Report of the Meeting of the SEA Regional Technical Working Group on Tuberculosis

New Delhi, India, 22–23 April 2010

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Contents

Abbreviations

ACSM	advocacy, communication and social mobilization activities
AIDS	acquired immunodeficiency syndrome
ARTI	annual risk of tuberculosis infection
BCG	Bacillus Calmette-Guérin
CDR	case-detection rate
CoD	cause of death
DOTS	internationally recommended strategy for tuberculosis control
DST	drug susceptibility testing
EPTB	extrapulmonary tuberculosis
FDCs	fixed-dose combinations
GDF	Global Drug Facility
GF	Global Fund
GLI	Green Light Committee
HRE	isoniazid, rifampicin and ethambutol (combination regimen)
ICF	intensified tuberculosis case finding
IDUs	injecting drug users
IPT	isoniazid preventive therapy
ISTC	international standards of TB care
HIV	human immunodeficiency virus
LED	Light-emitting diode
MARPS	most-at-risk populations
MDG(s)	Millennium Development Goal(s)
MDR-TB	multidrug-resistant tuberculosis
M&E	monitoring and evaluation

NGO	nongovernmental organization
NSP	new sputum smear-positive
NTP	National Tuberculosis Programme
PAL	practical approach to lung health
PLHIV	people living with HIV
PLHA	people living with HIV/AIDS
PPM	public-private mix/public-public mix
PTB	pulmonary tuberculosis
RNTCP	Revised National Tuberculosis Control Programme
SEAR	WHO South-East Asia Region
SEARO	(WHO) Regional Office for South-East Asia
TB	tuberculosis
TWG	technical working group
WHO	World Health Organization
XDR-TB	extensively drug-resistant tuberculosis

1. Introduction

The World Health Organization's South-East Asia (SEA) Region has the highest burden of tuberculosis in the world. Appreciable progress has been made with TB control using the DOTS strategy, and several countries in the Region have reached the 70% case-detection and 85% treatment success targets. Further improvement and expansion of the scope of TB services is envisaged through the application of the wider Stop TB strategy that was adopted in 2006 and which now forms the core of the Regional and national multiyear plans for TB control. Several technical and policy-level discussions and meetings on TB control have been held both at the global and regional level in 2008 and 2009.

Renewed emphasis has been placed on reaching universal case detection and treatment of all forms of TB (as opposed to the 70% and 85% case-detection and treatment success targets respectively among new smear-positive cases only that was previously set under DOTS) through improving diagnosis and management of all forms and, in particular, better managing **multi-** and **extensively drug-resistant tuberculosis**, and HIV-associated TB. Expanding TB control services through a wider intersectoral approach, addressing the social determinants of TB, promoting advocacy communication and social mobilization (ACSM) approaches and reviewing research priorities in the context of the revised targets will also facilitate universal case detection and control.

Updated diagnostic and treatment guidelines as well as a number of revised guidelines relating to the above-mentioned areas have also been finalized over the past two years through extensive consultations with staff at all three levels within WHO and with the technical partners, with a view to develop a more holistic and comprehensive package of interventions for TB control.

The proposed newer approaches to more effectively address these areas of TB control and the revised diagnostic and treatment guidelines were discussed at the meeting of the SEA Region National TB Programme Managers held at WHO SEARO in November 2009. During the

deliberations at this meeting, it was felt that further guidance on the newer approaches and on the revised diagnostic and treatment guidelines was required in the context of the countries of the Region.

It was, therefore, proposed to organize a meeting of experts of the SEA Region Technical Working Group on TB, primarily to deliberate on and provide guidance to Member States on the above issues. The specific objectives of this meeting were to:

(1) review progress and constraints in implementing the Stop TB strategy in Member States of the SEA Region; and

(2) provide guidance on adopting and applying the revised WHO policies and guidelines to more comprehensively address TB control in the specific context of Member States of the Region.

2. Opening session

The meeting was opened by the Regional Adviser, TB, and chaired by Dr P.R. Narayanan, former Director, WHO Tuberculosis Research Centre, Chennai, and Chair of the SEA Region Technical Working Group on TB. Thirteen members of the Technical Working Group on TB and invited experts and staff from the WHO Regional Office for South-East Asia (SEARO) and country offices of the Region attended the meeting.

It was reiterated that the meeting of the South-East Asia Regional Technical Working Group on TB was an ideal forum for candid and thorough discussions on issues related to TB control in the Region. While successful implementation of DOTS in the Region has helped to curb the rates of MDR- and XDR-TB, national programmes now have to effectively scale up activities to:

- achieve earlier and higher case detection,
- further improve treatment outcomes,
- scale up the diagnosis and management of multi- and extensively drug-resistant TB,
- involve all health-care providers,
- intensify case finding and treatment among PLHIV, and

- address research priorities to improve both outcomes and impact of TB control measures.

Following an overview of the progress and challenges in TB control globally and in the SEA Region, the Technical Working Group (TWG) deliberated on each of the seven technical areas in which guidance had been sought by Member countries.

3. Framework for early case detection

The 2005 target was to detect at least 70% of new sputum smear-positive TB and most countries have achieved this baseline. Target 8 of the Millennium Development Goals (MDG) envisages the need "to halt and begin to reverse incidence of TB by 2015". Specific MDG goals that have been endorsed by the Stop TB Partnership stipulate that by the year 2015 the prevalence of and deaths due to TB should be reduced by 50% and that TB should be eliminated as a public health problem by the year 2050.

Early case detection remains the key to successful TB management. Reducing the gap or delay from the onset of symptoms to the start of treatment by strengthening laboratories, ensuring better X-ray diagnosis and introducing new tools is essential. This entails both identifying and involving all health care providers, whom people usually approach first, through public-private collaboration and implementing a communication strategy that improves health-seeking behaviour.

The second issue relates to "missing cases", i.e. cases that are never registered under national programmes. Screening for TB among those with a chronic cough in all health facilities and in the community must be improved through intensified case finding. Waiting for people to seek care is tantamount to delayed detection. It is therefore imperative to find ways of actively screening socially-at-risk populations such as close contacts of index cases, slum dwellers, migrants, the homeless, and prison populations. There is also a need to expand the diagnostic algorithm to include case finding among "clinical" risk groups, which include people living with HIV, those suffering from diabetes, smokers, alcoholics, the malnourished, those previously treated for TB, infants and the elderly. In both contexts, finding feasible and cost-effective solutions and identifying relevant and appropriate new diagnostic tools are key interventions.

In addition, diagnosis of TB in children remains a weak area. The actual magnitude of childhood TB is unknown. The new recording and reporting system to capture cases among the age groups of 0–4 and 5–15 years has not been implemented in many countries. The management of childhood TB has been poorly reflected in national guidelines and strategic plans. Contact tracing is an important measure to improve the detection of active cases of TB among children. However, limitations in human and financial resources to implement contact investigation are a deterrent. There is still a lot of work required to develop a framework and tools for setting priorities. These include gathering enough evidence and guidance on what to prioritize and how and where, and the need for situation assessment, operational research and new tools.

