TUBERCULOSIS CONTROL
SAARC REGION
Update 2012

SAARC Tuberculosis and HIV/AIDS Centre [STAC]
TUBERCULOSIS CONTROL
SAARC REGION

Update 2012
Tuberculosis remains a major public health problem in the world despite the availability of extremely effective treatment regimens. Moreover, multi-drug resistant TB and HIV are emerging threats for tuberculosis control. SAARC region continues to make a considerable contribution to the global efforts towards the elimination of TB. Control of Tuberculosis is a priority for the development.

This is the tenth Annual Report on TB situation of the SAARC region and it is an update of the previous one. It includes information on population coverage by DOTS, case detection and treatment outcome of eight member countries of SAARC and challenges ahead.

This report has been prepared on the basis of information collected from member countries during the year 2012 and by reviewing other documents including on Global TB Control Report WHO, 2012. In this report, DOTS coverage and case detection rates are on the basis of 2011 data and treatment outcome is for the 2010 cohort.

But some latest information available from country reports is also highlighted. This report indicates that remarkable progress in TB control has been made in this region since the introduction of DOTS strategy. Major challenges are however there in control of TB, such as sustaining quality in diagnosis and case management, improving the quality of implementation and making it more accessible to people in order to increase case detection, strengthening human resources in terms of numbers and technical capacity, strengthening laboratory network and improving EQA and supervision, establishing effective coordination between NTP and NACP and tackling migration & cross border issues.

Documentation of achievements from implemented activities is essential for future planning and moving the programme forward. Dissemination of such information is also important for the inspiration of the TB control programmes and others working for control of TB. I am confident that this document "Tuberculosis Control SAARC Region, Update -2012" will serve these purposes.

I would like to thank the programme managers and experts within SAARC member countries, who have generated and shared the epidemiological data and facts utilized in this report. Finally, I appreciate the sincere and relentless efforts of STAC staff members for publication of this document.

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

Dr. Kashi Kant Jha
Director, STAC
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Abbreviations

AFB   Acid Fast Bacillus
BCG   Bacillus Calmette Guerin
BPHS  Basic Public Health Services
CDR   Case Detection Rate
DOTS  Directly Observe Treatment Short-course
DRS   Drug Resistance Surveillance
DST   Drug Susceptibility Test
DTC   District Tuberculosis Centre
EQA   External Quality Assurance
FDC   Fixed Dose Combinations
GFATM Global Fund to fight AIDS, TB and Malaria
GLC   Green Light Committee
HBC   High Burden Countries
HIV/AIDS Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
ICTC  Integrated Counseling and Testing Center
I/NGO International Non-Governmental Organization
IEC   Information Education and Coordination
IUATLD International Union against Tuberculosis & Lung Diseases
MDR   Multi Drug Resistance
MOH   Ministry of Health
MOHP  Ministry of Health and Population
MDGs Millennium Development Goals
NACO  National AIDS Control Organization
NACP  National AIDS Control Programme
NGO   Non Governmental Organization
NPTCCD National Programme for Tuberculosis Control and Chest Diseases
NRL  National Reference Laboratory
NSP   New Smear Positive
NTI   National Tuberculosis Institute
NTP   National Tuberculosis Programme
PLHA  People Living With HIV/AIDS
PPM       Public Private Mix
RNTCP     Revised National TB Control Programme
SS        Sputum Smear
SAARC     South Asian Association for Regional Corporation
STAC      SAARC Tuberculosis and HIV/AIDS Centre
SEAR      South-East Asia Region
TB        Tuberculosis
VCT       Voluntary Counseling and Testing
WHO       World Health Organization
Executive Summary

This is the tenth Annual Report on tuberculosis (TB) situation of SAARC Region, published by SAARC Tuberculosis and HIV/AIDS Centre (STAC) in a series that started in 2003. 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 world and all of WHO’s six regions are on track to achieve the Millennium Development Goal target that TB incidence rates should be falling by 2015. TB mortality rates have fallen by just over a third since 1990, and the world as well as five of six WHO regions (the exception being the African Region) are on track to achieve the Stop TB Partnership target of halving 1990 mortality rates by 2015. The Stop TB Partnership target of halving TB prevalence rates by 2015 compared with 1990 is unlikely to be achieved globally, although the target has already been reached in the Region of the Americas and the Western Pacific Region is very close to reaching the target.

TB is still a global threat. Based on surveillance and survey data, WHO estimates that 8.7 million new cases of TB occurred in 2011 (125 per 100 000 population), and 6.2 million total cases were notified in 2011 of which 2.6 million were New Smear-Positive TB cases. For the 2.6 million patients with sputum smear positive pulmonary TB in the 2010 registered cohort, 87% were successfully treated.

In 2011, there were 8.7 million (range, 8.3–9.0 million) incident cases of TB. A total of approximately 1.4 million people died of TB in 2011 and among them 0.99 million (range, 0.84–1.1 million) deaths were from TB among HIV-negative people and an additional 0.43 million (range, 0.40–0.46 million) deaths from TB among people who were HIV-positive.

There were an estimated 12 million prevalent cases (range, 10 million–13 million) in 2011 (170 cases per 100 000 population). There were an estimated 0.63 million (630 000) cases of Multi-drug Resistant TB (MDR-TB) cases in 2011.

The SAARC region, with an estimated annual incidence of 2.8 million TB cases, carries 33% of the global burden of TB. 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 cases. Among 2.8 million
incident TB cases, 1.2 million are estimated to be sputum smear positive infectious cases. Four of the 22 countries with the highest burden of TB namely Afghanistan, Bangladesh, India and Pakistan together notified 860806 new smear positive cases, which represent 97.6% of total new smear positive cases notified in the Region. India alone accounted close to three fourth (72.8%) of all notifications in the SAARC region and continues to account for almost one fifth of the global burden of TB. And out of the sputum smear-positive pulmonary TB patients, in the SAARC Region, in the 2010 cohort, 89% were successfully treated.

A total 2,022,883 cases (all types) were notified in 2011 in this region, of which 43.5% were new sputum smear positive cases. The case detection rate for new smear positive is 72% for 2011 for SAARC region. Overall case detection rate in the region in 2011 for all type of TB cases is 70%.

All the SAARC Member states had achieved either close to 70% or above of case detection rate of New smear Positive cases with Afghanistan 49%, Bangladesh 66%, Bhutan 100%, India 76%, Maldives 91%, Nepal 76%, Pakistan 60% and Sri Lanka 100%. In case of treatment success rate all the member states achieved more than 85% except Maldives.

As the large number of HIV infected persons are in the SAARC Region particularly in India, Bangladesh and Pakistan with high rates of TB transmission and the presence of high TB prevalence, the HIV epidemic could have significant implications on TB control in the Region. Collaborative TB/HIV activities are critical in order to ensure that HIV positive TB patients are identified and treated and also to prevent active TB disease in latently infected HIV positive people. HIV testing for TB patients is a critical entry point for both treatment and prevention. There was a significant progress in offering HIV testing for TB patients between 2002 and 2011 as health care providers initiated the “provider initiated HIV testing” for newly diagnosed TB patients.

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

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

New and compelling data from eight countries shows that efforts by National TB programmes (NTPs) to engage all care providers in TB control (public-private mix, or PPM) can be a particularly effective way to increase the Case Detection Rate. The SAARC TB and HIV/AIDS Centre is also conducting and supporting research activities related to TB, HIV/AIDS and TB/HIV co-infection.
1. SITUATION OF TUBERCULOSIS

1.1 Introduction of SAARC

The South Asian Association for Regional Cooperation (SAARC) comprises of Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka, it was established on 8th December 1985. 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 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 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, coordination 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 control in the Region and elsewhere. In this regard, the Centre has been preparing and publishing annual SAARC Regional epidemiological reports on TB and HIV/AIDS for dissemination to all the Member States and other stakeholders working in the field of TB and HIV/AIDS control. 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.

1.3 Goals, targets and indicators for TB control
The recently recommended approach of the World Health Organization to TB care and control is the Stop TB Strategy, launched in 2006. This strategy was linked to new global targets for reductions in TB cases and deaths that were set for 2015 as part of the Millennium Development Goals (MDGs) and by the Stop TB Partnership.
The targets are that TB incidence should be falling by 2015 (MDG Target 6.c) and that prevalence and death rates should be halved compared with their levels in 1990. The outcome targets – to achieve a case detection rate of new smear-positive cases of at least 70% and to reach a treatment success rate of at least 85% for such cases – were first established by the WHA in 1991. Within the MDG framework, these indicators were defined as the proportion of cases detected and cured under DOTS. The ultimate goal of eliminating TB, defined as the occurrence of less than 1 case per million populations per year by 2050, was set by the Stop TB Partnership. The TB Control Programmes focuses on the five principal indicators that are used to measure the impact and outcomes of TB control: incidence, prevalence and deaths (impact indicators) and case detection and treatment success rates (outcome indicators).

### MILLENNIUM DEVELOPMENT GOALS (MDGs) SET FOR 2015

**GOAL 6: COMBAT HIV/AIDS, MALARIA AND OTHER DISEASES**

**Target 6.c:** Halt and begin to reverse the incidence of malaria and other major diseases  
**Indicator 6.9:** Incidence, prevalence and death rates associated with TB.  
**Indicator 6.10:** Proportion of TB cases detected and cured under DOTS

### STOP TB PARTNERSHIP TARGETS, SET FOR 2015 AND 2050

**By 2015:** Reduce prevalence and death rates by 50%, compared with their levels in 1990.  
**By 2050:** Reduce the global incidence of active TB cases to <1 case per 1 million population per year

#### 1.4 The Stop TB Strategy

The Stop TB Strategy is the approach recommended by WHO to reduce the burden of TB in line with global targets set for 2015. The six major components of the strategy are: (i) pursue high-quality DOTS expansion and enhancement; (ii) address TB/HIV, MDR-TB, and the needs of poor and vulnerable populations; (iii) contribute to health-system strengthening based on primary health care; (iv) engage all care providers; (v) empower people with TB, and communities through partnership; and (vi) enable and promote research. The strategy is summarized below:
The Stop TB Strategy at a glance

VISION
A TB-Free World

GOAL
To dramatically reduce the global burden of TB by 2015 in line with the Millennium Development Goals 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

COMPONENTS OF STOP TB STRATEGY
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 multi-drug-resistant TB (MDR-TB)
   c) Address the needs of TB contacts and of poor and vulnerable populations

3. Contribute to health system strengthening based on primary health care
   a. Help improve health policies, human resource development, financing, supplies, service delivery, and information
   b. Strengthening 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 (PPM) approaches
   b. Promote use of the international Standards for Tuberculosis Care

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

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

1.5. GLOBAL EPIDEMIOLOGY OF TB

1.5.1 Global Epidemiology:
As per WHO Global Report 2012, there were an estimated 8.7 million incident cases of TB (range, 8.3 million–9.0 million) worldwide in 2012, the estimated deaths 1.1 million (range, 0.9 million–1.2 million) among HIV-negative cases of TB and an additional 0.35 million deaths (range, 0.32 million–0.39 million) among people who were HIV-positive. Globally, incidence rates were relatively stable from 1990 up to around 2001, and then started to fall. Between 2010 and 2011, the rate of decline was 2.2%; if this trend is sustained, MDG Target 6.c will be achieved. The absolute number of incident cases is also falling, albeit slowly, as the decline in the incidence rate (per 100 000 population) exceeds the rate of growth in the world’s population.

Worldwide, mortality rates (excluding deaths among HIV-positive people) have fallen by 41% since 1990; the current forecast suggests that the Stop TB Partnership’s target of a 50% reduction by 2015 compared with a baseline of 1990 will be achieved. Mortality rates are also declining in all of the WHO’s six regions. The 2015 target has already been surpassed in the Region of the Americas and the Western Pacific Region, and may have been reached in the Eastern Mediterranean Region. Among
the other three regions, the South-East Asia Region appears best placed to achieve the target. Among the 22 HBCs, mortality rates appear to be falling in most countries.

