICD-10). TB ranks alongside HIV as a leading cause of death from an infectious disease. India accounted for about one third of global TB deaths (both including and excluding those among HIV-positive people.

Globally, the mortality rate (excluding deaths among HIV positive people) fell 47% between 1990 and 2015, narrowly missing the target of a 50% reduction (Figure 01). Between 2000 and 2014, TB treatment alone saved an estimated 35 million lives among HIV-negative people. Among HIV-positive people, TB treatment supported by ART saved an additional 8.4 million lives.

Figure 01: Global trends in estimated rates of TB incidence (1990-2014), and prevalence and mortality rates (1990–2015).

*Left: Estimated incidence rate including HIV-positive TB (**green**) and estimated incidence rate of HIV-positive TB (**red**). Centre and right: 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.*



Source: Global Tuberculosis Report, WHO-2015

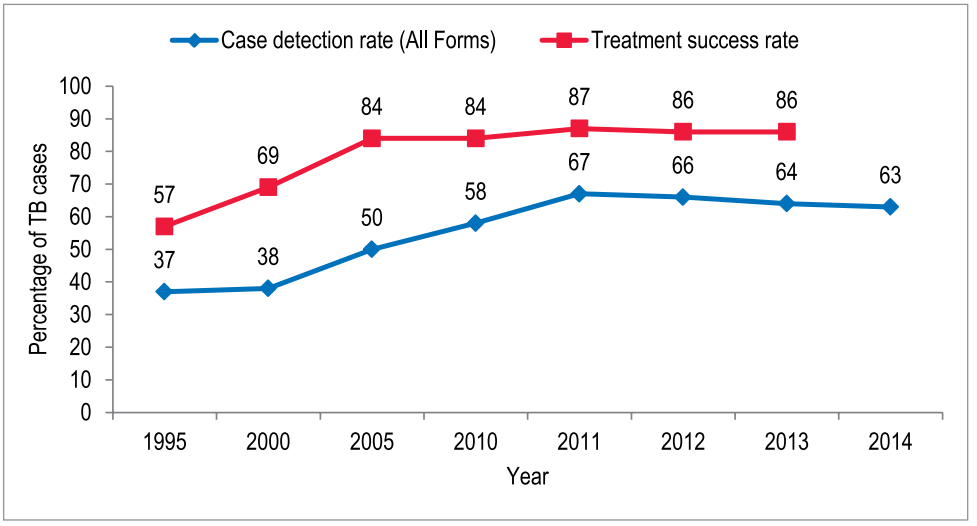
2.4.4 Case Detection Rate

The best estimate of the CDR for all forms of TB globally in 2014 was 63% (range, 60–66%), up from 48–52% in 2005 and 36–40% in 1995 – the year in which the DOTS strategy began to be introduced and expanded. The best estimate of the global gap between notifications (of new episodes of TB i.e. new and relapse cases) and incident cases in 2014 was 3.6 million cases (Figure 02).

2.4.5 Treatment Outcome

Globally, the treatment success rate for the 5.4 million new and relapse cases that were treated in the 2013 cohort was 86% (Figure 02). It is impressive that as the size of the global treatment cohort grew from 1.0 million in 1995 to 4.2 million in 2005 and 5.4 million in 2013, the treatment success rate first improved and has subsequently been sustained at a high level. Treatment outcomes in 2013 were worse among HIV positive TB patients compared with HIV-negative TB patients. Further efforts are needed to narrow this gap.

Figure 02: Trend of Treatment success rate and Case detection rate (1995 - 2014)



Source: Global Tuberculosis Report, WHO-2015

2.5 Drug-resistant TB

Globally, an estimated 3.3% (95% CI: 2.2–4.4%) of new cases and 20% (95%CI: 14–27%) of previously treated cases have MDR-TB; these levels have remained virtually unchanged in recent years. In 2014, there were an estimated 480 000 (range: 360 000–600 000) new cases of MDR-TB worldwide, and approximately 190 000 (range: 120 000–260 000) deaths from MDR-TB. Among patients with pulmonary TB who were notified in 2014, an estimated 300 000 (range: 220 000–370 000) had MDR-TB. More than half of these patients were in India, China and the Russian Federation. On average, an estimated 9.7% (95% CI: 7.4–12%) of people with MDR-TB have XDR-TB.

There was major progress in coverage of drug susceptibility testing (DST) between 2013 and 2014. Worldwide, 12% of new bacteriologically-confirmed TB cases and 58% of previously treated TB patients were tested for drug resistance in 2014, up from 8.5% and 17% respectively in 2013 (representing proportional increases of 41% and 241%, respectively).

Globally in 2014, 123 000 patients with MDR -TB or rifampicin resistant tuberculosis (RR-TB) were notified, of whom about 75% lived in the European Region, India, South Africa or China. This was equivalent to 41% of the 300 000 notified TB patients who were estimated to have MDR-TB in 2014.

The number of notified MDR/RR-TB cases in 2014 was almost the same as in 2013. People with MDR-TB or RR-TB are eligible for second-line treatment with MDR-TB regimens. A total of 111 000 people were started on MDR-TB treatment in 2014, an increase of 14% compared with 2013. Only 50% of patients on MDR-TB treatment were successfully treated, largely due to high rates of mortality and loss to follow-up.

2.6 TB/HIV Co-infection

The number of people dying from HIV-associated TB peaked at 570 000 in 2004 and has since fallen to 390 000 in 2014 (a reduction of 32%). In 2014, HIV-associated TB deaths accounted for 25% of all TB deaths (among HIV-negative and HIV-positive people) and one third of the estimated 1.2 million deaths from HIV/AIDS. Between 2005 and 2014, an estimated 5.8 million lives were saved by TB/HIV interventions. 51% of notified TB patients had a documented HIV test result in 2014, a small increase from 49% in 2013.

In 2014, coverage of antiretroviral therapy (ART) for notified TB patients who were known to be co-infected with HIV reached 77% globally. Further efforts are needed to reach the target of 100%. This is especially the case given that the number of HIV positive TB patients on ART in 2014 represented only 33% of the estimated number of people living with HIV who developed TB in 2014. Coverage of co-trimoxazole preventive therapy (CPT) among HIV-positive TB patients remains high, and increased slightly to 87% and the number of people living with HIV who were treated with isoniazid preventive therapy (IPT) reached 933 000 in 2014, an increase of about 60% compared with 2013. However, provision of IPT was reported by just 23% of countries globally.

Preventing TB deaths among HIV-positive people requires intensified scale-up of TB prevention, diagnosis and treatment interventions, including earlier initiation of ART among people living with HIV and those with HIV-associated TB. Increased efforts in joint TB and HIV programming could facilitate further scale-up and consolidation of collaborative TB/HIV activities.

3. BURDEN OF TUBERCULOSIS IN SAARC REGION

3.1 SAARC Regional Strategy for Control / Elimination of Tuberculosis

SAARC has adopted WHO's Global Stop TB Partnership strategy which envisions a TB-free world and elimination of TB by 2050.

3.1.1 Guiding Principles & SAARC TB Control Strategy

The strategic directions for TB Control are grounded in six principles, which will guide achievements of the strategic goals as follows:

Inclusiveness

Working in partnership with all stakeholders will be at the core of the TB Control Strategies in the SAARC Region. The stakeholders would include governments, private sector, non-governmental organization and civil society, researchers, academia, policymakers, professional bodies, national and international development agencies.

Equitable access to effective interventions

The TB Control strategy would endeavor to ensure equity in access, availability and utilization of the quality TB Control services for all sections of the population including poor and marginalized, special populations such tribal, people living in slums, and distant and inaccessible rural areas and terrains.

Flexibility

All the SAARC Member States have their National Tuberculosis Programs and follow a general framework of DOTS and STOP TB partnership. However, each country may have specific and peculiar circumstances that would require adaptation of broad strategies to their own

Quality

Commitment to high quality DOTS that would provide diagnostic services and treatment with effective anti-tubercular drugs will be an integral part of the strategy.

High Impact Interventions

High priority to research and innovation that have the greatest potential to improve and enhance performance and impact in reducing inequities, high cure rates, and contribute to achieving the Millennium Development Goals (MDGs) in the Region.

Ethics and Human Rights

Strategy would be based on the core values of equity, fairness and integrity, and promoting the utilization of scientific evidence and respect for gender and human rights.

3.1.2 Targets for SAARC Region

SAARC Region Targets for the scale-up of interventions for TB care and control set in line with the Global Plan to Stop TB 2011–2015

- 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

3.2 SAARC Epidemiology

The SAARC region, with an estimated annual incidence of 3.1 million TB cases, carries 32% of the global burden of TB incidence (**Table 03**). Four of the eight Member Countries in the Region are among the 22 high burden countries, with India accounting for 23 % of the world's TB cases. Among 3.1 million incident TB cases, 2.1 million are notified new and relapse cases.

Table 03: Estimates of the burden of diseases caused by TB in the SAARC Region 2014

Country	Population ('000)	Incidence		Prevalence (Including HIV)		Mortality (Excluding HIV)	
		Number ('000)	Rate*	Number ('000)	Rate*	Number ('000)	Rate*
Afghanistan	32000	60	189	110	340	14	44 (32-50)
Bangladesh	159000	360	227	640	404	81	51 (37-68)
Bhutan	745 [a]	1 [a]	164	0.196 [a]	190	.072	12(5.2-15) [a]
India	1295000	2200	167	2500	195	220	17 (13-28)
Maldives	352	0.15	41	0.2	56	<0.01	2 (1.9-2.8)
Nepal	28000	44	158	60	215	4.9	17 (13-25)
Pakistan [a]	185000	508	275	632	342	49	27 (6.5-61)
Sri Lanka [a]	20571	13	66	21	103	1.2	5.9 (4.7-7.3)
Total	**1720668**	**3186**	**185**	**3963**	**230**	**370**	**22**

Source: [a] data and report sent by Member States, NTP and Global Tuberculosis Report 2015

** Rates are per 100 000 population*

3.3 Incidence of TB

In 2014, there were an estimated 3.1 million incident cases of TB, equivalent to 185 cases per 100 000 population. This carries 31% of the global burden of TB incidence. The absolute number of incident cases is falling slowly, from 2000 to 2014. The incidence rate was relatively stable from 1990 up until around 2000, and then started to fall (Figure 03), achieving the MDG target far ahead of the 2015 deadline.

3.4 Prevalence of TB

There were an estimated 3.9 million prevalent cases of TB in 2014, equivalent to 230 cases per 100 000 population. At the end of 2014, the prevalence rate had met the target of a 50% reduction from 1990 levels (Figure 03).

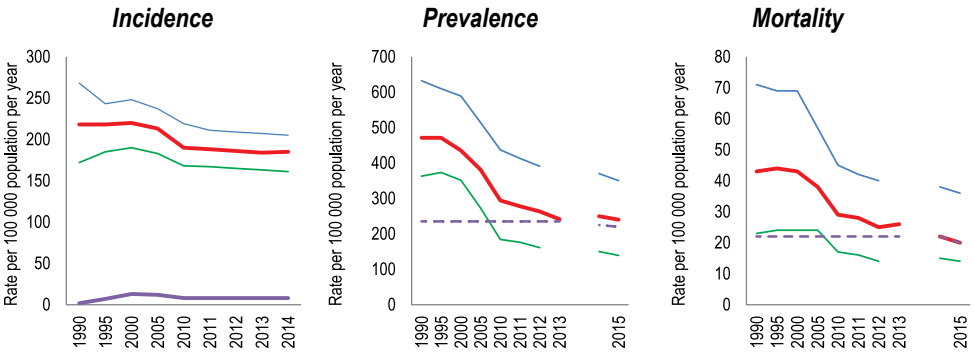
3.5 TB Mortality

There were an estimated 0.37 million TB deaths in 2014. TB ranks alongside HIV as a leading cause of death from an infectious disease. India accounted for about one third of global TB deaths (both including and excluding those among HIV-positive people.

In the SAARC region, the mortality rate (excluding deaths among HIV positive people) had achieved the target of 50% reduction from 1990 levels (Figure 3).

Figure 03: SAARC trends in estimated rates of TB incidence, prevalence and mortality.

*Left: SAARC 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 1990-2014 and forecast TB prevalence and mortality rates 2014-2015. The horizontal dashed lines represent the stop TB Partnership targets of a 50% reduction in the prevalence and mortality rates by 2015 compared with 1990. The shaded area represents uncertainty bands. Mortality excludes TB deaths among HIV-positive people.*



Source: Data and report sent by Member States, NTP and Global Tuberculosis Report 2015

3.6 Notification, Case Detections and Treatment Success

A total 2.2 million cases were notified in 2014 in the SAARC region. The overall case detection rate in the region in 2014 for all types of TB cases was 63 % (53 to 89%) and treatment success rate of 89% (84 to 93%). (**Table 04**)

Table 04: Case detection (2014) and Treatment outcomes, New Smear - Positive cases (2013), SAARC Region

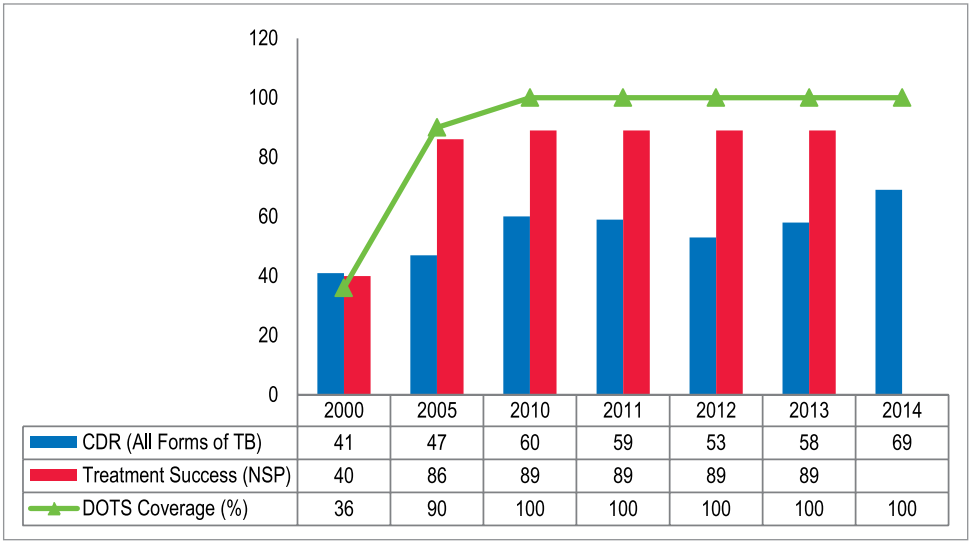
Country	Population ('000)	Incidence		Notified New and Relapse	Case Detection Rate , All forms (%)	Treatment Success rate (%)
		Number ('000)	Rate*			
Afghanistan	32000	60	189	31746	53	88
Bangladesh	159000	360	227	191166	53	93
Bhutan [a]	745	1	164	1080	85	91
India	1295000	2200	167	1609547	74	88
Maldives	352	0.15	41	131	89	84
Nepal	28000	44	158	35277	79	91
Pakistan [a]	185000	508	275	308417	62	93
Sri Lanka [a]	20571	13	66	9305	66	85
Total	**1720668**	**3186**	**185**	**2186669**	**69**	**89**

Source: [a] data and report sent by Member States, NTP and Global Tuberculosis Report 2015

** Rates are per 100 000 population*

A remarkable progress has been made for DOTS since its inception in 1993 in the SAARC Region. By 1997 all Member States started DOTS strategy for TB control. DOTS coverage within the SAARC region has steadily increased since 2000. Population coverage in 1997 was 11%, since then it has increased and reached 99% in 2006 and since 2007 it is 100% (Figure 04). Regarding treatment success, the target was achieved in 2005. In 2014, case detection rate for all types of TB cases was 69%.

