SAARC Epidemiological Response in TUBERCULOSIS 2016

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SAARC EPIDEMIOLOGICAL RESPONSE ON TUBERCULOSIS

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FOREWORD

The SAARC Region continues to bear a significant burden of tuberculosis despite making significant progress in the global efforts to eliminate TB. Three countries in the region namely India, Pakistan and Bangladesh are in WHO high TB and High MDR-TB countries list.

But as a region, all countries have shown remarkable progress in TB control. All most all countries have achieved MDG TB related targets and stop TB targets. With good implementation of DOTS by Member States, the level of "multi-drug resistant" (MDR) TB among newly-detected cases is low. The year 2016 marks the first 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, 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 fourteenth 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. . 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. R.P. Bichha
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 Population
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 fourteenth 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 10.4 million new cases of TB (142 per 100 000 Population), 6.3 million cases were notified in 2015, globally there was 4.3 million gap between incident and notified cases.

An estimated 580 000 people newly eligible for MDR-TB treatment, only about 125000 (20%) were enrolled .

A total of approximately 1.4 million people died of TB in 2015 and among them 1.2 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 SAARC region, with an estimated incidence of 3.8 million TB cases, carries 36% of the global burden of TB. Three of the eight Member Countries in the Region are among the 30 high burden countries (Bangladesh, India and Pakistan) together notified 96% of the region. India alone accounted to 74% of all notifications in the SAARC region.

In the year 2015, the SAARC region has 100573 total number of an estimated MDR/RR-TB cases among notified pulmonary TB cases, in which 342248 no. of notified cases were tested for rifampicin resistance. However, 11822 no. of MDR/RR TB cases tested for resistance to second line drugs

In 2015, a total 45016 TB patients with known HIV status has tested in which India accounts highest number of TB patients with known HIV status who are HIV positive. Total 41225 patients are on ART in the region which is around 92 % of total TB patients with known HIV status who are HIV positive in SAARC region.

The proportion of known HIV-positive TB patients on antiretroviral therapy (ART) was 78% globally, and above 90% in India in SAARC Region. However Afghanistan, Bhutan and

Pakistan have 100 % patients on Antiretroviral Therapy (ART) in 2015.

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.

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

SAARC is an organization of eight countries located in the South Asia and it stands for the South Asian Association for Regional Corporation (SAARC). This is an economic and geopolitical organization, established to promote socio-economic development, stability, welfare economics, and collective self-reliance within the Region. The first summit was held in Dhaka, Bangladesh on 7–8 December 1985 and was attended by the Government Representatives and Presidents from Bangladesh, Maldives, Pakistan and Sri Lanka, the Kings of Bhutan and Nepal, and the Prime Minister of India. The dignitaries signed the SAARC Charter on 8 December 1985, thereby establishing the regional association and to carry out different important activities required for the development of the Region. The summit also agreed to establish a SAARC secretariat in Kathmandu, Nepal and adopted an official SAARC emblem. Due to rapid expansion within the region, Afghanistan received full-member status and some countries are considered as observers. SAARC respects the principles of sovereign equality, territorial integrity, and national independence as it strives to attain sustainable economic growth.

1.2 SAARC TB and HIV/AIDS Centre (STAC)

The Centre was established in 1992 as SAARC Tuberculosis Centre (STC) and started functioning from 1994. The Centre had been supporting the National Tuberculosis Control Programmes of the SAARC Member States. The Thirty–first session of Standing Committee of SAARC held in Dhaka on November 09th – 10th 2005, appreciating the efforts of the centre on TB/HIV co-infection and other works related to HIV/AIDS discipline and approved the renaming of the Centre as SAARC Tuberculosis and HIV/AIDS Centre (STAC) with additional mandate to support SAARC Member States for prevention of HIV/AIDS. Since then with its efforts and effective networking in the Member States the Centre is contributing significantly for control of both TB and HIV/AIDS.

Vision, Mission, Goal and Objective of STAC

The vision of the Centre is to be the leading institute to support and guide SAARC Member States to make the region free of TB and HIV/AIDS and the mission is to support the efforts of National TB and HIV/AIDS Control Programmes through evidence based policy guidance,

coordination and technical support.

The goal of the 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 and the objective of the Centre is to work for prevention and control of TB HIV/AIDS in the Region by coordinating the efforts of the National TB Programmes and National HIV/AIDS Programmes of the SAARC Member Countries.

Role of STAC

- To act as a Regional Co-ordination Centre for NTPs and NACPs in the Region.
- To promote and coordinate action for the prevention of TB/HIV co-infection in the Region.
- To collect, collate, analyze and disseminate all relevant information regarding the latest development and findings in the field of TB and HIV/AIDS in the Region and elsewhere.
- To establish a networking arrangement among the NTPs and NACPs of Member States and to conduct surveys, researches etc.
- To initiate, undertake and coordinate the Research and Training in Technical Bio-medical, operational and other aspects related to control of Tuberculosis and prevention of HIV/AIDS in the Region.
- To monitor epidemiological trends of TB, HIV/AIDS and MDR-TB in the Region.
- To assist Member States for harmonization of policies and strategies on TB, HIV/AIDS and TB/HIV co-infection.
- To assist National TB Reference Laboratories in the Region in quality assurance of sputum microscopy and standardization of culture and drug sensitivity testing and implementation of bio-safety measures.
- To carry-out other important works identified by the Programming Committees/Governing Board.

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 also affect other sites (extra pulmonary TB). The disease is spread when people who are sick with pulmonary TB expel bacteria into the air, 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 disease is much higher among people infected with HIV.

Diagnostic tests for TB disease include:

- Sputum smears microscopy. This was developed more than 100 years ago. Sputum samples are examined under a microscope to see if bacteria are present. In the current case definitions recommended by WHO, one positive result is required for a diagnosis of smear-positive pulmonary TB;
- Rapid molecular tests. The only rapid test for diagnosis of TB currently recommended by WHO is the Xpert® MTB/RIF assay (Cepheid, Sunnyvale USA). It was initially recommended (in 2010) for diagnosis of pulmonary TB in adults. Since 2013, it has also been recommended for children and specific forms of extra pulmonary TB. The test has much better accuracy than microscopy; and
- ❖ Culture methods. These are the current reference standard but require more developed laboratory capacity and can take up to 12 weeks to provide results.

2.2 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)

2.3 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 2015, there were an estimated 10.4 million new (incident) TB cases worldwide, of which 5.9 million (56%) were among men, 3.5 million (34%) among women and 1.0 million (10%) among children. People living with HIV accounted for 1.2 million (11%) of all new TB cases.

In 2015, there were an estimated 480 000 new cases of multidrug-resistant TB (MDR-TB) and an additional 100 000 people with rifampicin-resistant TB (RR-TB) who were also newly eligible for MDR-TB treatment.

There were an estimated 1.4 million TB deaths in 2015, and an additional 0.4 million deaths resulting from TB disease among people living with HIV.3 Although the number of TB deaths fell by 22% between 2000 and 2015, TB remained one of the top 10 causes of death worldwide in 2015.

In 2015, 6.1 million new TB cases were notified to national authorities and reported to WHO. Notified TB cases increased from 2013–2015, mostly due to a 34% increase in notifications in India.

Table 01: Global Epidemiological Burden of TB (2015)

S. No.	Indicators	Estimated Number(rates)
1	Population	7.3 billion
2	Estimated Incidence	10.4 million (142 cases/100 000)
3	Estimated Deaths Due to TB	1.4 million (19 cases/100 000)
5	Treatment Success Rate (2014 cohort)	83%
6	Estimated MDR/RR-TB cases among notified pulmonary TB cases	0.33 million
7	Patients with known HIV Status who are HIV positive	0.5 million

Source: WHO Global Tuberculosis Report-2016

Table 02: Global Estimated incidence and Notified New Cases of TB (2015)

WHO Regions	Estimated Incidence ('000)	Mortality (Excludes HIV+ TB '000)	Total cases Notified	Total New and Relapse (Notified)	Patients with Known HIV Status who are HIV Positive	Patients on Antiretroviral Therapy	Estimated MDR/RR-TB cases among notified pulmonary TB cases	Treatment Success rate (New and Relapse)*
Africa Region	2720	450	1333504	1296122	380032	376511	42000	81%
Region of Americas	268	19	230519	217081	21885	20601	7700	76%
Eastern Mediterranean Region	749	80	484733	472587	1456	1366	19000	91%
European Region	323	32	297448	250459	16137	9237	74000	76%
South East Asia Region	4740	710	2656560	2563325	64238	64238	110000	79%
Western Pacific Region	1590	89	1361430	1336747	16816	16411	83000	92%
Global	10390	1380	6364194	6136321	500564	488364	335700	83%

Source: WHO Global Tuberculosis Report-2016

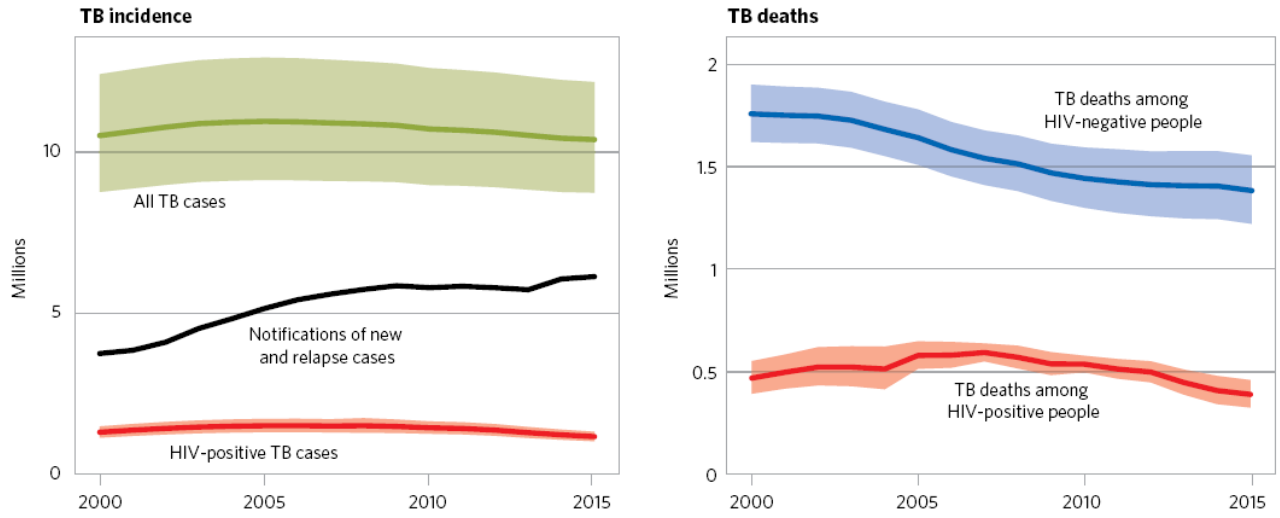
2.3.1 Incidence of TB

Globally, the average rate of decline in the TB incidence rate was 1.4% per year in 2000−2015, and 1.5% between 2014 and 2015. This needs to accelerate to 4–5% per year by 2020 to achieve the milestones for reductions in cases and deaths set in the End TB Strategy (Fig. 01).

2.3.2 TB Mortality

Globally, the absolute number of TB deaths among HIV negative people has been falling since 2000, from 1.8 million in 2000 to 1.4 million in 2015 (Fig. 01).

Figure 01: Global trends in the estimated number of incident TB cases and the number of TB deaths (in millions), 2000–2015. Shaded areas represent uncertainty intervals.

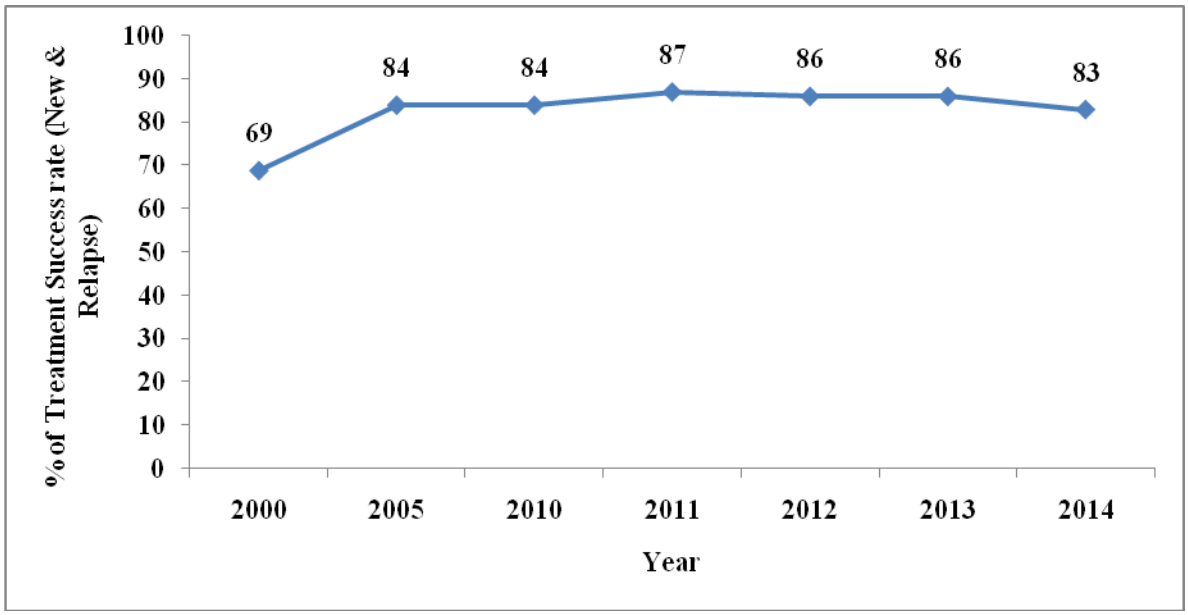


Source: WHO Global Tuberculosis Report-2016

2.3.3 Trend of Treatment Success Rate

Globally, the treatment success rate for the 5.2 million new and relapse cases that were treated in the 2014 cohort was 83% (Figure 02). It is impressive that as the size of the global treatment cohort grew from 4.2 million in 2005 to 5.4 million in 2013 and reduced 5.2 million in 2014 cohort.

Figure 02: Trend of Treatment success rate for New Smear Positive Cases (2000 - 2014)



Source: Global Tuberculosis Report, WHO-2016

2.4 Drug-resistant TB

Globally in 2015, an estimated 3.9% (95% confidence interval [CI]: 2.7–5.1%) of new cases and 21% (95% CI: 15–28%) of previously treated cases had MDR/RR-TB.

There were an estimated 580 000 (range, 520 000– 640 000) incident cases of MDR/RR-TB in 2015, with cases of MDR-TB accounting for 83% of the total. The number of MDR-TB incident cases (480 000) is in line with the estimate published in 2015. The countries with the largest numbers of MDR/RR-TB cases (45% of the global total) are China, India and the Russian Federation.

There were about 250 000 (range, 160 000–340 000) deaths from MDR/RR-TB in 2015. The best estimate is slightly higher than estimates of deaths from MDR-TB, due to the inclusion of deaths from all cases with RR-TB (and not only those with MDR-TB).

3. BURDEN OF TUBERCULOSIS IN SAARC REGION

3.1 SAARC Epidemiology

The SAARC region, with an estimated annual incidence of 3.8 million TB cases equivalent to 220 cases per 100 000 (1.46 million females and 2.38 million males), carries 36% of the global burden of TB incidence (Table 03). Three of eight Member States in the SAARC Region are high TB and MDR-TB burden countries among 30 high burden countries. India accounting for 27% of the world's TB Cases. An estimated 0.6 million (35 cases per 100 000) TB deaths in the region, however, India accounted 43 % of Global TB deaths. In SAARC Region, only India belongs to TB, MDR-TB and TB/HIV Co-infection among 30 high burden countries.