1.5.2 Incidence of TB

In 2011, there were an estimated 8.7 million incident cases of TB (range, 8.3 million–9.0 million) globally, equivalent to 125 cases per 100 000 population. Most of the estimated number of cases in 2011 occurred in Asia (59%) and Africa (26%); smaller proportions of cases occurred in the Eastern Mediterranean Region (7.7%), the European Region (4.3%) and the Region of the Americas (3%). The 22 HBCs that have been given highest priority at the global level since 2000 accounted for 82% of all estimated incident cases worldwide. Of the 8.7 million incident cases, an estimated 0.5 million were children and 2.9 million (range, 2.6–3.2 million) occurred among women.

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

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

1.5.3 Prevalence of TB

The prevalence of TB can be directly measured in nationwide population-based surveys. When repeat surveys are conducted, trends in TB prevalence can be directly measured as well. If survey data are not available, prevalence can be indirectly estimated as the product of incidence and the average duration of disease.

There were an estimated 12.0 million prevalent cases (range, 10 million–13 million) of TB in 2011. This is equivalent to 170 cases per 100 000 population. Globally, prevalence rates have fallen by 36% since 1990. Regionally, prevalence rates are declining in all of WHO’s six regions. The Region of the Americas halved the 1990 level of TB prevalence by around 2005, well in advance of the target year of 2015, and the Western Pacific Region is close to doing so. Achieving the 50% reduction target by 2015 appears feasible in the European and South-East Asia regions, but not in the African and Eastern Mediterranean regions. However, current forecasts suggest that
the Stop TB Partnership’s target of halving TB prevalence by 2015 compared with a baseline of 1990 will not be met globally.

1.5.4 MDR-TB
Globally in 2011, there were an estimated 630,000 cases of MDR-TB (range, 460,000 – 790,000) among the world’s 12 million prevalent cases of TB. The estimated number of prevalent cases of MDR-TB can be estimated at global level as the product of the estimated number of prevalent cases of TB and the best estimate of the proportion of notified TB patients with MDR-TB at global level.

1.5.5 Case Detection Rate
The best estimate of the CDR for all forms of TB globally in 2011 was 66% (range, 64–69%), up from 53–59% in 2005 and 38–43% in 1995 – the year in which the DOTS strategy began to be introduced and expanded. The highest CDRs in 2011 were estimated to be in the Region of the Americas (best estimate 84%; range, 79–89%), the Western Pacific Region (best estimate 81%; range, 75–89%) and the European Region (best estimate 73%; range, 69–78%). Among the 22 HBCs, the highest rates of case detection in 2011 were estimated to be in Brazil, China, Kenya, the Russian Federation and the United Republic of Tanzania; the lowest rates were in Afghanistan, Bangladesh, Mozambique and Nigeria. The case detection rate (CDR) for TB is an indicator that is included within the Millennium Development Goals. For a given country and year, the CDR is calculated as the number of new and relapse TB cases that were notified by NTPs, divided by the estimated number of incident cases of TB that year. The CDR is expressed as a percentage; it gives an approximate indication of the proportion of all incident TB cases that are actually diagnosed, reported to NTPs and started on treatment.

1.6 TB/HIV Co-infection
In 2011, 1.1 million (13%) of the 8.7 million people who developed TB worldwide were HIV-positive; 79% of these HIV-positive TB cases were in the African Region. Globally, there were an estimated 0.4 million HIV-associated TB deaths in 2011, with approximately equal numbers among men and women. WHO’s recommended package of collaborative TB/HIV activities to reduce the burden of TB/HIV includes HIV testing for TB patients; CPT and early initiation of ART for HIV-positive TB patients; and screening for TB among people living with HIV and provision of IPT to those eligible for it. Globally, 40% of TB patients had a documented HIV test result and 79% of those living with HIV were provided with co-trimoxazole preventive therapy in 2011.
The coverage of HIV testing for TB patients was particularly high in the African Region, where 69% of TB patients had a documented HIV test result in 2011. Outside the African Region, in 2011 the percentage of TB patients who had a documented HIV test result exceeded 50% in the European Region and the Region of the Americas (mostly influenced by the numbers of TB patients with a documented HIV test result in the Russian Federation and Brazil, respectively). In other regions, the percentage ranged from 11% in the Eastern Mediterranean Region to 32% in the South-East Asia Region. The scale-up of collaborative TB/HIV activities saved a total of 1.3 million lives between 2005 and the end of 2011.

1.7 Mortality due to TB

In 2011, 1.4 million people died from TB, including almost one million (990 000) deaths among HIV-negative individuals and 430 000 among people who were HIV-positive. TB is one of the top killers of women, with 300 000 deaths among HIV-negative women and 200 000 deaths among HIV-positive women in 2011. There were 64 000 deaths among children in 2011. Global progress also conceal regional variations: the African and European regions are not on track to halve 1990 levels of mortality by 2015. The number of TB deaths per 100 000 population among HIV-negative people plus the estimated number of TB deaths among HIV-positive people equates to a best estimate of 20 deaths per 100 000 population in 2011. Globally, mortality rates (excluding deaths among HIV-positive people) have fallen by 41% since 1990.

### Table 01: Global Epidemiological Burden of TB (2011)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Indicators</th>
<th>Estimated Number(rates)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Population</td>
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</tr>
<tr>
<td>2</td>
<td>Estimated Incidence</td>
<td>8.7 million (125 cases/100 000)</td>
</tr>
<tr>
<td>3</td>
<td>Estimated Prevalence</td>
<td>12 million (170 cases/100 000)</td>
</tr>
<tr>
<td>4</td>
<td>CDR of all form of TB</td>
<td>66%</td>
</tr>
<tr>
<td>5</td>
<td>Treatment Success Rate (2010 cohort)</td>
<td>87 %</td>
</tr>
<tr>
<td>6</td>
<td>Estimated MDR-TB Cases</td>
<td>0.63 million</td>
</tr>
<tr>
<td>7</td>
<td>Estimated Deaths Due to TB</td>
<td>1.4 million</td>
</tr>
<tr>
<td>8</td>
<td>HIV Positive in incident TB cases</td>
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<tr>
<td>WHO Regions</td>
<td>Estimated Incidence (in thousands)</td>
<td>Total Notified</td>
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<td>Eastern Mediterranean Region</td>
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<tr>
<td>Global</td>
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Figure 1: Estimated TB Incidence Rates, by Country 2010


Figure 02: Trend in Estimated Prevalence, Incidence and Mortality rates of TB (1990-2011)

Figure 03: Treatment Outcomes among New Smear Positive Cases 2010 Cohort

- Cured: 79%
- Defaulted: 8%
- Treatment completed: 2%
- Died: 4%
- Treatment failed: 4%
- Not evaluated: 3%


Figure 04: Trend of Treatment Success and Case Detection rate (1995-2011)

2. PROGRESS IN TB CONTROL IN SAARC REGION

This chapter provides an analysis of the compiled country reports on the numbers of TB cases registered in 2011 and reporting on the treatment outcomes of patients registered in 2010 for the SAARC Member States.

2.1 DOTS Coverage

At the global level, all 22 HBCs have had DOTS programmes since 2000, many of which have been established for much longer. Globally, the total number of countries implementing Directly Observed Treatment Short-course (DOTS)/ Stop TB Strategy has increased steadily from 1995 to 2011. A remarkable progress has been made for DOTS since its inception in 1993 in SAARC Region. By 1997 all Member States started DOTS strategy for TB control. DOTS coverage within SAARC region has steadily increased since 2000. Population coverage in 1997 was 11%, since then it has been increasing and reached 99.5% in 2006 and since 2007 it is 100%.

2.2 Epidemiology of TB in SAARC region

The SAARC region, with an estimated annual incidence of 2.87 million TB cases, carries 33% of the global burden of TB incidence. 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 2.8 million incident TB cases, 1.2 million are estimated to be sputum smear positive infectious cases.
Table 3: Estimates of TB disease incidence, prevalence and mortality in the SAARC region 2010

<table>
<thead>
<tr>
<th>Country</th>
<th>Population</th>
<th>Estimated Incidence</th>
<th>Estimated Prevalence</th>
<th>Death Rate per lakh pop.</th>
</tr>
</thead>
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<td></td>
<td></td>
<td>All types</td>
<td>Rate per lakh pop.</td>
<td>Rate per lakh pop.</td>
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<td>4490</td>
</tr>
<tr>
<td>Total</td>
<td>1617894542</td>
<td>2875017</td>
<td>178</td>
<td>1229704</td>
</tr>
</tbody>
</table>

Source: NTP Reports, 2011 (SAARC Member States)

Figure 5: Trend of estimated incidence rates of all forms and NSP TB Cases, SAARC Region, (1990-2011)

Source: NTP Reports, 2011 (SAARC Member States)
### 2.3 Notification, Case Detections and Treatment Success

#### Table 04: Case detection (2011) and Treatment outcome (2010), SAARC Region

<table>
<thead>
<tr>
<th>Country</th>
<th>Population</th>
<th>Estimated Notified Cases (2011)</th>
<th>Case Detection Rate (%)</th>
<th>Treatment Outcome (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All types</td>
<td>New Sputum Smear +ve</td>
<td>All types</td>
<td>New Sputum Smear +ve</td>
</tr>
<tr>
<td>Afghanistan</td>
<td>27000000</td>
<td>61000</td>
<td>27983</td>
<td>13789</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>150050000</td>
<td>340000</td>
<td>159023</td>
<td>98946</td>
</tr>
<tr>
<td>Bhutan</td>
<td>702265</td>
<td>1069</td>
<td>382</td>
<td>1250</td>
</tr>
<tr>
<td>India</td>
<td>121019000</td>
<td>2000000</td>
<td>850000</td>
<td>1515872</td>
</tr>
<tr>
<td>Maldives</td>
<td>330652</td>
<td>110</td>
<td>13</td>
<td>88</td>
</tr>
<tr>
<td>Nepal</td>
<td>27488585</td>
<td>41108</td>
<td>20554</td>
<td>37732</td>
</tr>
<tr>
<td>Pakistan</td>
<td>180008300</td>
<td>417666</td>
<td>175383</td>
<td>270422</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>21309040</td>
<td>14064</td>
<td>4490</td>
<td>10329</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>161789452</strong></td>
<td><strong>2875017</strong></td>
<td><strong>1229704</strong></td>
<td><strong>2022883</strong></td>
</tr>
</tbody>
</table>

Source: NTP Reports, 2011 (SAARC Member States)

A total 2,022,883 cases (all types) were notified in 2011 in the SAARC region, of which 43.5% were new sputum smear positive cases. The case detection rate for new smear positive is 72% in 2011 for SAARC region. Overall case detection rate in the region in 2011 for all types of TB cases is 70%.( Table 04)

#### Figure 06: Distribution of notified New Smear Positive TB Cases in SAARC Member States, 2011

Source: NTP Reports, 2011 (SAARC Member States)
Figure 07: Progress in TB Control in SAARC Region (1997-2011)

Figure 07 shows the overall progress in tuberculosis control in the region. It depicts that there is remarkable progress in DOTS coverage which has reached 100% in 2007. Regarding treatment success, the target is achieved since 2001. In 2011 case detection rate of NSP reached 72%.

Table 05: Global vs. SAARC Region on TB Indicators

<table>
<thead>
<tr>
<th>TB Control Indicators</th>
<th>Global 2011</th>
<th>SAARC 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Population</td>
<td>7.0 billion</td>
<td>1.61 billion</td>
</tr>
<tr>
<td>New all types of TB Cases notified</td>
<td>6.2 million</td>
<td>2.0 million</td>
</tr>
<tr>
<td>New SS +ve TB Cases notified</td>
<td>2.6 million</td>
<td>0.88 million</td>
</tr>
<tr>
<td>Case Detection Rate all forms of TB (%)</td>
<td>67</td>
<td>70</td>
</tr>
<tr>
<td>Treatment Success Rate (%)</td>
<td>87</td>
<td>89</td>
</tr>
</tbody>
</table>


2.4 Trends of incidence, prevalence and mortality (1990-2011)

The prevalence and incidence surveys are important as they provide accurate estimations of the burden of disease in countries. There are still uncertainties about the current estimates for TB disease prevalence, incidence and mortality rates in individual member countries in the Region. This requires strengthening of all aspects of the TB surveillance system, focusing on quality data entry, compilation and reporting.
Figure 08 shows the estimated prevalence rates in the eight Member countries of the region comparing the rates between 1990, 1995, 2000, 2005, 2009, 2010 and 2011.