In conclusion, the challenges were perceived to be in the following areas:

- Uncertainties relating to the estimates for TB incidence in many countries.
- Long tradition of "passive case finding". Staff at various levels of the programme and health facilities need to be sensitized to the concept of early and intensified case finding to realize the new targets of universal detection.
- Level of access to health-care and diagnostic facilities, and limitations in terms of human resources, limited engagement of other providers and hospitals.
- Weak links with other programmes, such as maternal and child health (MCH) and HIV programmes.
- Low levels of community awareness and participation and stigma in many settings.
- Legal issues relating to extension of facilities to migrants, accessing prison populations and high-risk groups.
- Limitations in current programme recording and reporting systems that do not adequately capture case finding by other providers, childhood TB, smear-negative and extrapulmonary cases.

- Weak national health information management systems and lack of mandatory reporting of TB cases by other service providers.
- Insufficient scientific evidence on the effectiveness and cost-effectiveness of active case-finding approaches.

Members then deliberated on (i) how to prioritize actions for early and increased case detection in countries, given existing evidence; and (ii) systems to measure delays and evaluate the effect of interventions on achieving "early" case detection analysing the risk and benefits to programmes in pursuing innovative case-finding strategies.

Actions at the country level:

(1) Analyse the gaps and estimate the entity and type of missing cases in each country context, and define the strategies to increase case detection accordingly.

(2) Engage in innovative approaches for active case finding while ensuring good analysis and documentation of the impact, risk and benefits of implementing active case-finding strategies by target group.

- As the first tier, focus on recognized risk groups such PLHAs, household contacts (particularly children) and institutionalized populations.
- Consider expansion of intensified case finding to population groups where the yield is likely to be high, such as among IDUs, slumdwellers and cross-border populations.
- Undertake intensified case finding among other population groups on an operational research basis and also linking with other providers for case finding among diabetics, smokers (such as through PAL), etc..

(3) Link with other programmes such as MCH and the Tobacco Free Initiative (TFI) and scale up linkages with private providers, large hospitals and medical schools.

(4) Promote community case-finding interventions, involve civil society and frontline providers in designing strategies to increase

case detection among those who are more vulnerable and marginalized.

(5) Develop operational guidelines for active case finding based on best practices as determined through operational research.

(6) Adopt newer recommended diagnostic modalities, such as:

- Improve smear microscopy by using improved technology (i.e. LED-based systems) and by process (i.e. front-loading of smear microscopy, allowing to have results within a day).
- Initiate processes to evaluate rapid molecular tests.

However, countries should conduct operational research and feasibility studies in their specific country context prior to introducing new tools. For each new intervention to be implemented in the countries, cost effectiveness needs to be included in the evaluation. Other related recommendations included the need to improve recording and reporting of all forms of TB, ensure the availability of uninterrupted supplies of drugs for treatment and explore regulatory approaches such as mandatory TB notification, certification of care-providers and measures to ensure the rational use of anti-TB drugs. It was also felt that in order to implement all of the above strategies, national guidelines for different categories of health staff would need to be formulated.

Recommendations for WHO and technical partners:

- Assist Member countries to:
  - collect information on all aspects of PPM-DOTS in the country to enable the use of this information for systematic planning and implementation of PPM.
  - conduct national situational assessments to measure diagnostic delays and cases missed using the "Onion" model, along with behavioural studies and operational research (practices of diagnostic procedures, diagnostic delay, additional yield of cases through contact tracing and advocacy, communication and social mobilization (ACSM) activities).

- implement measures to capture "missing cases" including through improved data management.
- document and publishing successful examples of interventions in countries that have contributed to early and improved case detection; and, based on lessons learned develop guidance on possible interventions for replication on a wider scale.
- plan wider application of PAL and collaboration with other programmes to prioritize interventions and mobilize necessary resources.
- introduce regulatory approaches such as mandatory notification and other measures to ensure the rational use of anti-TB drugs.

Members then reviewed the current diagnostic algorithm for the detection of smear-positive TB and made the following observations:

- the present algorithms based on symptoms should be revised to include a wider constellation of symptoms than now; and
- it was necessary to emphasize that the symptom-based definition did not imply that anybody outside the definition should be excluded from being examined, particularly for screening population groups considered at higher risk of TB.

These were considered essential steps in the context of wider case detection. It was also felt that it was necessary to evaluate the performance of diagnostic algorithms in the context of smear-negative TB and consider appropriate revisions, improve the algorithms to diagnose EPTB and childhood TB and train staff on the recognition of such cases.

The overall recommendations for WHO and technical partners were:

(1) Collaborate with countries to improve the estimates for the TB burdens in the countries.

(2) Gather evidence that can guide countries in more accurately defining case suspects based on symptoms other than cough (>2 weeks) in order to improve case detection.

(3) Evaluate the performance of diagnostic algorithms in the context of smear-negative EPTB and childhood TB, and consider appropriate revisions.

(4) Assist countries in deploying new tools, developing operational research on new diagnostic tools, and elaborating guidelines on the basis of the outcomes.

4. Adoption/adaptation of revised TB treatment guidelines, including guidelines for childhood TB

Background

The implementation of the Stop TB Strategy raised issues that needed to be addressed through the revision of the existing WHO Treatment Guidelines. A substantial corpus of more recent and re-evaluated evidence on TB diagnosis and treatment also needed to be incorporated into WHO guidelines. Also, achieving universal access to quality TB care necessitated the revision of formerly recommended treatment categories that accorded lower priority to smear-negative, extrapulmonary and previously treated patients. The programmatic management of MDR-TB within National Tuberculosis Programmes is principally hindered by poor laboratory capacities and low treatment coverage for cases detected. The available guidance on treatment of HIV-associated TB was also seen as inadequate and in need of revision.

Treatment guidelines for childhood TB needed revision to address challenges that had not been addressed fully – such as treatment of paediatric MDR-TB cases and co-infected TB/HIV cases – and incorporate the new evidence on optimal dosage schemes, BCG vaccination among newborns of HIV+ mothers, isoniazid chemoprophylaxis and diagnostic algorithms. Interim updated treatment dosage schemes for first-line drugs were published in 2009 and the revisions are still being carried out.