Figure 04: Progress in TB Control in SAARC Region, (2000-2014)



	2000	2005	2010	2011	2012	2013	2014
CDR (All Forms of TB)	41	47	60	59	53	58	69
Treatment Success (NSP)	40	86	89	89	89	89	
DOTS Coverage (%)	36	90	100	100	100	100	100

Source: Data and report sent by Member States, NTP, Global TB Report WHO, 2015

3.7 MDR – TB

The MDR TB cases in the region range from less than 1-4% among new TB cases and it ranges from less than one to almost 35 percent among the retreatment TB cases. In 2014 Pakistan has 4.3% of new tuberculosis cases with MDR-TB, which is highest in the SAARC region. However, in India there were 24,000 new MDR-TB cases among notified pulmonary TB cases. In case of retreatment Bhutan has 35% of new tuberculosis cases with MDR-TB, which is highest in the SAARC region. However, in India there were 47,000 MDR-TB cases among retreatment TB cases (**Table 05**).

Table 05: Estimates of MDR-TB burden in the SAARC Region, 2014

Country	New		Retreatment	
	% of TB cases with MDR-TB	MDR-TB cases among notified pulmonary TB cases	% of TB cases with MDR-TB	MDR-TB cases among notified pulmonary TB cases
Afghanistan	3.2	750	17	360
Bangladesh	1.4	2100	29	2700
Bhutan	5	35	35	26
India	2.2	24000	15	47000
Maldives	2.2	2	16	0
Nepal	2.2	540	15	620
Pakistan [a]	4.3	9900	19	3100
Sri Lanka [a]	0.2	13	0.58	2
Regional	**-**	**37340**	**-**	**53808**

Source: Global Tuberculosis Report 2015, [a] *Data and report sent by NTP, Pakistan & Sri Lanka-2015*

3.8 TB/HIV Co-infection

In 2014, almost 1 million TB patients with known HIV status has tested in which 44,707 (4%) tested TB patients are HIV-positive among them 92% and 90 % have started CPT and ART in the SAARC region. In the SAARC region, India accounts for highest TB patients with known HIV status followed by Pakistan and Afghanistan. Around 93% of HIV-positive TB patients started CPT and 90% started ART in India at the end of 2014. However Bangladesh, Bhutan and Pakistan have 100 % HIV-positive TB patients started ART. In 2014, Afghanistan, Nepal and Sri-Lanka have initiated HIV-positive people provided with IPT. **(Table 6)**

Table 06: HIV testing for TB patients, provision of CPT and ART to HIV-positive TB patients, and initiation of IPT for people newly enrolled in HIV care, 2014

Country	TB patients with known HIV status		HIV-positive TB patients		% HIV-positive TB patients started on		HIV-positive people provided with IPT
	No.	%	No.	%	CPT	ART	
Afghanistan	10443	32	4	< 1	-	-	7
Bangladesh	1110	<1	45	4	45 (100)	45 (100)	0
Bhutan	703	55	7	< 1	0	7 (100)	-
India	1034712	61	44171	4	41066 (93)	39800 (90)	-
Maldives	130	99	0	0	-	-	-
Nepal	3254	9	369	11	-	273 (74)	43
Pakistan	10715	3	90	< 1	90 (100)	90 (100)	-
Sri Lanka	7418	78	21	< 1	18 (86)	18 (86)	25
Regional	**1068485**	**-**	**44707**	**4**	**92**	**90**	**-**

Source: Global TB Report WHO, 2015

The estimated population of SAARC region in year 2014 was 1.72 billion which 24% of global populations. In 2014, there were 3.1 million estimated incidence of TB cases, which carries 32% of global burden of TB diseases. However, the estimated prevalence of TB in the SAARC region was 3.9 million, which is 30% of global, also an estimated deaths due to TB in the region was 0.37 million, which is 33% of global deaths due to TB in year 2014 (**Table 07**).

Table 07: Global vs. SAARC Region on TB Indicators, 2014

TB Control Indicators	Global	SAARC	% of Global
Estimated Population	7.2 billion	1.72 billion	24
Estimated Incidence	9.6 million	3.1 million	32
	(133cases/100 000)	(185cases/100 000)	
Estimated Prevalence	13 million	3.9 million	30
	(174 cases/100 000)	(230 cases/100 000)	
Estimated Deaths Due to TB	1.5million	0.37 million	25
	(16 cases/100 000)	(22 cases/100 000)	
New all types TB Cases notified	6.3 million	2.1 million	33
Case Detection Rate all forms of TB	63%	68%	-
Treatment Success Rate (2011 cohort)	86%	89%	-
Case Enrolled on MDR-TB Treatment	0.11 million	--	--
HIV Positive in incident TB cases	1.2 million	44707	4

Source: Data and report sent by Member States, NTP and Global TB Report WHO, 2015

4. PROGRESSES ON TB CONTROL IN SAARC MEMBER STATES


AFGHANISTAN


BANGLADESH


BHUTAN


INDIA


MALDIVES


NEPAL


PAKISTAN


SRI LANKA

AFGHANISTAN

Islamic Republic of Afghanistan is one of the eight countries of the SAARC Region. Afghanistan officially the Islamic Republic of Afghanistan, is a landlocked country located within South Asia and Central Asia. It has a population of approximately 32 million (Global Tuberculosis Report-2015). It is bordered by Pakistan in the south and east; Iran in the west; Turkmenistan, Uzbekistan, and Tajikistan in the north; and China in the far northeast. Its territory covers 652,000 km^2 (252,000 sq mi), making it the 41st largest country in the world.

TB Epidemiology

WHO estimated approximately 60,000 all types of TB cases occurred in year 2014 with incidence of (189/ 100,000) population. The prevalence of TB is around 110,000 cases (340/ 100,000 pop per year) and mortality is 14,000 (44/ 100,000). The incidence of Multi-Drug Resistant (MDR) TB is derived from a sub national drug resistance survey conducted in six provinces of Afghanistan during 2010. As per WHO estimates around 750 new MDR-TB cases among notified pulmonary TB cases are present in the country by end of 2014.

Total 31746 cases were detected in 2014 (highest annual TB case notification so far in last decade). The progress is commendable because in 2001 only 9,581 cases were detected and from that point onwards, the trends shows increasing pattern except in 2008 and 2009 where a slight decline was seen in notified numbers as compared to previous year (2007). From 2010 onward, again the trends are upward. During 2012, 29578 all type of TB cases and 14277 of NNS+ TB cases have been notified. There have been variations in TB distribution by age and gender. There exists high incidence among people aged 15 to 44, with the highest incidence among the most productive age group of 25-34 years old. Among 31746 new and relapse cases 4454 (15%) cases aged less than 15 years. However male female ratio is 0.7 in 2014.

Major Achievements

- Revision of National Strategic Plan for year s of 2014-2018.
- The first draft of NTP concept note for New finding Model was finalized.
- Proposal of anti TB drug & diagnostic kits has been approved by Japanese government (starting from 2015 up to 2017).
- Establishing Culture facilities in National Reference laboratory and 2 Reference laboratories.

- Construction of communicable Disease Hospital by support of Japanese government. (56 bed for Multi Drug Resistance patients).
- 31622 all forms of TB cases and 49 MDR cases has been notified and treated during 2013.
- TB Cross Border Coordination launched between Afghanistan and Pakistan.
- Conducted operational research on TB Gender, Accuracy of TB data.
- Shifting of 8 month treatment regimes to 6months regimes.

Challenges

- Delay in approval and fund disbursement of Global fund R8 phase II
- Improvement of laboratory system including culture and DST
- Improvement of MDR program Management capacity at national and provincial level
- Program management in cross border areas
- Government budgetary support is very limited
- Sustainability of bilateral support is questionable
- TB care services for vulnerable groups are limited (childhood TB, prisons)

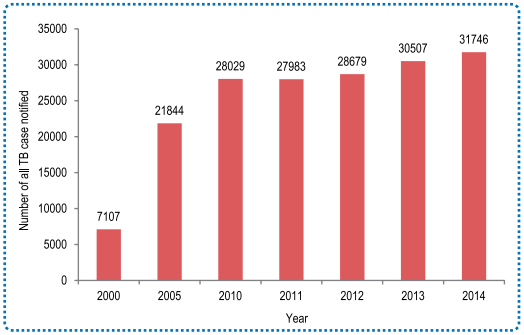
New Initiatives:

- TB Screening among IDPs and prisoners by digital mobile x-ray
- Introducing of Gene Xpert for diagnosis of MDR – TB

Future Plans:

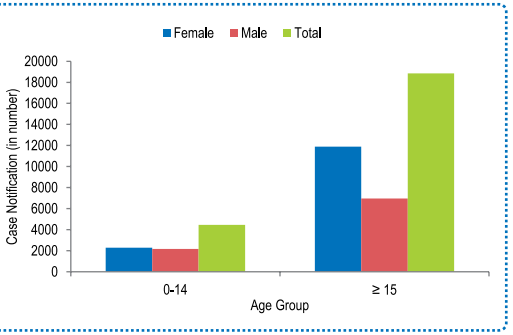
- NTP will submit the TB concept note for NFM through online platform by 15 June 2014.
- Revision of NTP, National Guideline as per WHO revised Guideline and new definitions.
- Conducting DST, drug susceptibility test as trial in National Reference Laboratory.
- TB screening of key affected population (IDPs, Prisoners, drug user, returnees …..etc) through active case finding and using new technologies (Digital mobile x-ray, Gene Xpert.
- Expansion of MDR program management in five big cities. (Jalalabab, Mazar, Hirat, Kandahar and Kunduz.
- Scale up and expansion of PPM activities in big cities.
- Strengthening drug and supply management & development of DMIS (drug management information system).
- Expansion of Stop TB Partnerships in main provinces including TB Patient Association
- DOTS expansion to entire health system (BHC, Sub Health Center, Health Post …etc

Figure 05 Trend of TB case notification (all types) by year 2000 - 2014



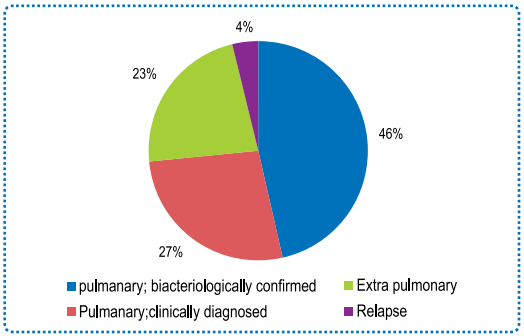
Source: Global Tuberculosis Report-2014 & 2015

Figure 06 Notified New and Relapse TB Cases by age and sex, 2014



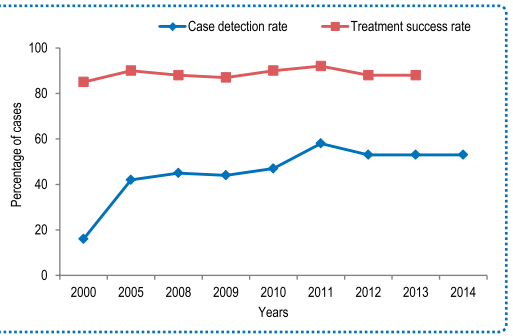
Source: Global Tuberculosis Report- 2015

Figure 07 Percentages of type of TB patients (2014)



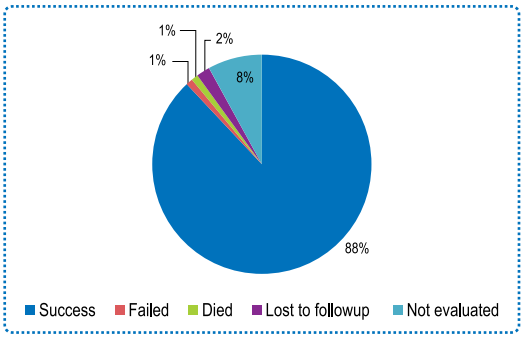
Source: Global Tuberculosis Report- 2015

Figure 08 Case detection rate and Treatment success rate for new smear positive cases (2000 - 2014)



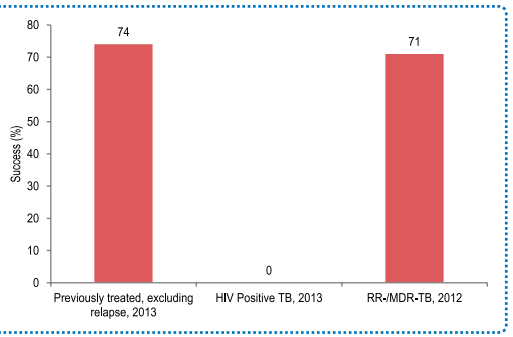
Source: Global Tuberculosis Report-2014 & 2015

Figure 09 Treatment outcomes by TB case type, 2013



Source: Global Tuberculosis Report- 2015

Figure 10 Treatment outcomes for RR-/MDR-TB cases, 2012



Source: Global Tuberculosis Report- 2015

TB Epidemiology 2014, Afghanistan

Population (2014)	32 million

Estimates of TB burden * 2014	Number (thousands)	Rate (per 100 000 population)
Mortality (excludes HIV+TB)	14 (10-18)	44 (32-57)
Mortality (HIV+TB only)	0.087 (.072-0.1)	0.28 (0.23-0.33)
Prevalence (includes HIV+TB)	110 (56-180)	340 (178–555)
Incidence (includes HIV+TB)	60(53-67)	189 (167–212)
Incidence (HIV+TB only)	0.32 (0.25-0.40)	1 (0.8-1.3)
Case detection, all forms (%)		53 (47–60)

Estimates of MDR-TB burden * 2014	New	Retreatment
% of TB cases with MDR-TB	3.2(2.3–4.1)	17 (11-23)
MDR-TB cases among notified pulmonary TB cases	750(540-960)	360 (240-490)

TB case notifications 2014	New **	Relapse
Pulmonary, bacteriologically confirmed	14737	1209
Pulmonary, clinically diagnosed	8573	
Extra pulmonary	7227	
Total new and relapse	31746	
Previously treated, excluding relapses	966	
Total cases notified	32712	
Among 30 537 new and relapse cases: 4454(15%) cases aged under 15 years; male: female ratio: 0:7		

Reported cases of RR-/MDR-TB 2014	New	Retreatment	Total **
Cases tested for RR-/MDR-TB	2 (<1%)	184 (8%)	186
Laboratory-confirmed RR-/MDR-TB cases			88
Patients started on MDR-TB treatment***			88

TB/HIV 2014	Number	(%)
TB patients with known HIV status	10443	32
HIV-positive TB patients	4	(<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	142	
HIV-positive people provided with IPT	7	

Treatment success rate	Cohort	(%)
New cases registered in 2013	3507	88
Previously treated cases registered in 2013	1115	74
HIV-positive TB cases, all types, registered in 2013		
RR-/MDR-TB cases started on second-line treatment in 2012	38	71
XDR-TB cases started on second-line treatment in 2012	0	

Laboratories 2014	
Smear (per 100 000 population)	2.3
Culture (per 5 million population)	0.5
Drug susceptibility testing (per 5 million population)	0
Sites performing Xpert MTB/RIF	1
Is second-line drug susceptibility testing available?	Yes, outside country

* Ranges represent uncertainty intervals, ** Includes cases with unknown previous TB treatment history, *** Includes patients diagnosed before 2014 and patients who were not laboratory confirmed as having RR-/MDR-TB

Source: Global Tuberculosis Report-2015

BANGLADESH

People's Republic of Bangladesh is a country in South Asia. It is bordered by India to its west, north and east; Myanmar (Burma) to its southeast; and is separated from Nepal and Bhutan by the Chicken's Neck corridor. To its south, it faces the Bay of Bengal. The total area of the country is 147,570 km^2. Population of Bangladesh is 157 million (Global Tuberculosis Report-2015) and it is one of the most densely populated countries in the world.