Figure 08: Estimated Prevalence of all forms of TB, SAARC Region (1990-2011)

Figure 09 shows the estimated incidence rate of all forms of TB in the eight Member countries of the region comparing the rates between 1990, 1995, 2000, 2005, 2009, 2010 and 2011. There are indications of decrease in Bhutan, India and Maldives, where as in remaining other member countries it shows no significant change.

Figure 09: Estimated Incidence of all forms of TB, SAARC Region (1990-2011)
Figure 10 shows the estimated mortality rate of all forms of TB in the eight Member countries of the region comparing the rates between 1990, 1995, 2000, 2005, 2009, 2010 and 2011. There are indication of continuous decrease in all member countries except in Afghanistan and Nepal where in it shows fluctuation.
3. PROGRESS WITH TB CONTROL IN SAARC MEMBER STATES

Afghanistan
Bangladesh
Bhutan
India
Maldives
Nepal
Pakistan
Sri Lanka
Islamic Republic of Afghanistan is one of the eight countries of the SAARC Region. Afghanistan is a land-locked country, surrounded by Pakistan, Iran, Turkmenistan, Uzbekistan, Tajikistan and China. The land area is 652,225 square kilometers. In Afghanistan, the Province is governed by a Governor. Afghanistan consists of 34 provinces and 364 districts. Population of Afghanistan was 27 million in 2011.

Status of Tuberculosis Control

The National Tuberculosis Control Program (NTP) was established in 1954 by the Ministry of Public Health (MoPH), with technical and financial supports of World Health Organisation (WHO). The ensuing instability since 1979, has resulted in the steady collapse and decline of the public health system, including TB control programme. In 1997, NTP with collaboration the WHO and other TB partners adopted the Directly Observed Treatment Short course (DOTS) strategy, implementation beginning only in 2002. In early 2003, the first National Strategic Plan for TB Control 2002-2005 was drafted and the global targets of 70% case detection of new sputum smear positive cases and 85% treatment success by 2005 were adopted by the MoPH as the national goals of the 3-year DOTS strategy. Then NTP by help of WHO developed national strategic plan for 2006-2010 and in 2008 it has been extended in line with MDG and Stop TB Partnership strategy by 2013. The mission of the NTP is to reduce the impact of TB as a public health problem in the country. Since 2002, under the new Afghan government, the NTP has taken major steps to improve its managerial and technical capacity as well as in securing external technical assistance and resources in order to implement the DOTS strategy.

To achieve the strategic objectives, Currently NTP has a network of 29 health professional at central, and 68 at provincial level. The NTP staffs at different level of the program based on the scope of their work are responsible for proper implementation of TB control activities all over the country.

TB control program services have been integrated into the Basic Package of the health Service (BPHS) for primary health care and the Essential Package of Hospital service
(EPHS) for secondary health care which are the priority public health services in this country. TB care services are delivered free of charge to the population as covered by the BPHS and EPHS.

NTP is responsible for the regular supply of anti-TB medicine, reagents for laboratories, recording and reporting forms, ACSM material and training of health workers (doctors, nurses, laboratory technician and community health workers (CHW)) on DOTS. NTP field officers are responsible for supervision of TB Control activities at facilities and coordination between NTP and the BPHS implementers. The NTP strategy for prevention of tuberculosis is early detection and treatment of all TB cases. TB sputum smear microscopy is the main tool for detection of infectious cases. NTP has been using the 8 months TB treatment regimen till 2012 and has planned to gradually shifting to the 6 months regimen. NTP has also started to engage private sector including private practitioners and private hospital in the TB control program in order to notify the TB cases who are seeking care from private practitioners. NTP has started to address the management of multi-drug resistant TB (MDR-TB) and vulnerable groups such as prisoners, internally displaced persons (IDP) and children.

**NTP Objectives and Strategies:**

NTP aims to reduce the risk of infection, morbidity and mortality due to tuberculosis by:

- Increasing DOTS to 100% population coverage
- Increasing the cure rate of diagnosed new TB Sputum smear positive cases to at least 85%, and
- Increasing case detection rate to over 70% of the estimated smear-positive cases.

**NTP will achieve the above objectives through the following key strategies:**

- Ensure effective, standardized chemotherapy to all diagnosed patients for the recommended duration (8 months);
- Promote early detection of TB Sputum Smear positive cases on the basis of sputum smear examination;
- Organize treatment delivery and supervision of NTP activities at various levels of the system;
- Introduce a standardized system of registration and reporting;
- Monitor results of treatment and evaluate progress of NTP through quarterly cohort analysis;
• Provide continuous training for all staff involved in the NTP at various levels of the system;
• Strengthen co-operation and co-ordination between governmental and non-governmental organizations involved in the NTP;
• Integrate tuberculosis control activities with BPHS activities being carried out in the country;
• To accelerate DOTS expansion through adoption of new approaches such as, Public-Private Mix and Community-based DOTS; Improving quality and efficiency of general services in respiratory illnesses using Practical Approach to Lung Health (PAL);

Achievements

• Reference laboratory performing culture
• Operational research for clinical culture conducted
• National and sub national QRM guidelines was develop and applied
• survey TB among General Population in Afghanistan
• Identifying magnitude of pulmonary tuberculosis among internally displaced population (IDPs) in three provinces of Afghanistan
• Situational analysis of Management of Pediatric TB in Provincial and District Hospitals of Afghanistan
• Staff appraisal has been introduced in NTP central level
• Competency needs assessment is done and base on finding two years action plan is developed
• TB integration in BPHS resulted involvement of 13400 health workers in TB at health facilities
• In-service trainings on TB is systemized
• Training Modules and SOPs for all level of health staff are available
• PPM practical guideline was developed
• ACSM strategy was finalized and translated to local languages
• CBD activities is running through R8 GF is some provinces
• Community health workers are involved in case detection, DOT and providing TB awareness for community
Challenges

- Delay in approval and fund disbursement of Global fund R8 phase II
- Strengthening laboratory system including culture and DST
- HR development (training, turn over)
- Enhancing Quality DOTS
- MDR program Management
- Program management in cross border areas
- DOTS expansion to entire health system (PPM, Urban DOTS)

New Initiatives

- Introducing new diagnostic technology
- Introducing new lab diagnostic tool
- Introduction of slide sending and sputum transportation

Future Plans

- Program decentralization
- Full involvement of BPHS implementers in all TB activities
- Local professional recruitment
- Community Based DOTS introduction
- Regular TB task force & PHCC meetings
- NTP, stakeholder Coordination Meetings
- Development of consolidated work plan
- Introducing new lab diagnostic tools/technology & Expanding EQA Coverage
- Implementation of HRD strategic plan
- Strengthening HRM, operational research and M&E.
- Revision, development and implementation of tools and documents for quality

DOTS implementation

- Regular supervision and monitoring
- Strengthening human resource capacity
- Expanding MDR management to main cities (Regions)
Epidemiology, 2011
Population - 27 million

Epidemiological burden
Incidence (all cases/100 000 pop/yr) - 189
Prevalence rate (all cases/100 000 pop) - 351
Mortality rate (TB Cases/100 000 pop/yr) - 38

Surveillance and DOTS implementation
DOTS Case detection rate (all types %) - 47
DOTS case detection rate (new ss+, %) - 58
DOTS treatment success (new ss+, %) - 90

Laboratory services
Number of laboratories performing smear microscopy - 670
National Tuberculosis Reference Lab - 1
Collaborative TB/HIV activities
National policy of counseling and testing TB patients for HIV - drafted
National surveillance system of HIV infection in TB patients - planned

Source: NTP, Afghanistan Report, 2011
People’s Republic of Bangladesh is one of the Member States of the SAARC Region. It is a coastal country in South Asia. It shares the land borders with India and Myanmar and has an irregular coastline of Bay of Bengal to the south. It has six divisions and these divisions in turn are divided into 64 districts or Zila. The total area of the country is 147,570 km². Population of Bangladesh is 150 million and it is one of the most densely populated countries in the world.

**National Tuberculosis Control Programme**

Tuberculosis (TB) is a major public health problem in Bangladesh since long. In 1965, tuberculosis services were mainly curative and based in TB clinics and TB hospitals. TB services were expanded to 124 upazila health complexes (UHCs) during the Second Health and Population Plan (1980-86), and were operationally integrated with leprosy during the Third Health and Population Plan (1986-91) under the Mycobacterial Disease Control (MBDC) unit of the Directorate General of Health Services (DGHS).

The revised NTP adopted the DOTS strategy during the Fourth Population and Health Plan (1992-98) under the project “Further Development of TB and Leprosy Control Services”. The NTP started its field implementation in November 1993 in four thanas (upazilas) and progressively expanded to cover all upazilas by mid 1998. In July 1998, the NTP was integrated into the Communicable Disease Control component of the Essential Services Package under the Health and Population Sector Program (HNPS) and NTP is recognized as a priority in HNPS.

The Government of Bangladesh, together with its many and diverse partners from the public and private sectors, is committed to further intensify the DOTS program in order to sustain the achieved success and to reach the TB control targets linked to the Millennium Development Goals (MDGs).
Status of Tuberculosis Control

Tuberculosis is a major public health problem in Bangladesh and it ranks sixth among countries with the highest burdens of TB. The estimated prevalence and incidence rates of all forms of tuberculosis were respectively 411 and 225 per 100,000 population in 2010. In 2010 the notification rates of all forms of TB and new smear-positive cases were respectively 103 and 71, showing an increase against previous years but a marginal decrease compared with 2009. Treatment success rate among new smear-positive cases is steadily 92% for the cohort of patients registered since 2006.

HIV prevalence in the adult population (15-49 years) has been estimated to be low at 0.02%. A recent survey revealed an HIV prevalence of 7% among injecting drug users. This has raised concern regarding the potential for transmission of HIV to other population groups. National TB/HIV operational guidelines were developed in 2009.

MDR-TB patients

Data from previous drug resistance surveys indicate low levels of MDR-TB. Isolated surveys have indicated that MDR-TB rates among newly diagnosed cases range between 0.4% and 3%, and among previously treated cases between 3% and 15.4%. A limited survey of drug susceptibility among patients failing re-treatment regimens showed that 88% had MDR-TB. A nationally representative population based survey has been initiated in 2010 (supposed to be completed by end 2011) to better assess the magnitude of drug resistance nationwide. The National Tuberculosis Reference Laboratory was accredited for culture and DST by the Supranational Reference Laboratory Antwerp, Belgium in 2010, though linked since 2007. Upgrading and renovation of National TB reference laboratory (NTRL) at the National Institute of Diseases of the Chest and Hospital (NIDCH) in Dhaka have been conducted in 2010. Establishment of three additional regional reference laboratories for culture and drug susceptibility testing in a phase-wise manner is ongoing. In a GLC-approved project for the management of MDR-TB cases at the National Institute of Diseases of Chest and Hospital, Dhaka, started in August 2008, 468 cases have been reported being on treatment in 2009, and an additional 184 MDR-TB cases have been detected and started on treatment in 2010. The Damien Foundation extended its support for MDR-TB case management to an additional 30 million population in 2010, 155 confirmed MDR-TB cases were enrolled on treatment. The operational guidelines for drug-resistant TB have been revised and SOP for PMDT developed in 2011.
Achievements of National Tuberculosis Control Programme

- The first National Drug Resistance Survey (DRS) is in the completion phase and the draft report of this survey will be available in the first quarter of 2012.
- The national TB prevalence survey was completed in 2009 and disseminated in 2010.
- MDR-TB was piloted successfully in NIDCH and was scaled up to one more site in Chittagong.
- Upgrading and renovation of NTRL at NIDCH, Dhaka, completed.
- RTRL Chittagong has been made operational.
- Further expansion of public-private mix TB and involving the workplace, e.g. BGMEA.
- Drug storage capacity strengthened by establishing a separate store in the newly constructed hospital at Shyamoli, Dhaka.
- Installation of Financial Management software.
- Piloting of e-TB Manager in six sites.
- PAL guidelines drafted and will be finalized by December 2011.
- The Childhood TB Guidelines have been finalized and ToT conducted.
- MDR-TB guidelines have been revised and updated.
- TB infection control Operational Guidelines developed.
- SoP for PMDT finalized.

