Statistics & Information of MDR and XDR TB in

SAARC Region

2016

SAARC TB and HIV/AIDS Centre (STAC)

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FOREWORD

Tuberculosis control, globally, is facing many challenges. The challenges of MDR and XDR Tuberculosis need to be addressed by National Tuberculosis control programmes with focused attention and tailored approaches in the SAARC region.

The SAARC Region continues to bear a significant burden of "multi-drug resistant" (MDR) tuberculosis despite making significant progress in the global efforts to eliminate TB. With good implementation of DOTS by Member States, the level of "multi-drug resistant" (MDR) TB among newly-detected cases is low.

This report is an excellent review of the current status of MDR/XDR TB in the SAARC Region. It includes information on burden of tuberculosis in the SAARC region, including incidence, prevalence, mortality along with the MDR-TB. 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.

The main purpose of the report is to provide a comprehensive and up-to-date assessment of the MDR/XDR TB 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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ABBREVIATIONS

CBNAAT	Cartridge Based Nucleic Acid Amplification Test
CDH	Chest Disease Hospital
CPMDT	Community-Based Programmatic Management of Drug-Resistant Tb
DMC	Designated Microscopy Centre
DOTS	Directly Observed Treatment Short Course
DRS	Drug Resistance Surveillance
DR- TB	Drug-Resistant Tuberculosis
DST	drug susceptibility testing
ENRS	Electronic Nominal Recording Reporting System
FLD	Fibrotic Lung Disease
GDF	Global Drug Facility
GLC	Green Light Committee
HBCs	High Burden Countries
HCW	Health-Care Worker
HIV	Human Immunodeficiency Virus
IEC	Information, Education and Communication
IRL	Intermediate Reference laboratory
IUATLD	International Union Against Tuberculosis and Lung Disease
LPA	Line Probe Assay
MDGs	Millennium Development Goals
MDR-TB	Multi-Drug Resistant Tuberculosis
NATA	Nepal Anti-Tuberculosis Association
GENETUP	German-Nepal TB Project
NGO	Non Governmental Organization
NIDCH	National Institute of Diseases of the Chest and Hospital
NIRT	National Institute of Research for Tuberculosis, Chennai, India
NRL	National Reference laboratory
NTI	National Tuberculosis Institute
NTP	National TB Control Program
PHL	Public Health Laboratory

PTB	Pulmonary Tuberculosis
RNTCP	Revised National Tuberculosis Control Programme
RR-TB	Rifampicin Resistant Tuberculosis
SAARC	South Asian Association for Regional Cooperation
SNRL	Supranational Reference Laboratory
SOPs	Standard Operating Procedures
STAC	SAARC TB and HIV/AIDS Centre
STC	SAARC Tuberculosis Centre
TB	Tuberculosis
WHO	World Health Organization
XDR	Extensively Drug-Resistant Tuberculosis

1. INTRODUCTION

1.1 Introduction of SAARC

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

1.2 SAARC TB and HIV/AIDS Centre (STAC)

1.2.1 Background

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

1.2.2 Vision

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

1.2.3 Mission

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

1.2.4 Goal

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

1.2.5 Objective

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

1.2.6 Role of STAC

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

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

2. GLOBAL SITUATION OF TUBERCULOSIS

2.1 Basic facts about TB

TB is an infectious disease caused by the bacillus *Mycobacterium tuberculosis*. It typically affects the lungs (pulmonary TB) but can affect other sites as well (extra pulmonary TB). The disease is spread in the air when people who are sick with pulmonary TB expel bacteria, for example by coughing. Overall, a relatively small proportion (5–15%) of the estimated 2–3 billion people infected with *M. tuberculosis* will develop TB disease during their lifetime. However, the probability of developing TB is much higher among people infected with HIV. The most common method for diagnosing TB worldwide remains sputum smear microscopy (developed more than 100 years ago), in which bacteria are observed in sputum samples examined under a microscope. However, developments in TB diagnostics in the last few years mean that the use of rapid molecular tests to diagnose TB and drug-resistant TB is increasing, and some countries are phasing out use of smear microscopy for diagnostic (as opposed to treatment monitoring) purposes. In countries with more developed laboratory capacity, cases of TB are also diagnosed via culture methods (the current reference standard).