Table 03: Estimates of the burden of diseases caused by TB in the SAARC Region 2015

Country	Population ('000)	Incidence		Mortality (Excluding HIV)	
		Number ('000)	Rate*	Number ('000)	Rate*
Afghanistan	33000	61	189	12	37 (22-55)
Bangladesh	161000	362	225	73	45 (27-68)
Bhutan [a]	757	0.9	164	0.072	9.5
India	1311000	2840	217	480	36 (29-45)
Maldives	357[b]	0.19	53	0.02	5.4 (4.4-6.4)
Nepal	29000	44	156	5.6	20 (14-26)
Pakistan	189000	510	270	44	23 (4.92-56)
Sri Lanka	21000	13	65	1.2	5.6 (4.5-6.9)
Total	**1745114**	**3831**	**220**	**616**	**35**

Source: a data and report sent by Member States, NTP, b WHO Tuberculosis control in the South-East Asia Region, Annual report 2016, WHO Global Tuberculosis report-2016

** Rates are per 100 000 Population*

3.2 Notifications and Treatment Success

A total 2.3 million TB cases were notified in 2015 in the SAARC region. Table 4 shows, 79 % treatment success rate among 2.2 million total new and relapse cases.

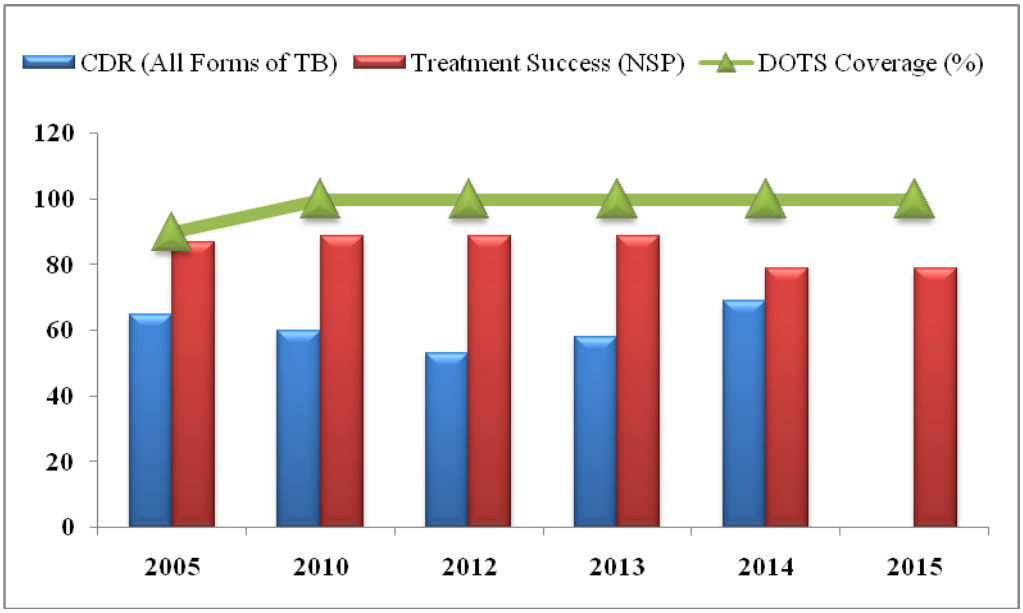
Table 04: TB Case notifications (2015) and Treatment Success Rate (2014 Cohort) in SAARC Region

Country	Population ('000)	Total Case notified	Total (New and relapse cases)	Treatment Success (%)
Afghanistan	33000	37001	35878	87
Bangladesh	161000	209438	206915	93
Bhutan [a]	757	975	953	90
India	1311000	1740435	1667136	74
Maldives	357	153	153	37
Nepal	29000	34122	33199	92
Pakistan	189000	331809	323856	93
Sri Lanka	21000	9575	9305	84
Total	**1745114**	**2363508**	**2277395**	**79**

Source: [a] data and report sent by Member State- NTP and WHO Global Tuberculosis Report 2016

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 03). Regarding treatment success, the target was achieved in 2005. The treatment success rate for new smear positive cases were 79% (2014 cohort)

Figure 03: Progress in TB Control in SAARC Region, (2000-2015)



Source: Data and report sent by Member States- NTP, WHO Global TB Report-2016, SAARC Epidemiological Response on Tuberculosis-2015

3.3 Drug Resistance TB

In the year 2015, the SAARC region has 100573 total number of an estimated MDR/RR-TB cases among notified pulmonary TB cases, in which 342248 no. of notified cases were tested for rifampicin resistance. However, 11822 no. of MDR/RR TB cases tested for resistance to second line drugs shows in table 05.

Table 05: Estimates of Drug-resistant TB care in the SAARC Region, 2015

Country	Estimated MDR/RR-TB cases among notified pulmonary TB cases (Total Number)***	% of TB cases with MDR-TB		No. of notified tested for rifampicin resistance	No. of MDR/RR TB cases tested for resistance to second line drugs
		New	Previously Treated		
Afghanistan	1400	3.9	16	81	1
Bangladesh	5100	1.6	29	36836	250
Bhutan	37	2.6	38	504	41
India	79000	2.5	16	275321	8976
Maldives	3	2.6	0	41	1
Nepal	990	2.5	15	4752	261
Pakistan	14000	4.2	16	23078	2292
Sri Lanka	43	0.54	1.7	1635	0
Regional	**100573**			**342248**	**11822**

Source: WHO Global Tuberculosis Report 2016

3.4 TB/HIV Co-infection

In 2015, the region has 45016 TB Patients with known HIV status, among them 41225 were on Antiretroviral Therapy. India accounts 44652 TB patients with known HIV status, 92% patients were on ART, however, Afghanistan, Bhutan and Pakistan had provided 100% ART to TB patients with Known HIV status in the region. (Table 06)

Table 06: Estimates of TB/HIV case in new and relapse TB patients, 2015

Country	TB Patients with known HIV status who are HIV positive		patients on Antiretroviral Therapy (ART)	
	Number	%	Number	%
Afghanistan	3	<1	3	100
Bangladesh	92	16	82	89
Bhutan	6	<1	6	100
India	44652	4	40925	92
Maldives	0	0	0	0
Nepal	179	8	133	74
Pakistan	59	<1	59	100
Sri Lanka	25	<1	17	68
Regional	**45016**		**41225**	**-**

Source: WHO Global TB Report, 2016

The estimated Population of SAARC region in year 2015 was 1.74 billion which 24% of global Population. In 2015, there were 3.8 million estimated incidence of TB cases, which carries 36% of global burden of TB diseases. There is an estimated deaths due to TB in the region was 0.6 million, which is 43% of global deaths due to TB in year 2015 (Table 07).

Table 07: Global vs. SAARC Region on TB Indicators, 2015

TB Control Indicators	Global	SAARC	% of Global
Estimated Population	7.3 billion	1.74 billion	24
Estimated Incidence	10.4 million	3.8 million	
	(142 cases/100 000)	(220 cases/100 000)	36
Estimated Deaths Due to TB	1.4 million	0.6 million	
	(19 cases/100 000)	(35 cases/100 000)	43
Treatment Success Rate (2014 cohort)	83%	79%	-
Estimated MDR/RR- TB cases among notified pulmonary TB cases	0.33 million	0.1 million	30
Patients with Known HIV Status who are HIV Positive	0.5 million	0.045 million	9

Source: WHO Global TB Report- 2016

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 Population of approximately 33 million (WHO Global Tuberculosis Report-2016). 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 41^{st} largest country in the world.

TB Epidemiology

Tuberculosis is a major health problem in Afghanistan, causing about 12,000 deaths per year. A number of factors, including ongoing conflict, make it difficult for health services to reach many parts of the country. Despite these challenges, the National Tuberculosis Programme (NTP) has chosen to address the problem with interventions that are proving successful. In 10 provinces, the NTP has started active case finding among targeted, previously underserved populations. Earlier Afghanistan was in WHO high TB burden countries list. But in 2015 WHO has removed Afghanistan from their high burden TB countries list.

Estimated incident, prevalence and mortality of TB in 2015 were 189, 340 and 37 per 100,000 populations respectively. Estimated incidence among HIV positives was 460 (CI: 280-680) with incidence rate of 1.4 (0.86–2.1) per 100000 population).

6.3% TB cases (both new and re-treatment) with MDR-TB. It is encouraging that In 2015 treatment success rate for all TB cases was 89% and case notification rate for all TB forms was 147 per 100000 population. In comparison to other SAARC countries (except Pakistan and Bhutan) more females are affected than men in Afghanistan. (63% of women affected by TB (for NSS+ cases). Also there is a high incidence among people aged 15 to 44, with the highest incidence among the most productive age group of 25-34 years old.

Total 43046 cases were detected in 2016 (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.

Major Achievements

- Revision of National Strategic Plan for year s of 2017-2021.
- Integration of TB activities in SEHAT project (negotiation with GCMU).
- Revision of national TB guidelines (According to WHO new definitions)
- Standard Operation procedure (SOP) for extra pulmonary TB case detection and TB Diabetes road map developed, new recording and reporting formats revised.
- Integration of TBIS with national HMIS (Electronic reporting)
- Securing fund from JICA to procure 50% of first and 59% of second line drug for TB for 2018-2020.
- Commitment from USAID to support TB program for next three years (2017-2019).
- Sustainable Technical assistance from WHO and JICA, USAID.
- Detection and Diagnosis of MDR-TB facilities decentralized in country

Challenges

- 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
- Sustainability of bilateral support is questionable
- TB care services for vulnerable groups are limited (childhood TB, prisons)

New Initiatives:

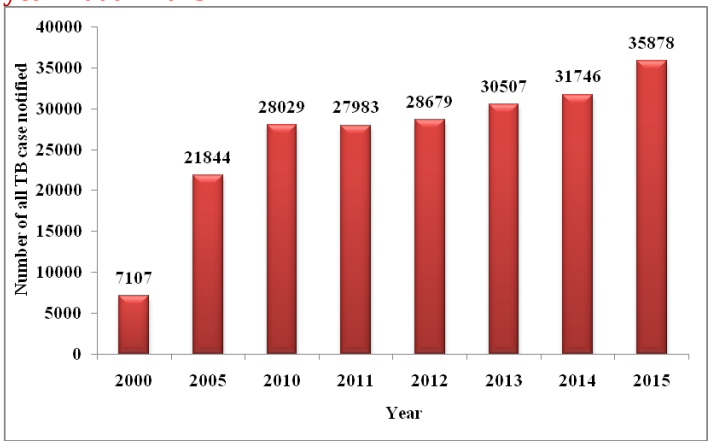
- TB Screening among IDPs and prisoners by digital mobile x-ray
- Introducing of Gene Xpert for diagnosis of MDR – TB

Future Plans:

- To reduce TB mortality by 50% at the end of 2021 compared to 2015
- Expand MDR TB Management

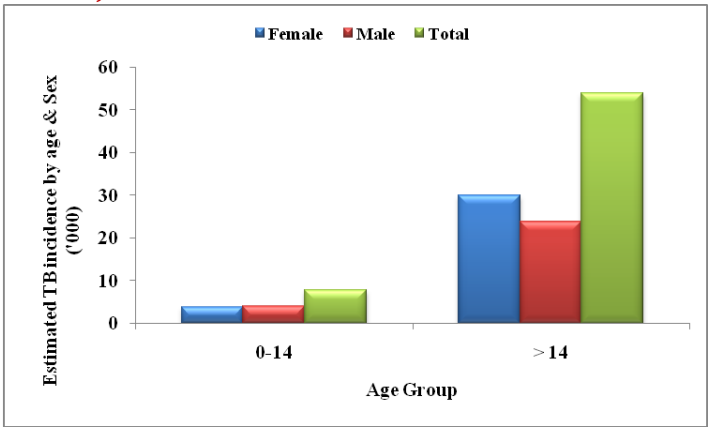
- Promote New Technology in line with WHO recommendation (Gene X-pert)
- Promote and sustain TB case findings (active and passive)
- Addressing latent TB (contact investigation and INH preventive therapy)

Figure 04 Trend of TB case notifications (all types) by year 2000 - 2015



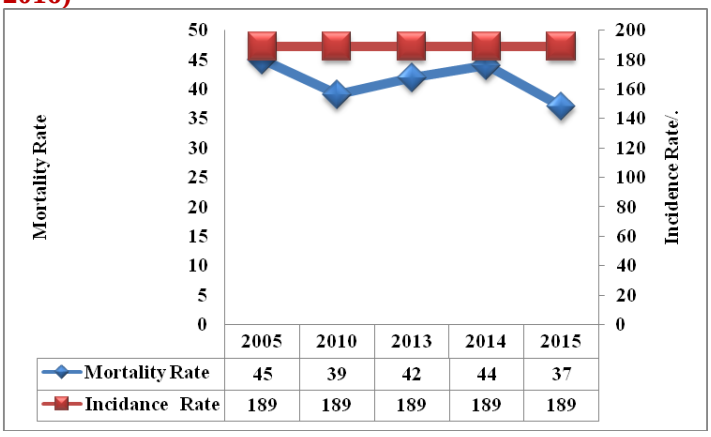
Source: WHO Global Tuberculosis Report-2016, SAARC Epidemiological Response on Tuberculosis-2015

Figure 05: Notified New and Relapse TB Cases by age and sex, 2015



Source: Global Tuberculosis Report- 2016

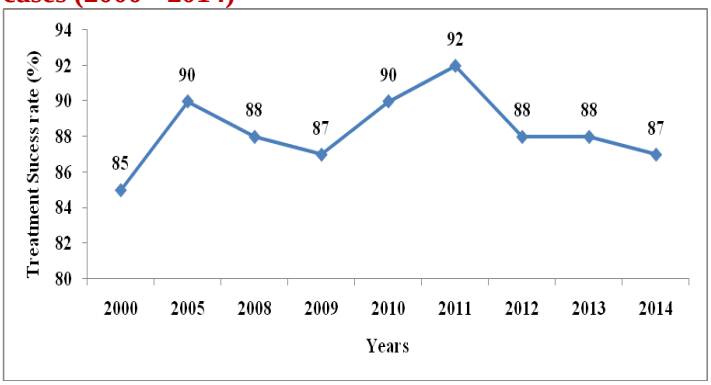
Figure 06: Trend of incidence and Mortality (2005-2016)



	2005	2010	2013	2014	2015
Mortality Rate	45	39	42	44	37
Incidance Rate	189	189	189	189	189

Source: WHO Global Tuberculosis Report-2016, SAARC Epidemiological Response on Tuberculosis-2015

Figure 07: Treatment success rate for new & relapse cases (2000 - 2014)



Source: WHO Global Tuberculosis Report-2016, SAARC Epidemiological Response on Tuberculosis-2015

TB Epidemiology 2015, Afghanistan

Population (2015)			**33 million**
Estimates of TB burden * 2015		**Number (thousands)**	**Rate (per 100 000 Population)**
Mortality (excludes HIV+TB)		12 (7.8-18)	37 (22-55)
Mortality (HIV+TB only)		0.17 (0.14-0.21)	0.53 (0.44-0.63)
Incidence (includes HIV+TB)		61 (40-88)	189 (122-270)
Incidence (HIV+TB only)		0.46 (0.28-0.68)	1.4 (0.86-2.1)
Incidence (MDR/RR-TB)**		3 (1.8-4.1)	9.2 (5.5-13)
Estimated TB incidence by age and sex (thousands)*, 2015			
	0-14 years	**>14 years**	**Total**
Females	3.8 (1.5-6)	30 (19-40)	33 (21-46)
Males	4 (2.3-5.6)	24 (16-32)	28 (19-37)
Total	7.8 (4.9-11)	54 (40-67)	61 (40-88)
TB case notifications, 2015			
Total cases notified			37001
Total new and relapse			35878
-% tested with rapid diagnostics at time of diagnosis			
-% with known HIV status			39%
- % pulmonary			75%
- % bacteriologically confirmed among pulmonary			66%
Universal Health Coverage and Social protection			
TB treatment coverage (notified/estimated incidence), 2015			58% (41-90)
TB cases fatality ratio (estimated mortality/estimated incidence), 2015			0.21 (0.11-0.36)
TB/HIV Care in new and relapse TB patients, 2015		**Number**	**%**
Patients with known HIV status who are HIV positive		3	<1%
- On antiretroviral therapy		3	<100%
Drug- resistant TB care, 2015	**New cases**	**Previously treated cases**	**Total Number*** **
Estimated MDR/RR-TB cases among notified pulmonary TB cases			1400 (1100-1600)
Estimated % of TB cases with MDR/RR-TB	3.9% (2.9-5)	16% (12-19)	
% notified tested for rifampicin resistance	0%	4%	81

MDR/RR-TB cases tested for resistance to second line drugs			1
Laboratory confirmed cases		MDR/RR-TB: 81	XDR-TB:1
Patients started on treatment****		MDR/RR-TB: 81	XDR-TB:0
Treatment success rate		**Success**	**Cohort**
New and relapse cases registered in 2014		87%	31746
Previously treated cases, excluding relapse, registered in 2014		80%	966
HIV-positive TB cases, all types, registered in 2014			
MDR/RR-TB cases started on second line treatment in 2013		63%	46
XDR-TB cases started on second-line treatment in 2013			0
TB Preventive treatment, 2015			
% of HIV+ people (newly enrolled in care) on preventive treatment			81%
% of Children (aged <5) household contacts of bacteriologically- confirmed TB cases on preventive treatment			58% (53-63)

** Ranges represent uncertainty intervals*

*** MDR is TB resistant to rifampicin and isoniazid; RR is TB resistant to rifampicin*

**** Includes cases with unknown previous TB Treatment history*

*****Includes patients diagnosed before 2015 and patients who were not laboratory- confirmed*

Source: WHO Global Tuberculosis Report-2016

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 161 million (WHO Global Tuberculosis Report-2016) 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 and MDR-TB. The estimated mortality and incidence rates of all forms of tuberculosis were 45 (CI: 27-68) and 225 (CI: 146-321) per 100 000 population respectively in 2015.WHO has estimated 362000 (CI: 234000-517000) incident cases in 2015.