Major Challenges

- Ensuring uninterrupted supply of drugs and logistics.
- Ensuring sustainability of skilled and trained staff at different levels.
- Ensuring continuation of financial support.
- Scaling up the management of DR-TB and piloting of PMDT.
- Further scaling up and strengthening private-public collaborative interventions.
- Strengthening linkages with the National AIDS and STI programme for TB/HIV.
- Quality control of and sustaining the quality of DOTS is a major issue.
- Strengthening system for diagnosis of smear-negative, extra-pulmonary and child TB cases.

Planned Activities

- Establishment of regional reference laboratories at Khulna, Barisal and Sylhet for culture and drug susceptibility testing in a phase-wise manner.
- Introduction of new diagnostic tools like GeneXpert.
• Implementation of Practical Approach to Lung Health (PAL).
• Phase-wise expansion of TB/HIV collaborative activities.
• Developing capacity for wider implementation of TB/HIV, MDR-TB and PPM DOTS interventions.
• Further expanding private-public collaborative activities.
• Strengthening the procurement and supply management system.
• Strengthening supervision and monitoring.
• Scaling-up of the e-TB Manager.
• Implementation of TB infection control.
• Scaling up of comprehensive advocacy, communication and social mobilization (ACSM) activities.
• Conducting an assessment of the impact of the IEC campaigns on the population and service recipients.
• Capacity-building for diagnosis and management of smear-negative, extra-pulmonary and childhood TB.
• Establishing a pharmacovigilance system.
• Establishment of electronic data collection system.
• Conduct operational research on validation of data, TB-diabetes relationship, etc.

Figure 15: Percentage of case notification by type of patient (2011)

Figure 16: Percentage of treatment outcomes among New smear positive cases (2010)

Figure 17: Case detection rate and Treatment success rate for new smear positive cases (2001 - 2009)

Source: NTP, Bangladesh Report, 2011
### Epidemiology, 2011

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>150 million</td>
</tr>
<tr>
<td><strong>Epidemiological burden</strong></td>
<td></td>
</tr>
<tr>
<td>Incidence (all cases/100,000 pop/yr)</td>
<td>225</td>
</tr>
<tr>
<td>Prevalence rate (all cases/100,000 pop/yr)</td>
<td>411</td>
</tr>
<tr>
<td><strong>Mortality (TB cases/100,000 pop)</strong></td>
<td>43</td>
</tr>
<tr>
<td>Surveillance and DOTS implementation</td>
<td></td>
</tr>
<tr>
<td>DOTS Case detection rate (all types %)</td>
<td>45</td>
</tr>
<tr>
<td>DOTS treatment success (new ss+, %)</td>
<td>91</td>
</tr>
<tr>
<td><strong>Laboratory services</strong></td>
<td></td>
</tr>
<tr>
<td>Number of laboratories performing smear microscopy</td>
<td>1050</td>
</tr>
<tr>
<td>Intermediate Reference lab</td>
<td>02</td>
</tr>
<tr>
<td>National Reference Lab</td>
<td>01</td>
</tr>
<tr>
<td>Implemented of EQA</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Source: NTP, Bangladesh Report, 2011
BHUTAN

Bhutan is a landlocked country situated in the South Asia and is a Member State of the SAARC. Bhutan shares its borders with China and India. It has a land area of 38,394 square kilometers and the altitude varying from 180m to 7,550m above sea level. Bhutan is divided into 20 administrative districts. The total population of Bhutan was estimated to be 708,265 in the year 2011. The population of children less than 15 years is 214,828. Bhutan has a precious environment and a rich cultural heritage.

Status of Tuberculosis

The TB Control Programme is fully integrated into the general health services with the majority of activities decentralized to the districts. The NTP has introduced fixed-dose combination drugs (FDCs), and has procured them through Global Drug Facility (GDF) replacing single drug formulations for first-line treatment for both adult and pediatric cases. Guidelines on management of TB have been revised and trainings conducted for medical doctors involved in TB control activities. There is no representative data on levels of anti-TB drug resistance in the country. The Drug Resistance Surveillance is ongoing to better assess levels of drug-resistant TB in the country. However, based on modeling, it is estimated that 0.6% of newly diagnosed smear-positive TB cases have MDR-TB. 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. A comprehensive HRD master plan is in place in the HR Division of the Ministry of Health. The programme coordinates with the Human Resource Division at the central level on HR issues. There is strong collaboration between NTP and partners, including the military hospitals. All military hospitals are involved in delivering TB services. The National TB Control Programme is financially supported through the government and both Rounds 4 (up to end-2010) and 6 of the Global Fund.

The prevalence of HIV infection in the general population is low, being only 0.02%. HIV sentinel surveillance carried out annually has also revealed a low level of HIV infection. A national body responsible for coordinating TB/HIV activities was formed in 2007 and a national plan for collaborative TB/HIV activities has been developed.
MDR-TB patients

The reported number of MDR-TB cases was 21 diagnosed in 2011 and were among re-treatment cases; not a single case of MDR-TB was reported among NSP cases tested for DST. Culture facilities are being upgraded at the two Regional Referral Hospitals. Additional laboratory staffs were trained for undertaking quality-assured culture and DST. DST will be done for all re-treatment cases and extended to all smear positive cases initiated on treatment once the national laboratory is fully set up. GLC approval for the management of MDR-TB cases has been obtained, guidelines for MDR-TB management have been finalized, medical doctors trained on MDR-TB management and second-line drugs are being procured through GDF. All MDR-TB patients have been enrolled on second-line drugs treatment.

Achievements of NTP

- Conducted sensitization/awareness campaign to the monks and nuns
- Conducted cross border awareness campaign in three bordering districts – This activity was conducted in four southern towns bordering India.
- Conducted training on management of TB and MDR-TB to the newly recruited Medical Doctors
- Procured both First and Second Line Anti-TB drugs through GDF and GLC
- Annual Lab. and TB review meeting conducted - The annual regional review meetings were conducted in all three regions wherein all relevant health workers from all Hospitals and BHUs Grade 1 participated actively. The annual TB Lab. review meeting was also conducted by the Public Health Lab.
- Airing of both radio and TV slots through the media were done on a quarterly basis
- Observation of World TB Day - It was successfully observed in all 20 districts across the country.
  - Hon’ble Minister of Health graced the occasion as the Chief Guest for the WTD at the College of Science and Technology, Phuentsholing as there was a gradual increase in the number of cases reported from the college in the recent years.
  - Hon’ble Health Minister Lyonpos Zangley Dukpa’s message was published as news paper insert in all print media firms.
  - A Call in Quiz Shows was also organized through four Radio Stations in the country.
  - Approximately 400,000 B-Mobile subscribers were reached through SMS across the country with the message “Cough for 2 weeks & more could be due to TB …get yourself examined today”.
A live talk show was also organized and aired on the day in collaboration with the only broadcast channel of Bhutan, BBS

- Monitoring and supervision visits to the reporting centers with discrepancy in reporting were conducted on a quarterly basis
- MDR-TB Training – Three days training program on MDR-TB management was conducted to the Medical Officers of high burden districts with the financial and technical support from WHO. Two Medical Specialists also underwent training on MDR-TB management at the LRS Institute of Tuberculosis and Respiratory Diseases in New Delhi.
- Training of TB in-charges on electronic recording and reporting system – This training program was conducted to the TB in-charges who submitted major errors in their recording and reporting.
- Completed a week long GDF and GLC Mission
- Laboratory Assessment Visit by Supra-National Reference Laboratory (SNRL) was carried out to assess the quality of laboratory services at the PHL in August 2011. This assessment visit was conducted through the TA from WHO.
- The TFM proposal for TB was developed through the TA from WHO.
- IEC materials – Flip chart and posters on TB were developed and distributed to all the health centers across the country.
- Sensitization of Transport Workers on TB – The programme was conducted in some of the major towns in the country to create awareness about the disease.
- Procurement of FLD and SLD through GLC – The annual procurement was successfully made and distributed despite the problems encountered with regard to the procurement. Both First Line and Second Line anti-TB drugs are procured through the GDF and GLC.
- Training on International TB Course – Through the GF Grant support to TB program, the newly appointed Programme Officer attended the International TB Course organized by the Union against TB and Lung Disease in Hanoi, Vietnam in September 2011.
- Global Drug Facility (GDF) Mission – The Global Drug Facility Mission was conducted in December, 2012 to review the implementation and achievements of the GLC support to TB program for the management of DR-TB. Based on the findings, recommendations were made to further improve the DR-TB management in the country.
- Training on Drug and Supply Management – Training on Drug and Supply Management was conducted to the Pharmacy Staff/ Store In-charges of all hospitals and BHUs I in March-April 2011 to improve the Store management.
- The Standard manual for Laboratory Technician on Sputum Smear Microscopy (2nd Edition) was revised by the Public Health Lab.
- A Modular based refresher training on TB microscopy was carried out based on the revised standard manual for all the laboratory technicians performing TB microscopy in
the district hospitals.

- The Public Health Laboratory also participated in the 8th Round Proficiency Testing of Sputum Smear Microscopy conducted by SAARC TB & HIV/AIDS Centre, Nepal with 100% Concordance.

Challenges

- Human Resource - Technical Capacity at all levels is also recognized as a major gap required in the Planning, managing and delivery of TB care and services.
- Frequent change of TB focal persons - Because of multi-tasking, there is frequent change of TB focal persons at the district level and this creates inconsistency with the recording and reporting system.
- Delay in seeking care - Due to traditional values and customs, the people with TB symptoms report to the health facility little late.
- Demand for quality services - There is an increasing demand from the people for the quality of care and services.
- Sustainability of financial resources - Challenges are being faced in securing adequate funding for the National TB Control Programme required for the implementation of the National Strategic Plan 2012-2016 which is projected at USD 6 million.
- DOTS implementation - Implementation of DOT at all levels of health facilities still remains a challenge especially in ensuring DOT upon discharge of the patient from the hospitals.
- MDR-TB – The emergence of MDR-TB is a concern for the programme and calls for better diagnosis, treatment and its management.
- TB/HIV – There is scope to further the collaboration between the two diseases to reduce the burden of each disease onto the other.
- Laboratory Diagnosis – The existing equipment & infrastructure settings at the Public Health Lab. are not adequate to handle the current sample load of culture and DST (performing culture & DST for all smear positive cases) thus leading to delays in reporting of DST results.
- Community Participation – Community participation for TB control needs to be strengthened as community plays an important role in strengthening DOT in view of rise on MDR-TB.

Future Plans

- Training on MDR-TB management is planned
- GDF/GLC Mission proposed
• There is a scope to introduce rapid diagnostic tools subject to increase in number of case loads
• Procurement of First and Second Line TB drugs
• Observation of World TB Day and airing of TB spots
• Procurement of health products and health equipments
• Refurbishment of MDR-TB wards
• Monitoring and supervision

Source: NTP, Bhutan Report, 2011
### Epidemiology, 2011

| Population | 7,08,265 |

### Estimates of epidemiological burden

| Incidence (all cases/100,000 pop/yr) | 151 |
| Incidence (ss+/100,000 pop/yr) | 54 |
| Prevalence rate (all cases/100,000 pop/yr) | 181 |
| Mortality (deaths/100,000 pop) | 9.2 |

### Surveillance and DOTS implementation

| DOTS case detection rate (all cases, %) | 117 |
| DOTS case detection rate (new ss+, %) | 100 |
| DOTS treatment success (new ss+, %) | 90 |

### Laboratory services

| Number of laboratories performing smear microscopy | 34 |
| Reference lab | 01 |
| Implementation of EQA | Present |
| Culture and DST | NPHL |

### Collaborative TB/HIV activities

| National policy of counseling and testing TB patients for HIV | present |
| National surveillance system of HIV infection in TB patients | ongoing |

Source: NTP, Bhutan Report, 2011
Republic of India is an extremely large country with a population of almost 1.21 billion in the SAARC Region. India is the second most populous country in the world accounting for 17.3% of the population of the world. The land area is 3,287,263 square kilometers. The country is surrounded by Bangladesh, Bhutan, China, Nepal, Pakistan and the Indian Ocean. The country is divided into 35 states and they in turn are divided into 640 districts. Health is administered in a decentralized manner at the level of the states and union territories. The population aged less than 15 years age group was 379 million in 2011.