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

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

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

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

VISION	A TB-free world
GOAL	To dramatically reduce the global burden of TB by 2015 in line with the Millennium Development Goals (MDGs) and the Stop TB Partnership targets
OBJECTIVES	❖ Achieve universal access to high-quality care for all people with TB ❖ Reduce the human suffering and socioeconomic burden associated with TB ❖ Protect vulnerable populations from TB, TB/HIV and drug-resistant TB ❖ Support development of new tools and enable their timely and effective use ❖ Protect and promote human rights in TB prevention, care and control
TARGETS	❖ MDG 6, Target 6.c: Halt and begin to reverse the incidence of TB by 2015 ❖ Targets linked to the MDGs and endorsed by the Stop TB Partnership – 2015: reduce prevalence of and deaths due to TB by 50% compared with a baseline of 1990 – 2050: eliminate TB as a public health problem (defined as <1 case per 1 million population per year)
COMPONENTS	
COMPONENTS **1. Pursue high-quality DOTS expansion and enhancement** a. Secure political commitment, with adequate and sustained financing b. Ensure early case detection, and diagnosis through quality-assured bacteriology c. Provide standardized treatment with supervision, and patient support d. Ensure effective drug supply and management e. Monitor and evaluate performance and impact **2. Address TB/HIV, MDR-TB, and the needs of poor and vulnerable populations** a. Scale up collaborative TB/HIV activities b. Scale up prevention and management of MDR-TB c. Address the needs of TB contacts, and of poor and vulnerable populations **3. Contribute to health system strengthening based on primary health care** a. Help improve health policies, human resource development, financing, supplies, service delivery and information b. Strengthen infection control in health services, other congregate settings and households	

c. Upgrade laboratory networks, and implement the Practical Approach to Lung Health
d. Adapt successful approaches from other fields and sectors, and foster action on the social determinants of health

4. Engage all care providers
a. Involve all public, voluntary, corporate and private providers through public–private mix approaches
b. Promote use of the *International Standards for Tuberculosis Care*

5. Empower people with TB, and communities through partnership
a. Pursue advocacy, communication and social mobilization
b. Foster community participation in TB care, prevention and health promotion
c. Promote use of the *Patients' Charter for Tuberculosis Care*

6. Enable and promote research
a. Conduct programme-based operational research
b. Advocate for and participate in research to develop new diagnostics, drugs and vaccines.

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

VISION	**A WORLD FREE OF TB** - zero deaths, disease and suffering due to TB			
GOAL	**END THE GLOBAL TB EPIDEMIC**			
INDICATORS	**MILESTONES**		**TARGETS**	
	2020	2025	SDG 2030[a]	End TB 2035
Reduction in number of TB deaths compared with 2015 (%)	35%	75%	90%	95%
Reduction in TB incidence rate compared with 2015 (%)	20% (<85/100 000)	50% (<55/100 000)	80% (<20/100 000)	90% (<10/100 000)
TB-affected families facing catastrophic costs due to TB (%)	0	0	0	0
PRINCIPLES				
1. Government stewardship and accountability, with monitoring and evaluation 2. Strong coalition with civil society organizations and communities				

3. Protection and promotion of human rights, ethics and equity 4. Adaptation of the strategy and targets at country level, with global collaboration
PILLARS AND COMPONENTS
1. INTEGRATED, PATIENT-CENTRED CARE AND PREVENTION A. Early diagnosis of TB including universal drug-susceptibility testing, and systematic screening of contacts and high-risk groups B. Treatment of all people with TB including drug-resistant TB, and patient support C. Collaborative TB/HIV activities, and management of co-morbidities D. Preventive treatment of persons at high risk, and vaccination against TB
2. BOLD POLICIES AND SUPPORTIVE SYSTEMS A. Political commitment with adequate resources for TB care and prevention B. Engagement of communities, civil society organizations, and public and private care providers C. Universal health coverage policy, and regulatory frameworks for case notification, vital registration, quality and rational use of medicines, and infection control D. Social protection, poverty alleviation and actions on other determinants of TB
3. INTENSIFIED RESEARCH AND INNOVATION A. Discovery, development and rapid uptake of new tools, interventions and strategies B. Research to optimize implementation and impact, and promote innovations

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

2.4 Global Epidemiology:

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

Table 01: Global Epidemiological Burden of TB (2014)

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

Source: Global Tuberculosis Report, WHO-2015

The MDG target of halting and reversing TB incidence by 2015 was achieved globally, in all six WHO regions and in 16 of the 22 high TB burden countries (HBCs). The TB incidence rate has fallen at an average rate of 1.5% per year since 2000.