TB Epidemiology

Bangladesh is among countries with the high burden of TB. The estimated prevalence and incidence rates of all forms of tuberculosis were 404 and 227 per 100 000 population respectively in 2014. Total 187005 notified new and relapse cases were detected, among the notified new and relapse cases 6262 (3%) cases aged less than 15 years. However male female ratio is 1.5 in 2014. The treatment success rate among new and relapse cases (all types) is above 90% since 2007, and it was 93% in 2013 cohort. As per WHO estimates around 2100 new MDR-TB cases among notified pulmonary TB cases are present in the country by end of 2014.

The number of peripheral laboratories performing smear microscopy has increased steadily over recent years, from 1072 in 2012 to 1089 in 2013, corresponding to 0.7 per 100 000 population, to provide greater access to TB diagnostic services. In 2013, as in the previous year, EQA was carried out for all microscopy laboratories, 94% of them showing acceptable performance. Following the WHO recommendation, NTP plans to gradually replace the light microscopes with LED to improve the capacity and quality of sputum microscopy. To support this national initiative, TB CARE II procured and distributed 200 LED microscopes in the country. To use the new microscopes, over 300 staff were trained on LED microscopy. The focus of the training is to update laboratory technicians' skills in sample collection, smearing and staining, microscopic examination by LED, smear evaluation, recording and reporting, supply management, quality assurance, preparation of reagents, preservation of microscopes, and troubleshooting.

In 2014, there were three accredited laboratories performing culture and DST for First Line Drug (FLD); for two of them, EQA was carried out showing acceptable performance. One laboratory provides line probe assays (LPA) testing. Despite the number of culture and DST, capacity was tripled, compared to 2011. National coverage of culture and DST is still low, considering the size of the population (<0.1 laboratory per 5 million population).

Xpert MTB/RIF was first introduced in Bangladesh in March 2012 with the support of the TB CARE II project. Till December 2014, a total of 38 Xpert MTB/ RIF machines were functioning at different settings in the country, including six machines in Dhaka city.

The results of the first national DRS completed in 2012 confirmed a low proportion of new TB cases that have MDR-TB (1.4%, Confidence Intervals 0.7–2.5), but the proportion among retreated cases was revised upwards (29%, Confidence Intervals 24–34). The total number of estimated MDR-TB cases among notified cases in 2014 was 4800. Coverage of routine surveillance of drug resistance is still low.

Child TB (CTB) activities are progressing steadily in Bangladesh. National guidelines on CTB management have been published in 2012. With the support of TB CARE II project, NTP has involved the Bangladesh Paediatric Association in the TB Control Programme to train the doctors and HCW on CTB diagnosis and management in order to increase the case-detection rate of CTB in Bangladesh. The project started with development of two training modules followed by the facilitators' guide and training of district and sub-district level doctors including HCW. In 2013, TB cases among children of 0–14 years old represented 2.8% of all new TB cases detected, of which 13% were in the age group 0–4 years. Providing IPT to eligible children living in the families of active TB patients is part of NTP policy. About 2996 children were evaluated and 321 children registered for IPT; among the registered children, 78 completed the full course of prophylaxis in 2014.

Achievements

- The sixth joint monitoring mission conducted during 30 March–10 April 2014 and report published;
- EPI data analysis completed;
- Revised Strategic Plan for National Tuberculosis Control Programme (2015–2020) finalized;
- A Concept Note (CN) for the application to the NFM of the GF submitted in June 2014 and approved by GF for the period June 2015–December 2017;
- Fifth edition of national guidelines and operational manual for tuberculosis control and second edition of national guidelines and operational manual for PMDT published;
- cPMDT started in 2012 and gradually expanded to the whole country;
- Two training modules on CTB developed, followed by facilitators' guide and training of district and sub-district level doctors including HCW;

- First edition of national guidelines and operational manual on PAL at PHC level and participants' module on PAL, Bangladesh and guidelines on PAL for nurse/HA/FWA/paramedics in Bangla published.
- National monitoring and evaluation plan for tuberculosis control (2011–2015) and MDR-TB expansion plan (2012–2017) published;
- Electronic registration of TB data using e-TB Manager software is running in 210 sites;
- Further expansion of public–private mix for TB control with involvement of Bangladesh knitwear manufacturers and exporters association to provide TB control services programme in knitting industries.

Challenges

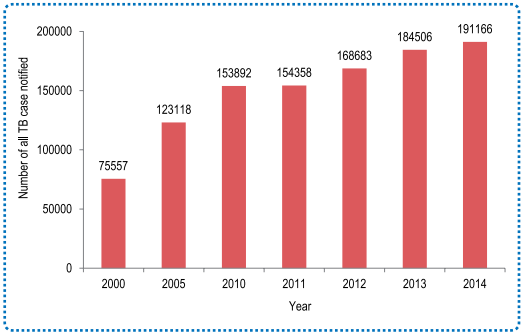
- Ensuring uninterrupted supply of drug and logistics;
- Establishing system for assessing quality of anti-TB drugs;
- Strengthening procurement, supply and management system;
- Ensuring sustainability of skilled and trained staff at different levels.;
- Strengthening laboratory services including expansion of culture and DST;
- Scaling-up the management of DR-TB and community PMDT;
- Further scaling up and strengthening private–public collaborative interventions;
- Strengthening linkages with the National AIDS and STI programmes for TB/ HIV;
- Sustaining and controlling the quality of DOTS;
- Further improving case-notification of smear-negative, extra-pulmonary TB cases;
- Improving capacity for diagnosis and management of child TB cases and TB with co-morbidity;
- Sustaining partnerships with NGOs, the private sector, academic institutes and in workplaces in TB control;
- Reaching the hard-to-reach population in islands and marshy lands;
- Financial sustainability;

Future Plan

- TB prevalence survey in 2015–2016.
- The Global Fund using NFM Grant signing.
- Piloting shorter regimen for MDR-TB management as operational research;

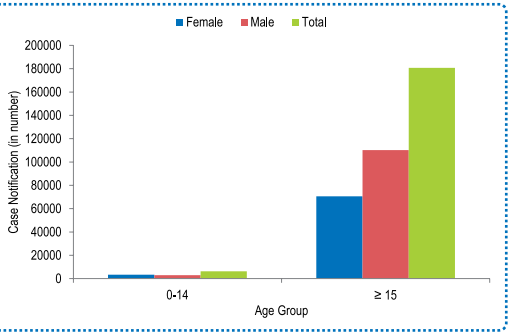
- Establishing of RTRL at Sylhet for culture and DST in a phased manner;
- Scaling up PAL activity;
- Expanding TB/HIV collaborative activities in a phased manner;
- Developing capacity for wider implementation of TB/HIV, MDR-TB and PPM DOTS interventions;
- Expanding private–public collaborative activities further;
- Strengthening the procurement and supply management system;
- Strengthening supervision and monitoring;
- Scaling-up of e-TB Manager;
- Implementation of TB infection control;
- Capacity-building for diagnosis and management of smear-negative, extrapulmonary and childhood TB;
- Establishing a pharmacovigilance system and conducting drug quality assessment;
- Conducting operational research on validation of data, TB–diabetes relationship and TB lymphadenitis; • establishing of electronic LMIS; and
- Scaling-up Xpert MTB/RIF sites.

Figure 11 Trend of TB case notification (all types) by year 2000 - 2014



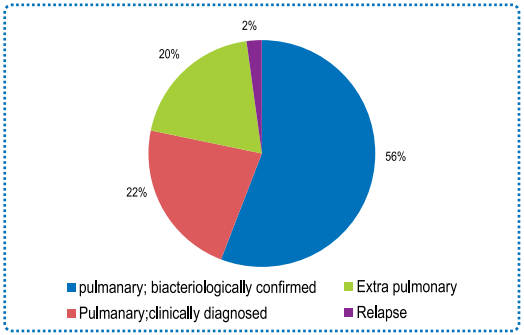
Source: Global Tuberculosis Report-2014 & 2015

Figure 12 Notified New and Relapse TB Cases by age and sex, 2014



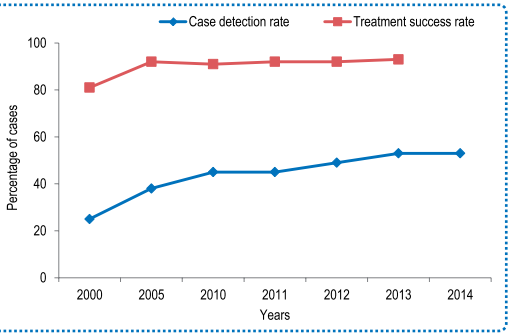
Source: Global Tuberculosis Report- 2015

Figure 13 Percentages of type of TB patients (2014)



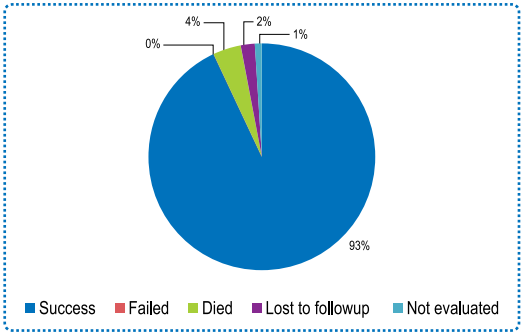
Source: Global Tuberculosis Report- 2015

Figure 14 Case detection rate and Treatment success rate for new smear positive cases (2000 - 2014)



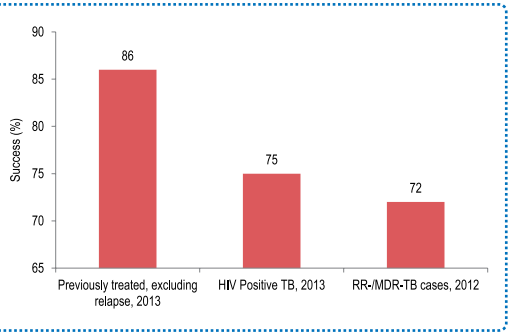
Source: Global Tuberculosis Report-2014 & 2015

Figure 15 Treatment outcomes by TB case type, 2013



Source: Global Tuberculosis Report- 2015

Figure 16 Treatment outcomes for RR-/MDR-TB cases, 2012



Source: Global Tuberculosis Report- 2015

TB Epidemiology 2014, Bangladesh

Population (2014)	159 million

Estimates of TB burden * 2014	Number (thousands)	Rate (per 100 000 population)
Mortality (excludes HIV+TB)	81 (59-110)	51 (37-68)
Mortality (HIV+TB only)	0.18 (0.14-0.22)	0.11 (0.09-0.14)
Prevalence (includes HIV+TB)	640 (340-1000)	404 (211-659)
Incidence (includes HIV+TB)	360 (320-410)	227 (200-256)
Incidence (HIV+TB only)	0.57 (0.45-0.71)	0.36 (0.28-0.45)

Estimates of MDR-TB burden * 2014	New	Retreatment
% of TB cases with MDR-TB	1.4 (0.7-2.5)	29 (24-34)
MDR-TB cases among notified pulmonary TB cases	2100 (1000-3700)	2700 (2200-3200)

TB case notifications 2014	New **	Relapse
Pulmonary, bacteriologically confirmed	106767	2989
Pulmonary, clinically diagnosed	42832	863
Extra-pulmonary	37406	309
Total new and relapse	191166	
Previously treated, excluding relapses	5631	
Total cases notified	196797	
Among 187005 new and relapse cases: 6262(3%) cases aged under 15 years; male:female ratio: 1:5		

Reported cases of RR-/MDR-TB 2014	New	Retreatment	Total **
Cases tested for RR-/MDR-TB	12573 (12%)	4959 (51%)	43360
Laboratory-confirmed RR-/MDR-TB cases			994
Patients started on MDR-TB treatment***			945

TB/HIV 2014	Number	(%)
TB patients with known HIV status	1110	<1
HIV-positive TB patients	45	4

HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	45	100
HIV-positive TB patients on antiretroviral therapy (ART)	45	100
HIV-positive people screened for TB	726	
HIV-positive people provided with IPT	0	

Treatment success rate	Cohort	(%)
New cases registered in 2013	184077	93
Previously treated cases registered in 2013	6327	86
HIV-positive TB cases, all types, registered in 2013	68	75
RR-/MDR-TB cases started on second-line treatment in 2012	505	72
XDR-TB cases started on second-line treatment in 2012	4	25

Laboratories 2014	
Smear (per 100 000 population)	0.7
Culture (per 5 million population)	<0.1
Drug susceptibility testing (per 5 million population)	<0.1
Sites performing Xpert MTB/RIF	38
Is second-line drug susceptibility testing available?	Yes, outside country

* Ranges represent uncertainty intervals, ** Includes cases with unknown previous TB treatment history, *** Includes patients diagnosed before 2014 and patients who were not laboratory confirmed as having RR-/MDR-TB

Source: Global Tuberculosis Report-2015

BHUTAN

Bhutan officially the Kingdom of Bhutan, is a landlocked country in South Asia at the eastern end of the Himalayas. It is bordered to the north by China and to the south, east and west by India. To the west, it is separated from Nepal by the Indian state of Sikkim, while farther south it is separated from Bangladesh by the Indian states of Assam and West Bengal. Bhutan's capital and largest city is Thimphu. It has a land area of 38,394 square kilometers and the altitude varying from 180m to 7,550m above sea level. The total population of Bhutan was estimated to be 745000 (Report sent by NTP, Bhutan-2015) in the year 2014.

TB Epidemiology

Bhutan had estimated TB prevalence and incidence rate of all forms of TB respectively of 190 and 164 per 100 000 population. Total 1066 notified new and relapse cases were detected, among the notified new and relapse cases 56 (5%) cases aged under 15 years. However male female ratio is 1.0 in 2014. The treatment success for the cohort of new smear-positive cases registered during 2013 was 91%; Treatment success rate is steadily equal to or above 90% since 2007. The TB control programme is fully integrated into the general health services with the majority of activities decentralized to the districts.

There are no representative data on levels of DR-TB in the country. Based on modeling, WHO estimated that 2.2% of newly diagnosed TB cases and 35% of retreatment cases have MDR-TB. DRS started in 2010 and is ongoing to better assess levels of DR-TB in the country; preliminary results suggest a higher drug resistance rate than WHO estimates. A total of 122 MDR-TB cases were diagnosed in 2014: of these, 61 had been laboratory confirmed. All 122 MDR-TB cases diagnosed had been enrolled on treatment. GLC approval for the management of MDR-TB cases has been obtained in 2009, guidelines for MDR-TB management have been finalized, medical doctors trained on MDR-TB management and SLD being procured through GDF/GLC. For the MDR-TB cohort of 2012, the treatment success rate was 100%.

In 2014, the LPA was established through GF support to speed up the diagnosis of MDR-TB. PHL has improved in providing results to the districts after the introduction of LPA. Through the support of the NFM grant, there is a plan to introduce Expert MTB/RIF machines in four district hospitals to improve the diagnosis of MDR-TB among various categories of patients.