Total 206915 notified new and relapse cases were detected in 2015, among the notified new and relapse cases 37000 cases aged less than 15 years. Testing TB patients for HIV were low in Bangladesh. Out of the notified number less than 1% know their HIV status. Out of this notified number 79% were pulmonary TB cases. Among Pulmonary cases 72% were bacteriologically confirmed.

Estimated 37000 (CI: 23000-51000) pediatric TB cases were reported in 2015. In pediatric age group more females are affected than males. But in adult age group more males were affected. Male female ratio is 1.6 in 2015.

Treatment Success rate and cohort size

The treatment success rate among new and relapse cases (all types) is above 90% since 2007, and it was 93% in 2014 cohort. But in 2014 cohort, the treatment success rate among HIV positive TB cases was only 62% and MDR/RR cases started on second line treatment in 2013 showed a 75% treatment success rate. The same figure for XDR TB cases started on second line treatment in 2013 was 0%.

In Bangladesh, FIND has supported establishment of one Liquid Culture & DST and one Line Probe Assay (LPA) laboratory at NRL Dhaka by providing equipment, consumables and essential supplies through the EXPAND-TB project. 558 MDR-TB cases were diagnosed between 2012 and 2014 in the country.

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.

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. 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 2016, a total of 56 Xpert MTB/ RIF machines were functioning at different settings in the country, including six machines in Dhaka city.

The total number of estimated MDR-TB cases among notified cases in 2015 was 5100 (CI: (3 500-6 800). Coverage of routine surveillance of drug resistance is still low. Total of 36836 cases were tasted for rifampicin resistance in 2015. In the same year 250 MDR/RR-TB cases were tasted for resistance to second line drugs. In 2015 there were 954 laboratory confirmed MDR/RR-TB cases were detected in Bangladesh. Out of this number 880 were enrolled for the treatment.

Only 22% (CI20-24) of children (aged<5) household contacts of bacteriological confirmed TB cases on preventive treatment in 2015. In Bangladesh TB case fatality ratio (estimated mortality/estimated incidence) in 2015 was 0.21 CI: (0.11-0.37). Ninety two (92) TB –HIV co – infection cases were detected.

Achievements

- Due to higher notification of clinically diagnosed pulmonary TB cases and extra-pulmonary cases, yearly notification of all forms of TB has increased.
- A high treatment success rate of 93% achieved among all new and relapse cases.
- MDR-TB treatment success rate is also high at 73%.
- Detection of TB in children has increased
- National guidelines and operational manual on childhood TB (2nd edition) finalized
- National guidelines on TB/HIV management and programme collaboration and implementation manual finalized
- Community-based DR-TB management is available in the whole country
- TB IC guidelines for field workers in local language (Bangla) published

- Number of microscopy labs increased
- Number of centres with Xpert MTB/RIF machines
- Electronic registration of TB data using e-TB manager software running in 240 out of 882 sites and 6 DR TB sites

Challenges

Even though the programme has achieved a steady increase in case notification drug-susceptible TB, the proportion of estimated missing cases for all forms of TB is still high at 47%. Similarly for RR/MDR-TB, only about 20% of estimated cases among notified pulmonary TB cases are being detected. This can mainly be attributed to:

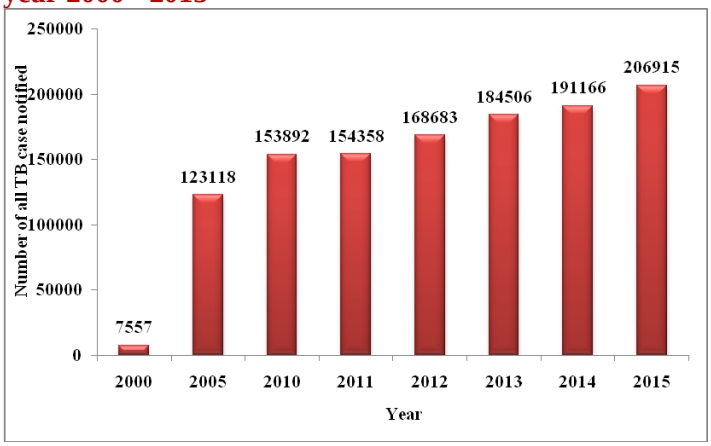
- Inadequate access to quality diagnostic services
- Inadequate system for contact tracing and active screening in targeting key affected population
- Engagement of private sector is less
- High proportion of Clinically diagnosed (not bacteriologically Diagnosed) TB cases detected.
- Effective supervision and monitoring is lacking in many areas due to shortage of resources.
- Sustainability of funding is an issue specifically for:
    a. Human resources including capacity-building
    b. Social support targeting vulnerable population
- Major challenges in expansion of MDR-TB services
- Limited access to drug-sensitivity testing:
    a. Xpert MTB/RIF testing has been introduced but needs to expand for improved access.
    b. Sputum/sample transport mechanism has not been effectively established specially in remote areas.
- Mechanism to ensure uninterrupted supply of SLD and diagnostic logistics needs strengthening.

Future Plan

- Publication of final survey report of TB prevalence survey.
- Recruitment of new staff / filling up of vacant positions
- Expansion newer laboratory techniques

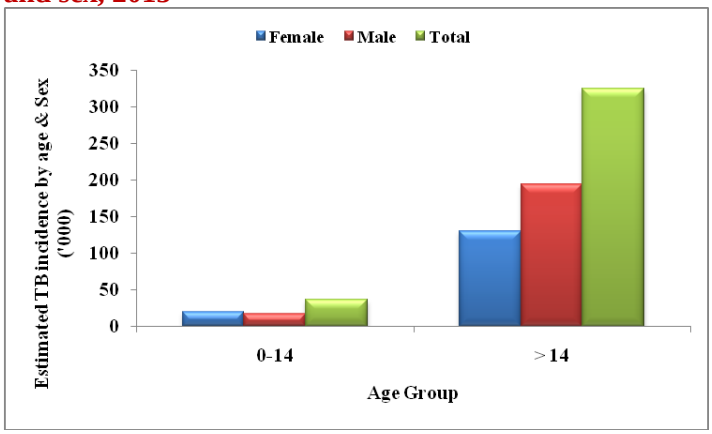
- Establish more RTRL (in Barisal, Sylhet and Rangpur division)
- Awareness-raising programme on TB with special attention to child TB
- Scale-up of contact tracing and IPT
- Improvement of drug storage facility
- Conduction of clinical research on 9-month regimen
- Expansion of e-TB manager
- Strengthening supervision and monitoring
- Operationalization of the Gazette on mandatory case notifications and involvement of private sector through systematic referral linkage
- Conduct Drug Resistance Survey (DRS)
- Piloting universal access to drug-susceptibility testing (DST) for all smear-positive TB cases
- Conduct joint monitoring mission in 2017

Figure 08: Trend of TB case notification (all types) by year 2000 - 2015



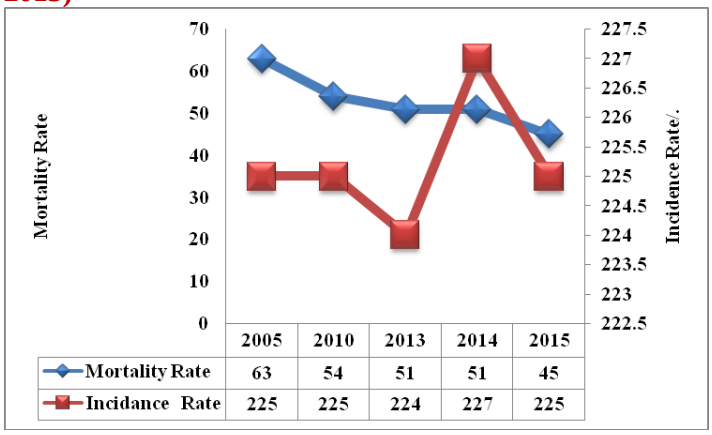
Source: WHO Global Tuberculosis Report-2016, SAARC Epidemiological Response on Tuberculosis-2015

Figure 09: Notified New and Relapse TB Cases by age and sex, 2015



Source: Global Tuberculosis Report- 2016

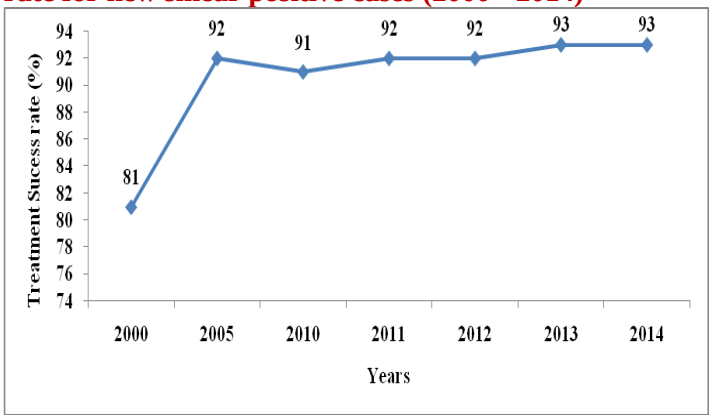
Figure 10: Trend of incidence and Mortality (2005-2015)



	2005	2010	2013	2014	2015
Mortality Rate	63	54	51	51	45
Incidance Rate	225	225	224	227	225

Source: WHO Global Tuberculosis Report-2016, SAARC Epidemiological Response on Tuberculosis-2015

Figure 11: Case detection rate and Treatment success rate for new smear positive cases (2000 - 2014)



Source: WHO Global Tuberculosis Report-2016, SAARC Epidemiological Response on Tuberculosis-2015

TB Epidemiology 2015, Bangladesh

Population (2015)			**161 million**
Estimates of TB burden * 2015	**Number (thousands)**		**Rate (per 100 000 Population)**
Mortality (excludes HIV+TB)	73 (43-110)		45 (27-68)
Mortality (HIV+TB only)	0.23 (0.19-0.29)		0.14 (0.12-0.18)
Incidence (includes HIV+TB)	362 (234-517)		225 (146-321)
Incidence (HIV+TB only)	0.63 (0.39-0.94)		0.39 (0.24-0.59)
Incidence (MDR/RR-TB)**	9.7 (5.4-14)		6 (3.4-8.7)
Estimated TB incidence by age and sex (thousands)*, 2015			
	0-14 years	>14 years	Total
Females	20 (9.2-31)	131 (62-200)	151 (72-231)
Males	17 (9.8-24)	194 (134-254)	211 (143-278)
Total	37 (23-51)	325 (247-403)	362 (234-517)
TB case notifications, 2015			
Total cases notified			209438
Total new and relapse			206915
-% tested with rapid diagnostics at time of diagnosis			
-% with known HIV status			<1%
- % pulmonary			79%
- % bacteriologically confirmed among pulmonary			72%
Universal Health Coverage and Social protection			
TB treatment coverage (notified/estimated incidence), 2015			57% (40-88)
TB cases fatality ratio (estimated mortality/estimated incidence), 2015			0.21 (0.11-0.37)
TB/HIV Care in new and relapse TB patients, 2015		**Number**	**%**
Patients with known HIV status who are HIV positive [a]		92	16%
- On antiretroviral therapy		82	89%
Drug- resistant TB care, 2015	**New cases**	**Previously treated cases**	**Total Number*** **
Estimated MDR/RR-TB cases among notified pulmonary TB cases			5100 (3500-6800)
Estimated % of TB cases with MDR/RR-TB	1.6% (0.59-2.6)	29% (24-34)	
% notified tested for rifampicin resistance	5%	63%	36836

MDR/RR-TB cases tested for resistance to second line drugs			250
Laboratory confirmed cases	MDR/RR-TB: 954		XDR-TB:0
Patients started on treatment****	MDR/RR-TB: 880		XDR-TB:0
Treatment success rate		**Success**	**Cohort**
New and relapse cases registered in 2014		93%	191141
Previously treated cases, excluding relapse, registered in 2014		88%	5497
HIV-positive TB cases, all types, registered in 2014		62%	45
MDR/RR-TB cases started on second line treatment in 2013		75%	686
XDR-TB cases started on second-line treatment in 2013		0%	3
TB Preventive treatment, 2015			
% of HIV+ people (newly enrolled in care) on preventive treatment			
% of Children (aged <5) household contacts of bacteriologically- confirmed TB cases on preventive treatment		22% (20-24)	

** Ranges represent uncertainty intervals*

*** MDR is TB resistant to rifampicin and isoniazid; RR is TB resistant to rifampicin*

**** Includes cases with unknown previous TB Treatment history*

*****Includes patients diagnosed before 2015 and patients who were not laboratory- confirmed*

[a] 17 HIV positive cases were identified from 506 diagnosed TB patients considered at high risk for HIV co-infection and 75 were known to be HIV positive before being diagnosed with TB

Source: WHO Global Tuberculosis Report-2016

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 7,550 m above sea level. The total Population of Bhutan was estimated to be 757000 (Report sent by NTP, Bhutan-2016) in the year 2015.

TB Epidemiology

National Tuberculosis Control Program under the Department of Public Health started in the year 1986. NTCP is responsible for programming, planning, resource mobilization, monitoring and evaluation. National Referral/ Regional Referral and District hospitals diagnose and start the treatment for TB. The health workers in the basic health units report cases, follow up and refer TB suspects to the district hospitals for confirmation. In 1991, a tuberculin survey measured the annual risk of tuberculosis infection to be 1.5%. Bhutan piloted Short Course Chemotherapy (SCC) in three districts in 1994 and was implemented nationwide in the same year. In 1997 the Directly Observed Treatment Short Course (DOTS) strategy was adopted nationwide.

Bhutan has an annual incidence of 155 cases of all forms of TB /100 000 population and mortality rate of 16 /100 000 population in 2015. The case detection rate has been steadily increasing each year. The treatment success rate achieved for the cohort of the patients registered in 2014 was 90%. Total 1145 notified new and relapse cases were detected, in 2016.Out of them 410 cases were new smear positive cases.

WHO has estimated 1200 TB incident cases in Bhutan. But in 2016 only 1139 cases were reported to the programme. There is a gap of 61 cases in Bhutan.

A total of 42 MDR/RR-TB laboratory confirmed cases were diagnosed in 2015. All 42 MDR/RR-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 2014, the treatment success rate was 91% which is a 2% reduction compared with previous year.

Highest number of MDR-TB in 2016 was reported in 15-24 age group (n=24). Out of them 17 were females. Only 1 MDR TB cases was reported in pediatric age group.