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

Between 2000 and 2014, TB treatment alone saved 35 million lives among HIV-negative people; TB treatment and antiretroviral therapy saved an additional 8 million lives among HIV-positive people.

2.5 Drug-resistant TB

Globally, an estimated 3.3% (95% CI: 2.2–4.4%) of new cases and 20% (95%CI: 14–27%) of previously treated cases have MDR-TB; these levels have remained virtually unchanged in recent years. In 2014, there were an estimated 480 000 (range: 360 000–600 000) new cases of MDR-TB worldwide, and approximately 190 000 (range: 120 000–260 000) deaths from MDR-

TB. Among patients with pulmonary TB who were notified in 2014, an estimated 300 000 (range: 220 000–370 000) had MDR-TB. More than half of these patients were in India, China and the Russian Federation. On average, an estimated 9.7% (95% CI: 7.4–12%) of people with MDR-TB have XDR-TB.

There was major progress in coverage of drug susceptibility testing (DST) between 2013 and 2014. Worldwide, 12% of new bacteriologically-confirmed TB cases and 58% of previously treated TB patients were tested for drug resistance in 2014, up from 8.5% and 17% respectively in 2013 (representing proportional increases of 43% and 223%, respectively).

Globally in 2014, 123 000 patients with MDR -TB or rifampicin resistant tuberculosis (RR-TB) were notified, of whom about 75% lived in the European Region, India, South Africa or China. This was equivalent to 41% of the 300 000 notified TB patients who were estimated to have MDR-TB in 2014. The number of notified MDR/RR-TB cases in 2014 was almost the same as in 2013. People with MDR-TB or RR-TB are eligible for second-line treatment with MDR-TB regimens. A total of 111 000 people were started on MDR-TB treatment in 2014, an increase of 14% compared with 2013. Only 50% of patients on MDR-TB treatment were successfully treated, largely due to high rates of mortality and loss to follow-up.

3. OVERVIEW OF TUBERCULOSIS IN SAARC REGION

3.1 SAARC Epidemiology

The SAARC region, with an estimated annual incidence of 3.1 million TB cases, carries 32% of the global burden of TB incidence (Table 02). Four of the eight Member Countries in the Region are among the 22 high burden countries, with India accounting for 23 % of the world's TB cases. Among 3.1 million incident TB cases, 2.1 million are notified new and relapse cases.

Table 02: Estimates of the burden of diseases caused by TB in the SAARC Region 2014

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

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

** Rates are per 100 000 population*

3.2 MDR – TB

The MDR TB cases in the region range from less than one to four percent among new TB cases and it ranges from less than one to almost 35 percent among the retreatment TB cases. In 2014 Pakistan has 4.3% of new tuberculosis cases with MDR-TB, which is highest in the SAARC region. However, in India there were 24,000 new MDR-TB cases among notified pulmonary TB cases. In case of retreatment Bhutan has 35% of new tuberculosis cases with MDR-TB, which is highest in the SAARC region. However, in India there were 47,000 MDR-TB cases among retreatment TB cases (Table 03).