Status of Tuberculosis Control

The Revised National TB Control Programme (RNTCP), based on the internationally recommended Directly Observed Treatment Short-course (DOTS) strategy, was launched in 1997 expanded across the country in a phased manner with support from the World Bank and other development partners. Annually more than 1.5 million TB patients are placed on DOTS treatment under RNTCP. In 2011, RNTCP has achieved the NSP CDR of 71% and treatment success rate of 88% which is in line with the global targets for TB control.

Since its inception, the Programme has initiated more than 15 million patients on treatment, thus saving more than 2.5 million additional lives while the rate of TB Suspects examined has increased substantially from 397 per 100,000 population per annum to 652 per 100,000 population over the last 10 years. Quality assured, anti-TB drugs for the full course of treatment is provided to the patients through patient wise boxes. Decentralized treatment is provided through a network of more than 6,00,000 DOT providers, to provide treatment to the patients as near to their home as possible. The utilization of Pediatric patient wise boxes is on the increase since its introduction in 2006, under the programme for the treatment of pediatric patients suffering from TB. These boxes are designed according to the dosages used for different weight bands.

The programme is in the process of establishing a network of accredited Culture and Drug Susceptibility Testing (DST) Intermediate Reference Laboratories (IRLs) across the country in a phased manner for diagnosis and follow up of MDR TB patients. Currently 38 labs are accredited and are functioning across the country. The RNTCP has initiated evaluation of the
Gene-Xpert TB-RIF in line with the global consultation guidelines to gather evidence for use within the country in various settings including non-risk settings.

**TB-HIV Co-infection**

TB and HIV act in deadly synergy. HIV infection increases the risk of TB infection on exposure, progression from latent infection to active TB, risk of death if not timely treated for both TB and HIV and risk of recurrence even if successfully treated. Correspondingly, TB is the most common opportunistic infection and cause of mortality among people living with HIV (PLHIV), difficult to diagnose and treat owing to challenges related to co-morbidity, pill burden, co-toxicity and drug interactions.

The “National framework of Joint TB/HIV Collaborative activities” was revised in 2009 which establishes uniform activities at ART centres and ICTCs nationwide for intensified TB case finding and reporting, and set the ground for better monitoring and evaluation jointly by the two programmes with a new monitoring framework and revised reporting formats and mechanisms.

Intensified TB-HIV package has been introduced in the entire country in 2011. In 2011 with close to 7 lakh TB suspects identified and tested for TB in HIV care settings; of them, close to 84,000 TB cases were diagnosed and linked to TB treatment services. Among the 23 states reported in 2011, close to 6 lakh TB patients were ascertained for their HIV status (67% of TB patients registered) and about 44,000 HIV-infected TB patients were diagnosed.

**MDR and XDR-TB**

MDR-TB services have been initiated in all states in the country. All 35 States/Union Territories have introduced PMDT services in some districts with variable access and scaling up. 508 million (43%) population have access to services that varies from states to state as depicted in the figure below. 38287 MDR TB suspects have been examined till the end of 2011, 10267 MDR-TB patients have been diagnosed and 6994 have been put on treatment. No separate DRS surveys have been undertaken to estimate the burden of XDR-TB in the country. However, DRS surveys to estimate burden of MDRTB conducted in Gujarat and Andhra Pradesh reported 14 XDR-TB cases. 112 XDR-TB patients have been diagnosed at National Reference Laboratories as reported by the states from 2008 till Sept 2011. Programme has formulated guidelines for treatment of XDR-TB patients with category V regimen.
Achievements

- In 2011, RNTCP has achieved the NSP CDR of 71% and treatment success rate of 88% which is in line with the global targets for TB control. RNTCP has achieved the NSP case detection rate of more than 70% and the treatment success rate of >85% since 2007.

- Current focus of the programme is on ensuring “universal access” to good quality early diagnosis and treatment for all TB patients.

- Since its inception, the Programme has initiated more than 15 million patients on treatment, thus saving more than 2.5 million additional lives while the rate of TB Suspects examined has increased substantially from 397 per 100000 population per annum to 652 per 100000 population over the last 10 years.

- Required infrastructure has been developed under the programme over years and in 2011 the number of RNTCP District Units stand at 662 with 2698 functional sub-district Tuberculosis Units for effective & decentralized supervision and over 13,000 Designated Microscopy Centers for quality sputum microscopy for diagnosis of TB. Throughout the country a network of more than 4.4 lakh trained DOT Providers provide DOT to more than a 1.5 million patients diagnosed as TB each year.

- All states are implementing the ‘Supervision and Monitoring strategy’ – detailing guidelines, tools and indicators for monitoring the performance from the PHI level to the national level. Regular internal and external evaluations ensure quality program implementation.

- Quality assured, anti-TB drugs for the full course of treatment is provided to the patients through patient wise boxes. Decentralized treatment is provided through a network of more than 4,00,000 DOT providers, to provide treatment to the patients as near to their home as possible. The utilization of Pediatric patient wise boxes is on the increase since its introduction in 2006, under the programme for the treatment of pediatric patients suffering from TB. These boxes are designed according to the dosages used for different weight bands.

- Comprehensive training materials have been developed for all categories of staff. The training materials are modular in content and a number of them have been recently revised keeping in view the new developments in RNTCP. Modular trainings ensures uniform standard and avoids possible subjectivity and bias in trainings.
• To improve access to tribal and other marginalized groups the programme has developed a Tribal action plan which is being implemented with the provision of additional TB Units and DMCs in tribal/difficult areas, provision of TBHVs (peripheral health worker) for urban areas, compensation for transportation of patient & attendant in tribal areas, higher rate of salary to contractual staff posted in tribal areas and enhanced vehicle maintenance and travel allowance in tribal areas.

• The programme is in the process of establishing a network of accredited Culture and Drug Susceptibility Testing (DST) Intermediate Reference Laboratories (IRLs) across the country in a phased manner for diagnosis and follow up of MDR TB patients. Till end 2011, 38 labs are accredited and are functioning across the country.

• The RNTCP has initiated evaluation of the Gene-Xpert TB-RIF in line with the global consultation guidelines to gather evidence for use within the country in various settings including non-risk settings. LAMP (Loop mediated isothermal amplification) is a manual NAAT that can be performed at microscopy level is currently undergoing validation by FIND in IGMS Wardha.

• Multi Drug resistant TB (MDR TB): Programmatic Management of Drug Resistant TB (PMDT) services have been initiated in all states in the country. All 35 States/UTs have introduced PMDT services in some districts with variable access and scaling up. 508 million (43%) population have access to services that varies from states to state as depicted in the figure below. 38287 MDR TB suspects have been examined till the end of 2011, 10267 MDR-TB patients have been diagnosed and 6994 have been put on treatment.

• TB/HIV: The “National framework of Joint TB/HIV Collaborative activities” was revised in 2009 which establishes uniform activities at ART centres and ICTCs nationwide for intensified TB case finding and reporting, and set the ground for better monitoring and evaluation jointly by the two programmes with a new monitoring framework and revised reporting formats and mechanisms. Intensified TB-HIV package has been introduced in the entire country in 2011. In 2011 with close to 7 lakh TB suspects identified and tested for TB in HIV care settings; of them, close to 84,000 TB cases were diagnosed and linked to TB treatment services. Among the 23 states reported in 2011, close to 6 lakh TB patients were ascertained for their HIV status (67% of TB patients registered) and about 44,000 HIV-infected TB patients were diagnosed.
Public Private Mix (PPM): RNTCP has involved over 1971 NGOs and 10,894 Private Practitioners. 150 Corporate Hospitals and 297 Medical Collages are implementing RNTCP. The programme is having successful partnership with IMA, CBCI, PATH, The Union and World Vision India.

Advocacy, communication & social mobilization (ACSM): An effective advocacy, communication & social mobilization (ACSM) strategy is in place. As envisaged under the Stop TB Strategy ACSM plays a major role, in order to maintain high visibility of TB and RNTCP amongst policy makers, opinion leaders and community. Four regional level ACSM capacity building workshops were held by the program, wherein key functionaries in the field (STO, DTO, and implementing NGOs). National and Regional ACSM capacity building workshops were held in year 2011 to streamline the efforts.

Operational research (OR): Second round of zonal ARTI surveys were completed in 2011 and 7 Prevalence Surveys were also completed and the results were discussed and shared in a series of workshops at national level in 2011. These results were used for the TB burden estimation and impact assessment. 72 thesis proposals and 14 OR proposals were approved by various Zonal OR committees in 2011. In addition seven OR studies were approved by National OR Committee of which 2 have been completed and five are ongoing.

Impact of the programme: TB mortality in the country has reduced from over 39 per hundred thousand population in 1990 to 29 hundred thousand population in 2010 as per the WHO Global TB Report 2011. The prevalence of TB in the country has reduced from 459 per hundred thousand population in 1990 to 256 per hundred thousand population by the year 2010 as per the WHO Global TB Report, 2011. The studies on ARTI, suggests estimated decline in the annual risk of infection was estimated at 3.7% per year.

Challenges

- Managing TB in the urban areas.
- Involvement of the General Health System.
- Involvement of other sectors and coordination with other programmes.
- Adequate human resource provisioning.
- Comprehensive and Robust Surveillance of TB.
- Early Diagnosis (reducing patient and provider related delay)
• Diagnosing Extra-pulmonary & Smear Negative TB cases
• Reducing default in both New & Previously treated cases
• Engaging huge private sector in delivery of quality TB Care & control services
• Ensuring Notification from all Health Care Providers
• Irrational use & sale of anti-TB drugs and diagnostics outside the Programme
• National scale-up for diagnosis and treatment of MDR/XDR-TB
• Scale Up of TB-HIV collaborative activities and addressing other co-morbidities e.g. Diabetes, smoking etc
• Drugs and Regimens – quality, availability and standardization

New Initiatives

• LPA adopted for diagnosis of Drug Resistant TB patients (Feb, 2010)
• All TB-HIV patients to be initiated on ART irrespective of CD4 count (2011)
• Composite Indicator introduced for identifying programme performance (March, 2012)
• TB Notification Order (May, 2012)
• The manufacture, sale, distribution, use and the import of the Sero-diagnostic test kits for tuberculosis has been banned in India, (June, 2012)
• Revision of PMDT Guidelines (June, 2012)
  o Introduction of diagnostic & treatment guidelines and regimens for XDR-TB
  o Scope of modification of regimen for XDR-TB patients having ofloxacin resistance
• All TB suspects to be screened for HIV in the high prevalence states (July, 2012)
• All TB patients to be screened for Diabetes (2012)
• Newer Diagnostic Algorithm and Weight Bands introduced for Pediatric TB patients (2012)

Future Plans

To reach Universal Access, the RNTCP has the following future plan which has also been reflected in the National Strategic Plan for the 12th five year plan (2012-17):

• Ensuring early and improved diagnosis of all TB patients, through improving outreach, vigorously expanding case-finding efforts among vulnerable populations, deploying better diagnostics, and by extending services to patients diagnosed and treated in the private sector.
• Improving patient-friendly access to high-quality treatment for all diagnosed cases of TB, including scaling-up treatment for MDR-TB nationwide.
• Re-engineering programme systems for optimal alignment with NRHM at block level and human resource development for all health staffs.