Achievements

- TB NFM Concept Note submitted to the Global Fund
- GDF/GLC Mission conducted through support from WHO
- Conducted Laboratory assessment visit by the SNRL
- Strengthened Laboratory capacity with the introduction of Liquid Culture and DST plus LPA facilities
- Procured FLDs and SLDs through GDF/GLC
- Follow up of patients strengthened using mobile technology
- Monitoring and supervision visits to the reporting centers strengthened
- Training on sputum microscopy conducted to the new Laboratory Technicians
- Conducted annual TB review meeting
- Completed study on factors associated with development of MDR-TB in TB patients on DOTS

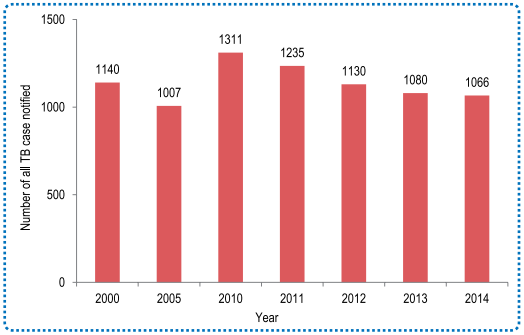
Challenges

- Implementation of DOT
- Emergence and increase in number of MDR-TB cases
- Human resources in terms of technical capacity
- Ensuring adequate funding for TB Control
- Inadequate Community participation
- Delay in sample shipment from districts to the PHL

Future Plan

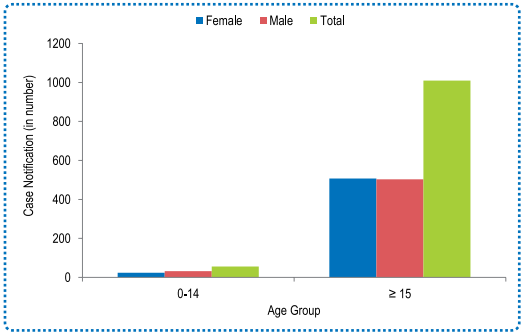
- Refresher training for Laboratory Technicians who are found poor on proficiency
- Procurement of FLDs and SLDs thorough GDF/GLC
- Procurement and establishing Xpert MTB/RIF machines for rapid diagnosis of MDR-TB
- Strengthening monitoring and supervision visits
- Strengthening partnership with the indigenous units for referral of presumptive TB cases
- Strengthening TB/HIV collaboration
- Engaging Multi-Sectoral Task force for ACSM
- Strengthening follow up of cases using communication technology

Figure 17 Trend of TB case notification (all types) by year 2000 - 2014



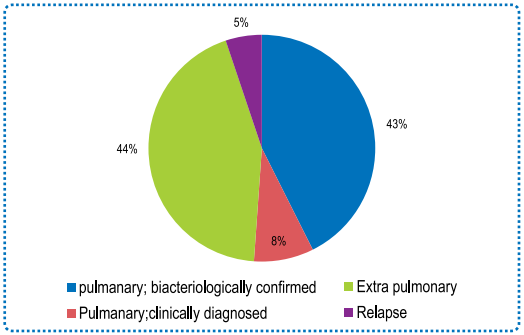
Source: Global Tuberculosis Report-2014 & 2015

Figure 18 Notified New and Relapse TB Cases by age and sex, 2014



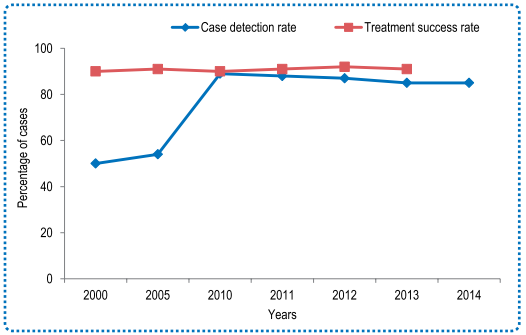
Source: Global Tuberculosis Report- 2015

Figure 19 Percentages of type of TB patients (2014)



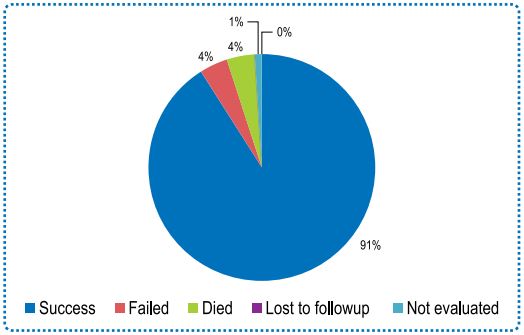
Source: Global Tuberculosis Report- 2015

Figure 20 Case detection rate and Treatment success rate for new smear positive cases (2000 - 2014)



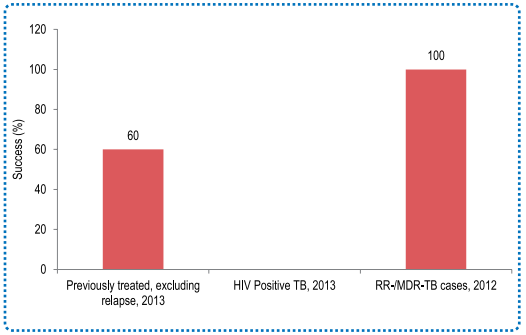
Source: Global Tuberculosis Report-2014 & 2015

Figure 21 Treatment outcomes by TB case type, 2013



Source: Global Tuberculosis Report- 2015

Figure 22 Treatment outcomes for RR-/MDR-TB cases, 2012



Source: Global Tuberculosis Report- 2015

TB Epidemiology 2014, Bhutan

Population (2014)	< 1 million

Estimates of TB burden * 2014	Number (thousands)	Rate (per 100 000 population)
Mortality (excludes HIV+TB)	0.072 (0.039-0.12)	9.5 (5.1-15)
Mortality (HIV+TB only)	<0.01 (<0.01-<0.01)	0.13 (0.04-0.29)
Prevalence (includes HIV+TB)	1.5 (0.57-2.7)	190 (75-359)
Incidence (includes HIV+TB)	1.3 (1.1-1.4)	164 (148-181)
Incidence (HIV+TB only)	0.091 (0.072-0.11)	12 (9.4-15)
Case detection, all forms (%)	85 (77-94)	

Estimates of MDR-TB burden * 2014	New	Retreatment
% of TB cases with MDR-TB	2.2 (1.9-2.6)	35 (21-15)
MDR-TB cases among notified pulmonary TB cases	12 (10-14)	25 (15-37)

TB case notifications 2014	New **	Relapse
Pulmonary, bacteriologically confirmed	454	55
Pulmonary, clinically diagnosed	91	0
Extrapulmonary	466	0
Total new and relapse	1066	
Previously treated, excluding relapses	16	
Total cases notified	1082	
Among 1066 new and relapse cases: 56(5%) cases aged under 15 years; male:female ratio: 1:0		

Reported cases of RR-/MDR-TB 2014	New	Retreatment	Total **
Cases tested for RR-/MDR-TB	380 (84%)	44 (62%)	431
Laboratory-confirmed RR-/MDR-TB cases			61
Patients started on MDR-TB treatment***			122

TB/HIV 2014	Number	(%)
TB patients with known HIV status	703	65
HIV-positive TB patients	7	<1

HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	0	0
HIV-positive TB patients on antiretroviral therapy (ART)	7	100
HIV-positive people screened for TB	251	
HIV-positive people provided with IPT		

Treatment success rate	Cohort	(%)
New cases registered in 2013	1080	91
Previously treated cases registered in 2013	35	60
HIV-positive TB cases, all types, registered in 2013		
RR-/MDR-TB cases started on second-line treatment in 2012	10	100
XDR-TB cases started on second-line treatment in 2012		

Laboratories 2014	
Smear (per 100 000 population)	4.2
Culture (per 5 million population)	6.5
Drug susceptibility testing (per 5 million population)	6.5
Sites performing Xpert MTB/RIF	
Is second-line drug susceptibility testing available?	Yes, outside country

* Ranges represent uncertainty intervals, ** Includes cases with unknown previous TB treatment history, *** Includes patients diagnosed before 2014 and patients who were not laboratory confirmed as having RR-/MDR-TB

Source: Data and report sent by NTP Bhutan-2015, Global Tuberculosis Report-2015

INDIA

India, officially the Republic of India is a country in South Asia. It is the seventh-largest country by area, the second-most populous country with 1295 million people (Global Tuberculosis Report-2015), and the most populous democracy in the world. The land area is 3,287,263 square kilometers. Bounded by the Indian Ocean on the south, the Arabian Sea on the south-west, and the Bay of Bengal on the south-east, it shares land borders with Pakistan to the west; China, Nepal, and Bhutan to the north-east; and Myanmar (Burma) and Bangladesh to the east. In the Indian Ocean, India is in the vicinity of Sri Lanka and the Maldives; in addition, India's Andaman and Nicobar Islands share a maritime border with Thailand and Indonesia.

TB Epidemiology

Though India is the second-most populous country in the world one fourth of the global incident TB cases occur in India annually. In 2014, out of the estimated global annual incidence of 9.6 million TB cases, 2.2 million were estimated to have occurred in India. Tuberculosis incidence per lakh population has reduced from 216 in year 1990 to 167 in 2014. Tuberculosis prevalence per lakh population has reduced from 465 in year 1990 to 195 in 2014. In absolute numbers, prevalence has reduced from 40 lakhs to 25 lakhs annually. Tuberculosis mortality per lakh population has reduced from 38 in year 1990 to 17 in 2014. In absolute numbers, morality due to TB has reduced from 3.3 lakhs to 2.2 lakhs annually.

India's TB control programme has achieved MDG target of TB mortality rate in year 2013 and reducing by 55 % in year 2014 as compared to 1990 level. Similarly there is 58% reduction in TB prevalence rate by 2014 as compared to 1990 level.

India is one of the countries in the world with the highest burden of multidrug-resistant tuberculosis (MDR-TB). As per the WHO Global Report on Tuberculosis 2015, India accounts for 71,000 MDRTB cases. The key focus of RNTCP combating the challenge of drug resistance is to prevent its emergence by providing quality DOTS, diagnostic and treatment services, increasing the visibility and reach of the programme services and promoting adherence to International Standards of TB care and Standards of TB Care in India by all healthcare providers.

The treatment outcome report is submitted 31-33 months after patients in the respective cohort are started treatment.

As per the Global Report on Tuberculosis 2013, there were an estimated 5,30,000 TB cases among children (under 15 years of age) and 74000 TB deaths (among HIV-negative children) in 2012 (6% and 8% of the global totals, respectively). It is one of the top 10 causes of childhood mortality. Though MDR-TB and XDRTB is documented among paediatric age group, there are no estimates of overall burden, chiefly because of diagnostic difficulties and exclusion of children in most of the drug resistance surveys.

RNTCP India is reporting the age wise case detection since beginning. The proportion of paediatric TB cases registered under RNTCP has been constant in the past five years and for 2014, 95709 new TB cases were notified accounting for 5% of all cases. This is in the range of the expected incidence by WHO report. However considering difficulties in diagnosis of paediatric TB under field condition, the notification rates can be further strengthened.

Achievements

- Since its inception, the programme has initiated more than 19 million patients on treatment, thus saving more than 3.1 million additional lives.
- Since 2007, RNTCP has also achieved the new smear-positive case-detection rate of more than 70% in line with the global targets for TB control while maintaining the treatment success rate of >85%.
- Decentralized diagnosis through a network of more than 13 000 quality assured sputum microscopy laboratories; to ensure quality of sputum microscopy, EQA is being routinely conducted throughout the country as per a standardized protocol based on international guidelines (on site evaluation, panel testing and blinded crosschecking).
- Treatment services were decentralized through a network of more than 640 000 DOT centres/ providers using patient-wise boxes both for adults and paediatric patients.
- Engagement of the new cadre of community-based accredited social and health activists (ASHA) was increasing.
- Successful involvement of 330 medical colleges, 2569 NGOs, 13 150 private practitioners and over 150 corporate sector health units was achieved.
- Revised RNTCP guidelines and schemes for involvement of NGOs and private providers in RNTCP activities was implemented.
- A national framework for TB-HIV collaborative activities was implemented nation-wide, with “intensified TB/HIV package” implemented in all 35 states.
- Sixty two laboratories were accredited for TB culture and DST.

- By March 2013, all districts in the country were covered by PMDT services. As on September 2013, a cumulative total of 276 149 suspects were being tested for MDR-TB and 36725 MDR-TB patients and 351 XDR-TB patients initiated on treatment.
- The programme has developed a case-based, web-based notification system (Nikshay).
- The programme has developed "Standards of TB Care in India" which has triggered important advancement in early case-detection and effective treatment for all TB patients.
- The Programme has developed protocol for diagnosis and treatment of non-MDR drug resistant TB in 2014 and will be implementing DST-guided treatment for such patients in 2015.
- A NACO-RNTCP-WHO collaborative project for intensified TB case-detection among PLHIV attending antiretroviral treatment (ART) centres was launched in 2014 with completion of training of trainers. Implementation in 30 ART centres in five southern states will start in early 2015. This project will use Xpert MTB/RIF for early TB diagnosis with necessary changes in diagnostic algorithm, use daily FDC anti-TB drugs, pilot isoniazid prophylaxis, implement AIDS information centres in ART centres and institute pharmaco-vigilance in these sites.
- In a workshop "TB-India Vision 2020", RNTCP has developed strategies for intensified TB control activities for achieving 2020 TB targets.
- Mumbai launched a massive awareness campaign: "Mumbai Mission for TB Control Awareness campaign" with famous film star Mr Amitabh Bachchan as campaign ambassador.
- Universal access to free anti-TB drugs pilot projects launched in three sites, Patna in Bihar, Mehsana in Gujarat and Mumbai in Maharashtra.
- Under the GF Round 9 project, civil society organizations are undertaking activities in 374 districts across 23 states to enhance the visibility and reach of the programme and engage with communities and community-based care providers to improve TB care and control.
- During 2014, central internal evaluation of the programme performance and implementation status of RNTCP was conducted every month in two districts in a state on a one-to-one basis along with review of their activity plans to improve programme performance.

Challenges

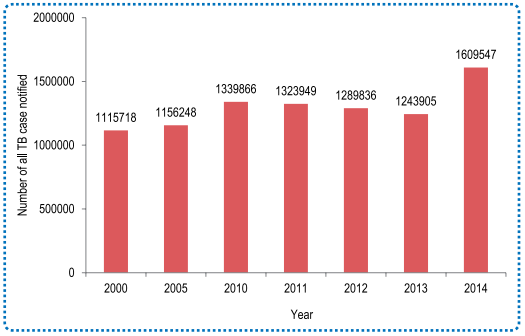
- ineffective and delayed diagnosis of TB in both the private and public sector;
- patients accessing private providers not linked or engaged with RNTCP;
- large-scale expansion of patient notification from the private sector;
- Inadequate staffing at all levels, to be addressed through improved HRD, to reduce reliance on a limited pool of TB-dedicated staff;
- alleviating weaknesses in supervision capacity and quality, as well as in planning, monitoring and evaluation;

- enforcement of regulations for prescribing and sale of anti-TB drugs; promoting rational use of first- and second-line anti-TB drugs outside the programme to prevent MDR and XDR TB; and
- Developing and implementing airborne infection control measures in health facilities.

Future Plan

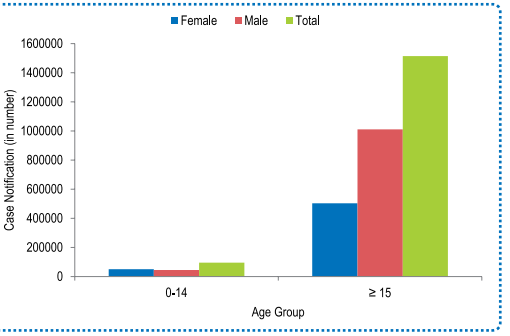
- Maintaining and further improving both the quality and reach of services to move towards achieving universal access;
- Planning a joint monitoring mission in April 2015 to review the progress made for universal access and recommend changes required for moving towards implementation of End TB strategy;
- Implementing revised diagnostic algorithm for early detection of TB cases and treatment protocols including DST-guided treatment for drug resistant cases;
- Taking major initiatives for urban TB control models, in 30 cities;
- Taking innovative private sector engagement initiatives including social franchising.;
- Planning laboratory scale-up to further expand the network of quality assured laboratories;
- Deploying 300 additional Xpert MTB/RIF machines to address laboratory capacity deficits in hard-to-reach areas for decentralized DST;
- Piloting intensified TB case-finding in ART centres and piloting IPT;
- Disseminating the “Standards for TB Care in India”;
- Deploying revised schemes for involvement of NGOs and private practitioners across the country;
- Finalizing revised technical and operational guidelines for early case detection including revision of diagnostic algorithm, contact tracing, active case-finding etc;
- Evaluating the effect of the revised diagnostic algorithm, suspect and case definitions on case notifications;
- Developing and testing ICT for notification and drug management;
- Scaling up of Nikshay, the case-based, web-based patient tracking and data management system for all forms of TB including use of mobile apps, call centre notification systems; and
- Scaling up of strategies for universal access to free treatment for all TB patients diagnosed and managed in the public and private sectors across the country using private provider interface agencies.