Table 03: Estimates of MDR-TB burden in the SAARC Region, 2014

Country	New		Retreatment		Confirmed RR-/MDR- TB cases
	% of TB cases with MDR-TB	MDR-TB cases among notified pulmonary TB cases	% of TB cases with MDR-TB	MDR-TB cases among notified pulmonary TB cases	
Afghanistan	3.2	750	17	360	88
Bangladesh	1.4	2100	29	2700	994
Bhutan	5	35	35	26	61
India	2.2	24000	15	47000	25748
Maldives [a]	2.2	1	16	0	0
Nepal	2.2	540	15	620	406
Pakistan [b]	4.3	9900	19	3100	3243
Sri Lanka [b]	0.2	13	0.58	2	42
Regional	**-**	**37340**	**-**	**53808**	**30582**

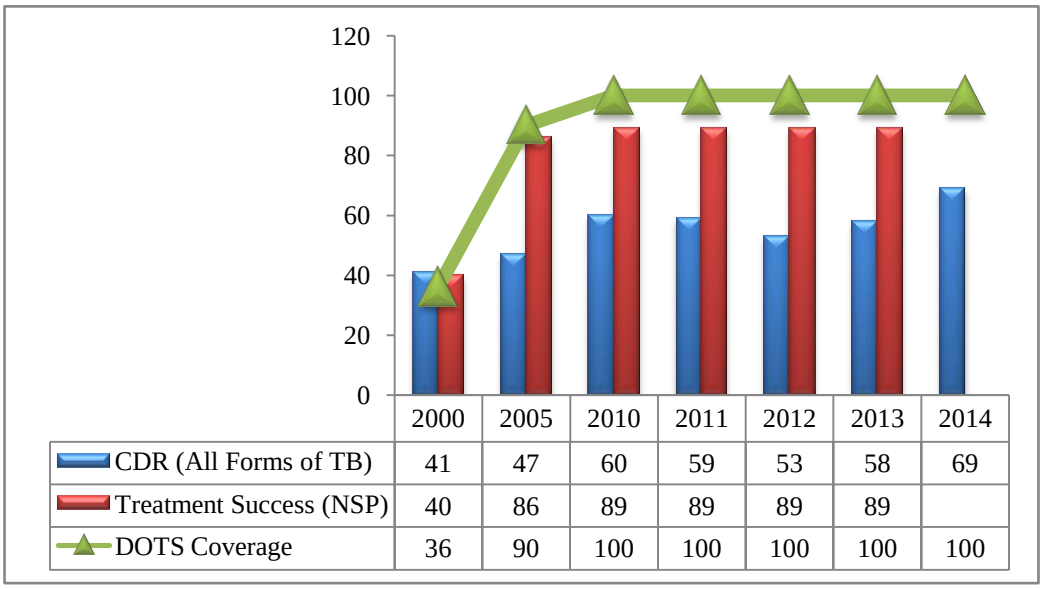
Source: Global Tuberculosis Report 2015,

[a] *https://extranet.who.int/sree/Reports?op=Replet&name=/WHO_HQ_Reports/G2/PROD/EXT/TBCountryProfile&ISO2=MV&outtype=html,*

[b] *Data and report sent by NTP, Pakistan & Sri Lanka-2015*

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 01). Regarding treatment success, the target was achieved in 2005. In 2014, case detection rate for all types of TB cases was 69%.

Figure 01: Progress in TB Control in SAARC Region, (2000-2014)



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

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

The estimated population of SAARC region in year 2014 was 1.72 billion which 24% of global populations. In 2014, there were 3.1 million estimated incidence of TB cases, which carries 32% of global burden of TB diseases. However, the estimated prevalence of TB in the SAARC region was 3.9 million, which is 30% of global, also an estimated deaths due to TB in the region was 0.37 million, which is 33% of global deaths due to TB in year 2014 (Table 04).

Table 04: Global vs. SAARC Region on TB Indicators, 2014

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

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

4. OVERVIEW OF MDR-TB IN SAARC MEMBER STATES

AFGHANISTAN

TB Epidemiology

WHO estimated approximately 60,000 all types of TB cases occurred in year 2014 with incidence of (189/ 100,000) population. The prevalence of TB is around 110,000 cases (340/ 100,000 pop per year) and mortality is 14,000 (44/ 100,000).

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

Situation and Management of MDR-TB

MDR-TB Management started in 2012 at central level with registration of 64 cases for management. Resources are required to reach estimated MDR-TB cases (i.e. 1000 cases) in the country. NTP with the support of its partners has made significant progress in control of DR-TB. NTP conducted a drug survey in central region where results indicated that the prevalence of MDR-TB in new 7 cases was 6.1% and previously treated cases were 8.6%. At the same time, NTP started treating DR-TB cases which included developing the guideline, SOPs for treatment and diagnosis and getting approval from the Green Light Committee (GLC) for second line drug for 20 cases. Renovation of 6 beds WARD (MDR-TB Wards) for complicated and adverse effects of medicine and construction of new building for CDC hospital in Kabul including 56 beds for MDRTB cases are going well and the plan for 5 MDR-TB Wards in 5 main provinces is

ongoing. NTP has established 2 RRL in Herat (functional) and Nangarhar (will be functional soon) provinces.