The Working Group reviewed the key challenges in the treatment of TB cases in the Region including issues of access to quality treatment in the context of widespread availability and use of both first- and second-line drugs in countries. Lack of information on the level of MDR in subgroups of

previously treated patients was also noted. While the capacity for DST and access to MDR-TB treatment is currently limited in most countries, a Region-wide expansion of culture and DST capacity is in the early stages with support from the Global Fund, the Global Laboratory Initiative (GLI) and EXPAND-TB Initiative in association with partners, namely the Foundation for Innovative New Diagnostics (FIND) and UNITAID. The group also reviewed the challenges faced in managing childhood TB, some of which relate to poor coordination between NTPs and paediatricians involved in managing cases of childhood TB, and inadequate capacity for contact-tracing, screening, excluding active TB and completing chemoprophylaxis among children.

The Working Group addressed each of the questions that were raised in the context of the revision of the treatment guidelines, and discussed the guidance to be provided to countries on adopting the updated guidelines, particularly with regard to the following:

(1) Treatment of new pulmonary TB patients with the six-month (2HRZE/4RH) regimen as against the eight-month (2HRZE/6HE) regimen.
As this recommendation has already been adopted in countries of the Region, this was not discussed further.

(2) Use of a thrice-weekly dosage schedule in the intensive phase for the 2HRZE/4HR regimen is an acceptable alternative to the preferred daily-dose schedule.

This related only to India where a fully-intermittent thrice-weekly treatment regimen is used by the Revised National Tuberculosis Control Programme (RNTCP). It was felt that given the available evidence on failures, relapses or acquired drug resistance among pan-susceptible patients when comparing daily dosing throughout the duration of the therapy with intermittent regimens, the RNTCP of India should be advised to renew emphasis on treatment supervision while continuing to document outcomes including relapse rates at intervals of two and five years after treatment completion.

(3) Use of intermittent regimens during the intensive phase and duration of TB treatment for persons living with HIV.

All countries have adopted standard treatment duration for all TB patients in line with this recommendation. The issue of intermittent treatment related only to India where the thrice-weekly treatment regimen is followed. While noting the strong recommendations against the use of intermittent treatment regimens during the intensive phase for PLHA, given the extremely limited evidence from small cohorts and the absence of evidence from randomized clinical trials underlying the WHO recommendation, the RNTCP was advised to:

- undertake a national consultation on treatment of TB in HIV-infected persons and consider providing daily TB treatment at least during the intensive phase; and
- undertake research to evaluate the efficacy of thrice-weekly treatment in the context of HIV-infected patients taking antiretroviral treatment (ART).

The Working Group recommended that TB patients living with HIV receive the same duration of TB treatment as HIV-negative TB patients given the limited evidence presented on the equivalence of efficacy with six-month and nine-month regimens.

At the same time, the Working Group strongly urged that countries be advised to urgently expand access to ART for all TB patients given the very strong evidence that the use of ARVs significantly reduced failures, relapses and deaths among TB patients coinfected with HIV.

(4) Use of the combination drug regimen HRE in the continuation phase in countries/areas where high community Isoniazid resistance has been documented.

Noting the lack of evidence for clear guidance on this issue, the Working Group recommended the following:

- Prospective programme-based cohort studies to establish relapse rates for INH-resistant TB cases treated under programmes.
- In populations with known high levels of INH resistance documented through representative drug resistance surveys, programmes may consider providing new TB patients with HRE in the continuation phase.

It was felt that greater understanding about the benefits would help inform the threshold of isoniazid resistance in cases where this recommendation should be applied.

5. Effectiveness of sputum monitoring for predicting relapse, failure and pre-treatment INH resistance

Based on existing evidence on the value of smear-positivity at the second month of treatment in predicting resistance, response to therapy or subsequent relapse, and the view that it was necessary to continue to help countries implement quality-assured follow-up sputum smear microscopy, the Working Group made the following recommendation on sputum monitoring for all new pulmonary TB patients:

- For new smear-positive pulmonary TB patients, sputum smear microscopy should be performed at the completion of the intensive phase (end of two months).
- If at the end of two months the smear is positive, repeat smear microscopy at the end of three months
- If positive at the end of three months, send a sample for culture and DST in order to confirm a diagnosis of MDR-TB.

It was felt that instead of modifying current practice, countries should be supported to expand rapid, high-throughput DST to accelerate expansion of DST to more suspect groups such as patients previously treated at the onset of therapy or new patients who remained positive at three months, and thereafter expand universal access to DST at the onset of treatment of all patients to enable earlier detection of MDR-TB [this recommendation is to read in conjunction with (6) below].

6. Effectiveness of treatment extension to prevent failure or relapse in new patients

The Working Group recommended that the practice of treatment extension at the end of the intensive phase in patients who remained sputum-positive at two months be retained based on:

(1) the evidence that the extension of the intensive phase could reduce relapses,

(2) the benefit of overall longer duration of treatment with rifampicin,

(3) this being a means to improve adherence to the sputum monitoring schedule, and to enable the sending of specimens for culture and DST at three months,

(4) no evidence of harm caused by this extension of treatment in this subset of patients, and

(5) the minimal programmatic impact of continuing the policy, since almost all programmes in the region are implementing this policy already.

7. Choice of treatment regimens for previously treated patients; use of empirical MDR-TB treatment regimens

After reviewing the supporting evidence for the recommendations on the initiation of empirical treatment for suspected MDR-TB, and noting the lack of sufficient evidence for the use of empirical MDR-TB regimens as compared with the standard WHO re-treatment regimen among new smear-positive pulmonary TB patients who have had unfavourable outcomes from first-line treatment for various reasons, the Working Group made the following recommendations:

- Countries should prioritize treatment of laboratory-confirmed MDR-TB cases before incorporating empirical MDR-TB treatment into programme policy/planning.
- Countries should urgently plan and implement surveillance for MDR-TB among various potential MDR-TB suspect groups, including new patients remaining smear-positive at the third month of treatment, and all re-treatment groups.
- NTPs should obtain and/or use country-specific drug-resistance data to determine the levels of MDR-TB among patients classed as ‘failures’, ‘relapses’ and ‘defaults’.

- All previously treated TB patients should have culture and DST done before or at the start of treatment.
- In settings where rapid DST is available, these results should guide the choice of regimen.
- In settings where rapid DST results are not routinely available, TB patients returning after defaulting on or relapsing from their first treatment may receive re-treatment regimens containing the first-line drugs 2HRZES/1HRZE/5HRE, and as soon as the DST results are known the regimens should be adjusted accordingly.
- Empirical MDR-TB treatment should only be started for those MDR-TB suspects among patient types such as category-II failures where evidence of very high MDR-TB prevalence has been convincingly demonstrated by national programmes through representative drug-resistance studies.

The overall recommendations for WHO and technical partners were to provide intensive technical assistance to Member countries to assess and implement the revised treatment guidelines. This assistance takes various forms, including:

- holding national consultations with multiple stakeholders to gain incountry support for change,
- developing and promoting accessible and easily understandable information on TB for community activists and journalists,
- assisting programmes to conduct surveillance for MDR prevalence among different potential suspect groups, and
- commissioning necessary research where required.