• Involvement of private sector at a scale commensurate with their dominant presence in the healthcare in India. New and innovative approaches for involvement of sectors currently outside the reels of RNTCP will be piloted & successful model will be scaled up in order to move towards universal access to TB cure and control.

• Enhancing supervision, monitoring, surveillance, and programme operations for continuous quality improvement and accountability for each TB case, with programme-based research for development and incorporation of innovations into effective programme practice.

**Research Studies Published/carried out:**

**a) Ongoing Studies**

I. Evaluation of the efficacy of thrice weekly DOTS regimen in TB Pleural effusion at 6 months

II. Assessment of RNTCP Strategy of FNAC diagnosis and duration of treatment for peripheral Lymphadenitis

III. A multi-centric study on the treatment of abdominal Tuberculosis(intestinal or peritoneal): A randomized controlled trial to compare the 6 months of cat-I treatment with 9 months of Cat-I treatment (extension for 3 months) in abdominal TB under RNTCP(request for extension)

IV. A randomized control trial between 6 months Short Intermittent and 9 months short intermittent ATT regimen in Extra-spinal osteoarticular Tuberculosis: A non-inferiority trial

V. Sputum Smear conversion and treatment outcomes of New Smear Positive tuberculosis patients with co-existing diabetes mellitus put on Category I RNTCP treatment

VI. Treatment of Genital Tuberculosis: A Randomized controlled trial of either Discontinuation at 6 months or continuation till 9 months after initial response to RNTCP Category I treatment (request for extension)

**b) Completed Project:**

I. Annual risk of Tuberculosis Infection (zonal surveys) for national representative sample completed in 2007-09
II. Seven prevalence surveys conducted in 2007-09; data analyzed.
III. Socioeconomic implications and incidence of default amongst patients on DOTS, Himachal Pradesh 2008-2010.

Figure 24: Percentage of Sex distribution of registered TB patients (2011)

Figure 25: Distribution of New smear positive cases by age and gender (2011)

Figure 26: Percentage of Case notification by type of patient (2011)

Figure 27: Percentage of treatment outcomes among New smear positive cases (2010)

Figure 28: Case detection rate and Treatment success rate for new smear positive cases (2000 - 2011)

Source: NTP, RNTCP India Report, 2011
### Epidemiology, 2011

<table>
<thead>
<tr>
<th>Population</th>
<th>1210 million</th>
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#### Epidemiological burden

| Incidence (all cases/100,000 pop/yr) | 165 |
| Incidence (ss+/100,000 pop/yr)      | 70  |
| Mortality (Deaths/100,000 pop)      | 23  |
| Case Notification (/100,000 pop)     | 125 |
| Prevalence of TB (all cases/100,000 pop) | 249 |

#### Surveillance and DOTS implementation

| DOTS Case detection rate (all types %) | 76  |
| DOTS case detection rate (new ss+, %) | 76  |
| DOTS treatment success (new ss+, %)   | 88  |

#### Laboratory services

| Number of laboratories performing smear microscopy | 13039 |
| National/Provincial reference Lab                  | 04    |
| Intermediate Reference Lab                         | 43    |
| No. of Accredited Lab Performing Culture & DST     | 34    |
| Implementation of EQA                              | All designed microscopy centers are implementing EQA |

#### Collaborative TB/HIV activities

| National policy of counseling and testing TB patients for HIV | Present |
| National surveillance system of HIV infection in TB patients | Ongoing |
| Cross-referral mechanism between ICTC and RNTCP            | Present |

Source: NTP, RNTCP India Report, 2011
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. For administrative purposes, the Country has been organized into seven provinces which consist of twenty one administrative divisions [20 administrative “atolls” and Male’ city].

The population of Maldives was over 330,652 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.

National TB Control Programme (NTP)

The National TB Control Programme (NTP) at the Centre for Community Health and Disease Control, Ministry of Health and Family, Male, Maldives, is the central body for registration, planning, monitoring, training and evaluation of TB control activities since its establishment in 1976. TB is a notifiable disease and DOTS remains the core element of the National TB control programme. Close coordination and collaboration with other health-care institutions, especially private health-care institutions, in diagnosing and accurately reporting identified cases has been established. All anti-TB drugs are available only through the government-run national TB control programme. The main objectives of the NTP are to effectively improve and strengthen the TB preventive activities, in addition to diagnosis and treatment of the TB cases. In this regard, the establishment of critical infrastructure and human resource development for intensified case-finding, early case detection and strengthening the microscopy network are critical. At the same time, social mobilization for increased community involvement and utilization of available services and strengthening NTP management have also been identified as key areas.

Status of Tuberculosis Control

Maldives adopted DOTS in 1994 and achieved the targets of TB control by 1996. WHO listed Maldives among 5 countries that achieved Global target which was announced in 44th World health assembly for achieving the targets of TB control well ahead of 2005.
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. Patients diagnosed with MDR-TB are managed clinically at the tertiary-care hospital, the Indira Gandhi Memorial Hospital (IGMH) in Malé, and treatment is based on individualized regimens. Second-line drugs for the management of these cases are procured by the Ministry of Health and Family on a case-by-case basis. In 2010 no MDR-TB case was detected nor started 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.

Available data suggest that TB is relatively uncommon in Maldives; HIV prevalence is estimated to be less than 0.1% in the adult population and TB/ HIV is not a major problem yet. Screening of all HIV-positive cases for active TB is in place in collaboration with the HIV programme since 2003. All TB patients who are above 15 years of age are being tested for HIV starting form 1 December 2011.

Achievements of NTP

- Started testing all TB positive patients who are above the age of 15 for HIV from 1st December 2011 onwards.
- 100% geographical coverage of DOTS achieved
- Diagnosis and treatment policies are in accordance with the WHO guidelines.
- Quality assured 1st line anti-TB drugs are purchased through Ministry of health funds and are provided free of charge to patients.
- WHO recommended treatment regimens are being used to treat TB patients.
- Control the emerge of MDR-TB cases
- The National TB control Program runs in close collaboration with the National HIV/AIDS program

Challenges

- Strengthening and sustaining the laboratory EQA system
- Inadequate levels of collaboration between all care-providers and the National TB program.
- Too few program staff at the central level for effective program implementation and monitoring.
Future Plans

• National Practical Approach to Lung health guideline to be developed.
• Assessment of the National TB control program implementation.
• Monitoring of Provincial TB control Programs.
• Conduct a mapping of the TB risk groups.
• Development of the National TB Strategic Plan.

Figure 29: Percentage of Sex distribution of registered TB patients (2011)

Figure 30: Cases Registered by treatment category, 2011

Figure 31: Percentage of Case notification by type of patient (2011)

Figure 32: Distribution of New smear positive cases by age and gender (2011)

Figure 33: Percentage of treatment outcomes among New smear positive cases (2010)

Figure 34: Case detection rate and Cure rate for new smear positive cases (2003 - 2011)

Source: NTP, Maldives Report, 2011
## Epidemiology, 2011

| Population | 330,652 |

### Epidemiological burden

- Incidence (all cases/100,000 pop/yr): 33
- Incidence (ss+/100,000 pop/yr): 04
- Mortality (Per 100,000 pop): 3.4

### Surveillance and DOTS implementation

- DOTS Case detection rate (all types %): 80
- DOTS case detection rate (new ss+, %): --
- Cure rate (new ss+, %): 78

### Laboratory services

- Microscopy Centers: 20
- National Reference lab (NRL): 01
- Implementation of EQA: 01

Source: NTP Maldives Report, 2011
Nepal is a landlocked country and is located in the Himalayas and bordered to the north by the China and to the south, east, and west by the India. It is comprised of 75 districts divided into five regions (Far-Western, Mid-Western, Western, Central and Eastern). It has an area of 147,181 square kilometers and a population of approximately 27.99 million. The urban population is largely concentrated in the Kathmandu valley. Nepal has a market economy largely based on agriculture and tourism.

National Tuberculosis Programme (NTP)

The National Tuberculosis Programme (NTP) is fully integrated within the general primary health services. NTP vision, goal, policies and strategy are in line with WHO and international recommendations.

National Tuberculosis Centre (NTC) is the focal point of the NTP. It is responsible for establishment of programme policies, strategy and planning. In addition, NTC also carries out the functions of national referral clinic. Central laboratory at the NTC is the focal point for NTP laboratory network which is responsible for policy and guideline development, training, quality control and supervision. Technical support, monitoring and evaluation, training, supervision, logistics, health education, communication, and research are key functions of NTC. Nepal has a long and successful history of TB control.

NTC has established of Programme Management Unit (PMU) at the central level for over all management of the Global Fund grants. This PMU consists an overall Coordination, Finance, Monitoring & evaluation, Sub Recipient Management, Training, Procurement and technical sections for Private Public Partnership, MDR TB Management and Advocacy Communication & Social Mobilization.

At the Regional level, NTP activities are planned and carried out with coordination and cooperation of the Regional Health Directorate. At the District level, the District Health Office/ District Public Health Office are responsible for planning and implementation of NTP activities within the district.
Status of Tuberculosis Control

The prevalence of HIV is steadily rising in Nepal making collaborative measures from both National AIDS and TB Control Programme more important now than ever before. NTP has conducted several periodic surveys to establish the prevalence of HIV among TB patients. The latest survey showed HIV prevalence among TB patients at 2.4%.

World Health Organization estimates prevalence of all types of tuberculosis cases for Nepal at 71,000 (238/100,000) while the number of all forms of incidence cases is estimated around 49,000 (163/100,000). 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 6,200 in 2010 (21/100,000).

New smear positive TB case notification rose steadily from 1996 with the introduction of the DOTS strategy till 2001 when nationwide expansion was achieved. The global targets of 85% treatment success and 70 % case detection rate have already been achieved. Like many developing countries tuberculosis mostly affects the young age group of the population (15-54 year). However, age distribution trend among new smear positive cases during recent couple of years shows a small but steady shift to older age group of patients. This evidence suggests beginning of the effects of good TB control and slowing of disease transmission in the community over recent years.

Case finding rate for mid July 2010 to mid July 2011 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. Case finding rates have remained almost static for past six years, however for the latest reporting period decreased than previous year.

A key milestone in the history of Nepal National TB Programme was the introduction of six month treatment regimen in 2009. During July 2009 – July 2010 period a total of 37,732 TB patients were registered for treatment in NTP. Treatment success rate among new sputum smear positive TB cases (15,569) was 90%. Like previous years the default rate remains low at 3% while failure rate among new smear positive is 1%.

In line with the recommendations of WHO and other international technical agencies NTP now offers fixed-dose combination (FDC) tablets for the treatment of tuberculosis (TB).
**Multi Drug Resistant TB Management (DOTS PLUS)**

The proportion of MDR-TB among new cases in Nepal has fluctuated from a little over 1.0% to 2.9% in the four surveys that have been conducted since 1996 making trends difficult to interpret. The latest estimate in 2006 is 2.9% (95% CI: 1.8-4.3) among new cases and 11.7% (95% CI: 7.2-17.7) among retreatment cases.

In 2009, with WHO support National TB Center in collaboration with NATA/GENETUP conducted surveillance of XDR-TB among the registered MDR-TB patients. The study shows a prevalence of 5% of XDR-TB cases among MDR-TB cases registered.

The largest number of MDR-TB cases registered during FY 2067/68 belongs to failures of CAT 2 i.e. 81.7% followed by CAT 1 failures with culture and DST confirmed MDR which is 10.3%.

The largest number and proportion of MDR-TB patient belongs to 15-54 age groups with almost half of the registered patients in age group 15-34.

Cure rate among 158 MDR patients registered during FY 65/66 was 71.5% while 8.2% of the patients failed the treatment, 5.7% died and 13.3% defaulted. Cure rates among patients registered during FY 2062/63, 2063/64, 2064/65 was 66.3%, 72% and 65.2%.

Key reason of decline in cure rate in FY 2064/65 was due to high default rate i.e. 18.1%. Currently DR TB programme services are available in all five Regions of the country through 12 Treatment Centers and 54 Sub Treatment Centers. Nepal DR TB management programme has been a model of ambulatory treatment in the WHO South East Asia Region.