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, Gene X pert machines was purchased and since 2016 October to April 2017, 708 samples were tested and 46 MDR and rifampacin resitance TB cases were detected.

Achievements

- Case detection rate for all forms of TB achieved at 87%
- Achieved MDGs TB related targets in 2015
- Substantial increase in number of RR/MDR-TB cases diagnosed and initiated on treatment
- Treatment success rate among NSP sustained at 90%
- MDR/RR –TB cases started on second line treatment , Treatment success rate achieved at 91%
- Strengthened Laboratory capacity with the introduction of Liquid Culture and DST plus LPA facilities
- Procured FLDs and SLDs through GDF/GLC
- Refurbished one MDR-TB Ward at RRH

Challenges:

- Gap in TB case detection (61 cases)
- Failure in DOT implementation
- Delay in sample shipment for FL DST
- Inadequate follow up and monitoring
- Increasing trend in treatment failure resulting in MDR-TB cases
- Inadequate access to diagnostic and treatment facilities among people living in the border and remote areas,

- Migration of people with TB freely across the open border with India
- Lack of WHO recommended rapid diagnostic tool and lack of DST facilty for Second Line Drugs
- Shortage of human resources
- Limited or no operational research on key priority areas
- Sustaining financial resources
- Infection control is still a challenge in the main MDR-TB hospital
- Inadequate screening of high risk group including family members of MDR-TB patients and health workers working in MDR-TB hospitals.
- Difficult geographical terrains
- Delayed transportation of sputum samples

Future Plan

- Procurement reagents and consumables for solid, liquid culture and DST and LPA
- Procurement of FLDs and SLDs
- Procurement of Gene Xpert machines
- Capacity building of health workers
- Monitoring and supervision
- Routine surveillance for MDR-TB
- Refurbishment of MDR-TB wards

New initiatives/ Best practices:

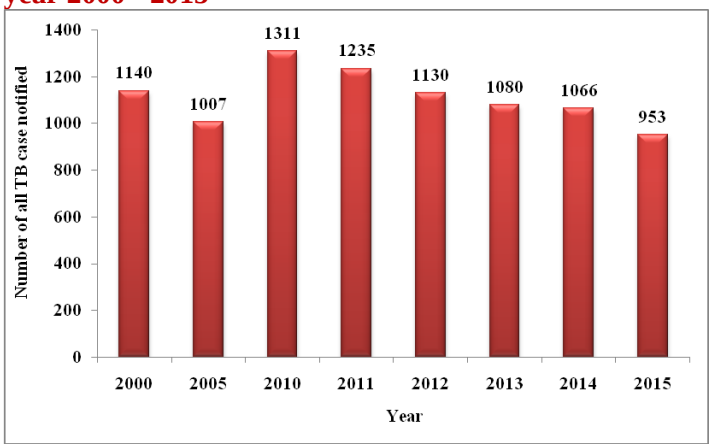
- Follow up of TB patients through mobile phone has been initiated through the support of TB NFM grant.
- Line Probe Assay established in RCDC
- Expansion of GeneXpert machines
- Expansion of rapid diagnostic tool to other sites
- Plan to establish SL DST in RCDC
- Adopt any newer diagnostic tools as per WHO recommendations

Success stories

- The TB Control Programme is fully integrated into the general health services with the majority of activities decentralized to the districts in Bhutan
- There is strong collaboration between NTP and partners, including the military hospitals. All military hospitals are involved in delivering TB services
- The Public Health Laboratory (PHL) has been linked to the Regional Supranational Reference Laboratory in Bangkok, Thailand, and accredited for culture and first line DST. Also established Liquid Culture & DST at the Public Health Laboratory to speed up the diagnosis of MDR-TB and conducted Laboratory assessment visit by the SNRL(Established Liquid Culture & DST at the Public Health Laboratory to speed up the diagnosis of MDR-TB.

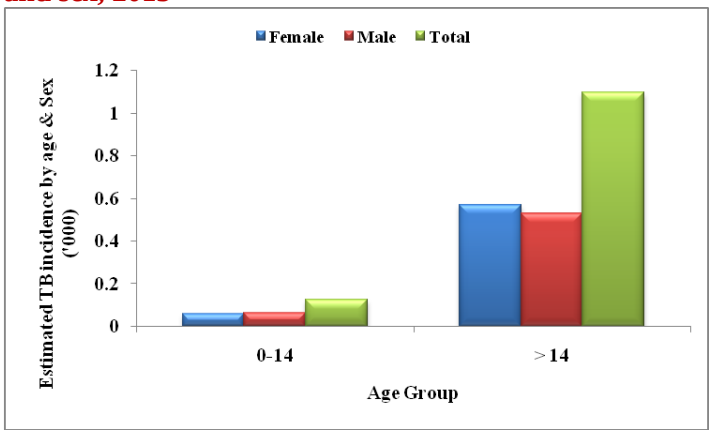
- Innovative approaches to find missing cases in Bhutan
- Community work for improving access of promoting adherence

Figure 12: Trend of TB case notification (all types) by year 2000 - 2015



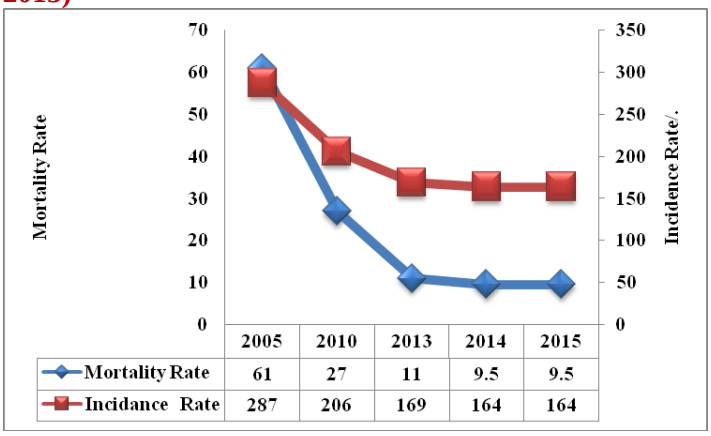
Source: Data sent by NTP-Bhutan in year 2016, SAARC Epidemiological Response on Tuberculosis-2015

Figure 13: Notified New and Relapse TB Cases by age and sex, 2015



Source: WHO Global Tuberculosis Report- 2016

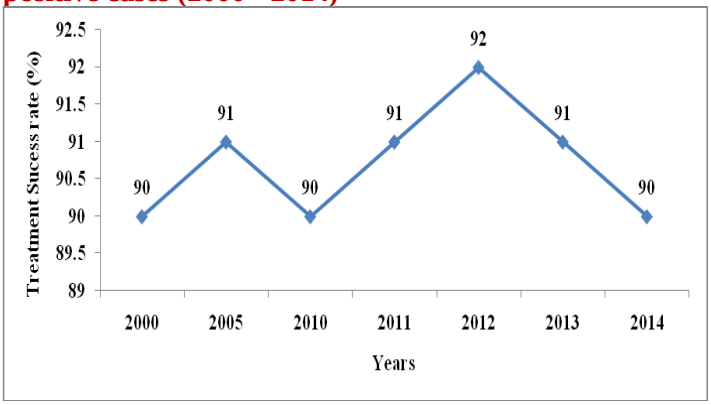
Figure 14: Trend of incidence and Mortality (2005-2015)



	2005	2010	2013	2014	2015
Mortality Rate	61	27	11	9.5	9.5
Incidance Rate	287	206	169	164	164

Source: Data sent by NTP-Bhutan in year 2016, SAARC Epidemiological Response on Tuberculosis-2015

Figure 15: Treatment success rate for new smear positive cases (2000 - 2014)



Source: WHO Global Tuberculosis Report-2016

TB Epidemiology 2015, Bhutan

Population (Report sent by NTP, Bhutan-2016)			**757000**
Estimates of TB burden * 2015		**Number (thousands)**	**Rate (per 100 000 Population)**
Mortality (excludes HIV+TB)		0.12 (0.079-0.17)	16 (10-22)
Mortality (HIV+TB only)		0.024 (0.018-0.03)	3.1 (2.4-3.9)
Incidence (includes HIV+TB)		1.2 (0.93-1.5)	155 (120-196)
Incidence (HIV+TB only)		0.11 (0.076-0.14)	14 (9.8-18)
Incidence (MDR/RR-TB)**		0.052 (0.043-0.062)	6.7 (5.5-8)
Estimated TB incidence by age and sex (thousands)*, 2015			
	0-14 years	>14 years	Total
Females	0.061 (0.037-0.86)	0.57 (0.42-0.71)	0.63 (0.46-0.8)
Males	0.047 (0.03-0.063)	0.53 (0.42-0.66)	0.58 (0.43-0.72)
Total	0.11 (0.076-0.14)	1.1 (0.93-1.3)	1.2 (0.93-1.5)
TB case notifications, 2015			
Total cases notified			975
Total new and relapse			963
-% tested with rapid diagnostics at time of diagnosis			
-% with known HIV status			67%
- % pulmonary			52%
- % bacteriologically confirmed among pulmonary			89%
Universal Health Coverage and Social protection			
TB treatment coverage (notified/estimated incidence), 2015			80% (64-100)
TB cases fatality ratio (estimated mortality/estimated incidence), 2015			0.12(0.08-1.8)
TB/HIV Care in new and relapse TB patients, 2015		**Number**	**%**
Patients with known HIV status who are HIV positive		6	<1%
- On antiretroviral therapy		6	100%
Drug- resistant TB care, 2015	**New cases**	**Previously treated cases**	**Total Number*** **
Estimated MDR/RR-TB cases among notified pulmonary TB cases			37 (24-51)
Estimated % of TB cases with MDR/RR-TB	2.6% (2.3-3)	38% (19-59)	-

% notified tested for rifampicin resistance	53%	30%	504
MDR/RR-TB cases tested for resistance to second line drugs			41
Laboratory confirmed cases		MDR/RR-TB: 49	XDR-TB:0
Patients started on treatment****		MDR/RR-TB: 49	XDR-TB:0
Treatment success rate		**Success**	**Cohort**
New and relapse cases registered in 2014		90%	1066
Previously treated cases, excluding relapse, registered in 2014		79%	71
HIV-positive TB cases, all types, registered in 2014		90%	1066
MDR/RR-TB cases started on second line treatment in 2013		92%	37
XDR-TB cases started on second-line treatment in 2013			-
TB Preventive treatment, 2015			
% of HIV+ people (newly enrolled in care) on preventive treatment			100%
% of Children (aged <5) household contacts of bacteriologically- confirmed TB cases on preventive treatment		-	

** Ranges represent uncertainty intervals*

*** MDR is TB resistant to rifampicin and isoniazid; RR is TB resistant to rifampicin*

**** Includes cases with unknown previous TB Treatment history*

*****Includes patients diagnosed before 2015 and patients who were not laboratory- confirmed*

Source: WHO Global Tuberculosis Report-2016

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 1311 million people (WHO Global Tuberculosis Report-2016), 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. As per WHO Global TB Report, 2016, out of the estimated global annual incidence of 10.4 million TB cases, 2.8 million were estimated to have occurred in India. As per current WHO estimates, India's TB control programme is on track as far as reduction in disease burden is concerned. India has achieved WHO, MDG targets for TB in 2015. Tuberculosis incidence per lakh population has reduced from 289 in year 2000 to 217 in 2015. In 2015, WHO estimates 480,000 (CI: 380000-590000) TB related deaths in India with the rate of 36 (CI: 29-45) Per lack population.

Diagnosis of Tuberculosisis has done primarily using Smear Microscopy. The nationwide network of designated sputum smear microscopy laboratories under RNTCP provides appropriate and accessible quality assured services for TB diagnosis. Quality assurance for the sputum smear microscopy is implemented through a three tier system consisting of National Reference Laboratories (NRL), Intermediate Reference Laboratory (IRL) and Designated Microscopy Centres (DMCs). The programme has a certification procedure for the Culture and Drug Susceptibility Testing performed by solid, liquid and Molecular (Line Probe Assay) diagnostic methods, with a quality assurance protocol based upon WHO and Global Laboratory Initiative recommendations.

In 2015, RNTCP covered a population of 1.28 billion. A total of 91,32,306 TB suspects were examined by sputum smear microscopy and 14,23,181cases were registered for treatment. 79% of all registered TB cases knew their HIV status. 93% HIV infected TB patients were initiated on CPT and 92% were initiated on ART.

RNTCP has quality assured laboratory network of 13,886 microscopy centres for sputum smear microscopy. At present under the program there are 64 RNTCP certified Culture & DST laboratories in the country which includes laboratories from Public sector (IRL, Medical College), Private and NGO laboratories. Twenty five laboratories under the program are certified for SLD. To improve outcome amongst DR-TB patients, a new drug bedaquiline is planned to be introduced in six referral sites initially to establish its safety profile among Indian patients. The entire country is covered for baseline SLD for MDR-TB patients. Currently 121 Cartridge Based Nucleic Acid Amplification (CBNAAT) sites provide rapid decentralized diagnosis of MDR-TB, TB in high risk group PLHIV and Paediatric presumptive including EP-TB case. Procurement of another 500 CBNAAT machines is being undertaken.

RNTCP has tested 9,21,390 presumptive DR TB cases, >1,05,000 MDR TB/ Rif resistance diagnosed and initiated >93,000 DR TB patients on treatment.

Indian RNTCP is the world's largest DOTS programme achieving global targets of case finding and treatment success rate but the same success has not been achieved with PMDT. The treatment success rates under the programme are well below 50% (46%) with ~ 20% each death and lost to follow up. The HIV rates among Drug sensitive and Drug resistant TB are comparable at 4%-5%.

Govt of India declared Tuberculosis a notifiable disease on 7th May 2012 with the following objectives.

Objectives:

1**.** To have establish Tuberculosis surveillance system in the country

2. To extend mechanisms of TB treatment adherence and contact tracing to patients treated in private sector

3. To ensure proper TB diagnosis and case management and further accelerate reduction of TB

transmission

4. To mitigate the impeding Drug resistant TB epidemic in the country

Achievements

- Finding India's missing TB cases using technology-enabled services for private providers and patients
- Innovative intensified TB case finding and treatment at high-burden antiretroviral therapy (ART) centres
- India started a project for better diagnosis of childhood TB in four urban sites. Consistent treatment success rate of more than 85% among all new and relapse cases
- Number of laboratory confirmed RR/MDR-TB cases initiated on treatment increased to more than 24 000
- Number of XDR-TB cases being diagnosed also consistently increasing with increasing accessibility to second-line DST.
- In additional to IRLs, the programme also involves the Microbiology Department of Medical colleges for providing diagnostic services for drug resistance Tuberculosis, Extra-Pulmonary Tuberculosis (EP-TB) and research.
- Digitalization of Microscopy Centers in Andhra Pradesh – 'E-Lab Register'
- Nutritional Supplementation for Tribal TB patients

New Initiatives:

- India is a signatory to World Health Assembly which has endorsed Sustainable Development Goals and global 'End TB Strategy' that calls for a world free of tuberculosis.
- To ensure quality case management, notification of all TB cases in **Nikshay** is the first step to close the gap of missing TB cases in India. WHO Global TB report 2015 appreciated India's efforts for substantial increase of TB case notification.
- To make RNTCP service more patient centric a dedicated toll free number with a call centre has been started using ICT to provide patient counselling and treatment support services in states of Punjab, Haryana, Chandigarh and Delhi, named as missed call campaign
- RNTCP and National Program for Prevention and Control of Cancer, Diabetes, CVD & Stroke (NPCDCS) have jointly developed a framework for collaboration which aims to reduce morbidity and mortality by doing bi-directional screening, early detection and prompt

management of Diabetes Mellitus and TB. RNTCP and National Tobacco Control Programme are also working in synergy for development and implementation of a framework for collaboration.