8. Scaling up the diagnosis and management of multi- and extensively drug-resistant TB

In the South-East Asia Region, well-functioning national TB control programmes achieving high cure rates have resulted in maintaining the slow but steady decline in TB incidence rates during the past decade, and the low estimated levels of multidrug resistance among newly detected cases, which is at 2.8% (range 1.9–3.9). MDR-TB rates are high at an estimated 18.8%

(range 13.3–24.3) among previously treated cases in the Region. However, given the large number of TB cases, nearly one third of the world's MDR-TB cases – an estimated 180 000 cases – are in the SEA Region alone. India is currently estimated to have the highest number of MDR-TB cases globally.

Extensively drug-resistant TB (XDR-TB) has also been reported from five Member States of the Region (which may be an underestimated figure due to poor laboratory capacity to diagnose XDT-TB and the availability of almost all second-line drugs in the private sector in most countries of the SEA Region). In areas of high HIV prevalence, the potential for increased transmission of MDR- and XDR-TB is high. National reference laboratories in India and Thailand are currently undertaking DST for second-line anti-TB drugs to determine the extent of XDR-TB. Reference laboratories in Bangladesh, Indonesia, Myanmar and Nepal are also engaged in rapid surveys for XDR-TB among mycobacterial isolates from patients who have failed re-treatment regimens, through linking with the SRLs in the global network.

Laboratory capacity in the Region requires further strengthening. While national reference laboratories (NRLs) in almost all Member countries (with the exception of DPR Korea, Maldives and Timor-Leste) have the capacity for mycobacterial culture, the same is still quite limited and confined to mostly one national reference laboratory per country. The NRLs in Bangladesh, Indonesia and Myanmar have recently been accredited for quality assurance for culture and DST, while Sri Lanka is in the process of upgrading its NRL.

The Region has only two laboratories that are designated as supranational laboratories: these are the laboratories at the Tuberculosis Research Centre in Chennai, India, and the Bureau of TB at Bangkok, Thailand. As a result, the NRLs in some countries are linked to SRLs outside the region, for example: the NRL in Bangladesh to the SRL at Antwerp; that of DPR Korea to the SRL in Hong Kong; Indonesia and Timor-Leste to the laboratory at Adelaide, Australia; and that in Nepal to the Gauting Laboratory in Germany.

During the past two years, the Green Light Committee had approved the case management of patients with MDR-TB under national programmes in nine countries. Bangladesh, India, Indonesia and Myanmar are in the process of expanding these services, while Nepal has already established

ambulatory case management services for MDR-TB throughout the country. Maldives continues to treat the few cases that occur in that country on a case-by-case basis. Bhutan, Sri Lanka and Thailand are due to begin enrolling cases in end-2010 while DPR Korea will apply to the GLC to establish MDR-TB case management under their national programme in 2010. By March 2010, nearly 3000 patients with MDR-TB had been registered for treatment in the Region and initial treatment success rates of upto 66% have been reported.

However, given the current scale of these programmes, the large majority of patients have no choice but to seek care through private providers such as medical teaching or referral institutions and large public and private hospitals, and then purchase second-line drugs in the open market. Second-line drugs are widely available in the Region and currently most patients with MDR-TB continue to be treated on an ad-hoc basis at tertiary care hospitals by private practitioners and at medical teaching institutions.

The Regional Strategic Plan for TB Control (2006–2015) includes assisting countries in building laboratory capacity to undertake quality-assured culture and drug susceptibility testing, intensifying and expanding surveillance for MDR-TB in the Region, strengthening capacity to diagnose and manage MDR-TB including ensuring essential standard of care and supporting countries in preparing general health systems to deliver MDR-TB interventions.

Partners such as FIND are working through the Global Laboratory Initiative to assist countries in evaluating and deploying newer diagnostics (liquid culture, molecular tests for rapid diagnosis of MDR-TB) in India and Myanmar and will expand this support to Bangladesh and Indonesia in the next biennium. UNITAID support is in place for India, Myanmar, Timor-Leste and Nepal.

While developing comprehensive national plans for the urgent, but feasible, scale up of diagnostic and case management for MDR-TB, conforming to internationally recommended protocols, including good infection control measures, is a priority. The challenges facing countries in the Region are summarized below:

The key challenges were perceived to be in the following areas:

a. Gaps in basic TB control:

- Insufficient funding, drugs, supplies and skilled and motivated personnel available to ensure early diagnosis, treatment and care for all TB patients.
- Suboptimal access to quality first-line drugs through all sectors and providers.
- The International Standards for TB Care (ISTC) are not yet widely in use by all providers; links between hospitals/medical schools and community-based providers for case detection and reporting and for treatment follow-up not yet well established.
- Patient-centred approaches to support adherence to ALL treatment categories, since ensuring adherence to treatment is a major challenge and has implications for the management of MDR-TB.

b. In managing MDR-TB:

- In the absence of substantive evidence from national DRS in many countries, the understanding of the burden of MDR/XDR-TB is based on "best estimates".
- There are therefore difficulties in planning ahead and setting targets to be reached.
- Laboratory capacity for diagnosis of drug-resistant cases and for DRS remains limited.
- There are challenges to introducing new diagnostic tools/ technology.
- Long lead times for procurement of drugs and limited capacity for effective drug management hamper the scaling-up of treatment services.
- Limited capacity, experience in managing MDR-TB cases in the public sector under NTPs poses challenges.

- Lack of infection control measures in most health facilities, including hospitals which are already treating MDR-TB patients, and at the household level.
- Need for substantial additional resources to manage even a relatively small number of patients (including availability of staff, training, drugs, service delivery, etc.).
- Engaging civil society in the response to TB.

Updated country guidelines need to be implemented and treatment brought in line with international standards for TB care (ISTC) and should be in place in all sectors, particularly the private sector. The guidelines should include control strategies such as tracing and treatment of close contacts of MDR-TB patients, particularly for those at high risk, such as children and HIV-infected people, and cross-border TB control strategies.

Strategies to prevent both primary defaults as well as defaults during treatment need to be carefully designed, including large-scale integration of community-based treatment of MDR-TB into national programmes. Regardless of the model of treatment delivery in place, infection control measures have to be adequately and urgently implemented.

With the exception of Thailand, all countries of the Region have identified laboratory capacity as a major constraint to scaling up diagnosis and treatment of MDR-TB cases. Considerable effort will be required to expand capacity for quality-assured DST in the Region in order to more accurately measure the extent of MDR- and XDR-TB. Given the widespread availability and use of second-line drugs (the majority of which are prescribed outside of national programmes) in the absence of treatment protocols for MDR-TB patients, additional numbers of patients with XDR-TB are likely to occur and need to be identified and treated at the earliest possible.