Figure 23 Trend of TB case notification (all types) by year 2000 - 2014



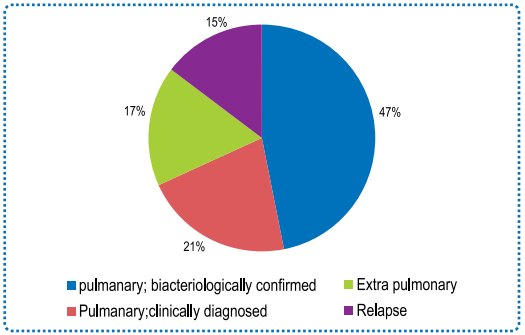
Source: Global Tuberculosis Report-2014 & 2015

Figure 24 Notified New and Relapse TB Cases by age and sex, 2014



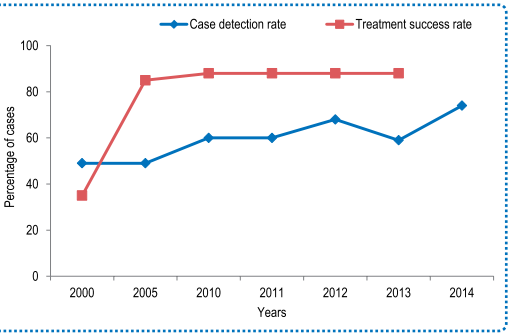
Source: Global Tuberculosis Report- 2015

Figure 25 Percentages of type of TB patients (2014)



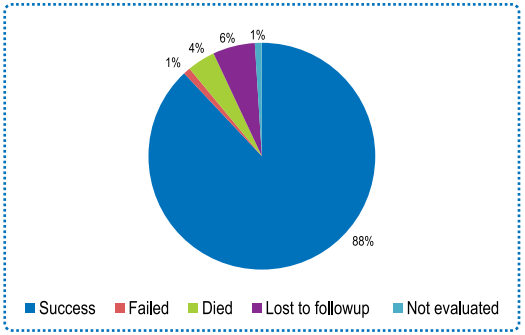
Source: Global Tuberculosis Report- 2015

Figure 26 Case detection rate and Treatment success rate for new smear positive cases (2000 - 2014)



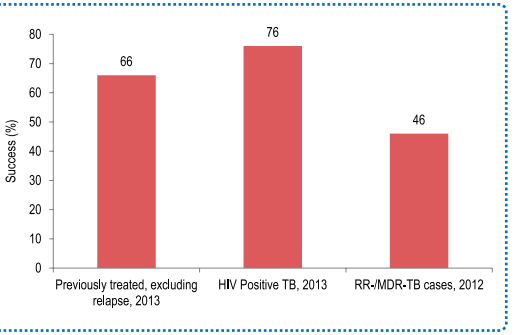
Source: Global Tuberculosis Report-2014 & 2015

Figure 27 Treatment outcomes by TB case type, 2013



Source: Global Tuberculosis Report- 2015

Figure 28 Treatment outcomes for RR-/MDR-TB cases, 2012



Source: Global Tuberculosis Report- 2015

TB Epidemiology 2014, India

Population (2014)	1295 million

Estimates of TB burden * 2014	Number (thousands)	Rate (per 100 000 population)
Mortality (excludes HIV+TB)	220 (150-350)	17 (12-27)
Mortality (HIV+TB only)	31 (25-38)	2.4 (2-2.9)
Prevalence (includes HIV+TB)	2500 (1700-3500)	195 (131-271)
Incidence (includes HIV+TB)	2200 (2000-2300)	167 (156-179)
Incidence (HIV+TB only)	110 (96-120)	8.3 (7.4-9.3)
Case detection, all forms (%)	74 (70-80)	

Estimates of MDR-TB burden * 2014	New	Retreatment
% of TB cases with MDR-TB	2.2 (1.9-2.6)	15 (11-19)
MDR-TB cases among notified pulmonary TB cases	24000 (21000-29000)	47000 (35000-59000)

TB case notifications 2014	New **	Relapse
Pulmonary, bacteriologically confirmed	754268	124679
Pulmonary, clinically diagnosed	343032	112066
Extrapulmonary	275502	
Total new and relapse	1609547	
Previously treated, excluding relapses	74368	
Total cases notified	1683915	
Among 1609547 new and relapse cases: 95709 (6%) cases aged under 15 years; male: female ratio: 1:9		

Reported cases of RR-/MDR-TB 2014	New	Retreatment	Total **
Cases tested for RR-/MDR-TB	12795 (2%)	214209 (69%)	255897
Laboratory-confirmed RR-/MDR-TB cases			25748
Patients started on MDR-TB treatment***			24073

TB/HIV 2014	Number	(%)
TB patients with known HIV status	1034712	61
HIV-positive TB patients	44171	4

HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	41066	93
HIV-positive TB patients on antiretroviral therapy (ART)	39800	90
HIV-positive people screened for TB	1114394	
HIV-positive people provided with IPT		

Treatment success rate	Cohort	(%)
New cases registered in 2013	1243905	88
Previously treated cases registered in 2013	171712	66
HIV-positive TB cases, all types, registered in 2013	44027	76
RR-/MDR-TB cases started on second-line treatment in 2012	14051	46
XDR-TB cases started on second-line treatment in 2012	129	32

Laboratories 2014	
Smear (per 100 000 population)	1
Culture (per 5 million population)	0.3
Drug susceptibility testing (per 5 million population)	0.2
Sites performing Xpert MTB/RIF	121
Is second-line drug susceptibility testing available?	Yes, in country

* Ranges represent uncertainty intervals, ** Includes cases with unknown previous TB treatment history, *** Includes patients diagnosed before 2014 and patients who were not laboratory confirmed as having RR-/MDR-TB

Source: Global Tuberculosis Report-2015

MALDIVES

Republic of Maldives is an island country formed by a number of natural atolls and a few islands in the Indian Ocean consisting of a double chain of twenty-six atolls, The islands are located southwest of the Indian subcontinent stretching 860 km north to south and 80 – 129 km east to west. The population of Maldives was over 352000 (Global Tuberculosis Report-2015) of which approximately one third of the population is living in the island of Male, the capital. The remaining two-thirds of the population are spread out over 198 islands. The economy of the Maldives depends mainly on tourism, fishing trade, shipping and construction. Resort islands, and modern hotels in Male are the main attractions for the increasing numbers of tourists.

TB Epidemiology

Maldives had estimated TB prevalence and incidence rate of all forms of TB of 56 and 41 per 100 000 population respectively. Total 131 notified new and relapse cases were detected, among the notified new and relapse cases 14 (11%) cases aged less than 15 years. However male female ratio is 1.2 in 2014. Treatment success rate among new smear-positive cases was 84% for the cohort of patients registered in 2013. Treatment success rate is below the 85% target since 2007, mainly because of defaulters and non-evaluated cases.

The NTP of the Health Protection Agency (HPA) continues to act as a central body for registration, planning, monitoring and evaluation of the TB control activities since its establishment in 1976. In 2013, the NSP for TB control 2014– 2018 was developed. Continuous support has been received from WHO and from curative services both in the public and private sectors in the country, in TB case finding, treatment, record keeping, follow-up of TB patients and contact-tracing activities. In 2013, only two cases were reported by non-NTP public providers. All anti-TB drugs are available only through the government-run national TB control programme.

The main objectives of NTP are to effectively improve and strengthen TB preventive activities, in addition to diagnosis and treatment of TB cases. In this regard, establishment of critical infrastructure and HRD for intensified case finding, early case detection and strengthening the microscopy network are critical. In Maldives, there were smear microscopy laboratories; EQA was not conducted for any laboratory. There is one culture facility in the country. DST, if deemed clinically necessary, is undertaken by shipment of samples to NTI, Bangalore, India, which is the designated SNRL for the

country. MDR-TB patients are managed clinically at the Indira Gandhi Memorial Hospital in Malé, and treatment is based on individualized regimens. SLD for the management of these cases are procured by the Ministry of Health on a case-by-case basis through GDF. In 2013, six patients were tested for drug resistance but no RR/MDR-TB case was detected. Of the four MDR-TB cases enrolled on treatment in 2011, one completed the treatment, one was "lost to follow-up" and two died.

Available data suggest that TB is relatively uncommon in Maldives; HIV prevalence is estimated to be less than 0.01% in the adult population and TB/HIV is not a major problem yet. HIV testing for all TB patients who are above 15 years was initiated in December 2011.

Achievements

- NTP continues to show excellent case detection and treatment success rates and in the overall quality of DOTS services.
- Diagnosis and treatment polices are in accordance with WHO guidelines. Quality assured, WHO-recommended FLD and SLD are purchased from GDF through ministry of health funds and provided free of charge to patients.
- Direct observation of the treatment for full course of treatment is in place due to the well-functioning DOT centres at all health facilities.
- Screening of all HIV-positive cases for active TB is in place in collaboration with the HIV programme since 2003 and all TB-positive cases for HIV began treatment from 1 December 2011 onwards.
- All the contacts of sputum-positive TB patients are identified and screened.

Challenges

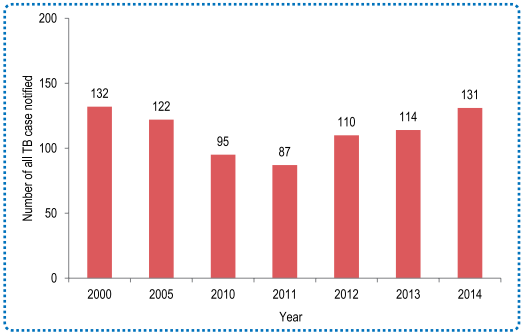
- There is shortage of human and financial capacity to implement, fully control and coordinate all TB-related activities in the country. • No quality control has been carried out for smear microscopy.
- No capacity is available in the country for DST: no adequate system of sputum transport has been established with external TB laboratory for DST for diagnoses as well as for follow-up for X/MDR TB patients.
- Levels of collaboration between all care-providers and the NTP are inadequate.
- Ensuring adequate supervision and monitoring of DOTS centres in the regions and atolls is a challenge.

- A strong stigma is associated with TB which may prevent diagnosis or lead to primary default after diagnosis.
- The social stigma attached to the disease lingers as a residue in people's minds as an incurable/ fatal condition. Changing this takes time
- Patients frequently seek medical care from other countries, which do not follow any set policy with regard to anti-TB drugs; this has led to the emergence of drug resistance in the Region.

Future Plan

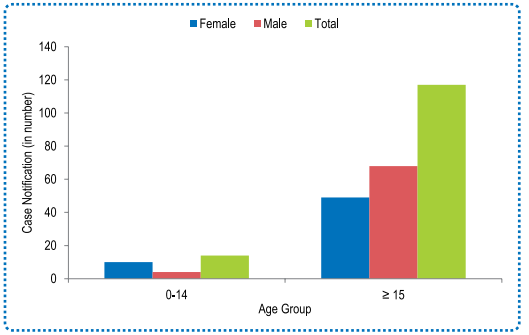
- Finalization and endorsement of the NSP for TB control in Maldives 2015– 2019;
- Review and revision of the national guideline for PMDT and the national guideline for TB control;
- Development of treatment guidelines, SOP and protocols for TB screening in special institutions;
- Strengthening tuberculosis surveillance and monitoring;
- Promotional activities to mark the World TB Day – 2015; and
- Conducting DOTS administration training for health-care providers.

Figure 29 Trend of TB case notification (all types) by year 2000 - 2014



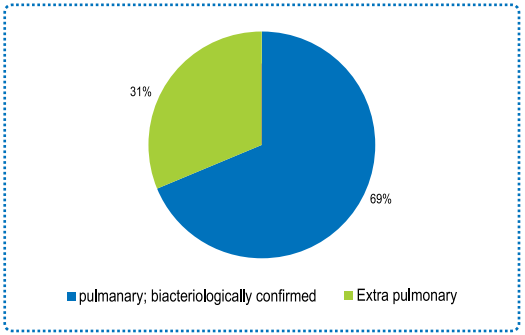
Source: Global Tuberculosis Report-2014 & 2015

Figure 30 Notified New and Relapse TB Cases by age and sex, 2014



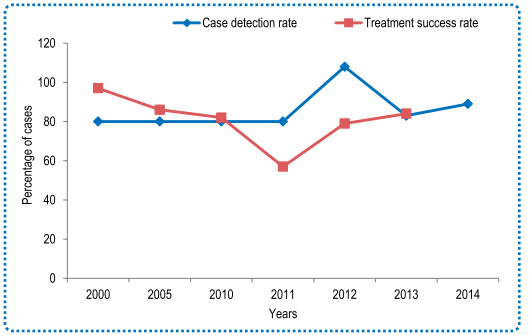
Source: Global Tuberculosis Report- 2015

Figure 31 Percentages of type of TB patients (2014)



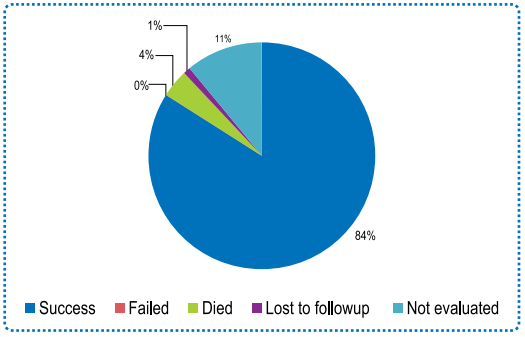
Source: Global Tuberculosis Report- 2015

Figure 32 Case detection rate and Treatment success rate for new smear positive cases (2000 - 2014)



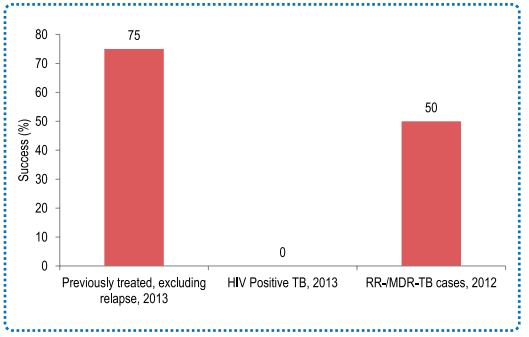
Source: Global Tuberculosis Report-2014 & 2015

Figure 33 Treatment outcomes by TB case type, 2013



Source: Global Tuberculosis Report- 2015

Figure 34 Treatment outcomes for RR-/MDR-TB cases, 2012



Source: Global Tuberculosis Report- 2015

TB Epidemiology 2014, Maldives

Population (2014)	<1 million

Estimates of TB burden * 2014	Number (thousands)	Rate (per 100 000 population)
Mortality (excludes HIV+TB)	<0.01 (<0.01-0.01)	2.3 (1.9-2.8)
Mortality (HIV+TB only)	0 (-)	0 (-)
Prevalence (includes HIV+TB)	0.2 (0.091-0.35)	56 (25-98)
Incidence (includes HIV+TB)	0.15 (0.13-0.17)	41 (36-47)
Incidence (HIV+TB only)	<0.01 (<0.01-<0.01)	0.09 (0.07-0.11)
Case detection, all forms (%)	89 (78-100)	

Estimates of MDR-TB burden * 2014	New	Retreatment
% of TB cases with MDR-TB	2.2 (1.9-2.6)	16 (14-18)
MDR-TB cases among notified pulmonary TB cases	2 (2-2)	0 (0-0)

TB case notifications 2014	New **	Relapse
Pulmonary, bacteriologically confirmed	90	0
Pulmonary, clinically diagnosed	0	0
Extrapulmonary	41	
Total new and relapse	131	
Previously treated, excluding relapses		
Total cases notified	131	
Among 131 new and relapse cases: 14 (11%) cases aged under 15 years; male: female ratio: 1:2		

Reported cases of RR-/MDR-TB 2014	New	Retreatment	Total **
Cases tested for RR-/MDR-TB	3 (3%)	2	5
Laboratory-confirmed RR-/MDR-TB cases			0
Patients started on MDR-TB treatment***			0

TB/HIV 2014	Number	(%)
TB patients with known HIV status	130	99
HIV-positive TB patients	0	0

HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	0
HIV-positive TB patients on antiretroviral therapy (ART)	0
HIV-positive people screened for TB	2
HIV-positive people provided with IPT	

Treatment success rate	Cohort	(%)
New cases registered in 2013	113	84
Previously treated cases registered in 2013	4	75
HIV-positive TB cases, all types, registered in 2013	0	
RR-/MDR-TB cases started on second-line treatment in 2012	2	50
XDR-TB cases started on second-line treatment in 2012	2	100

Laboratories 2014	
Smear (per 100 000 population)	19.6
Culture (per 5 million population)	14
Drug susceptibility testing (per 5 million population)	0
Sites performing Xpert MTB/RIF	0
Is second-line drug susceptibility testing available?	Yes, outside country

* Ranges represent uncertainty intervals, ** Includes cases with unknown previous TB treatment history, *** Includes patients diagnosed before 2014 and patients who were not laboratory confirmed as having RR-/MDR-TB

Source: Global Tuberculosis Report-2015

NEPAL

Nepal is a landlocked country and is located in the Himalayas and bordered to the north by the China and to the south, east, and west by the India. It is comprised of 75 districts divided into five regions (Far- Western, Mid-Western, Western, Central and Eastern). It has an area of 147,181 square kilometers and a population of approximately 28 million (Global Tuberculosis Report-2015). The urban population is largely concentrated in the Kathmandu valley. Nepal has a market economy largely based on agriculture and tourism.