- Operational Research has approved a study for the Validation of second line LPA for detecting resistance to Fluoroquinolones, Aminoglycosides (Kanamycin, Amikacin) and Cyclic Peptides (Capreomycin).
- To replace the Binocular Microscopes and to provide better and faster diagnostic equipments for the management of drug sensitive TB, programme has procured 2500 LEDs during the year 2015 for distribution to high work load settings
- The first National Consultation on 'Nutritional Support to Tuberculosis Patients' was organized to discuss challenges and highlight resources needed to effectively develop and implement a nutrition support plan for TB patients across the country.
- In 2015, the Joint Monitoring Mission (JMM) brought together a team of national and international experts from the Ministry of Health, civil society, implementing partners, technical and developmental agencies to review the progress, challenges, gaps and strategies of India's tuberculosis (TB) control efforts.
- 'Call to Action' initiative was launched in India by the Hon'ble Minister of Health and Family Welfare. This is an initiative under the global Challenge TB project funded by USAID and led by The Union South East Asia (USEA) office in India.
- With support from World Bank, CTD is implementing the "Accelerating Universal Access to Early and Effective Tuberculosis Care" Project.
- RNTCP has successful partnerships with Indian Medial Association (IMA), Catholic Bishops' Conference of India (CBCI), Foundation for Innovative New Diagnostics (FIND), World Vision and The UNION.
- Baseline 2nd line DST services are provided across the country by linking all states and UTs to these certified laboratories.
- Implementation of modern biological safety (biosafety) standards.
- Decentralized community based DOT with enhanced provider incentives, patient incentives especially in difficult areas, improved use of IT and telecommunication to track patients in a setting of improved web-based, case- based surveillance systems.
- RNTPC in collaboration with National AIDS Control Program (NACP) and technical support from World Health Organization country office for India is currently implementing a project 'Intensified TB case finding and appropriate treatment' at selected 30 high burden ART

centres in five states of India from April 2015. The project focuses on comprehensive strategies to reduce the burden of TB among People living with HIV AIDS (PLHA) with single window service delivery for TB and HIV, rapid diagnosis with CBNAAT, AIC measures at ART center and Fixed Dose Combination daily therapy.

- RNTCP and, in accordance with the Standards of TB care in India, Central TB Division has decided to introduce daily regimen for treatment of drug sensitive TB cases in 104 districts in five states.

Challenges

- The proportion of children among new TB patients reported was 6% in 2016. Absence of appropriate samples coupled with decentralized capacity to get good samples from children to test for TB remains to be challenge in pediatric TB case detection.
- The Revised National Tuberculosis Control Program (RNTCP) is facing the challenge of Drug Resistant TB and that of HIV co-infection with TB.

Major challenges in achieving universal access to TB prevention, care and control services

- TB care in private sector
- Vulnerable and marginalized Population
- Community participation/ownership/engagement and social support
- Implementation of airborne infection control
- Adequate resources

Major challenges in expansion of MDR-TB services

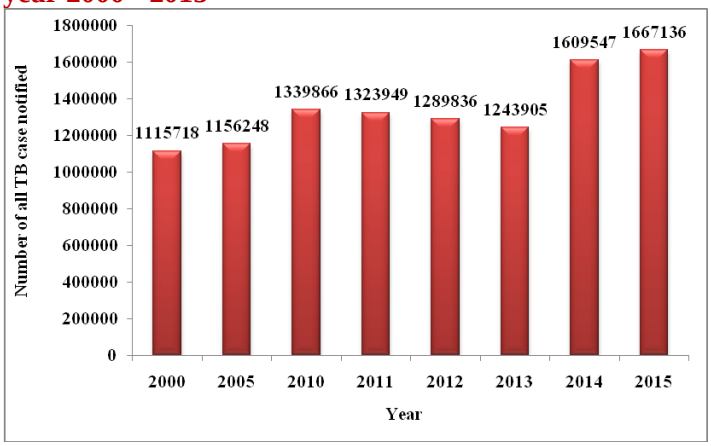
- Laboratory capacity
- High cost of second-line anti-TB drugs
- Procurement of drugs: Limited WHO pre-qualified sources
- Lack of information about DR TB patients diagnosed and treated in the private sector
- Widespread irrational use of anti-TB drugs and inadequate implementation of Schedule H1 of Drugs and Cosmetics Act

Future Plans:

- RNTCP is developing its National Strategic Plan for TB elimination in India (2017-25), five years ahead of the Sustainable Development Goals (SDGs).
- External Quality Assessment for CBNAAT is being planned to be rolled out in the country.

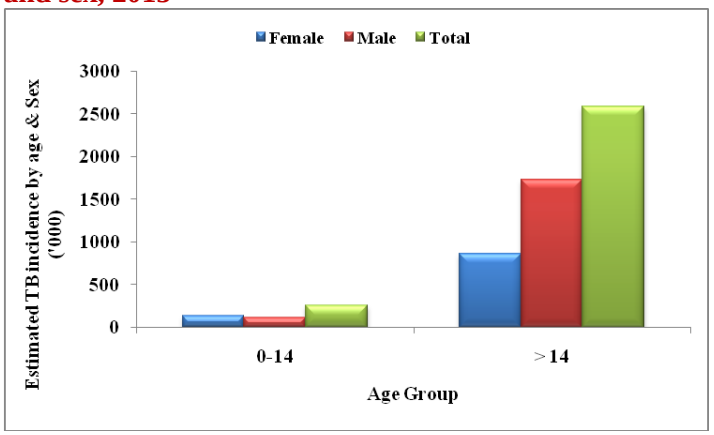
- Introduction of daily FDC for DS TB patients
- Lab expansion as per the plan
- DST guided treatment
- Expansion of PPM initiatives
- Expansion of TB surveillance through NIKSHAY and other ICT tools
- Expansion of paediatric TB services
- Transitioning towards daily regimen
- Strengthening laboratory capacity: 500 CB NAAT machines and 50 secondline DST laboratories
- Introduction of bedaquiline under RNTCP
- DST guided treatment

Figure 16: Trend of TB case notification (all types) by year 2000 - 2015



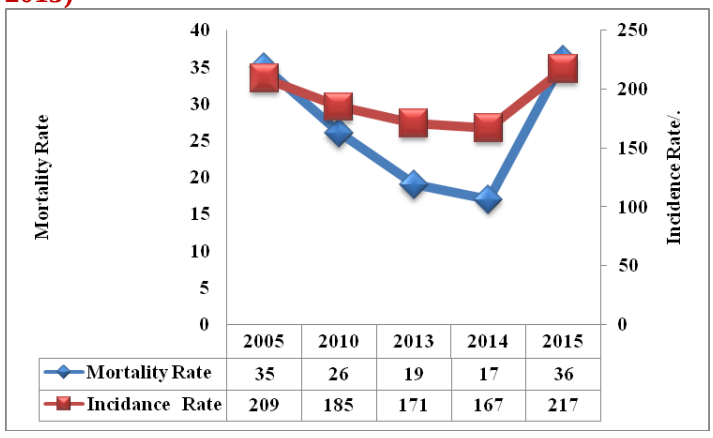
Source: WHO Global Tuberculosis Report-2016 & SAARC Epidemiological Response on Tuberculosis-2015

Figure 17: Notified New and Relapse TB Cases by age and sex, 2015



Source: WHO Global Tuberculosis Report- 2016

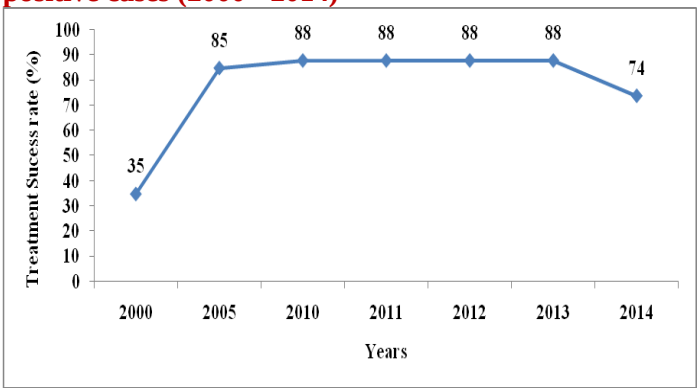
Figure 18: Trend of incidence and Mortality (2005-2015)



	2005	2010	2013	2014	2015
Mortality Rate	35	26	19	17	36
Incidance Rate	209	185	171	167	217

Source: WHO Global Tuberculosis Report-2016 & SAARC Epidemiological Response on Tuberculosis-2015

Figure 19: Treatment success rate for new smear positive cases (2000 - 2014)



Source: WHO Global Tuberculosis Report-2016 & SAARC Epidemiological Response on Tuberculosis-2015

TB Epidemiology 2015, India

Population (2015)			**1311 million**
Estimates of TB burden * 2015		**Number (thousands)**	**Rate (per 100 000 Population)**
Mortality (excludes HIV+TB)		480 (380-590)	36 (29-45)
Mortality (HIV+TB only)		37 (21-57)	2.8 (1.6-4.3)
Incidence (includes HIV+TB)		2840 (1470-4650)	217 (112-355)
Incidence (HIV+TB only)		113 (58-186)	8.6 (4.4-14)
Incidence (MDR/RR-TB)**		130 (88-180)	9.9 (6.7-14)
Estimated TB incidence by age and sex (thousands)*, 2015			
	0-14 years	>14 years	Total
Females	136 (78-193)	860 (112-1610)	995 (191-1800)
Males	119 (78-161)	1730 (1070-2380)	1850 (1150-2540)
Total	255 (181-328)	2590 (1750-3420)	2840 (1470-4650)
TB case notifications, 2015			
Total cases notified			1740435
Total new and relapse			1667136
-% tested with rapid diagnostics at time of diagnosis			
-% with known HIV status			67%
- % pulmonary			82%
- % bacteriologically confirmed among pulmonary			64%
Universal Health Coverage and Social protection			
TB treatment coverage (notified/estimated incidence), 2015			59% (36-110)
TB cases fatality ratio (estimated mortality/estimated incidence), 2015			0.20 (0.11-0.36)
TB/HIV Care in new and relapse TB patients, 2015		**Number**	**%**
Patients with known HIV status who are HIV positive		44652	4%
- On antiretroviral therapy		40925	92%
Drug- resistant TB care, 2015	**New cases**	**Previously treated cases**	**Total Number*** **
Estimated MDR/RR-TB cases among notified pulmonary TB cases			79000 (72000-87000)
Estimated % of TB cases with MDR/RR-TB	2.5 % (2.1-3.1)	16% (14-18)	
% notified tested for rifampicin resistance	6%	60%	275321

MDR/RR-TB cases tested for resistance to second line drugs			8976
Laboratory confirmed cases		MDR/RR-TB: 28876	XDR-TB:3048
Patients started on treatment****		MDR/RR-TB: 26966	XDR-TB:2130
Treatment success rate		**Success**	**Cohort**
New and relapse cases registered in 2014		74%	1609547
Previously treated cases, excluding relapse, registered in 2014		65%	74368
HIV-positive TB cases, all types, registered in 2014		76%	44257
MDR/RR-TB cases started on second line treatment in 2013		46%	15906
XDR-TB cases started on second-line treatment in 2013		37%	248
TB Preventive treatment, 2015			
% of HIV+ people (newly enrolled in care) on preventive treatment		-	
% of Children (aged <5) household contacts of bacteriologically- confirmed TB cases on preventive treatment		-	

** Ranges represent uncertainty intervals*

*** MDR is TB resistant to rifampicin and isoniazid; RR is TB resistant to rifampicin*

**** Includes cases with unknown previous TB Treatment history*

*****Includes patients diagnosed before 2015 and patients who were not laboratory- confirmed*

Source: WHO Global Tuberculosis Report-2016

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 357000 (WHO Tuberculosis Control in South East Asia Region-Annual Report 2016) 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 incidence rate of all forms of TB of 53 per 100 000 Population. Total 153 notified new and relapse cases were detected, among the notified new and relapse cases. Treatment success rate among new smear-positive cases was 37% for the cohort of patients registered in 2014. 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 2015, three patients were estimated MDR/RR-TB cases, among notified pulmonary TB cases.

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

- Maldives was the first country in the SAARC region to reach the global target and receive the award from Stop TB Partner's forum in 2004.
- Health-care workers at central, atoll and island level home visit patients who are too weak to attend the DOTS clinic for their daily DOTS treatment.
- Outdoor mass screening being conducted for expatriates.
- Information on TB/HIV and NCD are being given to expatriates. Information on TB translated into regional languages and leaflets were given through a migrant fair
- 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.

Challenges

Major challenges in achieving universal access to TB prevention, care and control services

- Lack of optimum human and financial capacity to implement, manage and coordinate all TB-related activities in the country
- No quality control has been carried out for smear microscopy
- In-country capacity for DST is not available. Further, a system of sputum transport with

external TB laboratory to perform DST for diagnosis as well as for follow-up for X/MDR patients has not been fully established

- Large number of expatriate Population from high-endemic countries

Major challenges in expansion of MDR-TB service

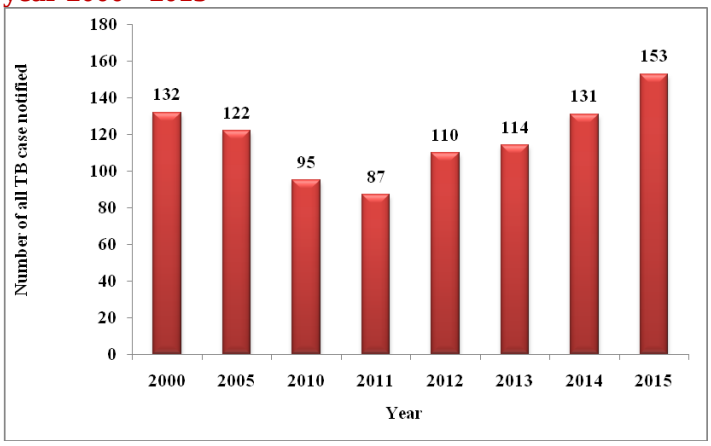
- Weak central level capacity to manage, monitor and supervise the programme
- Diagnosis of MDR and XDR-TB takes a long time
- There is no specific MDR TB treatment facility
- Lack of trained staff for management of MDR TB
- The social stigma attached to the disease still lingers

Future Plan

Operational plan for 2016–2017

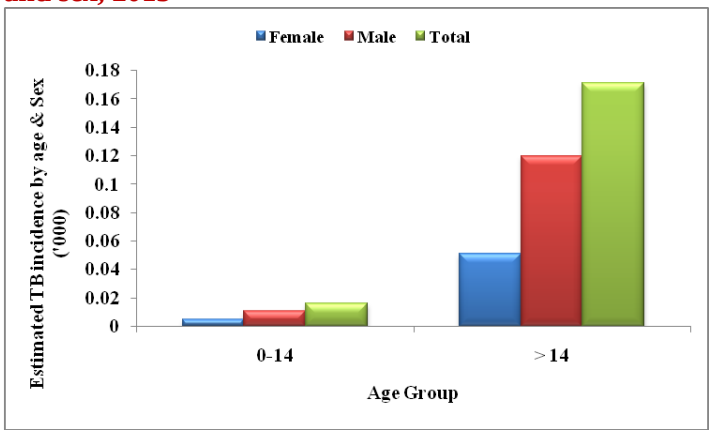
- Implementation of the revised and finalized National Strategic Plan for TB control in Maldives
- Finalization and implementation of the national guidelines for management of TB, programmatic management of DRTB and childhood TB
- Establishment of Gene Xpert facility at IGMH in 2016

Figure 20: Trend of TB case notification (all types) by year 2000 - 2015



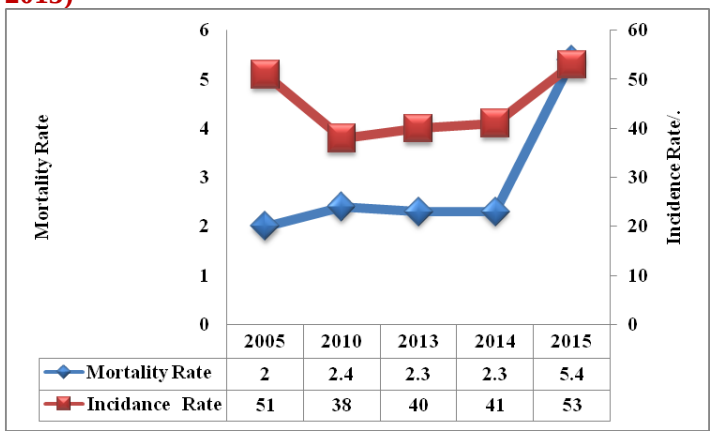
Source: WHO Global Tuberculosis Report-2016 & SAARC Epidemiological Response on Tuberculosis-2015