NTP is also in the process of Developing and implementing policy for infection control and implementation of Electronic Nominal Recording Reporting System (ENRS). Trainings of staff pertaining to ENRS in Kabul and provinces have received training for MDR Management. From of Jun 2011, NTP has started DR-TB treatment at Darul Aman polyclinic in Kabul where 59 MDR-TB cases till the end of 2012 were enrolled. For better management of MDR-TB, NTP established the RPM (Review Panel Member) for DR-TB and conduct regular meetings to discuss technical and managerial issues.

The slide sending process has been started in Kabul, Maidanshahr, Logar, and Parwan provinces where a referral system between MDRTB management team and NRL has been established regarding the suspect cases. NTP has Purchased SLD for 70 DR-TB patient in the year 2012. The future plans to expand MDR management to main cities (Regions).

The incidence of Multi-Drug Resistant (MDR) TB is derived from a sub national drug resistance survey conducted in six provinces of Afghanistan during 2010. As per WHO estimates around 750 new MDR-TB cases among notified pulmonary TB cases are present in the country by end of 2014.

BANGLADESH

TB Epidemiology

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

Situation and Management of MDR-TB

As per WHO estimates around 2100 new MDR-TB cases among notified pulmonary TB cases are present in the country by end of 2014.

Due to the size of the population and reported TB cases, Bangladesh is among the 27 MDR-TB high burden countries, despite data from previous DRS indicating low levels of MDR-TB. The results of the first national DRS completed in 2012 confirmed a low proportion of new TB cases that have MDR-TB (1.4%, confidence intervals 0.7–2.5), but the proportion among retreated cases was revised upwards (29%, confidence intervals 24–34). The total number of estimated MDR-TB cases among notified cases in 2014 was 4800. Coverage of routine surveillance of drug resistance is still low.

MDR-TB care is provided by the National Institute and Hospital of Diseases of Chest in Dhaka, the chest disease hospital (CDH) in Chittagong, Khulna, Sylhet, and Pabna as well as the Damien Foundation (NGO partner of NTP). The latter is providing MDR-TB services as an operational research project in designated geographical areas following a nine-month regimen; the Damien Foundation has its own reference laboratory capable of performing culture and DST for FLD.
As per WHO recommendation, NTP Bangladesh has initiated CPMDT in 2012 with technical assistance from WHO and TB CARE II project. SOP for CPMDT and training modules were developed (2011–2012); 316 outpatient DR-TB teams were formed and 2524 HCW were trained on CPMDT in 2014. DR-TB treatment initiation was also decentralized through minor

renovation of existing CDH and training of doctors and health workers of CDH. A total of 278 hospital beds are now available under NTP for initiation of DR-TB treatment. Within 4–8 weeks when two consecutive sputum (weekly interval) samples become negative, the patients are handed over to outpatient DR-TB teams to continue the treatment under CPMDT. Thus, national capacity for inpatient management of MDR-TB cases has increased.

In 2013, a total of 544 MDR-TB cases were confirmed and notified; 679 RR-TB were detected. However, they cannot be considered additional DR-TB cases as it was not possible to report how many of the RR-TB cases were diagnosed to be MDR-TB. In total, 684 RR/MDR-TB patients were started on second-line treatment, of which 28% were started on nine-month regimen by Damien Foundation under an operational research project. Data from the first semester of 2014 show considerable increase of capacity for MDR-TB diagnosis and treatment: in this period, 520 MDR-TB cases were reported and 369 RR/MRD-TB cases were started on treatment. In 2013, three of the five XDR-TB patients diagnosed were started on treatment. Bangladesh is one of the five countries selected for a project to assess levels of resistance to fluoroquinolones and pyrazinamide in order to provide guidance to development of algorithms and introduction of new treatment regimens.