Adequate quantities of quality-assured first- and second-line anti-TB drugs for uninterrupted treatment of the planned number of MDR-TB cases should be secured and legislative measures to ensure rational use of drugs need to be put in place or strengthened. The pharmaceutical sector should be encouraged to provide competitively priced quality-assured (as per international standards) second-line drugs. The WHO prequalification programme should be explored on a larger scale.

A substantial quantum of additional resources is required to provide adequate training in order to create a pool of skilled and motivated personnel and to provide quality infrastructure for diagnosis, patient management and surveillance. Sustainable financial support should be guaranteed through periodic applications to global initiatives and funds and establishing a steady domestic funding mechanism. Sustainable links should be created with the health workforce development activities to ensure a constant flow of adequate and competent staff to manage workloads even when they increase. The necessary technical assistance for MDR-TB control should be ensured through coordinated partnerships and incountry capacity-building.

The Working Group deliberated on the following issues:

- Strategies for rapidly increasing capacity for the diagnosis of MDR-TB.
- Approaches to scaling up, evaluating and approving programmes for the management of MDR-TB cases.
- Maximizing the use of resources (human resources, infrastructure) including through the involvement of other sectors to support NTPs in managing MDR-TB.
- Ensuring the rational use of anti-TB drugs to prevent MDR- and XDR-TB, in addition to PPM approaches.

Recommendations

The following recommendations were made by the Working Group in the respective topic areas:

A. Strategies for rapidly increasing capacity for diagnosis

Steps recommended for action at the country level:

(1) Prioritize the use of newer rapid technologies as recommended by WHO and conduct feasibility studies to deploy these for use in field settings.

(2) Pursue HR planning for laboratory personnel.

Practical approaches that have achieved tangible results must be pursued:

(1) Actively consider outsourcing TB diagnostic services to quality-assured laboratories outside of the public health network to accelerate scale-up of laboratory capacity, as is being successfully done in India and Nepal.

(2) Establish and improve the degree of networking between smear microscopy centres and laboratories performing culture and DST to reduce the overall turnaround time so that results are made available on time for treatment decisions.

(3) Use outcomes from operational research and experiences in countries to make strategic decisions on the number of cultures required for treatment follow-up in order to free the remaining capacity for additional diagnostic cultures.

Recommendations for WHO and technical partners:

(1) Provide a framework to help countries make the right decisions on technologies to be adopted.

(2) Develop tools and help countries in realistically planning for the expansion of national TB laboratory networks, including HR and infrastructure development.

(3) Provide information on standard specifications and standardized procurement procedures.

(4) Focus on the pre-service/undergraduate and postgraduate training of laboratory personnel and provide assistance to develop an appropriate pre-service curriculum on laboratory techniques in countries.

(5) Expand the network of supranational and national reference laboratories through identifying candidate laboratories and building their capacity.

B. Strategies on approaches to effective planning, evaluation and approval of programmes for MDR-TB expansion

Steps recommended for action at the country level:

(1) Develop feasible expansion plans to increase access to diagnostic and treatment services for MDR-TB cases with detailed budgets.

(2) Ensure that these plans for the management of MDR-TB are streamlined and reviewed as an integral part of national programme plans.

(3) Review the need/duration of inpatient care during the intensive phase; pilot models for outpatient care during the intensive phase, and evaluate these pilots while including a cost-effectiveness component.

(4) Establish greater collaboration with technical and development partners to harmonize support in a sustainable way.

(5) Increase the levels of engagement of civil society and grassroots organizations; and work with communities to build community-based initiatives to ensure treatment adherence and decrease defaults in the context of preventing the emergence of MDR-/XDR-TB.

(6) Plan for national/subnational drug resistance surveillance (to better determine the burden and patterns of drug resistance.

Recommendations for WHO and technical partners:

(1) Sensitize policy-makers on the needs and measures required for scaling up MDR-TB management (and not merely the importance of addressing MDR-TB).

(2) Identify and establish regional centres of excellence (as knowledge hubs and centres for capacity-building and technical support to countries).

(3) Set targets for scaling up plans to manage MDR-TB, which include assisting countries to develop realistic but more ambitious plans through:

- assessing existing capacities and the capacity to expand laboratory services, the number and organization of

laboratory facilities taking into consideration the newer diagnostic modalities available,

- assessing existing and potential capacity to expand treatment based on experience from initial sites and "best case scenarios", and
- supporting drug-resistance surveys to better determine the burden, trends and patterns of drug resistance.

(4) Assist countries to improve the forecasting of drug requirements and discuss procurements with GDF/GLC to optimize procurements.

(5) Advocate and support improved drug procurement, storage and supply mechanisms to ensure that quality drugs are supplied in an interrupted manner.

C. Strategies to develop adequate human resources

Steps recommended for action at the country level:

- Comprehensively plan for the human resources that should be in place to expand laboratory and treatment capacity; and secure funds for contracting necessary additional staff in the interim to allow scale-up.
- Work with overall HRH departments and other programmes to develop the workforce. This can be achieved by improving recruitment, helping the existing workforce to perform better (including improving quality and scope of training), and retaining skilled staff through career development and other performance-based incentives.
- Make use of training tools developed by WHO and MDR-TB partners. These include guidelines and training materials for training health staff, and involving all providers – including hospitals, private providers and medical schools – in the diagnosis and management of MDR-TB.
- Create strong social support networks to promote adherence to treatment.

Recommendations for WHO and technical partners:

(1) Assist countries in developing comprehensive human resource development plans cutting across general health systems, including capacity-building of other sectors managing MDR-TB cases; and identify essential key positions and help ensure the placement of skilled personnel against these positions.

D. Strategies to ensure rational use of drugs (in addition to PPM approaches)

Steps recommended for action at the country level:

(1) Enforce existing regulations, given that regulations for ATT drugs to be sold on prescription alone are already in place; and limit use of second-line drugs to accredited physicians/facilities only.

(2) Promote wider use of first-line FDCs through all sectors and coordinate with national drug regulatory authorities to ensure the quality of these drugs.

(3) Involve and encourage pharmacists' associations and pharmaceutical companies to self-regulate the marketing and sale of ATT in the spirit of a common public health responsibility. This approach appears to have met with success in some settings in the Region. The experience with this approach needs to be better documented and shared.

(4) Involve civil society and the media for advocacy on the irrational use of drugs and ensure the maximum outreach for such information. The use of "community journalism" could be a viable approach to this end.

(5) Amend the patients' charters to more fully articulate the rights of patients with regard to treatment regimens.

(6) Develop tools and approaches to help ensure that patients are informed and empowered to actively "be in charge" of their treatment, on the lines of what has been achieved by the HIV-positive community.

Recommendations for WHO and technical partners:

(1) Link national programmes to ongoing global and regional initiatives on the prevention and containment of drug resistance.