Nepal reported its first XDR-TB cases in 2008. XDR-TB has proven to be much more difficult to treat than MDR-TB and is extremely difficult to treat in HIV positive patients. Till July 2011, 27 XDR patients are under treatment in NTP.

**Achievements**

- Case findings (TB) = 73%
- Treatment Success = 90%
- Expansion Plan of PAL in 29 districts
- TB/HIV programme expansion in 15 districts

**Key Constraints & Challenges**

- Programme sustainability: Major component of the budget is from external donor.
- No sanction post of Chest physician at National, Regional and Zonal level hospitals
- No chest hospital at National level
Insufficient socio-economic support and lack of infection control are key challenges for optimal performance of DR TB management.

DR TB management programme is managed through existing staff within PHC who receive no extra remunerations or incentives for this additional responsibility.

There is no provision of health hazard allowance for health workers working for DR TB programme which is seen as disincetive and discouragement.

Planned Activities

- High Quality DOTS
- Health System Strengthening
- Laboratory Network
- TB/HIV Collaboration
- MDR-TB Management
- Public Private Mix
- Advocacy, Communication and Social Mobilization (ACSM)
- Operational research
- Programme Management
### Epidemiology, 2011

<table>
<thead>
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<th>Parameter</th>
<th>Value</th>
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<tbody>
<tr>
<td>Population</td>
<td>27,999,405</td>
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</table>

#### Epidemiological burden
- Incidence (all cases/100,000 pop/yr): 163
- Prevalence rate (all cases/100,000 pop/yr): 238
- Case Notification (all cases/100,000 pop/yr): 54
- Mortality (deaths/100,000 pop): 21

#### Surveillance and DOTS implementation
- DOTS case detection rate (new ss+, %): 73
- DOTS treatment success (new ss+, %): 90

#### Laboratory services
- Number of laboratories performing smear microscopy: 505
- Number of laboratories performing culture and DST: 02
- Implemented of EQA: Yes

#### Collaborative TB/HIV activities
- National surveillance system of HIV infection in TB patients: Yes

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. There are five provinces, two regions and one Capital Territory. These areas are further divided into 141 districts.

Population of Pakistan was approximately 180 million as at the end of 2011. Adult male population 61 million, adult female population 57 million and children under 15 yrs are 65 million. Pakistan is ranked as the 6th most populous nation in the world. The major problems in health are due to poverty related communicable diseases, childhood illnesses, reproductive health problems and malnutrition.

National TB Control Programme (NTP)

In Pakistan, Tuberculosis control and prevention activities were started in 1949 with mass BCG vaccine campaign. WHO declared TB a global emergency in 1993; Government of Pakistan endorsed the DOTS strategy and revised its national TB control policy in 1994. Technical guideline was developed and five DOTS pilot sites were initiated in 1995, but only one site became operational.

National TB Control Programme (NTP) is in the Ministry of Inter-Provincial Coordination, Government of Pakistan. NTP is administering programme implementation successfully in the public sector as well as a number of projects in collaboration with partners.

Status of Tuberculosis Control

TB is still a major development challenge for Pakistan. It ranks 5th amongst the 22 countries with high burden of TB. Government of Pakistan endorsed the DOTS strategy, following WHO’s declaration of TB as a global emergency in 1993, The National TB Control Programme (NTP) Pakistan adopted DOTS (Directly Observed Treatment, Short course) strategy in 1995. TB control targets of NTP aligned with the Millennium Development Goals (MDGs), which are “to cure 85% of the detected new and 35% among re-treatment TB new cases of Sputum Smear Positive cases (SS+) pulmonary TB and to detect 70% of the estimated
cases upon achievement of 85% cure rate." The impact targets are “to halt and begin to reverse the incidence of TB by 2015, and to reduce by 50%, prevalence and mortality rates by 2015, relative to the 1990 levels.” The incidence target is part of target 6.c of the MDGs. While the outcome targets include “achieving case detection rate of at least 70% for new SS+ cases and to reach a treatment success rate of at least 85% for such cases”. Within the MDG framework, these indicators are defined as the proportion of cases detected and cured under DOTS.

Among total TB cases notified in 2011, 40% were New smear positive (NSS+), 39% New smear negative (NSS-) and 17% New extra-pulmonary (EP). Treatment outcomes of new smear positive cases registered for treatment in 2010: cured were 77%, treatment completed 17%, failure around 1%, defaulted about 4% and death 2%. The treatment success rate under DOTS is also increasing, from 77% in 2001 to 93% for patients registered in 2010.

**MDR-TB patients**

- 690 MDR-TB patients were enrolled by 31st March 2012
- Three laboratories have been upgraded for culture and DST
- Aga Khan University Lab has been engaged to provide support for Culture and DST services as interim arrangement
- Ten hospitals have been assessed for infection control and plan has been developed for up-gradation of OPDs and Wards to institute the infection control measures to reduce the risk of transmission
- Mechanism for Social Support has been developed and implemented to ensure treatment adherence and increase treatment success
- Agreement has been signed with GDF/IDA for the procurement of GLC approved Second Line Drugs (SLDs)
- Installation of 12 pilot sites for Gene-Xpert machines. 7206 patients screened out of which 699 were found to be Rifampicin resistant.

**Achievements of NTP**

- **Case Notification**: A steady progress has been made during year 2011 to improve the case detection and treatment success rate by emphasizing on quality assurance of smear microscopy, drug management, community mobilization, involving tertiary care hospitals, NGOs, and inter-sectoral organizations and above all involving private sector for service delivery. Number of TB cases diagnosed was increased from 269290 to 270404 in 2011.
- **Lab EQA**: 1112 laboratories of BMUs were covered under EQA in the country.
- **Advocacy, Communication and Social Mobilization**: Development of National ACSM strategy
- Upgrading the ACSM webpage
- Development of Patient Empowerment Strategy
- Circulation of Quarterly News Letter
- Printing of Reports (World TB Day Reports, Annual Reports, etc)
- Development of IPC Manuals for Health care & Service Providers
- Development of National Media Strategy

**Monitoring, Supervision & Evaluation:**
- Development of National M&E Framework
- 24 NPOs and M&E Officers recruited

**TB Drug Management:**
- Development of Dispensing Guidelines & Manuals for First-line and Second-line anti-TB drugs
- Development Quality Assurance Plan for drug management
- Development of drugs distribution plan and PSM Plan
- Refurbishment of 115 district ATT drug stores
- Eight months SCC phased out wef. Jan 2012
- Trainings of doctors, dispenser and store keepers ongoing
- Drug management information system (DMIS)

**Developmental Work:**
- Development of National TB Guidelines, Training Modules for Doctors & Paramedics
- Development of curricula for under graduate medical and nursing/paramedics students
- Joint Coordinating Board and National Technical Working Groups:
- Constituted for TB/HIV & MDR- TB.

**Management of TB/HIV co-infection:**
- Development of guidelines and manuals for the screening and management of TB/HIV co-infected patients in consultation with Technical Working Group.
- Sixteen sentinel sites strengthened; through collaborative efforts of TB & AIDS control programs and non-government partners for screening, care and support of TB/HIV co-infected patients.
- 36179 TB patients screened and 109 were found HIV+
- Forty-nine TB patients found positive in 870 PLWHA cases

**Public-Private Mix (PPM):**
- Involvement of 1800 GPs clinics in private sector in 60 districts.
- 21117 cases were registered in private sector versus 84616 TB cases in public sector. 20% TB cases in national data were contributed through the PPM in 2011-12
• **Childhood and difficult to diagnose TB case management:**
  - In 30 DHQ hospitals and 32 tertiary care hospitals, program is providing free pediatric drugs and Purified Protein Derivative (PPD).
  - 25737 childhood TB cases notified in 2011
• **Disease Prevalence Survey:**
  - NTP has concluded country-wide TB Prevalence survey in 2011 to estimate the exact burden of TB in the country.

**New Initiatives**

• Electronic Surveillance System (Web-TBS) has been initiated with the support of WHO-EMRO to be piloted in 10 districts and expanded country wide in 2013.

**Future Plans**

• Strengthening of Core DOTS – to prevent emergence of MDR-TB.
• Strengthening of laboratory network for EQA, capacity development for culture/DST services and new diagnostics. Long term planning is required for purpose built laboratory with adequate BSL-III facilities and capacity to meet global targets.
• Initiating a Lab accreditation plan for Smear microscopy and Culture and DST
• Installation of Gene-Xpert in 10 tertiary care hospitals.
• Scaling up of MDR-TB intervention enabling 30 hospitals to manage 12,000 patients approximately over the grant period of 5 years. Developing comprehensive community/hospital based management for MDR/XDR implementation and expansion plan (including laboratory, DOTS treatment supporters’ network, infection control, ACSM, social support, pharmacovigilance and palliative care). Developing capacity of local manufactures to make quality assured WHO certified Second Line drugs.
• Scaling up provincial capacity to increase consumption/burn rate and accelerate performance;
• Scaling up M&E system at both provincial and central level to improve surveillance capacity and its quality;
• Scaling up drug management capacity to manage both 1st and 2nd line drugs with all related issues in quality and timely manner.
• Introduction of Urban DOTS: For enhanced case detection and treatment success.
• Legislation on
  o TB as notifiable disease
  o Prohibition of on the counter sale of ATT drugs

**Research Studies Published /carried out:**

• The Research Unit has successfully published article titled “Comprehensiveness of
Primary services in the care of infectious tuberculosis patients in Rawalpindi, Pakistan” in Public Health Journal Action journal of International Union against Tuberculosis and Lung Disease vol 1 No 1 published 21 September 2011.

• “An improved record system for tracing outcome of” transferred-out” DOTS patients” published in the EMHJ VOL-17, No-2-2011.

Figure 41: Percentage of Sex distribution of registered TB patients (2011)

Figure 42: Distribution of New smear positive cases by age and gender (2011)

Figure 43: Percentage of Case notification by type of patient (2011)

Figure 44: Cases Registered by treatment category, (2011)

Figure 45: Percentage of treatment outcomes among New smear positive cases (2010)

Figure 46: Case detection rate and Treatment success rate for new smear positive cases (2001 - 2011)

Source: NTP, Pakistan Report, 2011
### Epidemiology, 2011

**Population**  
- 180 million

#### Epidemiological burden

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value (100 000 pop/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidence (all cases)</td>
<td>231</td>
</tr>
<tr>
<td>Incidence (ss+/100 000 pop/yr)</td>
<td>97</td>
</tr>
<tr>
<td>Prevalence rate (all cases)</td>
<td>350</td>
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<tr>
<td>Mortality (TB cases)</td>
<td>33</td>
</tr>
</tbody>
</table>

#### Surveillance and DOTS implementation

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOTS Case detection rate (all types)</td>
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<tr>
<td>DOTS case detection rate (new ss+, %)</td>
<td>60</td>
</tr>
<tr>
<td>DOTS treatment success (new ss+, %)</td>
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</table>

#### Laboratory services

<table>
<thead>
<tr>
<th>Service</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>National reference laboratory</td>
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</tr>
<tr>
<td>Number of reference lab.</td>
<td>01</td>
</tr>
<tr>
<td>Intermediate Reference lab</td>
<td>04</td>
</tr>
<tr>
<td>Number of Accredited laboratories performing Culture and DST</td>
<td>NIL</td>
</tr>
<tr>
<td>Implementation of EQA</td>
<td>1078</td>
</tr>
</tbody>
</table>

#### Collaborative TB/HIV activities

- Out of a total of 36,179 TB cases were screened
- 109 were found to be HIV+ve

Source: NTP, Pakistan Report, 2011
SRI-LANKA

Sri-Lanka is an island in the Indian Ocean with an area of 65,610 square kilometers. It has nine provinces and 25 administrative districts. Each province is governed by a Governor. Population in Sri-Lanka was approximately, 21 millions in 2011.