NTP has revised and updated MDR-TB guidelines. MDR-TB management piloted successfully in NIDCH and scaled up to one more site in Chittagong. The Guidelines for community-based MDR-TB finalized and piloted in four sites of four districts with implementation support by the partner (TB CARE II). NTP has planned to develop capacity for wider implementation of TB–HIV, MDR-TB and PPM DOTS interventions. The scaling-up the management of DR-TB and community PMDT is one of the challenge in TB control programme in Bangladesh. The future plans for MDR TB are i. Piloting shorter regimen for MDR-TB management as operational research; ii. Developing capacity for wider implementation of TB/HIV, MDR-TB and PPM DOTS interventions.

BHUTAN

TB Epidemiology

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

There are no representative data on levels of DR-TB in the country. Based on modeling, WHO estimated that 2.2% of newly diagnosed TB cases and 35% of retreatment cases have MDR-TB. DRS started in 2010 and is ongoing to better assess levels of DR-TB in the country; preliminary results suggest a higher drug resistance rate than WHO estimates. A total of 122 MDR-TB cases were diagnosed in 2014: of these, 61 had been laboratory confirmed. All 122 MDR-TB cases diagnosed had been enrolled on treatment. GLC approval for the management of MDR-TB cases has been obtained in 2009, guidelines for MDR-TB management have been finalized, medical doctors trained on MDR-TB management and SLD being procured through GDF/GLC. For the MDR-TB cohort of 2012, the treatment success rate was 100%.
In 2014, the LPA was established through GF support to speed up the diagnosis of MDR-TB. PHL has improved in providing results to the districts after the introduction of LPA. Through the support of the NFM grant, there is a plan to introduce Expert MTB/RIF machines in four district hospitals to improve the diagnosis of MDR-TB among various categories of patients.

Situation and Management of MDR-TB

The DRS was completed in 2013 to better assess drug resistance levels in the country; the results of this survey suggests a higher drug resistance rate than previous WHO estimates, with around 5% prevalence of MDR-TB among new cases and 35% among previously treated cases.

In 2013, coverage of DRS as well as MDR-TB case detection increased remarkably: 34% of all new cases notified and 57% of retreatment cases were tested for drug resistance; 39 MDR-TB cases were diagnosed among new cases tested for DST (proportion of 21%), nine among re-treatment cases (proportion of 45%), and 15 among cases with history unknown. A total of 49 MDR-TB cases were diagnosed in 2013: of these, 47 had been laboratory confirmed and two were clinically diagnosed. All 49 MDR-TB cases diagnosed had been enrolled on treatment; of them 12 cases reported through clinical judgement were enrolled on treatment and were later confirmed through laboratory tests.

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.

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INDIA

TB Epidemiology

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

Situation and Management of MDR-TB

As per the WHO Global Report on Tuberculosis 2015, India accounts for 71,000 MDR TB Cases. The key focus of RNTCP cambating the challenge of drug resistance is to prevent its emergence by providing quality DOTS diagnostic and treatment services, increasing the visibility and reach of the programme services and promoting adherence to International Standards of TB case and Standards of TB Care in India by all healthcare providers.

MDR TB prevalence is estimated to be low (2.2% among new cases and 15% among retreatment cases) based on sub-national DRS conducted in three stages between 2006 and 2009. In order to have more representative estimates, RNTCP with support from WHO has launched the National Anti-tuberculosis Drug Resistance Survey 2014-2015 in a representative sample of both newly diagnosed sputum smear-positive PTB cases and previously treated sputum positive PTB cases. Despite the low MDR-TB prevalence, due to the size of the population and number of TB cases reported annually, India ranks first among the 27 MDR TB high-burden countries worldwide, contributing to 21% of all MDR TB cases estimated among notified cases. RNTCP has developed a plan to considerably scale up MDR TB services in order to treat at least 40,000 MDR TB patients in the country per annum by 2017, supported by GF, UNITAID and domestic funds to enable a rapid expansion of MRD TB services in the next few years. India is also a target country for the EXPAND-TB and TB X-pert global projects aiming to strengthen diagnostic capacity.