(2) In the context of the RNTCP of India, promote discussions on formulations appropriate for use by the programme and test FDCs under more expanded field conditions.

9. Addressing TB/HIV: Intensifying case finding and treatment among PLHIV

Current situation and key achievements

About 3.4 million people are estimated to be living with HIV/AIDS in the South-East Asia Region. The Region is distinguished by a complex and heterogeneous HIV epidemic at different stages across different countries, and different geographical areas within the countries. For example, while Thailand and Myanmar have well-described generalized HIV epidemics, the geographical distribution of prevalence differs markedly.

Approximately two thirds of the estimated HIV burden in India is in six states in the southern and north-eastern part of the country, where only one third of the country's population lives. In Indonesia, where the overall prevalence of HIV is low, three provinces have been reported to have far higher rates of HIV. In other countries such as Bangladesh and Nepal, increasing HIV prevalence among high-risk groups such as intravenous drug users (IDUs) has in the past raised concerns about the potential risk of a generalized HIV epidemic though no evidence of any transition has been demonstrated.

HIV is associated with higher TB case-fatality rates and a shift in TB case notifications towards younger age groups, especially in areas and regions in countries where HIV prevalence is high. However, HIV does not appear to have fundamentally altered the incidence of TB in the Region as has been observed in sub-Saharan Africa.

An integrated strategy outlining the expanded scope of activities to control TB/HIV has been defined in the "Regional Strategic Framework on

HIV/TB". The key elements of the regional strategy include joint TB/HIV planning, implementation and monitoring. These encompass prevention of the progression of latent TB infection to active TB; decreasing the burden of TB among PLWHA; decreasing the burden of HIV among TB patients; strengthening the health systems response to TB/HIV through capacity-building, improved drug management, establishment of cross-referral systems, ASCM and, finally, community involvement.

Three decades into the HIV epidemic, there has been a dramatic shift in perceptions on TB/HIV. While the levels of implementation varies in the different countries, HIV programmes are beginning to implement intensified TB case finding (ICF), exploring IPT and recognizing that infection control in HIV-care settings requires urgent action. TB case-finding and treatment activities are beginning to be integrated in the routine activities of HIV programmes. In some areas, HIV programmes and partners are extending TB services to the most at-risk populations (MARPS), namely sex workers, IDUs, etc. as part of harm reduction services. TB programmes have in many countries integrated the reporting on HIV status and treatment into routine TB programme records and reports, and are making tangible efforts to find TB patients who are HIV-infected and linking them to HIV care and antiretroviral treatment.

TB/HIV activities are available countrywide in Thailand, and are being expanded in India where an intensified package of TB/HIV interventions is available to 400 million people in 11 states and a nationwide scale-up by the year 2012 is a national goal. Indonesia, Myanmar and Nepal are also scaling up services. Case-by-case management is ongoing in the Maldives. Bangladesh, Bhutan, Sri Lanka and Timor-Leste are preparing to implement collaborative activities. As a result, a comprehensive package of interventions for HIV-associated TB is now available to 600 million people in the Region, or a little less than half the population of the South-East Asia Region.

Two functional models on TB/HIV are emerging in countries of this Region. The first is based on cross-referral of TB patients for HIV services and of PLHIV for TB diagnosis and treatment between TB and HIV service facilities. This model is largely prevalent in countries with concentrated or low HIV prevalence. The second is a fully integrated model with "one-stop

service" wherein TB and HIV services are provided at the same time in the same facility, as is the case with Thailand.

In summary, the key challenges were perceived in the following areas:

- Ensuring a patient-centred approach through unified points of care.
- Overcoming administrative barriers to collaboration between two often very different health programmes and mobilizing the necessary political will and resources at all levels.
- Differences in the level of service availability: HIV counselling, testing and care is much less accessible than TB diagnosis and treatment.
- Promoting effective and accountable implementation of intensified TB case-finding at HIV service delivery points.
- Initiating and scaling up the availability of isoniazid preventive therapy (IPT) for HIV-infected persons without active TB.
- Increasing awareness about and reducing the stigma that goes with both HIV and TB by creating stronger and better partnerships with communities and reaching out to civil society with information.
- Effective monitoring and evaluation of the collaborative activities that are in place.

The Working Group deliberated on the following issues and questions:

- In the context of international recommendations for HIV testing of all TB patients and TB suspects, how should WHO assist countries in the Region to scale up HIV testing among TB patients? When, where and how should surveillance for HIV among TB suspects be introduced?
- How can the true integration of TB and HIV services at the operational level be promoted, particularly in high-HIV prevalent settings?
- How can preventive therapy be promoted for PLHA attending HIV-care facilities and among contacts of TB cases?

Recommendations

On HIV testing of all TB patients for routine surveillance

Steps recommended for action at the country level:

- Introduce/expand provider-initiated testing and counselling (PITC) of all TB patients while ensuring adequate capacity for effective HIV counselling, and use this information for routine surveillance. Ensure TB records include HIV diagnosis elements and that routine TB programme reports include HIV status information.
- Where HIV testing of TB patients is not routine, support linked surveillance of HIV among TB patients with the results made available to the patients.
- Seek to phase out the use of unlinked anonymous HIV testing for surveillance. Instead, use surveillance activities to build HIV counselling and testing services where surveillance is done.
- To assess the applicability of HIV testing of TB suspects, undertake surveys for HIV among general OPD attendees and compare this to HIV prevalence rates documented among TB patients and TB suspects attending health-care facilities.

On integrating services at the operational level

Steps recommended for action at the country level:

- Support increased access to HIV care to an extent comparable with TB services while prioritizing higher HIV prevalence settings.
- Facilitate HIV testing of TB patients and promote the development of HIV testing services in tandem with all microscopy services.
- Utilize the opportunity provided by decentralized TB services for HIV prevention and screening.
- Engage civil society to advocate for improved TB/HIV services.

On isoniazid preventive therapy for PLHA

Steps recommended for action at the country level:

- Discuss and seek consensus though national consultations on the need to establish isoniazid preventive therapy (IPT) for PLHA as a routinely integral part of HIV care services.
- Pilot and expand IPT in HIV-care settings and also intensifying TB screening and case-finding among PLHIV.
- Disseminate information on IPT to community activists/PLHA networks for advocacy, and create a felt need and demand for IPT among affected communities.

Recommendations for WHO and technical partners:

- Engage in high-level advocacy together with partners for greater collaboration between HIV and TB control programmes, including the implementation of the 3I's (ICF/IPT/Infection control).
- Promote and support the uptake of PICT in countries.
- Facilitate national consultations and initiation of IPT in countries where IPT activities are nascent/ in-pilot stages.
- Develop and disseminate detailed factsheets for national programmes to improve programme uptake of IPT.