TB Epidemiology

World Health Organization estimated TB prevalence and incidence rate of all forms of TB respectively 215 and 158 per 100 000 populations in 2014. With the introduction of Directly Observed Treatment Short course (DOTS) number of deaths has dramatically reduced from 9,712 (51/100 000) in 1990 to (17/100 000) in 2014. Total 35277 notified new and relapse cases were detected, among the notified new and relapse cases 345 (<1%) cases aged under 15 years. However male female ratio is 1.8 in 2014. Treatment success rate among new smear-positive cases was 91% for the cohort of patients registered in 2013, and has been consistently above the target of 85% since 2001. The success rate among new smear-negative/extra pulmonary and retreatment cases is high.

The percentage of TB cases with MDR-TB 2.2% and retreatment cases was 15% in 2014. However, total MDR-TB burden in the country was 1160. National TB Programme has undertaken four national surveys in Nepal as part of the WHO/ IUATLD Global Project on Anti -Tuberculosis Drug Resistance Surveillance. The first survey, in 1996, showed a prevalence of multi drug-resistance (resistance to at least Rifampicin and Isoniazid) around 1.2% among patients never previously treated for tuberculosis. Similarly Drug Resistance prevalence was 3.8% in 1998, 1.3% in 2001 and 2.9% in 2006 and 2.2 in 2010. Nepal was one of the first countries globally to introduce ambulatory MDR-TB case management in 2005 diagnosing and treating Category II failures and other laboratory-confirmed MDR-TB cases under a GLC approved project.

Tuberculosis control is identified as a top priority programme within the Ministry of Health and Population. NTP's plan and budget are aligned with the national health sector development plan and the NSP for 2015–2020 is being developed, incorporating recommendations of the programme review done in 2013. NTP has several fully dedicated staff at central, regional and district levels. In addition,

a programme management unit was set up in 2009 at NTC to help with planning, implementation and monitoring of activities supported by GF. Full DOTS institutional coverage was reached in the primary health system, including 100% coverage in PHC centres, health posts, and sub-health posts in the country. Decentralization of services, outreach projects and strong community involvement are contributing significantly to increase case-detection and access to TB diagnosis and treatment. To better assess impact of community engagement the current R&R system of NTP is being amended in order to capture the contribution of the community.

Achievements

- Successful implementation and nationwide coverage of MDR/XDR-TB management programme, with 41 of the 75 districts covered by DR-TB centres and sub-centres;
- Full DOTS health institutional coverage in the primary health system including PHC centres, health posts and sub-health posts in the country;
- Revision of national DR-TB management manual
- Revision of NTP general manual (with introduction of CTB management section);
- Development of infection control policy and strategy;
- Uninterrupted supply of first and second-line and paediatric QA TB medicines through GDF;
- Revision of PMDT expansion plan;
- Expansion of Xpert technology in several districts and development of national algorithms for their use;
- collaboration with the National Centre for AIDS & STD Control to implement IPT in five ART clinics and conducting evaluation;
- Kick-started intensified case-finding addressed to various marginalized and vulnerable groups (contacts, HIV-infected, slum dwellers, migrants,prisoners, residents of mountainous districts, etc.);
- Introduction of community DOTS in 11 districts;
- Establishment of DR-home with enhanced services – DOTS, availability of in-house 24/7 medical services;
- Enhancing active case detection by door-to-door mobilization of mothers' groups; and
- Conducted microscopic camps in all the districts.

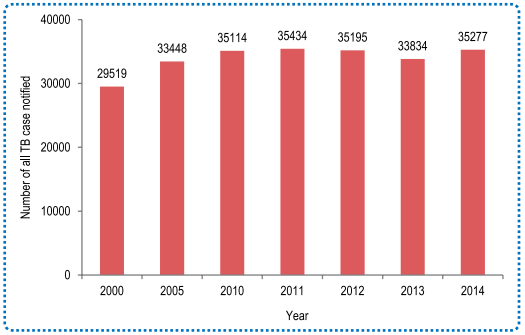
Challenges

- Increasing trend in DR and XDR cases;
- Addressing stagnant case-notification in some districts;
- Implementing of proper and effective TB/HIV collaborative activities, including PITC and Three Is;
- Harnessing the potential offered by a rampant yet poorly regulated private health sector through the adoption and expansion of most suitable PPM model(s); and
- Financing NTP by moving away from the heavy dependence on external funding and specifically on one major donor (GF).

Future Plan

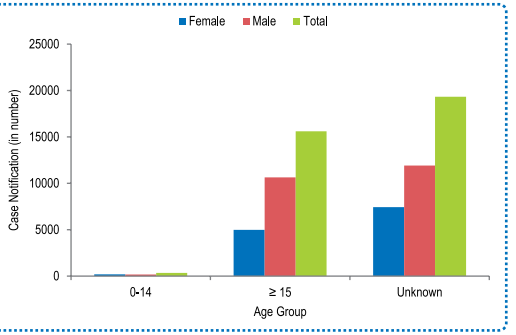
- Initiation of prevalence survey;
- Study on TB among diabetic patients and vice-versa;
- Meaningful involvement of private practitioners in DOTS and re-structuring DOTS services to make them more user-friendly;
- Scaling up various other forms of intensified case-finding;
- Introduction of infection control in TB programme settings;
- Increasing case-detection of MDR, TB/HIV and SS cases by strategically deploying the Xpert MTB/RIF machines;
- Expansion of PAL initiative to all health facilities in the 19 districts;
- Expansion and consolidation of TB/HIV collaborative activities;
- Finalization of NSP July 2015–19 July 2020;
- Diversification of resource mobilization initiatives;
- Countrywide consolidation of newly adopted revised R&R formats;
- Establishment of five additional DR-TB hostels inside governmental health institutions;
- Upgrading of three regional laboratories (two for sputum culture, one for culture and DST); and
- Remodelling PPM activities.

Figure 35 Trend of TB case notification (all types) by year 2000 - 2014



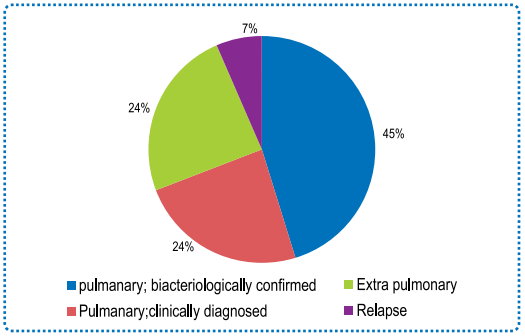
Source: Global Tuberculosis Report-2014 & 2015

Figure 36 Notified New and Relapse TB Cases by age and sex, 2014



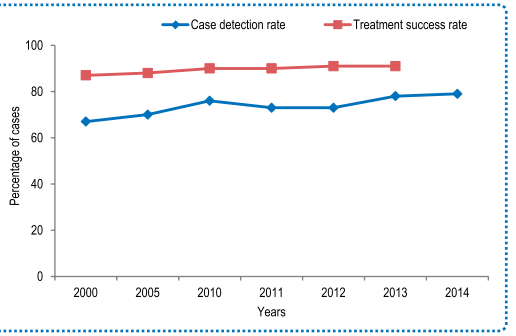
Source: Global Tuberculosis Report- 2015

Figure 37 Percentages of type of TB patients (2014)



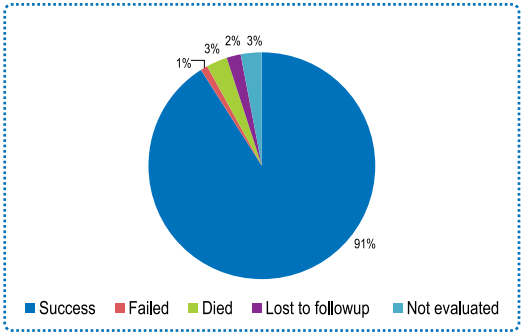
Source: Global Tuberculosis Report- 2015

Figure 38 Case detection rate and Treatment success rate for new smear positive cases (2000 - 2014)



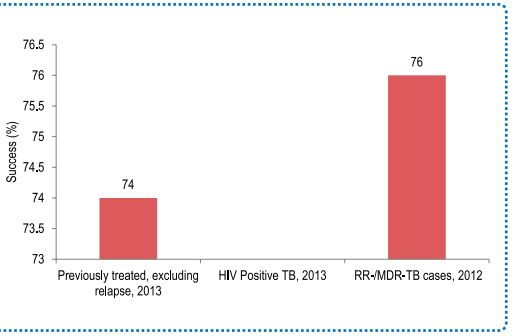
Source: Global Tuberculosis Report-2014 & 2015

Figure 39 Treatment outcomes by TB case type, 2013



Source: Global Tuberculosis Report- 2015

Figure 40 Treatment outcomes for RR-/MDR-TB cases, 2012



Source: Global Tuberculosis Report- 2015

TB Epidemiology 2014, Nepal

Population (2014)	28 million

Estimates of TB burden * 2014	Number (thousands)	Rate (per 100 000 population)
Mortality (excludes HIV+TB)	4.9 (3.4-6.7)	17 (12-24)
Mortality (HIV+TB only)	0.38 (0.28-0.5)	1.4 (1-1.8)
Prevalence (includes HIV+TB)	60 (29-100)	215 (102-369)
Incidence (includes HIV+TB)	44 (39-50)	158 (139-178)
Incidence (HIV+TB only)	1.5 (1.2-1.9)	5.4 (4.2-6.7)
Case detection, all forms (%)	79 (71-90)	

Estimates of MDR-TB burden * 2014	New	Retreatment
% of TB cases with MDR-TB	2.3 (1.3-3.8)	15 (10-23)
MDR-TB cases among notified pulmonary TB cases	540 (320-930)	620 (410-920)

TB case notifications 2014	New **	Relapse
Pulmonary, bacteriologically confirmed	15947	2302
Pulmonary, clinically diagnosed	8445	
Extra pulmonary	8583	
Total new and relapse	35277	
Previously treated, excluding relapses	1748	
Total cases notified	37025	
Among 35277 new and relapse cases: 345 (<1%) cases aged under 15 years; male : female ratio: 1:8		

Reported cases of RR-/MDR-TB 2014	New	Retreatment	Total **
Cases tested for RR-/MDR-TB	2292 (14%)	1071 (26%)	3396
Laboratory-confirmed RR-/MDR-TB cases			406
Patients started on MDR-TB treatment***			349

TB/HIV 2014	Number	(%)
TB patients with known HIV status	3254	9
HIV-positive TB patients	369	11

HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)		
HIV-positive TB patients on antiretroviral therapy (ART)	2733	74
HIV-positive people screened for TB	13069	
HIV-positive people provided with IPT	43	

Treatment success rate	Cohort	(%)
New cases registered in 2013	33877	91
Previously treated cases registered in 2013	456	74
HIV-positive TB cases, all types, registered in 2013		
RR-/MDR-TB cases started on second-line treatment in 2012	238	76
XDR-TB cases started on second-line treatment in 2012		

Laboratories 2014	
Smear (per 100 000 population)	1.9
Culture (per 5 million population)	0.4
Drug susceptibility testing (per 5 million population)	0.4
Sites performing Xpert MTB/RIF	22
Is second-line drug susceptibility testing available?	Yes

* Ranges represent uncertainty intervals, ** Includes cases with unknown previous TB treatment history, *** Includes patients diagnosed before 2014 and patients who were not laboratory confirmed as having RR-/MDR-TB

Source: Global Tuberculosis Report-2015

PAKISTAN

Islamic Republic of Pakistan is the second largest country in the South Asia. It is bordered by India to the east, China in the far northeast, Afghanistan to the west and north, Iran to the southwest and Arabian Sea in the south. The land area of the country is 796,095 square kilometers. Population of Pakistan was approximately 185 million (Global Tuberculosis Report-2015) at the end of 2014. Pakistan is ranked as the 5th most populous nation in the world.

TB Epidemiology

TB is still a major development challenge for Pakistan. It ranks 5thamongst the 22 HBCs and 4th among 27 MDR high burden countries in the world. According to national prevalence survey results, the incidence of 'all type' TB cases in Pakistan is 275/100,000 per year or around 508782 new cases each year. The prevalence of the disease is much higher and is estimated at 342/100,000 population or 632740 cases. Total 308417 notified new and relapse cases were detected, among the notified new and relapse cases 27245 (9%) cases aged under 15 years. However male female ratio is 1.0 in 2014. Treatment success rate among new smear-positive cases was 93% for the cohort of patients registered in 2013. The mortality rate i.e. the number of total deaths due to TB per 100,000 populations annually was 27/100,000 in 2014.

According to WHO estimates, there were around 9900 (6400-13000) MDR-TB cases amongst new pulmonary TB cases and 3100 (2200-4000) amongst retreatment cases, notified in 2014 as per WHO, Global Tuberculosis Report 2015, (4.3% and 19% in New and retreatment cases, respectively).

Achievements

- Core TB: Around 300,000 TB cases notified through 1,257 TB care facilities and 91% treated successfully
- Laboratory support: Ensured EQA and culture DST services in 1355 Peripheral, 112 intermediate, 6 BSL-2, 4 BSL-3, 5 provincial and1 national reference labs. 46 X-pert machines installed and 2,170 Lab staff trained
- MDR-TB: 2446 MDR-TB cases managed at18 PMDT sites and 100% were provided social support. 11 hospitals have been upgraded for infection control measures.

- PPM: More than 2000 GPs involved in 66 districts contributing towards 20% of national TB data. 03 MOUs signed by NTP in private and other health sector (with Pakistan Chest Society, National Rural Support Program and Military Hospitals)
- TB/HIV: 10433 TB cases screened for HV at 16 sentinels with the collaboration of NACP.
- TB Drug Management: Ensured the country need for anti-TB drugs. District/provincial store upgraded/automated through e-based TB drug management information system.
- M&E: Adapted and adopted "Revised definitions and reporting framework-2103
- E-SURVEILLANCE: Implemented case based e-surveillance system in 114 districts
- National & Provincial Strategic Plans: "Vision 2020" developed, envisaging Post 2015 WHO endorsed Global TB Strategy
- TB Prevalence Survey (2010-11) was conducted and results disseminated .
- Drug Resistance Survey (2012-13) was conducted and results disseminated
- GF-New Funding Model: Concept Note worth US$ 126 million for July2015-Dec2017 submitted
- National guidelines for TB case management developed
- Legislation: NTP working for approval and enactment of 2 legislative bills (1-TB as notifiable disease and 2- "on the counter" sale ban of ATT drugs) from assemblies.