RNTCP expanded PMDT services in phase wise manner and entire country all 35 states and Union Territories, are providing DR TB diagnostic and treatment services.

For Management of Drug Resistant TB, RNTCP provides decentralized diagnostic and treatment services. Diagnosis is based on clinical indication to offer DST to initially all failures of fist line regimen, contacts of known MDR TB case. Subsequently, services will be extended to all smear positive re-treatment cases at diagnosis, smear positive follow up case and finally to all smear negative retreatment cases at diagnosis and HIV associated TB cases at diagnosis. For diagnosis of XDR-TB, DST for second line drugs is extended to all diagnosed MDR-T patients and patients on failure of MDR TB treatment when culture remains positive at 6 months. For drug susceptibility testing sputum specimen is transported to certified reference laboratory. Rapid molecular test like Line Probe Assay (LPA) and CBNAAT, if available is the preferred DST method for first line drugs.

As on May 2016 RNTCP has network of 65 quality assured laboratories which include (44-Solid Culture, 29 liquid (26 Second line DST), 52 LPA). Additionally programme also deployed 623 CB NAAT machines across country for expansion of laboratory services. To further enhance laboratory capacities, RNTCP has identified 15 laboratories for up gradation of liquid culture under NFM.

Specialized 137 DR-TB center with National Air Borne Infection guidelines compliant are functional in tertiary care hospitals across country. Further 50 linked DR TB Centres have been established to provide de-centralized treatment support to DR-TB patients

RNTCP initiated Bedaquiline Conditional Access Programme at six identified tertiary care center for providing Bedaquiline as per guidelines. The programme will expand its coverage in future.

In 2015, India detected put 26966 MDR TB and 2130 XDR TB cases on standardized treatment. The Future plan to address the challenges of DR-TB a comprehensive laboratory and PMDT expansion plan is being developed.

MALDIVES

TB Epidemiology

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

Situation and Management of MDR-TB

Drug susceptibility testing, if deemed clinically necessary for a particular patient, is undertaken by shipment of samples to the National Tuberculosis Institute (NTI), Bangalore, India, which is also the designated supranational reference laboratory for the country. In 2010 no MDR-TB case was detected nor started on treatment.

MDR-TB patients are managed clinically at the Indira Gandhi Memorial Hospital in Malé, and treatment is based on individualized regimens. SLD for the management of these cases are procured by the Ministry of Health on a case-by-case basis through GDF.

In 2013 and 2014, there were, MDR/RR cases registered. 2 MDR cases were diagnosed and registered, one was cured and the other died. In 2015, one polyresistant case was diagnosed and still on treatment.

The NTP is technically supported by World Health Organization and benefits from the direct procurement mechanism of the Global Drug Facility to access the quality assured first-line drugs. The future plan is to developing and disseminating IEC packages to all MDR-TB patients on treatment adherence.

NEPAL

TB Epidemiology

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

By mid July 2012 a total of 4,251 health institutions including 1,141 Treatment Centers and 3,110 Sub-Treatment Centers were offering DOTS for provision of DOTS based TB control services. Beside government health institutions several NTP partners also provide DOTS including; private nursing homes, polyclinics, factories, I/NGOs health clinics, eye hospitals, prisons, refugee camps, police hospitals, medical colleges, municipalities, Village Development Committees and District Development Committees.

During this reporting year NTP registered 35,735 TB cases; among these 17,777 (49.74%) were sputum smear positive (all forms: new smear positive, relapse, failure and return after default). Among the cohort of all the TB cases registered during this latest year 15,057 (42.13%) were new smear positive TB cases. Similarly 9128 (25.54%) were sputum smear negative, 7865 (22.00%) were extra-pulmonary TB cases and 965 (2.7%) were other cases.

New smear positive TB case notification rose steadily from 1996 with the introduction of the DOTS strategy till 2001 when nationwide expansion was achieved. Case finding rate for mid July 2011 to mid July 2012 period is 73% for national level. Case finding increased from 30% in pre DOTS era in 1995 to just over 70% in 2001 with nationwide coverage of DOTS programme. The global targets of 85% treatment success and 70 % case detection rate have already been achieved. Treatment success rate among new sputum smear positive TB cases (15000) was 90%.