Figure 21: Notified New and Relapse TB Cases by age and sex, 2015



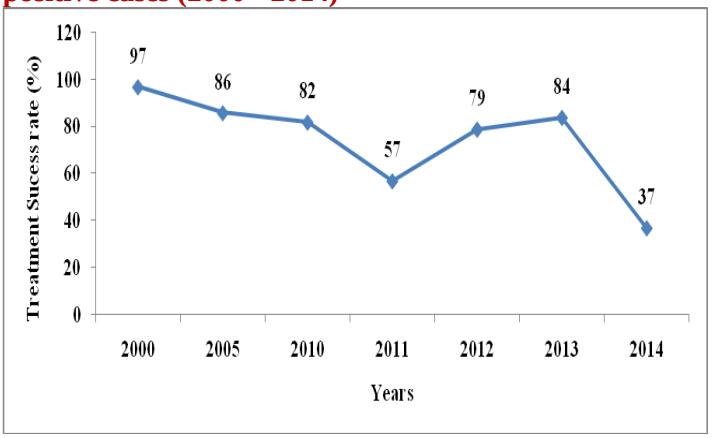
Source: WHO Global Tuberculosis Report- 2016

Figure 22: Trend of incidence and Mortality (2005-2015)



Source: WHO Global Tuberculosis Report-2016 & SAARC Epidemiological Response on Tuberculosis-2015

Figure 23: Treatment success rate for new smear positive cases (2000 - 2014)



Source: WHO Global Tuberculosis Report-2016 & SAARC Epidemiological Response on Tuberculosis-2015

TB Epidemiology 2015, Maldives

Population (WHO Tuberculosis Control in South East Asia Region-Annual Report 2016)			**357000**
Estimates of TB burden * 2015		**Number (thousands)**	**Rate (per 100 000 Population)**
Mortality (excludes HIV+TB)		0.02 (0.016-0.023)	5.4 (4.4-6.4)
Mortality (HIV+TB only)		<0.01 (<0.01-<0.01)	0.01 (0.01-0.02)
Incidence (includes HIV+TB)		0.19 (0.15-0.24)	53 (41-66)
Incidence (HIV+TB only)		0	0.05 (0.04-0.07)
Incidence (MDR/RR-TB)**		<0.01 (<0.01-<0.01)	1.6 (1.2-2)
Estimated TB incidence by age and sex (thousands)*, 2015			
	0-14 years	>14 years	Total
Females	<0.01 (0-<0.01)	0.051 (0.023-0.08)	0.056 (0.024-0.089)
Males	0.011 (<0.01-0.015)	0.12 (0.093-0.15)	0.13 (0.1-0.17)
Total	0.016 (0.011-0.021)	0.18 (0.15-0.2)	0.19 (0.15-0.24)
TB case notifications, 2015			
Total cases notified			153
Total new and relapse			153
-% tested with rapid diagnostics at time of diagnosis			14%
-% with known HIV status			100%
- % pulmonary			73%
- % bacteriologically confirmed among pulmonary			100%
Universal Health Coverage and Social protection			
TB treatment coverage (notified/estimated incidence), 2015			80% (64-100)
TB cases fatality ratio (estimated mortality/estimated incidence), 2015			0.1 (0.08-0.14)
TB/HIV Care in new and relapse TB patients, 2015		**Number**	**%**
Patients with known HIV status who are HIV positive		0	0%
- On antiretroviral therapy		0	
Drug- resistant TB care, 2015	**New cases**	**Previously treated cases**	**Total Number*** **
Estimated MDR/RR-TB cases among notified pulmonary TB cases			3 (2-3)

Estimated % of TB cases with MDR/RR-TB	2.6 (2.3-3)	0% (0-52)	
% notified tested for rifampicin resistance	24%	100%	41
MDR/RR-TB cases tested for resistance to second line drugs			1
Laboratory confirmed cases		MDR/RR-TB: 1	XDR-TB:0
Patients started on treatment****		MDR/RR-TB: 0	XDR-TB:0
Treatment success rate		**Success**	**Cohort**
New and relapse cases registered in 2014		37%	126
Previously treated cases, excluding relapse, registered in 2014			0
HIV-positive TB cases, all types, registered in 2014			0
MDR/RR-TB cases started on second line treatment in 2013			0
XDR-TB cases started on second-line treatment in 2013			0
TB Preventive treatment, 2015			
% of HIV+ people (newly enrolled in care) on preventive treatment		0%	
% of Children (aged <5) household contacts of bacteriologically- confirmed TB cases on preventive treatment		94% (70-100)	

** Ranges represent uncertainty intervals*

*** MDR is TB resistant to rifampicin and isoniazid; RR is TB resistant to rifampicin*

**** Includes cases with unknown previous TB Treatment history*

*****Includes patients diagnosed before 2015 and patients who were not laboratory- confirmed*

Source: WHO Global Tuberculosis Report-2016

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. Nepal is divided into 7 states and 75 districts. It has an area of 147,181 square kilometers and Population of approximately 29 million (WHO Global Tuberculosis Report-2016). The urban Population is largely concentrated in the Kathmandu valley.

TB Epidemiology

Tuberculosis (TB) is still a major public health problem in Nepal. In 2015 WHO has estimated 44000 (CI: 39000-50000) incident cases with the rate of 156 (CI:137–176 per 100,000 population)). At the same year mortality was 5600 (CI 3900-7500) with the rate of 20 (CI:14–26 per 100,000 population). In 2014/15, total of 34,121cases of TB were registered. Among them, 54.1% were pulmonary bacteriological confirmed (PBC). Most cases were reported among the middle-aged group with the highest among 15-24 year of age (20%). The childhood TB (new and relapse) was 7%.The Case Notification Rate (CNR) all forms was 123 per 100,000 populations this year trend was decreased in comparison with previous years. CNRs were highest in Terai zones followed by hill then mountain zones with rates of 139, 112 and 69 per 100,000 populations in 2014/15 respectively. When considered the sex distribution of TB cases, Males are outnumbered the females. (Male 1.8 times more reported than Females).

TB program in Nepal was able to save 32,973 lives this year nationally, but still 978 deaths were reported among general TB cases. The overall treatment success rates (all forms) nationally of drug susceptible TB was 91.5% with 0.92% failure rates, 2.2% lost to follow up and 2.7% death rates. The treatment success rates of Pulmonary Bacteriological Confirmed (PBC) were 90% compared to 72% in retreatment cases (lost to follow up+ failure), 93.6% in new Pulmonary Clinically Diagnosed (PCD) and 93.01% Extra Pulmonary cases. Failure rate in new PBC was 1.3% compared to 2.06% in retreatment cases, 0.23% in new PCD cases and 0.28% in EP cases.

In 2015 WHO estimates that there were 1500 (CI:950-2100) MDR-TB cases in Nepal. The proportion of new cases with multidrug-resistant TB (MDR-TB) was 2.2% among new cases and 15.4% among retreatment cases based on survey carried out in 2011/12, and new surveillance on

MDRTB has not been done in recent years. In 2014/15, total of 379 MDR TB and 71 XDR TB were enrolled for treatment. TSR of MDR patients was 71%, however the TSR of XDR is low at 33%. Total of 22 deaths among MDR Cases and 3 deaths in XDR were reported in 2014/15. The drug resistant pattern in Nepal showed much higher levels of resistance to fluoroquinolones (36%). Among the MDR patients, 8% further develop XDR.

Tuberculosis services are available through 4,221 treatment centers and Urban DOT Centers in the country, while 581 diagnostic centers (public and private) are offering TB diagnostic services. NTP has consistently achieved the global targets for TB control. Programmatic Management of Drug Resistance Tuberculosis (PMDT) services are also available through 14 treatment centers and 81 sub-centers in all over the country. Though the DR TB services are ambulatory, facility based services were also provided though 10 hostels for patient without access or needing inpatient services. Culture and DST facilities for DRTB cases were provided from NTC and GENETUP reference laboratories at the Central level.

In 2015, 8.5 Million US$ was spent annually in TB program in Nepal. Out of total expenditures, 5.5 million from Global fund, 2.07 million from Government and 0.7 Million from International TB Foundation (LHLI).

Source: NTP Annual Report Nepal 2015

Key achievements and success stories

In this fiscal year, NTP has expanded 20 DOTS Centres and 25 Microscopic Centres in the public and private sectors of Nepal. Similarly one DR Centre and two Sub-centres have been expanded in the districts for the management of DR TB cases. Along with this, NTC has procured all the necessary items for the establishment of a solid culture and DST facility in the three regions – Eastern Development Region, Western Development Region and Mid-Western Region of Nepal. Furthermore NTC has expanded three GeneXpert centres in the Accham, Okahaldhuna and Palpa districts respectively. Now they have total of 26 Gene X pert machines in all over the country.In addition, NTC has strengthened the National Reference Laboratory with the facility of liquid C/DST and a LPA facility; as a result, its capacity has been strengthened in the management of DR TB cases.

All preparatory work for the Prevalence Survey has been completed.

In 2015, NTP conducted an Epi-appraisal with technical support from WHO and some of the recommendations of the appraisal have been addressed in the coming year's Fiscal Year budget and programme, which includes piloting of tracking referral childhood TB cases from the

national child hospitals located in Kathmandu as well as tracking and enrolling the primary lost to follow up TB cases on treatment.

Challenges:

- Insufficient income generation program for patient and their family members.
- Inadequate TB management training to medical doctors
- Minimum interventions for strengthening PPM component
- Lack of operational research regarding increasing retreatment cases
- Lack of patient friendly TB treatment service
- Existing currier system for slide- not adequate
- Inadequate TB IEC materials
- Difficult to coordinate with regional and provincial hospitals.
- Almost 12,000 estimated cases have not be notified.
- Case notification rate is decreasing over the years
- Low service coverage in hard-to-reach Population and TB contact
- There is a low involvement of private sector in the national programme leading to low case notification from the private sector
- TB and HIV cross-referral services are still not functioning well leading to only 9% TB patients being tested for HIV
- Insufficient infection control measures in health facilities

Action to be taken:

- Expansion of CBDOT Programme in the country
- Strengthen Public Private Mix approach
- Strengthen the Community Support System Programme
- Plan for operational research on TB
- Develop and distribute patients centered TB IEC materials
- Pilot patient friendly treatment centers in the country

Future Plan

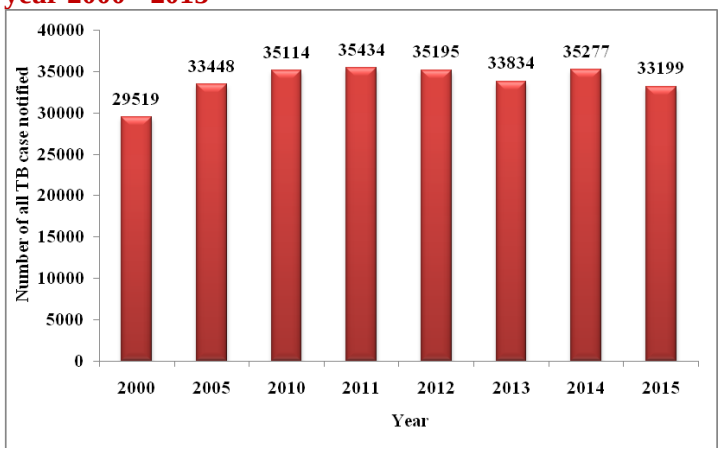
- Expansion of TB diagnostic services
  - Roll-out GeneXpert to all districts
  - C/DST services to all regions
  - Expansion of microscopy services in 198 public and private health sector health

facilities

- Expansion of DR services up to all regional, zonal and district hospitals, expansion of DR sub centre up to PHC level

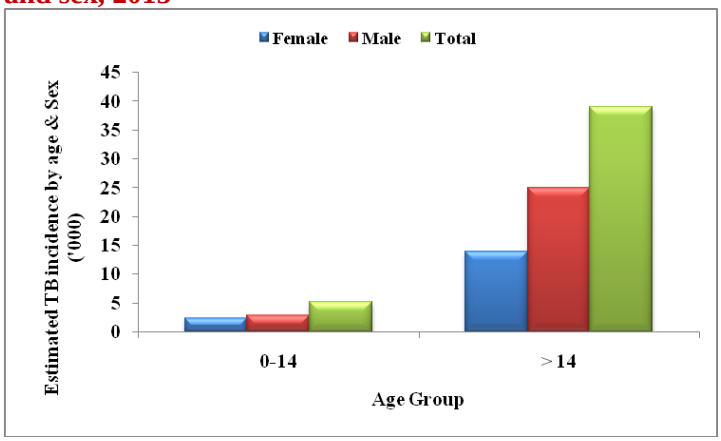
- Expansion of active case-finding activities to access hard-to-reach and vulnerable population through the following:
  - Microscopic camp
  - Contact tracing of TB patients' families, neighbours, friends, schools and work place
  - Mobilizing mobile van with GeneXpert and digital x-ray machines in strategic location
- Enhance TB diagnosis in children
  - Strengthening the skills of doctors in child TB diagnosis and management through trainings
  - Introduction of the newer technology and system for the confirmatory diagnosis in children
  - Strengthening the R&R system to capture the referral, diagnosis and treatment of children
  - Development and mobilization of TB volunteers in metro/ submetropolitan cities
- Establishment of sputum courier mechanism in all districts to ensure the screening of all DR presumptive TB cases, contacts of TB patients, access hard-to-reach and vulnerable Population
- Strengthening the infection control measures in labs, DR centres and DOTS canters
- Promotion of psychosocial support to TB patients
- Meaningful engagement of patients and community in the diagnosis and treatment of TB patients – expansion of community/family DOTS
- Strengthen TB-HIV collaboration between NCASC and NTC at all levels
  - Capacity development of HW
  - Involvement of infected/affected people and community
  - Strengthen and expand joint activities
  - Establishment TB Referral Centres at the regional level for side-effect management, treatment, and rehabilitation

Figure 24: Trend of TB case notification (all types) by year 2000 - 2015



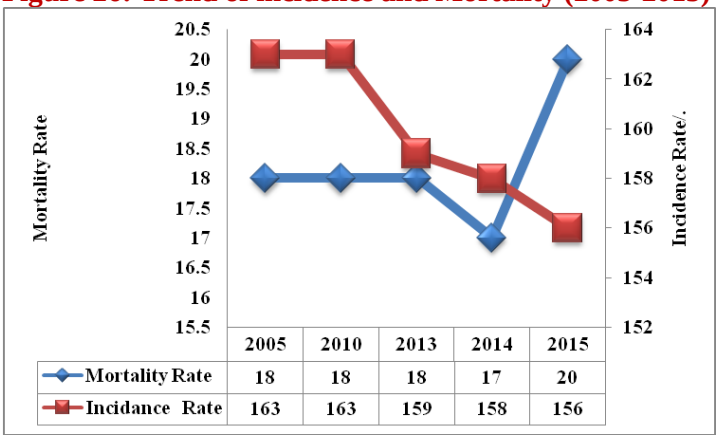
Source: WHO Global Tuberculosis Report-2016 & SAARC Epidemiological Response on Tuberculosis-2015