10. Involving all health-care providers

The acknowledgement that engaging other sectors and particularly providers of health care outside of national programmes and public health systems is essential for the success of TB control efforts in the SEA Region has preceded the formal launch of the Stop TB Strategy, of which this became one of the six key components. In the early 1990s national TB programmes felt the need to engage with private practitioners, NGOs and medical schools concurrently as DOTS services were being expanded.

Universities and medical schools are today contributing to evidence-based policies and strategies through technical advisory groups at the national level, providing advice on key elements to be included in pre-

service training curricula and also on research into best practices for implementation of new strategies such as the management of more complex MDR-/XDR-TB and TB/HIV cases. They are also offering and evaluating services in their catchment areas.

A large number of international and national NGOs form the bulwark for providing services in remote inaccessible areas and among marginalized populations in several countries of the Region. The work of Bangladesh Rural Advancement Corporation and the Damien Foundation following MoUs with the Government of Bangladesh is an outstanding example of large-scale service delivery by NGOs that have contributed to achieving national targets for TB control.

Over the years the partnerships have grown manifold: 360 medical colleges, 22 000 private practitioners, 1500 large public and private hospitals, 150 corporate institutions, 2500 nongovernmental organizations and 550 prisons are now working in collaboration with national TB control programmes in the Region through PPM (public-private mix) initiatives. The International Standards for TB Care are being promoted through professional societies in Bangladesh, India, Indonesia, Myanmar, Nepal and Sri Lanka to link with all private and public health professionals including those attached to health services, such as the defence forces, railways and state-run industries.

While inadequate recording and reporting does not allow the overall measurement of the precise contribution of non-NTP care-providers, increments in case notifications of up to a fifth of new registered cases on average have been reported in areas where non-NTP and private sectors have been involved. Treatment success rates in these areas have risen to over 90%, proving that by sensitizing private practitioners and providing them appropriate information it is possible to extend the reach of the programme to achieve national targets through other sectors. Studies in India and Indonesia also demonstrated significant savings through this approach both for the public health system and to individual patients.

More efforts, however, need to be made to expand and replicate these relatively well resourced and supervised projects while maintaining the quality of these successful initiatives. The experience from India, Indonesia and Myanmar has shown that mutual trust and constant dialogue mediated

by an effective interface or peer group are instrumental in effectively planning, implementing and reviewing performance. This interface brings the various key stakeholders together. They include professional opinion leaders, academicians, representatives from local health services, NGOs and others.

To systematize and sustain wider application of the PPM Initiative it has proved necessary that national programmes ensure access to essential inputs in terms of drugs and diagnostics, support human resource development in private facilities including the deployment of additional staff for outreach services, and provide nominal funding for upgrading infrastructure monitoring and evaluation. PPM has also mobilized other resources from the private sector such as the capacity for culture and drug susceptibility testing through the inclusion of private laboratories in the network of quality assured laboratories working with the programme. Currently, however, the scale of public-private collaboration is still insufficient and hence there is no perceptible impact on national case finding and treatment success rates.

Business alliances in the Region such as the Thai Business Coalition and the Business Alliance in India are emerging as major players from among the non-health private sector to have introduced TB services into their workplaces with inputs similar to that provided to establish TB services in the private health sector. This has resulted in gains from the industry in terms of retaining skilled staff instead of recruiting and retraining staff, while helping individuals to continue pursuing their livelihoods and making their contributions to families and communities. This has also led to reduction in stigma and discrimination as TB patients no longer are ostracized for having lost their jobs and having to downgrade their living conditions.

In summary, the key challenges were perceived to be in the following areas:

- Limited readiness and/or ability within NTPs (staff time, capacity) to rapidly expand PPM and link with heterogeneous groups of providers.
- No systematic involvement of private and general hospitals in laboratory QA mechanisms; inducting and monitoring private laboratories is not easy.

- Limited capacity for participatory planning, continuous interaction and supervision; there is a lack of forums to jointly address issues.
- Inadequate networking and coordination between various players, especially in urban settings.
- Inadequate mechanisms to enforce adherence to national guidelines and ISTC, resulting in variable quality of diagnosis and treatment; guidelines not always followed.
- Inability to measure precise contribution of diverse care-providers due to inadequate recording and reporting systems.
- User fees for diagnosis, treatment and follow-up visits (all private providers, some public providers).
- Poor patient retrieval in non-NTP sector: limited capacity for outreach services; referral links with community volunteers/DOTS centres still weak.
- Certification and/or accreditation of non-NTP providers not yet in place in most countries.
- Over-the-counter availability of anti-TB medicines due to lax enforcement of regulations, and concerns over quality of drugs outside of programmes cannot be ignored in the context of drug resistance.
- Lessons of productive collaboration with other care-providers not applied in scaling up MDR-TB diagnosis and treatment.

While many public-private partnerships have been initiated, these need to be scaled up to effectively contribute to national TB control efforts. Efforts, however, need to be directed at maintaining the quality of PPM initiatives as these expand from smaller well-supervised projects. Endorsement and dissemination of the International Standards for TB Care by professional societies and inputs in terms of drugs and diagnostics from the national programme, and reporting – typically weak areas in private practice – are other critical elements.

The Working Group deliberated on the following issues:

- Positioning PPM as an essential part of the wider health systems strengthening efforts at all levels (global, regional, country).

- Ways to secure stronger political commitment for private–public partnerships.
- Applicability of regulatory approaches such as mandatory notification, and restricting irrational use of anti-TB drugs.

Recommendations

Steps recommended for action at the country level:

Countries are encouraged to scale up public-private partnerships in a phased manner based on an assessment of the national situation while progressing towards universal access to TB care. In this context, it is necessary to:

- adapt and use PPM guidance documents and PPM tools to facilitate scale-up of PPM as a means to contribute to health systems strengthening;
- mobilize resources for PPM scale-up by utilizing opportunities available through national and international financing mechanisms while ensuring sustainability and adequate domestic funding of PPM programmes;
- involve representatives of non-NTP provider groups as stakeholders in developing the national strategic plans for TB care and control;
- measure and report the contribution of PPM interventions to TB control by making necessary changes to the recording and recording system;
- introduce complementary approaches to help PPM scale-up, for example, certification and accreditation of care-providers, minimizing irrational use of anti-TB drugs by restricting their availability, and setting a system for mandatory TB case notification;
- intensify training of private and public hospital and laboratory staff, and include ISTC in pre-service training in medical schools;
- expand referral networks between community health facilities and hospitals to improve follow-up of treatment at the community level (examples of Indonesia and India).

- include private laboratories in diagnostic network (examples of India and Myanmar).
- strengthen technical capacity at the intermediate level (and if necessary add contractual staff at the state level in India and at the provincial level in Indonesia).
- consider engaging with all care-providers in the programmatic management of MDR-TB and implementation of TB/HIV collaborative activities.
- involve research institutes and document results of successful PPM initiatives;
- achieve a higher level political commitment through use of PPM data, success stories and advocacy; and
- pursue the possibility of mandatory case notification of MDR-TB.