Challenges

- Reliance on donor support vis-à-vis eschewed public sector allocations coupled with slow and curtailed releases
- Static TB case notification with growing number of missed TB cases in the system
- Suboptimal TB case notification, especially among children, previously treated and DR-TB cases
- Low PPM sector coverage to achieve "Universal access to quality TB care"
- Capacity issue as SR vis-à-vis Enhanced Provincial Commitments in devolved setup
- WHO pre-qualification for local pharmaceutical products
- Legislation (enactment and implementation) for mandatory TB case notification
- Overall security situation in the country

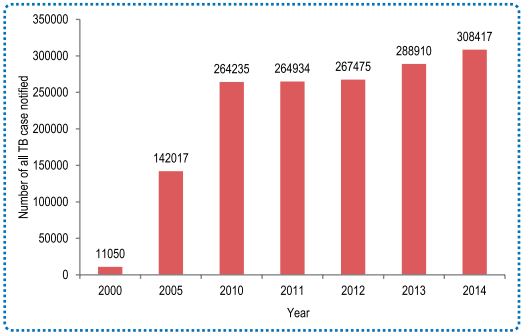
Future Plan

- NTP is developing its National Strategic Plan from year 2014-2020. This comprehensive document will be finalized by the first quarter of year 2014. The same document will be used to develop Concept Note for Global Fund requesting for funds beyond June 2015 in the New Funding Model
- The National Strategic plan 2020 envisages a major contribution from private sector through expansion in partnership and innovative approaches
- The ACSM Unit of NTP has shown great leadership in designing, planning and executing ACSM interventions and further institutionalizing health communications for TB.
- Research is a key strategic area identified in the National strategic and operational (PC1) plans as well as the new stop TB strategy.
- The NTP plans to expand HDL initiative in all the Tertiary Care hospitals, Children Hospitals and DHQ hospitals across Pakistan.
- NTP is also one of the countries which is planning to pilot and implement new R&R tools developed by WHO. A pilot will be conducted in all four provinces in first quarter of year 2014. NTP plans to implement these tools all across the country.
- Increase political commitment and involvement of major partners to ensure the sustainability of the National DOTS-Plus Project.
- Strengthening the linkages and up scaling the intervention in the round 11 of global fund.
- The current plan envisages social mobilization to contribute towards high utilization of desired TB services through private sector partner organization operating in communities.
- Plan to manage 80% of estimated DR-TB patients by 2017 and 100% by 2020 in line with MDR expansion plan and National Strategic plan.
- Plan to expand PMDT treatment sites to 30 units by the end of 2014.
- Plan to upgrade/establish 11 culture and 5 DST Laboratories in the country
- Provision of Social support (food basket & Travel Incentive) to all DR-TB patients and their Treatment Supporters.

Research Studies Published/carried out in 2014

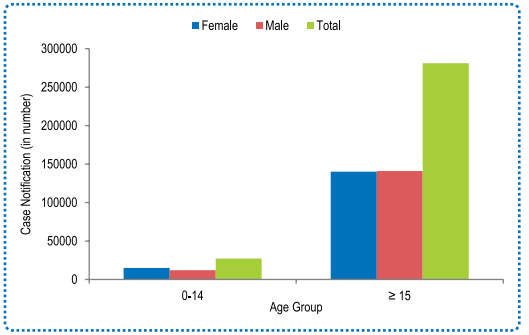
- Estimating Tuberculosis burden and case detection in Pakistan
- Success of active Tuberculosis case detection among high risk groups in urban slums in Pakistan
- Investigation of presumptive tuberculosis cases by private health providers; lesson learned from a survey in Pakistan
- Comprehensiveness of primary services in the case of infectious Tuberculosis patients in Rawalpindi, Pakistan
- Can the number of patients with presumptive Tuberculosis lost in general health services in Pakistan be reduced?

Figure 41 Trend of TB case notification (all types) by year 2000 - 2014



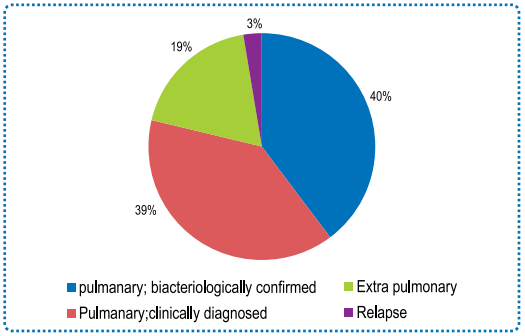
Source: Global Tuberculosis Report-2014 & Data & report sent by NTP Pakistan-2015

Figure 42 Notified New and Relapse TB Cases by age and sex, 2014



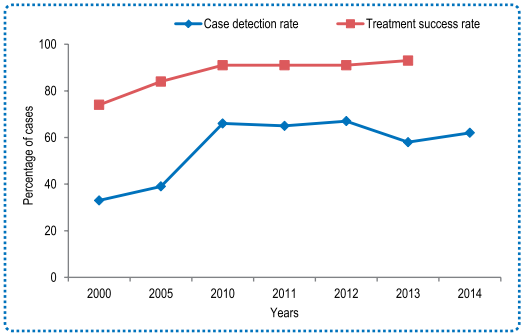
Source: Data & report sent by NTP Pakistan-2015

Figure 43 Percentages of type of TB patients (2014)



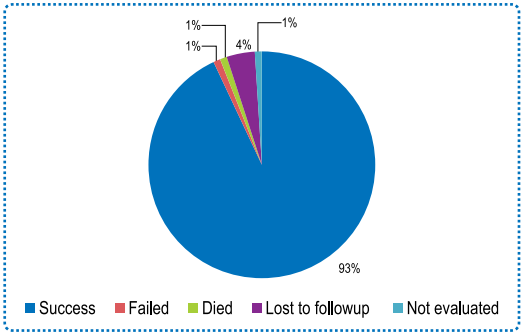
Source: Data & report sent by NTP Pakistan-2015

Figure 44 Case detection rate and Treatment success rate for new smear positive cases (2000 - 2014)



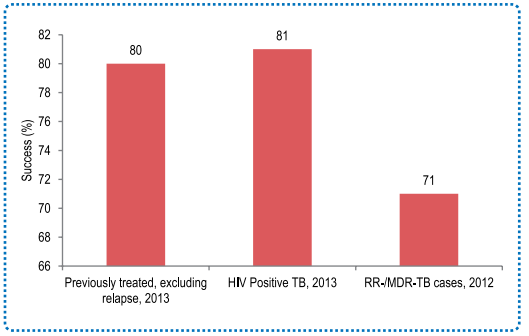
Source: Global Tuberculosis Report-2014 & Data & report sent by NTP Pakistan-2015

Figure 45 Treatment outcomes by TB case type, 2013



Source: Global Tuberculosis Report- 2015

Figure 46 Treatment outcomes for RR-/MDR-TB cases, 2012



Source: Global Tuberculosis Report- 2015

TB Epidemiology 2014, Pakistan

Population (2014)	185 million

Estimates of TB burden * 2014	Number (thousands)	Rate (per 100 000 population)
Mortality (excludes HIV+TB)	49 (11-110)	27 (6-61)
Mortality (HIV+TB only)	1.3 (0.76-1.9)	0.68 (0.41-1)
Prevalence (includes HIV+TB)	632 (530-740)	342 (285-402)
Incidence (includes HIV+TB)	508 (370-650)	275 (201-350)
Incidence (HIV+TB only)	6.4 (4.4-8.7)	3.4 (2.4-4.7)
Case detection, all forms (%)	62 (48-83)	

Estimates of MDR-TB burden * 2014	New	Retreatment
% of TB cases with MDR-TB	4.3 (2.5-5)	19 (13-23)
MDR-TB cases among notified pulmonary TB cases	9900 (6100-12000)	3100 (2100-3700)

TB case notifications 2014	New **	Relapse
Pulmonary, bacteriologically confirmed	122537	7420
Pulmonary, clinically diagnosed	120350	426
Extrapulmonary	57463	221
Total new and relapse	308417	
Previously treated, excluding relapses	8160	
Total cases notified	316577	
Among 308417 new and relapse cases: 27245 (9%) cases aged under 15 years; male:female ratio: 1:0		

Reported cases of RR-/MDR-TB 2014	New	Retreatment	Total **
Cases tested for RR-/MDR-TB	361(<1%)	11685 (72%)	20143
Laboratory-confirmed RR-/MDR-TB cases			3243
Patients started on MDR-TB treatment***			2662

TB/HIV 2014	Number	(%)
TB patients with known HIV status	10715	3
HIV-positive TB patients	90	<1

HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	90	100
HIV-positive TB patients on antiretroviral therapy (ART)	90	100
HIV-positive people screened for TB		
HIV-positive people provided with IPT		

Treatment success rate	Cohort	(%)
New cases registered in 2013	289376	93
Previously treated cases registered in 2013	7217	80
HIV-positive TB cases, all types, registered in 2013	37	81
RR-/MDR-TB cases started on second-line treatment in 2012	858	71
XDR-TB cases started on second-line treatment in 2012	41	32

Laboratories 2014	
Smear (per 100 000 population)	0.8
Culture (per 5 million population)	0.3
Drug susceptibility testing (per 5 million population)	0.1
Sites performing Xpert MTB/RIF	42
Is second-line drug susceptibility testing available?	Yes, in country

* Ranges represent uncertainty intervals, ** Includes cases with unknown previous TB treatment history, *** Includes patients diagnosed before 2014 and patients who were not laboratory confirmed as having RR-/MDR-TB

Source: Global Tuberculosis Report-2015, Data and Report sent by NTP Pakistan-2015

SRI LANKA

Sri Lanka officially the Democratic Socialist Republic of Sri Lanka. Sri-Lanka is an island in the Indian Ocean with an area of 65,610 square kilometers. Sri Lanka has maritime borders with India to the northwest and the Maldives to the southwest. Population in Sri-Lanka was 21 millions in 2014.

TB Epidemiology

Sri Lanka is among the low TB prevalence countries in the Region. The estimated prevalence and incidence rates of all forms of tuberculosis were 103 and 66 respectively per 100 000 population, in 2014. The notification rate of all new and relapse TB cases (all types) and new bacteriologically confirmed cases were 44 and 21 respectively per 100 000 population; while the notification of laboratory confirmed cases is fairly stable over time, the notification of clinically diagnosed cases in 2012–2013 was lower than in the period 2006–2011, despite there being no downscaling of NTP activities. An innovative case-finding strategy is being implemented through TB/ diabetes collaborative activities; the pilot phase has been completed, but data are yet to be analysed. It is planned to conduct sensitization programmes for health staff working in diabetes clinics throughout the country. Mass screening in prisons, including the largest prison in Colombo district, has been conducted.

As per Global Report 2015, total 8980 notified new and relapse cases were detected, among the notified new and relapse cases 313 (3%) cases aged under 15 years. However male female ratio is 1:9 in 2014. Sri Lanka reached and has sustained the target of 85% treatment success rate among all new TB cases since 2004; the treatment success rate was 85% for the cohort of patients registered in 2013. In the same cohort, the treatment success rate was 62% for retreatment TB cases.

A national DRS was completed in 2006, and this confirmed the very low levels of drug resistance: resistance to any drug was 1.4% among new patients and 8.8% among previously treated cases in the country; the prevalence of MDR-TB was 0.17% (1 out of 595 isolates). The protocol for a repeated DRS has been developed with the technical assistance of WHO. The planned DRS to be conducted funded through GF NFM interim funding. Culture and DST is to be performed for all patients who fail initial anti-TB treatment regimens, at the time of initiation of treatment for all sputum smear-negative TB patients, patients commencing retreatment regimens, contacts of MDR-TB cases, health-care workers, HIV-infected TB cases, migrants, drug addicts and prisoners.

In 2014, testing for drug resistance was very high among retreatment cases (147%) and increased to 28% among new cases. Only three MDR-TB cases and one RR-TB case were detected in 2013; all of them were started on treatment. The programme initiated MDR-TB case management under r-GLC approval with support through GF in 2010. MDR-TB is diagnosed at the NRL which is supported by the SNRL at NIRT, Chennai, India. Patients are treated initially at the National Hospital of Respiratory Diseases; afterwards they are referred for continuation of treatment at the chest clinics in their respective districts. National guidelines for the management of MDR-TB have been developed. The cohort of MDR-TB patients started on treatment in 2011 includes only six patients: five were cured or completed treatment and one died.

Achievements

- The National Strategic Plan for TB Control was revised for the period of 2015-2020 in accordance with the WHO post 2015 strategy.
- Strengthening the activities targeted to improve case detection.
- Strengthening active case detection among high-risk categories such as prisoners, drug addicts, estate population.
- Strengthening collaboration between non-NTP public care providers and private care providers.
- Expansion of diagnostic facilities through establishing new culture laboratories at Galle and Jaffna.
- Completion of upgrading National TB Reference Laboratory to Bio safety level 3.
- Integration of TB surveillance and control activities into the primary health care settings(Medical Officer of Health System)
- Improvement of the quality of DOTS provision through thorough supervision and continues drug supply.
- Strengthening of TB control activities in the Northern Province by infrastructure development and human resource mobilization.
- Further expansion of service coverage by Consultant Respiratory Physicians.
- Implementing TB infection control activities in chest clinics;
- Improvement of management of MDR-TB through establishment of site committees for each MDRTB patients which provided opportunity to address social and economic aspects other than clinical management.
- A Joint Monitoring Mission was held to review the TB Control activities in Sri Lanka.
- Reorganization of TB control activities in Colombo District by establishing two sub chest clinics.
- A survey to determine the prevalence of TB among young people completed.

Challenges

- Maintaining adequate number of human resources in the face of high turnover of trained staff.
- Reaching the unreached population groups (e.g. population groups with limited access to services, urban slums, prison population, and population in tea and rubber estates.
- Addressing TB control among migratory working population from high burden countries.
- Expansion of diagnostic services with WHO-recommended new rapid diagnostics.
- Involvement of all care providers in TB control (health and non-health).
- Overcoming TB-related stigma; and
- Sustainability of Funds for TB Control Activities.

Future Plan

- Expansion of the use of new WHO recommended rapid Diagnostics for diagnosis of TB and MDR-TB.
- Strengthening TB control activities among urban poor and estate population through Urban and Estate coordinators specially assigned for this duty.
- Further strengthening of case detection among prisoners, drug addicts, mgrants and among patients with chronic NCDs like diabetes and CKD.
- Capacity-building of central and district staff by training on procurement and supply management, MDR-TB, TB/HIV co-infection, IT literacy, data management, operational research and productivity.
- Continues supply of anti TB Drugs and provision of quality DOTS for Patients.
- Integration of TB control activities to selected genera health institution along with proper monitoring.
- Updating National Manual in accordance with the new developments in TB control and revised terminology.
- Updating training modules to cover the currents needs in TB care.
- Strengthening detection of TB in children.
- Preparation of guidelines for Peadiatric TB, Contact tracing etc.
- Strengthening public–private mix in TB control by establishing DOT centers in private hospitals, linking private institutions to the NTP data management system and improving proficiency of private laboratories.

- Further integrating TB control with existing PHC network including improved defaulter tracing and contact screening through field public health inspectors.
- Conducting Drug Resistance Survey.
- Carrying out comprehensive Island-wide KAP survey;
- Development of a comprehensive ACSM plan based on the findings of the KAP survey and implementation.
- Further strengthening of central and peripheral-level monitoring mechanisms.