Figure 25: Notified New and Relapse TB Cases by age and sex, 2015



Source: WHO Global Tuberculosis Report- 2016

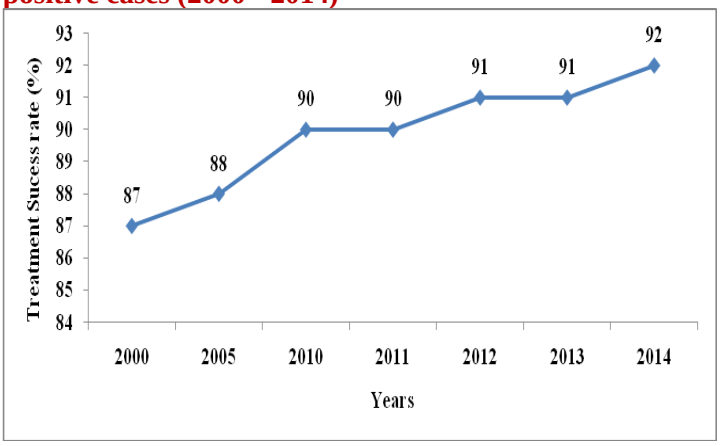
Figure 26: Trend of incidence and Mortality (2005-2015)



	2005	2010	2013	2014	2015
Mortality Rate	18	18	18	17	20
Incidance Rate	163	163	159	158	156

Source: WHO Global Tuberculosis Report-2016 & SAARC Epidemiological Response on Tuberculosis-2015

Figure 27: Treatment success rate for new smear positive cases (2000 - 2014)



Source: WHO Global Tuberculosis Report-2016 & SAARC Epidemiological Response on Tuberculosis-2015

TB Epidemiology 2015, Nepal

Population (2015)			**29 million**
Estimates of TB burden * 2015		**Number (thousands)**	**Rate (per 100 000 population)**
Mortality (excludes HIV+TB)		5.6 (3.9-7.5)	20 (14-26)
Mortality (HIV+TB only)		0.5 (0.39-0.62)	1.7 (1.4-2.2)
Incidence (includes HIV+TB)		44 (39-50)	156 (137-176)
Incidence (HIV+TB only)		1.9 (1.5-2.4)	6.7 (5.3-8.4)
Incidence (MDR/RR-TB)**		1.5 (0.95-2.1)	5.3 (3.3-7.4)
Estimated TB incidence by age and sex (thousands)*, 2015			
	0-14 years	>14 years	Total
Females	2.4 (1.4-3.4)	14 (9.5-18)	16 (11-22)
Males	2.9 (2-3.7)	25 (20-31)	28 (22-34)
Total	5.2 (4.1-6.4)	39 (36-43)	44 (39-50)
TB case notifications, 2015			
Total cases notified			34122
Total new and relapse			33199
-% tested with rapid diagnostics at time of diagnosis			14%
-% with known HIV status			7%
- % pulmonary			74%
- % bacteriologically confirmed among pulmonary			73%
Universal Health Coverage and Social protection			
TB treatment coverage (notified/estimated incidence), 2015			75% (66-85)
TB cases fatality ratio (estimated mortality/estimated incidence), 2015			0.14 (0.1-0.19)
TB/HIV Care in new and relapse TB patients, 2015		**Number**	**%**
Patients with known HIV status who are HIV positive		179	8%
- On antiretroviral therapy		133	74%
Drug- resistant TB care, 2015	**New cases**	**Previously treated cases**	**Total Number*****
Estimated MDR/RR-TB cases among notified pulmonary TB cases			900 (650-1300)
Estimated % of TB cases with MDR/RR-TB	2.2 % (0.98-3.4)	15 % (9.2-22)	
% notified tested for rifampicin resistance	12%	29%	4752

MDR/RR-TB cases tested for resistance to second line drugs			261
Laboratory confirmed cases		MDR/RR-TB: 451	XDR-TB:7
Patients started on treatment****		MDR/RR-TB: 379	XDR-TB:7
Treatment success rate		**Success**	**Cohort**
New and relapse cases registered in 2014		92%	34764
Previously treated cases, excluding relapse, registered in 2014		87%	1286
HIV-positive TB cases, all types, registered in 2014		73%	15
MDR/RR-TB cases started on second line treatment in 2013		71%	257
XDR-TB cases started on second-line treatment in 2013			
TB Preventive treatment, 2015			
% of HIV+ people (newly enrolled in care) on preventive treatment		93%	
% of Children (aged <5) household contacts of bacteriologically- confirmed TB cases on preventive treatment		-	

* Ranges represent uncertainty intervals

** MDR is TB resistant to rifampicin and isoniazid; RR is TB resistant to rifampicin

*** Includes cases with unknown previous TB Treatment history

****Includes patients diagnosed before 2015 and patients who were not laboratory- confirmed

Source: WHO Global Tuberculosis Report-2016

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 189 million (WHO Global Tuberculosis Report-2016) at the end of 2015.

TB Epidemiology

Pakistan is among countries with the high burden of TB and MDR-TB. The estimated mortality and incidence rates of all forms of tuberculosis were 23 (CI: 4.9-56 and 270 (CI: 175-386) per 100 000 population respectively in 2015.WHO has estimated 510000 (CI: 330000-729000) incident cases and 44000 (CI: 9300- 110000) deaths in 2015.

Total 323 856 notified new and relapse cases were detected in 2015 , among the notified new and relapse cases 46000 cases aged less than 15 years. Out of the notified number only 4% know their HIV status. Out of this notified number 81% were pulmonary TB cases. Among Pulmonary cases 51% were bacteriologically confirmed.

Estimated 46000 (CI: 23000-51000) pediatric TB cases were reported in 2015. In pediatric age group more females are affected than males. Bit in adult age group not much difference seen.

Treatment Success rate and cohort size

The treatment success rate among new and relapse cases (all types) is above 93% in 2014 cohort. But in 2014 cohort, the treatment success rate among MDR/RR cases started on second line treatment in 2013 showed a 69% treatment success rate. The same figure for XDR TB cases started on second line treatment in 2013 was only 30%. In Pakistan TB case fatality ratio (estimated mortality/estimated incidence) in 2015 was 0.09 CI:(0.02-0.23). Fifty nine (59) TB – HIV co –infection cases were detected. All 59 were on ART therapy.

Achievements

- National Strategic Plan: National Strategic Plan (2017-2020) developed and is aligned with End TB Strategy.

- Core DOTS: National TB control Programme has notified more than 3 million TB cases during the last 15 years and provided free of cost diagnostic and treatment services.
- MDR-TB: 30 PMDT sites established.
- Laboratory: The Country wide network of microscopy centres, WRDs and Culture & DST facilities.
- Public Private Mix: Four models of PPM are being implementd (GPs, NGOs, Private Hospitals, parastatal)
- CHTB: Revised CHTB guidelines, introduction of Child friendly medicines.
- Mandatory TB Notifications: The Provincial assemblies of three provinces have passed the mandatory TB notification bill.
- TB/HIV: 40 sentinel sites established for managing TB/HIV co-infection.
- Capacity building of the various cadres of health care workers.
- TB Drug Management: e-based TB drug management information system (TB-DMIS & TB WMIS)
- E-Surveillance system (MIS-DOTS): State of the art country DHIS-2 is under process of development through technical support of WHO.

Challenges

- Missed TB cases (30%)
- Fiscal capacity for domestic Co-financing
- Donor dependence
- Social Protection for patients-Potential for catastrophic costs
- Mandatory TB cases notification-Implementation
- Vital registration
- Weak referral linkages/spicemen transport systems limiting access to TB care and Universal DST.
- Wider Involvement of Private sector.
- Interventions for marginalized and vulnerable Population.
- Implementation of preventive treatment for high risk groups and infection control

Future Plan

- Increase and continuous political commitment and involvement of all relevant stake holders to ensure the insatiability of the intervention.

- TB/HIV Co-infection is included as a full module for the NFM Grant.
- Establishing 23 more Sentinel sites is in final stages, which will be established in 2016. Strengthening the linkages and up scaling the intervention.
- To revise the training modules, revised guidelines for the health care provider (Managers, doctors and paramedics) in NTP To adopt and incorporate the revised reporting and recording tools according to WHO recommendation and incorporate the changes revised and updated training modules.
- The National Strategic plan 2020 envisages a major contribution from private sector through expansion in partnership and innovative approaches
- 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.
- 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.

The future activities of the Research Unit in 2016 will be as follows:

- Implementation of National Inventory study to measure TB under-reporting in children in Pakistan.
- Launch of SORT IT Pakistan “Structured International Operational Research Course “ in Pakistan through support of TGF, Union, WHO TDR, MSF and University of Bergen
- Successful Implementation of “A Randomized Controlled Smoking Cessation Trial and Prospective Cohort Study of TB Treatment Outcomes"
- Monitoring and data processing of "Effectiveness and feasibility of 2 months hospitalization (hospital based) and 1 week hospitalization (community-based delivery of care) for multi-drug resistant tuberculosis (MDR-TB) in Pakistan: A randomized controlled trial”

- International Publications, articles of, TB REACH Wave 3 and household contact tracing among MDR-TB patients.

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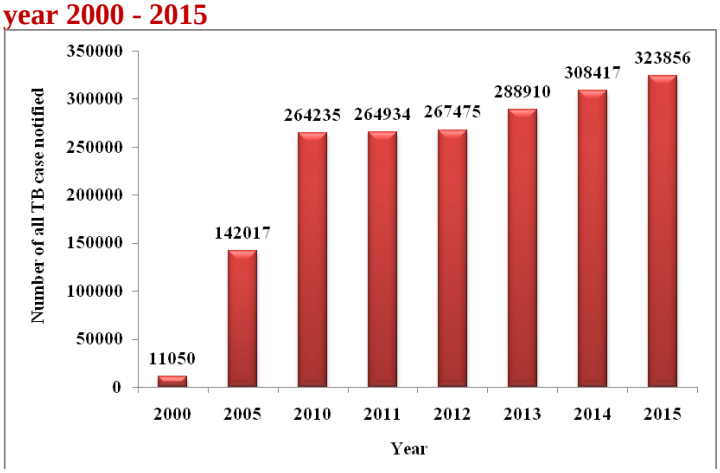
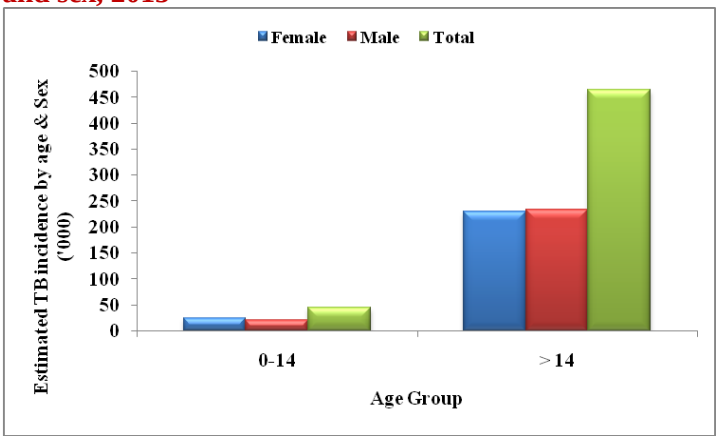
Figure 28: Trend of TB case notification (all types) by year 2000 - 2015



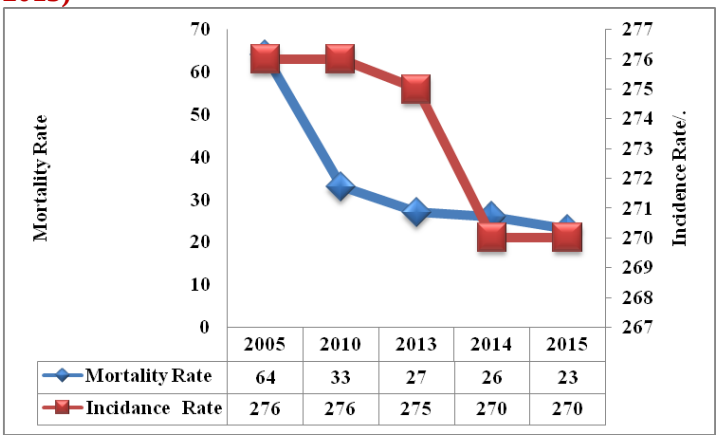
Source: WHO Global Tuberculosis Report-2016 & SAARC Epidemiological Response on Tuberculosis-2015

Figure 29: Notified New and Relapse TB Cases by age and sex, 2015



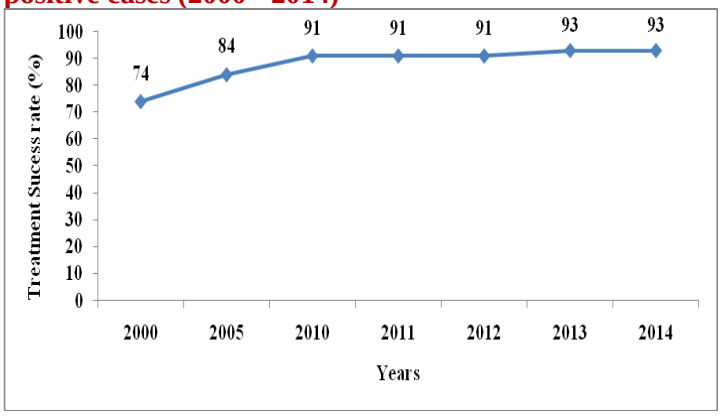
Source: WHO Global Tuberculosis Report-2016

Figure 30: Trend of incidence and Mortality (2005-2015)



Source: WHO Global Tuberculosis Report-2016 & SAARC Epidemiological Response on Tuberculosis-2015

Figure 31: Treatment success rate for new smear positive cases (2000 - 2014)



Source: WHO Global Tuberculosis Report-2016 & SAARC Epidemiological Response on Tuberculosis-2015

TB Epidemiology 2015, Pakistan

Population (2015)			**189 million**
Estimates of TB burden * 2015		**Number (thousands)**	**Rate (per 100 000 population)**
Mortality (excludes HIV+TB)		44 (9.3-110)	23 (4.9-56)
Mortality (HIV+TB only)		1.6 (1.1-2.1)	0.86 (0.6-1.1)
Incidence (includes HIV+TB)		510 (330-729)	270 (175-386)
Incidence (HIV+TB only)		8.8 (5.4-13)	4.6 (2.8-6.9)
Incidence (MDR/RR-TB)**		26 (16-36)	14 (8.5-19)
Estimated TB incidence by age and sex (thousands)*, 2015			
	0-14 years	>14 years	Total
Females	25 (12-37)	231 (141-320)	255 (153-357)
Males	21 (13-29)	234 (163-305)	255 (175-335)
Total	46 (30-61)	465 (357-573)	510 (330-729)
TB case notifications, 2015			
Total cases notified			331809
Total new and relapse			323856
-% tested with rapid diagnostics at time of diagnosis			
-% with known HIV status			4%
- % pulmonary			81%
- % bacteriologically confirmed among pulmonary			51%
Universal Health Coverage and Social protection			
TB treatment coverage (notified/estimated incidence), 2015			63% (42-98)
TB cases fatality ratio (estimated mortality/estimated incidence), 2015			0.09 (0.02-0.23)
TB/HIV Care in new and relapse TB patients, 2015		**Number**	**%**
Patients with known HIV status who are HIV positive		59	<1%
- On antiretroviral therapy		59	100%
Drug- resistant TB care, 2015	**New cases**	**Previously treated cases**	**Total Number*** **
Estimated MDR/RR-TB cases among notified pulmonary TB cases			14000 (11000-16000)
Estimated % of TB cases with MDR/RR-TB	4.2 % (3.2-5.3)	16% (15-17)	
% notified tested for rifampicin resistance	1%	84%	23078

MDR/RR-TB cases tested for resistance to second line drugs		2292
Laboratory confirmed cases	MDR/RR-TB: 3059	XDR-TB:99
Patients started on treatment****	MDR/RR-TB: 2553	XDR-TB:68
Treatment success rate	**Success**	**Cohort**
New and relapse cases registered in 2014	93%	308327
Previously treated cases, excluding relapse, registered in 2014	82%	8005
HIV-positive TB cases, all types, registered in 2014		-
MDR/RR-TB cases started on second line treatment in 2013	69%	1484
XDR-TB cases started on second-line treatment in 2013	30%	64
TB Preventive treatment, 2015		
% of HIV+ people (newly enrolled in care) on preventive treatment	-	
% of Children (aged <5) household contacts of bacteriologically- confirmed TB cases on preventive treatment	-	

* Ranges represent uncertainty intervals

** MDR is TB resistant to rifampicin and isoniazid; RR is TB resistant to rifampicin

*** Includes cases with unknown previous TB Treatment history ****Includes patients diagnosed before 2015 and patients who were not laboratory- confirmed

Source: WHO Global Tuberculosis Report-2016

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 2015 (WHO Global Tuberculosis Report-2016).