This year the default rate goes 1% higher than last year at 4% while failure rate among new smear positive is 3%.

Situation and Management of MDR-TB

Nepal was one of the first countries globally to introduce ambulatory MDR-TB case management in 2005 diagnosing and treating Category II failures and other laboratory-confirmed MDR-TB cases under a GLC approved project. The management of MDR-TB on an ambulatory basis has been expanded to all five regions in the country. Further improvement of MDR-TB management has been achieved since 2011 through establishment of hostels for DR-TB cases, introduction of a 20-month treatment regimen for MDR-TB patients, revision of the National Drug Resistant Tuberculosis Management Manual and the 2013–2016 PMDT Expansion Plan. An electronic database for MDR-TB cases on treatment based on Open MRS is expected to be introduced in 2015.

WHO support National TB Center in collaboration with NATA/GENETUP conducted surveillance of XDR TB among the registered DR TB patients. The study shows a prevalence of 5% of XDR-TB cases among DR TB cases registered.

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

The revision of national DR-TB management manual has been completed. NTP has successfully implemented and nationwide coverage of MDR/XDR-TB management programme, with 41 of

the 75 districts covered by DR-TB centres and sub-centres. However, the future plans of the centre to increase case-detection of MDR, TB/HIV and SS cases by strategically deploying the Xpert MTB/RIF machines and establishment of five additional DR-TB hostels inside governmental health institutions.

The NTP has carried out periodic surveys on drug resistance in 2011. The last survey showed that Multi Drug Resistant (DR) TB is 2.6% in newly registered cases and 17.6% in previously treated TB cases. In addition, the survey showed that the prevalence of XDR-TB among DR-TB cases is estimated at 8% and 28% of all DR-TB cases are resistant to FQs (pre-XDR). Based on this estimation, there should be identified 550 DR-TB cases among new smear-positive patients, 446 DR-TB cases among estimated previously treated cases and 80 XDR-TB cases in Nepal each year. Out of the estimated 996 DR-TB cases, only 251(25%) and 80 XDR-TB cases, only 26 (33%) were covered by the programme. More than 70% DR and XDR cases are still out of programme ring and they are spreading DR/XDR TB bacilli to almost 10,000 people in all over Nepal annually.

Nepal reported its first XDR-TB cases in 2008. XDR TB has proven to be much more difficult to treat than DR-TB and is extremely difficult to treat in HIV-positive patients. Since 2010, 46 patients are registered for XDR Treatment in NTP.

PAKISTAN

TB Epidemiology

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

Situation and Management of MDR-TB

The emergence of resistance to first line anti-tuberculosis drugs, and particularly of multidrug-resistant TB (MDR-TB), has become a major public health problem in a number of countries, and an obstacle to effective global TB control. According to WHO estimates, there were around 9900 (6400-13000) MDR-TB cases amongst new pulmonary TB cases and 3100 (2200-4000) amongst retreatment cases, notified in 2014 as per WHO, Global Tuberculosis Report 2015, (4.3% and 19% in New and retreatment cases, respectively).

Three laboratories have been upgraded for culture and DST. 2446 MDR-TB cases managed at18 PMDT sites and 100% were provided social support. 11 hospitals have been upgraded for infection control measures. The results of Drug Resistance Survey (2012-13) has been disseminated. However, the future plans of NTP is to manage 80% of estimated DR-TB patients by 2017 and 100% by 2020 in line with MDR expansion plan and National Strategic plan. There is also provision of Social support (food basket & Travel Incentive) to all DR-TB patients and their Treatment Supporters.

SRI-LANKA

TB Epidemiology

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

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

Situation and Management of MDR-TB

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

regimens, contacts of MDR-TB cases, health-care workers, HIV-infected TB cases, migrants, drug addicts and prisoners.

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

The improvement of management of MDR-TB through establishment of site committees for each MDRTB patients which provided opportunity to address social and economic aspects other than clinical management. However the future plans are the expansion of the use of new WHO recommended rapid Diagnostics for diagnosis of TB and MDR-TB and capacity-building of central and district staff by training on procurement and supply management, MDR-TB, TB/HIV co-infection, IT literacy, data management, operational research and productivity.