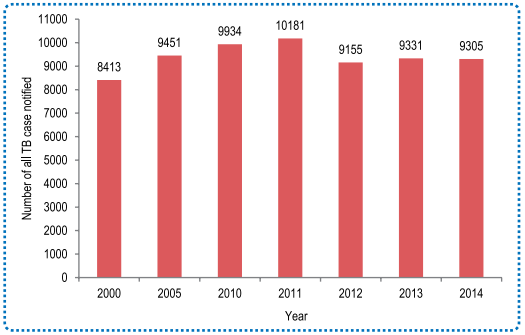
New initiatives/ Best practices:

The NPTCCD has taken an initiative to carryout baseline investigations such as Fasting Blood Suger, Liver Function Tests, Renal Function Tests etc. for all patients in order to detect and manage comorbidities early.

Research Studies Published/carried out in 2014

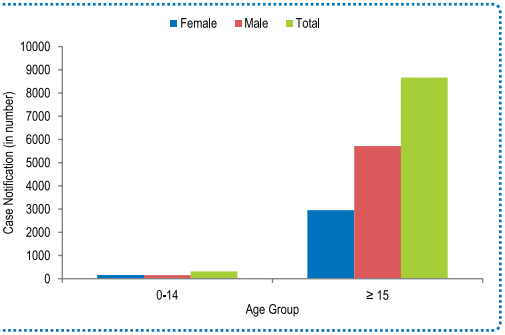
- Management of outcome of retreatment TB cases in Sri Lanka (Published in PHA)
- Screening patients with tuberculosis for diabetes mellitus in Ampara District, Sri Lanka

Figure 47 Trend of TB case notification (all types) by year 2000 - 2014



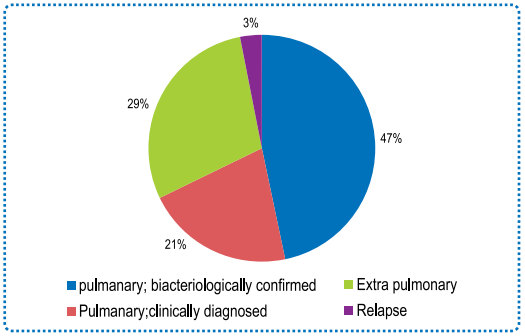
Source: Global Tuberculosis Report-2014 & 2015

Figure 48 Notified New and Relapse TB Cases by age and sex, 2014



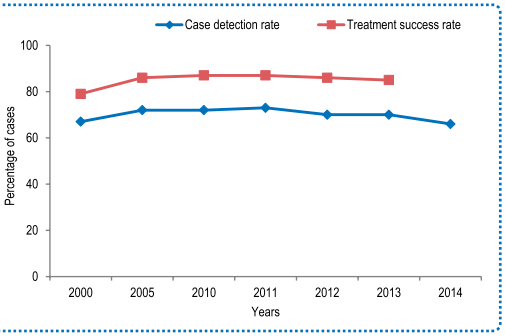
Source: Global Tuberculosis Report- 2015

Figure 49 Percentages of type of TB patients (2014)



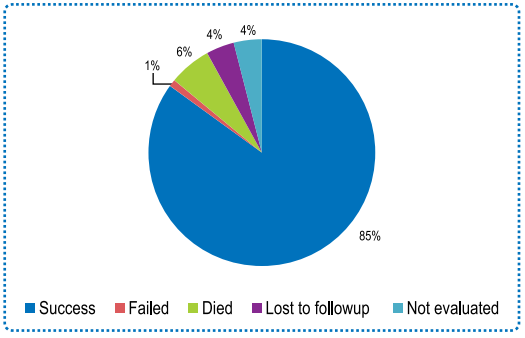
Source: Global Tuberculosis Report- 2015

Figure 50 Case detection rate and Treatment success rate for new smear positive cases (2000 - 2014)



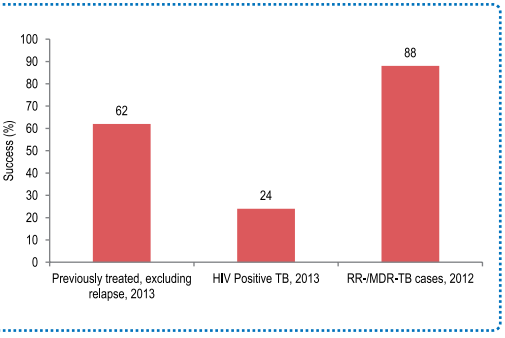
Global Tuberculosis Report (2014 & 2015), Data and report sent by NTP Sri Lanka-2015

Figure 51 Treatment outcomes by TB case type, 2013



Source: Global Tuberculosis Report- 2015

Figure 52 Treatment outcomes for RR-/MDR-TB cases, 2012



Source: Global Tuberculosis Report- 2015

TB Epidemiology 2014, Sri Lanka

Population (2014)	21 million

Estimates of TB burden * 2014	Number (thousands)	Rate (per 100 000 population)
Mortality (excludes HIV+TB)	1.2 (1-1.6)	5.9 (4.8-7.6)
Mortality (HIV+TB only)	0.014 (0.01-0.018)	0.07 (0.05-0.09)
Prevalence (includes HIV+TB)	21 (10-34)	103 (51-164)
Incidence (includes HIV+TB)	13 (12-15)	66 (57-73)
Incidence (HIV+TB only)	0.053 (0.041-0.066)	0.26 (0.2-0.32)
Case detection, all forms (%)	69 (62-79)	

Estimates of MDR-TB burden * 2014	New	Retreatment
% of TB cases with MDR-TB	0.2 (0-0.99)	0.58 (0.07-2.1)
MDR-TB cases among notified pulmonary TB cases	13 (0-62)	2 (0-10)

TB case notifications 2014	New **	Relapse
Pulmonary, bacteriologically confirmed	4345	288
Pulmonary, clinically diagnosed	1962	0
Extrapulmonary	2710	0
Total new and relapse	9305	
Previously treated, excluding relapses	168	
Total cases notified	9473	
Among 8980 new and relapse cases: 313 (3%) cases aged under 15 years; male: female ratio: 1:9		

Reported cases of RR-/MDR-TB 2014	New	Retreatment	Total **
Cases tested for RR-/MDR-TB	1209(28%)	669 (147%)	1816
Laboratory-confirmed RR-/MDR-TB cases			42
Patients started on MDR-TB treatment***			11

TB/HIV 2014	Number	(%)
TB patients with known HIV status	7418	78
HIV-positive TB patients	21	<1

HIV-positive TB patients on co-trimoxazole preventive therapy (CPT)	18	86
HIV-positive TB patients on antiretroviral therapy (ART)	18	86
HIV-positive people screened for TB	253	
HIV-positive people provided with IPT	25	

Treatment success rate	Cohort	(%)
New cases registered in 2013	9010	85
Previously treated cases registered in 2013	167	62
HIV-positive TB cases, all types, registered in 2013	37	24
RR-/MDR-TB cases started on second-line treatment in 2012	8	88
XDR-TB cases started on second-line treatment in 2012	0	

Laboratories 2014	
Smear (per 100 000 population)	1
Culture (per 5 million population)	0.7
Drug susceptibility testing (per 5 million population)	0.2
Sites performing Xpert MTB/RIF	1
Is second-line drug susceptibility testing available?	Yes, Outside country

* Ranges represent uncertainty intervals, ** Includes cases with unknown previous TB treatment history, *** Includes patients diagnosed before 2014 and patients who were not laboratory confirmed as having RR-/MDR-TB

Source: Global Tuberculosis Report-2015, Data and Report sent by NTP Sri Lanka-2015

5. TB/HIV CO-INFECTION

TB HIV Co-infection poses a critical challenge for the health-sector and for people living with HIV and TB. People living with HIV are 29 times more likely to develop TB disease than those who are HIV-negative. Starting in the 1980s, the HIV epidemic led to a major upsurge in TB cases and TB mortality in many countries.

In 2014, an estimated 1.2 million (12%) of the 9.6 million people who developed TB worldwide were HIV-positive. The number of people dying from HIV-associated TB peaked at 570 000 in 2004 and has since fallen to 390 000 in 2014 (a reduction of 32%). HIV-associated TB deaths accounted for 25% of all TB deaths (among HIV-negative and HIV-positive people) and one third of the estimated 1.2 million deaths from HIV/AIDS.

Globally, 51% of notified TB patients had a documented HIV test result in 2014, a small increase from 49% in 2013. WHO recommended the implementation of 12 collaborative TB/HIV activities. Between 2005 and 2014, an estimated 5.8 million lives were saved by TB/HIV interventions.

In 2014, coverage of antiretroviral therapy (ART) for notified TB patients who were known to be co-infected with HIV reached 77% globally. Further efforts are needed to reach the target of 100%. This is especially the case given that the number of HIV positive TB patients on ART in 2014 represented only 33% of the estimated number of people living with HIV who developed TB in 2014.

WHO recommends that routine HIV testing should be offered to all TB patients, to all those with TB signs and symptoms, and to partners of known HIV-positive TB patients. In 2014, 3.2 million notified TB patients had a documented HIV test result, equivalent to 51% of notified TB cases. This represented an increase from 3 million and 49% respectively in 2013, and more than 17 times the coverage reported in 2004.

ART is an intervention that can have an important impact on TB morbidity and mortality among HIV-positive TB patients. The number of notified HIV-positive TB patients on ART has grown from a very low level in 2004 to reach 392 000 in 2014.

Coverage of co-trimoxazole preventive therapy (CPT) among HIV-positive TB patients remains high, and increased slightly to 87% globally and 89% in the African Region in 2014. The number of people living with HIV who were treated with isoniazid preventive therapy (IPT) reached 933 000 in 2014, an

increase of about 60% compared with 2013. However, provision of IPT was reported by just 23% of countries globally, including only 13 of the 41 high TB/HIV burden countries.

Preventing TB deaths among HIV-positive people requires intensified scale-up of TB prevention, diagnosis and treatment interventions, including earlier initiation of ART among people living with HIV and those with HIV-associated TB. Increased efforts in joint TB and HIV programming could facilitate further scale-up and consolidation of collaborative TB/HIV activities.

Joint activities between national TB and HIV/AIDS programmes are crucial to prevent, diagnose and treat TB among people living with HIV and HIV among people with TB. These include establishing mechanisms for collaboration, such as coordinating bodies, joint planning, surveillance and monitoring and evaluation; decreasing the burden of HIV among people with TB (with HIV testing and counseling for individuals and couples, co-trimoxazole preventive therapy, antiretroviral therapy and HIV prevention, care and support); and decreasing the burden of TB among people living with HIV (with the three I's for HIV and TB: intensified case-finding; TB prevention with isoniazid preventive therapy and early access to antiretroviral therapy; and infection control for TB). Integrating HIV and TB services, when feasible, may be an important approach to improve access to services for people living with HIV, their families and the community.

Table 08: HIV testing for TB patients, provision of CPT and ART to HIV-positive TB patients, and initiation of IPT for people newly enrolled in HIV care, 2014

Country	TB patients with known HIV status		HIV-positive TB patients		HIV-positive TB patients started on		HIV-positive people provided with IPT
	No.	%	No.	%	CPT (%)	ART(%)	
Afghanistan	10443	32	4	< 1	-	-	7
Bangladesh	1110	<1	45	4	45 (100)	45 (100)	0
Bhutan	703	55	7	< 1	0	7 (100)	-
India	1034712	61	44171	4	41066 (93)	39800 (90)	-
Maldives	130	99	0	0	-	-	-
Nepal	3254	9	369	11	-	273 (74)	43
Pakistan	10715	3	90	< 1	90 (100)	90 (100)	-
Sri Lanka	7418	78	21	< 1	18 (86)	18 (86)	9
Regional	**1068485**	**-**	**44707**	**4**	**92**	**90**	**-**

Source: Global TB Report WHO, 2015

In 2014, a total 1068485 TB patients with known HIV status has tested in which 44,707 (4%) tested TB patients are HIV-positive among them 92% and 90 % are started CPT and ART in the SAARC region respectively , which is slightly increased in ART from 2013.

In the SAARC region, India accounts for highest number of TB patients with known HIV status followed by Pakistan and Nepal. Around 93% of HIV-positive TB patients started CPT and 90% started ART in India at the end of 2014. However Bangladesh, Bhutan and Pakistan has 100 % HIV-positive TB patients started ART. In 2014, Afghanistan, Nepal and Sri-Lanka has initiated HIV-positive people provided with IPT.

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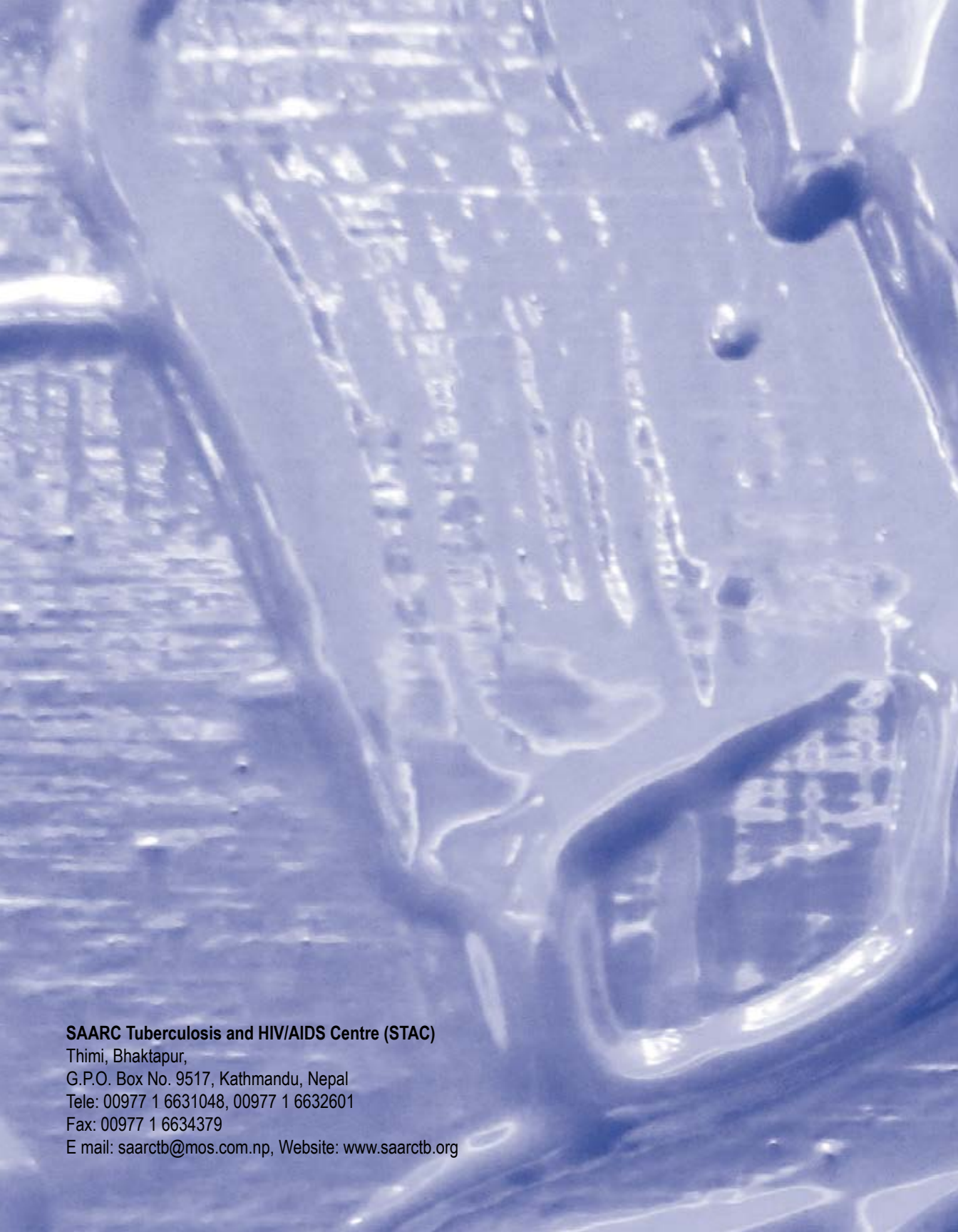

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