TB Epidemiology

Sri Lanka is not among high disease burden countries. However, Nearly 17,000 people are estimated to have TB. Every year around 11,000 new cases (65/100,000) are reported. In 2015, WHO has estimated incidence of 13000 (CI: 9700–18000) rate of 65 (CI:47–86 per 100,000 population) and mortality of 1200 cases (rate of 5.6 per 00,000 population). 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. In 2015, 9305 TB cases were reported to the TB programme in Sri Lanka. Most of the TB cases will be in active age (15-34 years) higher in males except in children. Average age of patients is increasing in Sri Lanka.

MDR TB Situation in Sri Lanka

In 2015, WHO has estimated 8 (CI 0-19) MDR-TB patients in Sri Lanka with the rate of 0.43 (0-0.92 per 100,000 population). Up to 2016, seventeen (17) laboratory confirmed MDR-TB patients were identified. All 17 patients were on treatment during the year 2016.

Laboratory Network

National Reference Laboratory-NPTCCD is situated in Walisaea, Gampha District.

Following TB related tests has been carried out in Sri Lanka

- Solid and Liquid cultures
- Line Probe Assey
- Gene Xpert mechines – At present 2 machines are available (16 module one and a 04 module one)

- Four culture laboratories are functioning in NTRL Walisara, Kandy,Galle and Rathnapura

Achievements

- Expansion of TB diagnostic services in 2016/2017 including provision of Digital X Ray facilities to DCCs.
- Improving infrastructure facilities at TB care provision clinics at district level
- Availability of END TB 2016-2020 Strategic Plan (Draft)
- Completed conduct of KAP Survey in 2016
- Identification of the requirement of Technical and Financial support to use modeling tool to achieve End TB 2020 Target.
- Maintained quality-assured decentralized diagnostic services all over the country – more than 160 functioning microscopy centres and two more intermediate culture laboratories
- Case detection among high-risk categories (prisons and drug addicts) were strengthened and intersectoral collaboration between related agencies were strengthened.
- Able to strengthen PMDT activities by establishing central and site committees for PMDT
- Monitoring and evaluation of TB control activities at both central and regional levels were strengthened

Challenges

- Estimated number of TB cases all forms - 13,000 in 2015 (WHO, 2015)
- Notified no. of total TB cases - 9 575 (2015) Notified no. of total TB cases - 8665 (2016)
- Gap over 3 500
- Treatment Success rate:83.6%
- Loss to follow up rate:5.1%
- Death rate:7.3%
- Addressing TB control among migratory working population from high burden countries especially from India..
- Sustainability of Funds for TB Control Activities.
- Need inward facilities for management of complicated cases.(Currently In ward

facilities available in 16 hospitals)

Actions are being planned

- Advocacy meetings with stakeholders including provincial health administrators and provincial health professionals
- Advocacy meetings with stakeholders to improve actions for high risk groups
- Advocacy meetings with private health sector NGO sector and business community

Actions being implemented

- Conduct of Advisory Committee on Tuberculosis regularly
- Regular reviews with District Tuberculosis Control Officers
- Supervision visits by NPTCCD staff to all districts
- District and Provincial reviews
- Participating in Oversight Committee Supervisory visits lead by DGHS

Main areas to be focused

- Improve Case Detection-
- Strengthen Contact Tracing
- Strengthen Prophylactic Treatment

Future Plan

- Enhance case detection among high-risk groups through estate and urban coordinators and involvement of non-NTP stakeholders
- Expand laboratory network and inclusion of WRDs in diagnosis
- Prepare guidelines and SOPs for community awareness and referral, screening of high-risk categories
- Continue supply of anti-TB drugs
- Conduct a DRS survey
- Introduce an E - PIMS System
- Strengthen monitoring through supervision of chest clinics / laboratories and programme reviews
- Build capacity of health staff

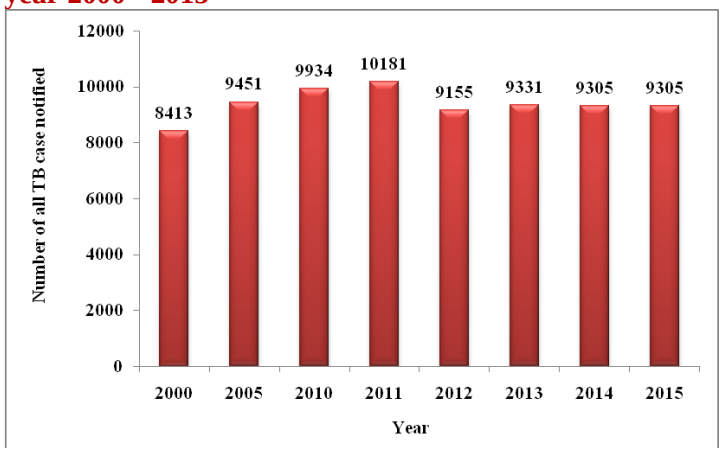
- Take evidence-based approaches in TB control through operational research
- Strengthen PPM through engaging private health-care providers in TB control in a phase-out manner
- Provide social support for needy TB patients and all MDR TB patients
- Prepare a ACSM plan following KAP survey and implementation

Operational Plan for 2017-2020 main activities

- Strategic Direction1-Integrated patient centered care and prevention
- Early diagnosis of TB including universal drug susceptibility testing for all people with TB
- Empowering Health Care Providers in preventive services to encourage people to attend screening
- Empowering Health Care Providers in curative services.
- Involvement of private Health Sector in TB Control
- Strengthening Social Mobilization
- Strengthening Communication Programmes for different Target Audiences.
- To provide responsive care at Chest Clinics and to provide amenable and accessible Services to improve quality of care.
- To improve quality of care.
- Strengthen identification of people with presumptive TB including systematic screening for
- TB among selected high –risk groups
- Ensure integrated screening & management of comoribidities (diabetes/CKD/Immuno compromise etc.)
- Ensure universal access to quality assured diagnosis including universal drug susceptibility testing and the roll-out of new diagnostics
- Strategic Direction-Develop policies and supportive systems
- 2.1 Ensure Political commitment by mobilizing adequate resources for the implementation of the strategic plan for the end TB.
- Conductive Advocacy Programms for Policy Makers, Administrators and Donors
- Monitoring and Evaluation at all levels Ensure strengthening the Health System
- Strengthening of Infrastructure facilities at different levels
- Strengthen Human Resources Development

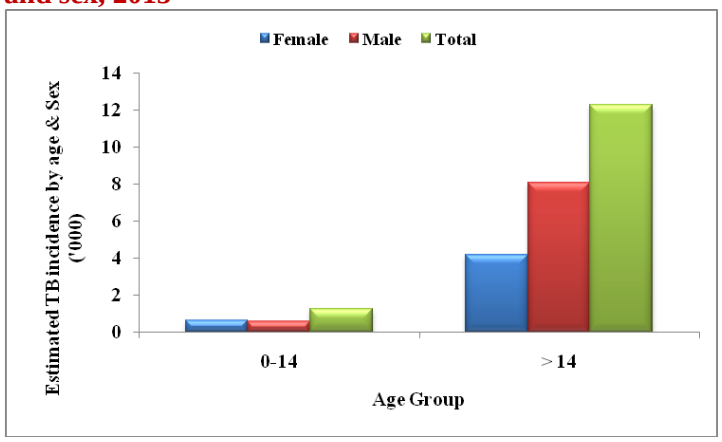
- Scale up implement comprehensive TB infection control measures in health-care facilities
- Strengthen management of anti-TB medicines.
- Improve TB Preventive, care and control in the penitentiary services and other non MoH health services
- Enforce mandatory notification of Tuberculosis cases
- Strategic Direction3- Intensified research and innovation
- Implement research to optimize implementation and impact, and promote innovation.
- Create a research –enabling environment
- Ensure that results of operational research and other studies are included in the development of TB control policies on a continuous basis.

Figure 32: Trend of TB case notification (all types) by year 2000 - 2015



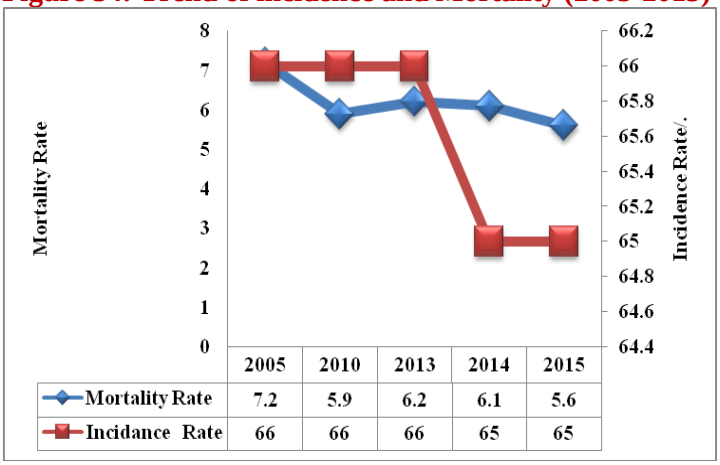
Source: WHO Global Tuberculosis Report-2016 & SAARC Epidemiological Response on Tuberculosis-2015

Figure 33: Notified New and Relapse TB Cases by age and sex, 2015



Source: WHO Global Tuberculosis Report- 2016

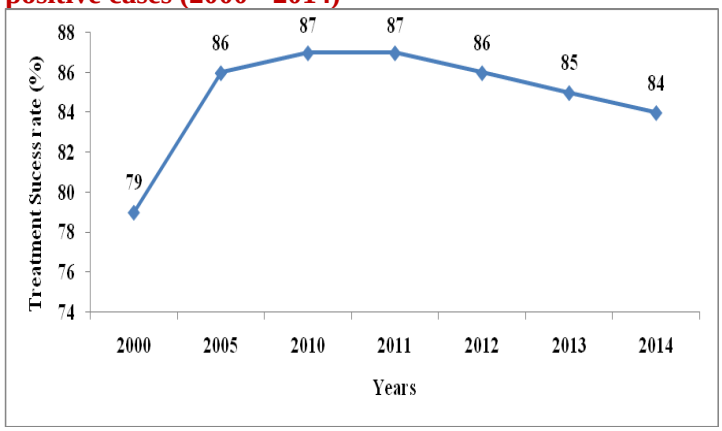
Figure 34: Trend of incidence and Mortality (2005-2015)



	2005	2010	2013	2014	2015
Mortality Rate	7.2	5.9	6.2	6.1	5.6
Incidance Rate	66	66	66	65	65

Source: WHO Global Tuberculosis Report-2016 & SAARC Epidemiological Response on Tuberculosis-2015

Figure 35: Treatment success rate for new smear positive cases (2000 - 2014)



Source: WHO Global Tuberculosis Report-2016 & SAARC Epidemiological Response on Tuberculosis-2015

TB Epidemiology 2015, Sri Lanka

Population (2015)			**21 million**
Estimates of TB burden * 2015		**Number (thousands)**	**Rate (per 100 000 population)**
Mortality (excludes HIV+TB)		1.2 (0.93-1.4)	5.6 (4.52-6.9)
Mortality (HIV+TB only)		0.011 (<0.01-0.02)	0.06 (0.03-0.09)
Incidence (includes HIV+TB)		13 (9.7-18)	65 (47-86)
Incidence (HIV+TB only)		0.043 (0.028-0.062)	0.21 (0.13-0.3)
Incidence (MDR/RR-TB)**		0.089 (0-0.19)	0.43 (0-0.92)
Estimated TB incidence by age and sex (thousands)*, 2015			
	0-14 years	>14 years	Total
Females	0.66 (0.34-0.98)	4.2 (2-6.4)	4.8 (2.3-7.4)
Males	0.59 (0.36-0.82)	8.1 (5.9-10)	8.7 (6.3-11)
Total	1.2 (0.84-1.7)	12 (10-15)	13 (9.7-18)
TB case notifications, 2015			
Total cases notified			9575
Total new and relapse			9305
-% tested with rapid diagnostics at time of diagnosis			3%
-% with known HIV status			84%
- % pulmonary			71%
- % bacteriologically confirmed among pulmonary			69%
Universal Health Coverage and Social protection			
TB treatment coverage (notified/estimated incidence), 2015			69%(52-96)
TB cases fatality ratio (estimated mortality/estimated incidence), 2015			0.09 (0.06-0.13)
TB/HIV Care in new and relapse TB patients, 2015		**Number**	**%**
Patients with known HIV status who are HIV positive		25	<1%
- On antiretroviral therapy		17	68%
Drug- resistant TB care, 2015	**New cases**	**Previously treated cases**	**Total Number*****
Estimated MDR/RR-TB cases among notified pulmonary TB cases			43 (0-93)
Estimated % of TB cases with MDR/RR-TB	0.54%(0-1.3)	1.7% (0.64-3.7)	

% notified tested for rifampicin resistance	13%	75%	1635
MDR/RR-TB cases tested for resistance to second line drugs			0
Laboratory confirmed cases		MDR/RR-TB: 15	XDR-TB:0
Patients started on treatment****		MDR/RR-TB: 13	XDR-TB:0
Treatment success rate		**Success**	**Cohort**
New and relapse cases registered in 2014		84%	8980
Previously treated cases, excluding relapse, registered in 2014		63%	168
HIV-positive TB cases, all types, registered in 2014		63%	19
MDR/RR-TB cases started on second line treatment in 2013		50%	4
XDR-TB cases started on second-line treatment in 2013		-	0
TB Preventive treatment, 2015			
% of HIV+ people (newly enrolled in care) on preventive treatment		4%	
% of Children (aged <5) household contacts of bacteriologically- confirmed TB cases on preventive treatment		46% (40-51)	

* Ranges represent uncertainty intervals

** MDR is TB resistant to rifampicin and isoniazid; RR is TB resistant to rifampicin

*** Includes cases with unknown previous TB Treatment history

****Includes patients diagnosed before 2015 and patients who were not laboratory- confirmed

Source: WHO Global Tuberculosis Report-2016

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. Starting in the 1980s, the HIV epidemic led to a major upsurge in TB cases and TB mortality in many countries.

In 2015, an estimated 1.2 million (11%) of the 10.4 million people who developed TB worldwide were HIV-positive. HIV-associated TB deaths accounted for 29% of all TB deaths (among HIV-negative and HIV-positive people).

In 2015, 3.4 million notified TB patients had a documented HIV test result, equivalent to 55% of notified TB cases. This represented an 18-fold increase in testing coverage since 2004. Globally, 15% of TB patients with an HIV test result were HIV-positive. Overall, the percentage of TB patients testing HIV-positive has been falling globally since 2008. A total of 500 564 HIV-positive TB patients were reported by NTPs in 2015.

Improvements in the coverage and quality of data for this indicator are necessary to track the impact of HIV care, especially antiretroviral therapy (ART), on the burden of TB in people living with HIV.

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: Estimates of TB/HIV care in new and relapse TB patients in SAARC Region, 2015

Country	TB Patients with known HIV status who are HIV positive		patients on Antiretroviral Therapy (ART)	
	Number	%	Number	%
Afghanistan	3	<1	3	100
Bangladesh	92	16	82	89
Bhutan	6	<1	6	100
India	44652	4	40925	92
Maldives	0	0	0	0
Nepal	179	8	133	74
Pakistan	59	<1	59	100
Sri Lanka	25	<1	17	68
Regional	**45016**		**41225**	

Source: WHO Global TB Report, 2016

In 2015, a total 45016 TB patients with known HIV status has tested in which India accounts highest number of TB patients with known HIV status who are HIV positive. Total 41225 patients are on ART in the region which is around 92 % of total TB patients with known HIV status who are HIV positive in SAARC region.

The proportion of known HIV-positive TB patients on antiretroviral therapy (ART) was 78% globally, and above 90% in India in SAARC Region. However Afghanistan, Bhutan and Pakistan have 100 % patients on Antiretroviral Therapy (ART) in 2015.

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