National Programme for Tuberculosis Control and Chest Diseases (NPTCCD)

The National Programme for Tuberculosis Control and Chest Diseases is a decentralized unit, which controls tuberculosis as well as other chest diseases in the country. It functions through a network of 23 District Chest Clinic and 2 Chest hospitals in close coordination with other general health institutions. The broad aim of the health policy of Sri-Lanka is to increase life expectancy and improve quality of life. This is to be achieved by controlling preventable diseases and by health promotion activities. Tuberculosis is still contributing to be major public health problem in the country.

The National Tuberculosis Control Programme (NTP) is a part of the national health services, which functions under the Deputy Director General, Public Health Services (DDG/PHS) within the Ministry of Health. The programme is headed by the Director National Programme for Tuberculosis Control and Chest Diseases (NPTCCD), and is responsible for the tuberculosis control activities of the entire country. It functions through a network of district chest clinics, branch chest clinics, chest hospitals and chest wards in close co-ordination with the general health services.

Status of Tuberculosis Control

Sri Lanka is not among the 22 high burden countries of tuberculosis. However, Tuberculosis remains a widespread problem and poses a continuing threat to the health and development of the people. The estimated annual risk of tuberculosis infection (ARTI) is 0.4% (0.17% – 0.72%). The highest rates of infection have been found in the most densely populated areas, such as Colombo and other urban areas.

The overall default rate has dropped from 15% to 4% in the last ten years, due to intensified default tracing efforts involving the district and field Public Health Inspectors (PHIs) and other
categories of health staff. Innovative case-finding strategy will be implemented through TB/diabetes collaborative activities.

The estimated prevalence and incidence rates of all forms of tuberculosis in 2010 were 101 and 66 per 100,000 population respectively. The notification rate of all forms of TB and new smear-positive cases were 45 and 22 respectively, showing a slight but steady increase compared with previous years. Treatment success rates among new smear-positive cases were 86% for the cohort of patients registered in 2009.

HIV co-infection rates among TB patients are currently estimated at less than 0.1%. TB patients have been included under the annual surveillance for HIV since 1993. In 2010, of 1015 TB patients counseled and tested for HIV, only 2 were found to be HIV positive. A national policy for the provision of CPT and ART to HIV-positive TB patients is in place.

**MDR-TB patients**

So far, MDR-TB is low only eight cases were detected in 2010. A national drug resistance survey was completed in 2006, and this confirmed the very low levels of drug resistance of 1.4% among new patients and 8.8% among re-treatment cases in the country. Culture and DST is performed for all patients who fail Category I regimens, at the time of initiation of treatment for all patients commencing Category II regimens, contacts of MDR-TB cases, all patients commencing re-treatment regimens, HIV-infected TB cases, migrants and prisoners. MDR-TB is diagnosed at the national reference laboratory which is supported by the Supranational Laboratory at TRC, Chennai, India. Patients are treated initially at the Central Chest Hospital after which they are referred for treatment at chest clinics in their respective districts. Second-line anti-TB drugs for treatment of MDR-TB cases are procured by the government from the open market. Periodic stock-outs have been reported. The success rate among MDR-TB cases is not yet known. National guidelines for the treatment of MDR-TB have been developed. The programme initiated MDR-TB case management under GLC approval with support through the Global Fund in 2010. The number of diagnosed MDR-TB patients is 13 and among them 10 were registered for treatment.

**Achievements**

- Number of total TB cases detected - Year 2011 (10,328) is comparatively higher than in year 2010 (10,095) & 2009 (9788) result in the reduction of gap between Total Estimated Cases for the year (14,064).
- Treatment success rate - Remain > 85% since 2005. Reached and is sustaining the Global Target.
- Defaulter rate - Further reduction by year 2010 (4.1%).
- Treatment facility for MDR-TB patients - Improved after refurbishment of MDR-TB ward.
- DOTS implementation coverage – Achieved 100% in the country including North & East areas
• PPM activities - Established two DOTS centers in two large private sector hospitals.
• Network of regional level TB culture facilities – Established & smoothly functioning at Kandy district.
• Standardized TB/HIV cross referred formats, TB/HIV guideline and TB/HIV counselling materials – Developed.
• PAL guidelines - Developed.

Challenges
• To manage TB control activities in high risk categories (i.e., Estate sector, Prisoners, DM patients etc.) in the context of existing sociological setting.
• To overcome the stigma attached with TB.
• To maintain an adequate level of human resources in the face of higher turnover of trained staff.
• To address the expected high risk of TB and MDR-TB due to migrants reaching from high burden countries for employment and returning expatriates in IDP camps, India.
• To strengthen TB control activities in North & East areas by providing all basic facilities such as human, financial & infrastructure etc.
• To address the high disease burden & defaulter rate in urban areas, especially in Colombo City.

New Initiatives
• The National Strategic Plan (2012-2016) for National Programme for TB Control & Chest Diseases was revised with the technical assistance from WHO.
• Ayurvedic physicians island wide sensitized on TB case finding.
• Expansion of network of Regional level culture facilities; Refurbishment of Ratnapura Culture Laboratory commenced. Preliminary discussions have been initiated to refurbish two other Culture Laboratories.
• Initiated the development of web based electronic Patient Information Management System (e-PIMS)
• Review of TB deaths in order to identify case finding and management gaps

Future Plans
• To further strengthen of TB control activities in Northern Province with financial assistance of GFATM Round 9(Health System Strengthening)and Round 6 TB grants.
• To further strengthen the Patient Centered TB control activities by establishing the peripheral level Microscopy services, improving the Comunity DOTS, etc.
• To conduct Mobile screening programmes for targeted high risk groups at district level
• To further improve screening of prison inmates.
• To introduce new TB diagnostic facilities in order to rapid diagnosis of TB and MDR TB
• To upgrade the National Tuberculosis Reference Laboratory to Bio safety level 03 laboratory
• Development of an Infection Control Plan for chest clinics, TB wards and other health care facilities
• Improving technical capacity of health staff attached to the National TB Control program.
• Further improvement of infrastructure facilities for the delivery of quality of TB services
• Strengthening of PPM in TB control establishing DOTS centers in private hospitals and linking private institutions to the programme data management system

Research Studies Published/carry on

• Study on socio-economic characteristics and potential risk factors of TB patients attending to Central Chest Clinic Colombo and influencing the disease on their lifestyle – Not yet completed
• Piloting and scaling up of TB and DM collaboration in Sri Lanka – Not yet completed
• Study on prevalence of TB among prisoners – Not yet completed

Figure 47: Percentage of Sex distribution of registered TB patients (2011)
Figure 48: Distribution of New smear positive cases by age and gender (2011)
Figure 49: Percentage of Case notification by type of patient (2011)
Figure 50: Cases Registered by treatment category, (2011)
Epidemiology, 2011

Population - 21,309,040

Epidemiological burden
Incidence (all cases/100 000 pop/yr) - 66
Incidence (ss+/100 000 pop/yr) -
Mortality rate (TB cases/100 000 pop) - 9.1

Surveillance and DOTS implementation
DOTS Case detection rate (all types %) - 73
DOTS case detection rate (new ss+, %) -
DOTS treatment success (new ss+, %) - 86

Laboratory services
Number of laboratories performing smear microscopy - 171
National/Provincial reference Lab - 01
Number of Accredited Laboratories performing Culture and DST - 02
Implemented EQA - 141

Collaborative TB/HIV activities
National surveillance system of HIV infection in TB patients - Yes

4. TB HIV CO-INFECTION

TB HIV Co-infection poses a critical challenge for the health-sector and for people living with HIV and TB. HIV is the strongest risk factor for developing active TB disease. An HIV positive person is more likely to develop TB disease as compared to an HIV negative person.

In 2011, 1.1 million (13%) of the 8.7 million people who developed TB worldwide were HIV-positive; 79% of these HIV-positive TB cases were in the African Region. Globally, there were an estimated 0.4 million HIV-associated TB deaths in 2011, with approximately equal numbers among men and women. Seventy-nine percent TB patients known to be HIV-positive were provided with CPT, and 48% were started on ART, similar to levels achieved in 2010. More work remains to be done to ensure that all HIV-positive TB patients are rapidly started on ART, in line with WHO recommendations. And in 2011, 3.2 million people enrolled in HIV care were reported to have been screened for TB, up 39% from 2.3 million in 2010. Of those without active TB disease, 0.45 million were provided with IPT. The scale-up of collaborative TB/HIV activities saved a total of 1.3 million lives between 2005 and the end of 2011.

WHO recommends, the three I’s for HIV and TB – intensified TB case-finding, isoniazid preventive treatment and TB infection control – to decrease the burden of TB among people with HIV. The SAARC TB & HIV/AIDS Center also includes a fourth ‘I’ in its Regional strategy on TB/HIV Co-infection (Revised), it states about the integrated case management including ART & DOTS.

Worldwide, the number of HIV-positive TB patients on ART has grown from a very low level in 2004 to reach 258,000 in 2011. Among TB patients notified in 2011 and who had a documented HIV-positive test result, 48% were on ART globally in 2011. And globally, the number of TB patients living with HIV who were enrolled on CPT increased to 0.41 million in 2011. The coverage of CPT among TB patients with a documented HIV-positive test result was 79% in 2011.

The World Health Organization recommended interventions are collectively known as collaborative TB/ HIV activities. They include HIV testing of TB patients, provision of antiretroviral therapy (ART) and co-trimoxazole preventive therapy (CPT) to TB patients living with HIV, HIV prevention services for TB patients, intensified TB case-finding among people living with HIV, isoniazid preventive therapy (IPT) for people living with HIV who do not have active TB, and infection control in health-care and congregate settings. Globally in 2011, there were an estimated 0.43 million (range, 0.40 million–0.46 million) deaths from TB among people who were HIV-positive.
Antiretroviral therapy considerably reduces the risk of morbidity and mortality from TB. A meta-analysis published in 2012 found that ART decreases the individual risk of TB disease by 65%, irrespective of CD4 cell-count. IPT and ART given together can have an additive effect and substantially reduce the risk of developing active TB disease among people living with HIV. This evidence is the reason why updated WHO policy guidance on collaborative TB/HIV activities (issued in 2012) includes earlier initiation of ART along with the Three Is for HIV/TB as key interventions to prevent TB among people living with HIV. ART is recommended for all TB patients living with HIV, irrespective of their CD4 cell-count. The number of TB patients who knew their HIV status reached 2.5 million in 2011; equivalent to 40% of notified cases of TB.

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 Is 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 06: HIV testing and provision of CPT, ART and IPT in the SAARC Region, 2011

<table>
<thead>
<tr>
<th>Country</th>
<th>TB patients with known HIV status</th>
<th>Tested TB patients that are HIV-positive</th>
<th>% HIV-positive TB patients started on</th>
<th>HIV-positive people screened for TB</th>
<th>HIV-positive people provided with IPT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. %</td>
<td>No. %</td>
<td>CPT ART</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Afghanistan</td>
<td>6,445 23</td>
<td>05 &lt;1</td>
<td>04 04</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>1,900 01</td>
<td>81 04</td>
<td>81 81</td>
<td>69</td>
<td>-</td>
</tr>
<tr>
<td>Bhutan</td>
<td>- -</td>
<td>- -</td>
<td>- -</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>India</td>
<td>688,530 45</td>
<td>44,702 06</td>
<td>40,583 26,165</td>
<td>386,081</td>
<td>-</td>
</tr>
<tr>
<td>Maldives</td>
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<td>- -</td>
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</tr>
<tr>
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<td>11 28</td>
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<tr>
<td>Sri Lanka</td>
<td>1,832 18</td>
<td>21 -</td>
<td>- -</td>
<td>-</td>
<td>7</td>
</tr>
</tbody>
</table>


In Afghanistan 6,445 TB patients have known their HIV status in 2011. In Bangladesh 1,900 TB patients have known their HIV status among them 81 were HIV positives. And 69 HIV positive patients were screened for TB. In India, 688,530 TB patients have known their HIV status. In Pakistan 8,322 TB patients have known their HIV status among them 33 were HIV positives while in Sri Lanka 1,832 TB patients have known their HIV status in 2011.
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