Recommendations for WHO and technical partners:

- Advocate, support the scaling up of implementation, and monitor PPM to engage all care-providers in TB control as a priority intervention to achieve early and complete case detection and universal access to TB care.
- Assist countries in making use of the PPM toolkit for scaling up PPM in a systematic way and in measuring and reporting the contribution of PPM to TB care and control.
- Facilitate country-specific introduction and documentation of complementary approaches to accelerate PPM scale-up such as mandatory TB case notification, restricting access to anti-TB drugs to ensure rational use, and certification and accreditation to engage relevant providers.
- Position the engaging of all care-providers through PPM as an essential part of health systems strengthening. Promote participatory development of PPM national strategies and operational guidelines based on lessons learnt.
- Assist countries in mobilizing financial resources through domestic and international funding mechanisms.
- Organize a regional consultation on PPM in urban settings.

11. Research priorities for TB control in the South-East Asia Region

Background

While significant progress has been made in TB control in the 11 Member States of the WHO South-East Asia Region, national TB control programmes continue to face a number of challenges. These challenges relate to health systems constraints, chiefly, insufficient numbers of skilled staff at the various levels of national health systems, weak laboratory networks and surveillance mechanisms, and inadequate infrastructure and logistical support.

At the same time, low levels of community awareness, poor health-seeking behaviour and widespread utilization of private sector services that are not linked to the national programmes are recognized as major impediments to improving case detection and treatment success. Establishing and then sustaining interventions for the more complex multidrug-resistant TB and HIV-associated TB is also proving difficult.

In the context of the newer interventions proposed under the new Stop TB strategy these challenges call for the generation of new information through effective research to yield answers on how to maximally benefit from existing tools and interventions and the feasibility, efficiency and cost-effectiveness of the proposed new interventions. Besides research into programme implementation, fundamental or basic research to develop new tools—such as new vaccines, diagnostics and drugs to improve TB control interventions—is equally essential at this point in the Global TB epidemic.

Research areas that could, therefore, be fruitfully pursued to improve programme implementation are:

(1) operational research into programmatic approaches to increase case finding and ensure access to quality treatment of all forms of TB, including smear-negative, extrapulmonary, paediatric, multidrug-resistant, and HIV-associated TB;

(2) social, economic and behavioural research that examines the larger domain of social and other determinants such as poverty,

malnutrition, and ethnic and gender differentials that affect the seeking and receiving of care for TB; and

(3) policy and health systems research that will provide insights into how TB control services are positioned and delivered through public health-care systems and the means to strengthen the delivery of TB care (while at the same time addressing some of the inherent constraints of these systems), and community-based TB care wherein there is collaboration with communities and cooommunity-based organizations to extend services beyond health-care service delivery points.

Another major area of research is epidemiological research. This examines the outcomes and impact of programme implementation and also helps to assess the cost-effectiveness of various interventions for TB control and their impact, in turn, on overall health and social and economic development.

Concurrent with research relating to programme implementation and evaluation as outlined above, basic research aimed at developing new tools is equally essential to achieve the long-term goal of TB control, which is TB elimination. It is basic research that will help develop newer and more effective vaccines that would prevent the progression from infection to disease, and formulate quicker, cheaper, more robust and yet more sensitive and specific diagnostics to diagnose all forms of TB including latent TB, as also new less toxic drugs that would significantly shorten the duration of treatment with better outcomes and fewer chances of relapse.

In summary, the perceived challenges were in the following areas:

- Inadequate mechanisms to share information on ongoing research both within the countries and with other countries in the Region.
- The links between researchers and policy-makers/programme managers to channel research to address programme needs and facilitate the translation of research into policy and strategy are weak.
- Capacity for research remains limited within national programmes.

- Limited allocations for research in public health areas and by national programmes.

The Working Group deliberated on the following issues:

- Adopting an appropriate research agenda that addresses national programmes in countries of the Region.
- Developing a Regional mechanism to (i) share/disseminate information from ongoing research, and (ii) set the research agenda, and support countries in developing and undertaking research related to specific issues in these countries.
- Providing assistance with the design of operational research protocols and coordinating multicentre studies to address programme challenges.

Recommendations

Steps recommended for action at the country level:

- Identify programmatic research priorities.
- Train programme staff to generate research questions by analysing the data available.
- Network with research institutions within the country to build capacity to undertake operational research for improving programme implementation.

Recommendations for WHO and technical partners:

(1) Develop a research agenda in consultation with NTP managers.

(2) Facilitate networking with institutions in the Region for the following:
    - capacity building at the country level.
    - helping countries to develop protocols, data analysis and report on the outcome.
    - generating protocols for multicentric studies to address some common issues
    - Mobilizing funding for research through avenues such as the Global Fund.

Annex 1

Agenda

1. Framework for early case detection.
2. Adoption/adaptation of revised TB treatment guidelines, including guidelines for childhood TB.
3. Effectiveness of sputum monitoring for predicting relapse, failure and pre-treatment INH resistance
4. Effectiveness of treatment extension for preventing failure or relapse in new patients.
5. Choice of treatment regimens for previously treated patients; use of empirical MDR-TB treatment regimens.
6. Scaling up the diagnosis and management of multi and extensively drug-resistant TB.
7. Gaps in basic TB control.
8. In managing MDR-TB.
9. Addressing TB/HIV: Intensifying case finding and treatment among PLHIV.
10. Involving all health-care providers.
11. Research priorities for TB control in the South-East Asia Region.
12. Conclusions and recommendations.

Annex 2

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The World Health Organization's South-East Asia (SEA) Region has the highest burden of tuberculosis in the world. Appreciable progress has been made with TB control using the DOTS strategy, and several countries in the Region have reached the global targets. Renewed emphasis has been placed on reaching universal case detection and treatment of all forms of TB through improving diagnosis and management of all forms and, in particular, better managing multi- and extensively drug-resistant tuberculosis and HIV-associated TB.

The specific objectives of the Meeting of the SEA Regional Technical Working Group on Tuberculosis were to review progress and constraints in implementing the Stop TB strategy in Member States of the WHO SEA Region; and provide guidance on adopting and applying the revised WHO policies and guidelines to more comprehensively address TB control in the specific context of the Region.

The recommendations for WHO and technical partners were to collaborate with countries to improve the estimates for the TB burdens; gather evidence to guide countries in more accurately defining case suspects based on symptoms other than cough in order to improve case detection; evaluate the performance of diagnostic algorithms in the context of smear-negative EPTB and childhood TB, and consider appropriate revisions; assist countries in deploying new tools or developing operational research on new diagnostic tools; and elaborating guidelines on the basis of the outcomes. This document is a report of the meeting.

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