



**Framework**  
for the **engagement**  
of **all health care providers**  
in the **management**  
of **drug resistant tuberculosis**

THE  
**END TB**  
STRATEGY



World Health  
Organization

**Framework for the engagement  
of all health care providers  
in the management  
of drug resistant tuberculosis**

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# Contents

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Abbreviations and acronyms .....	1
Acknowledgements.....	2
Foreword .....	3
Executive summary .....	4
Glossary .....	5
<b>1. Rationale and purpose.....</b>	<b>6</b>
<b>2. Approaches to engagement of relevant care providers and partners in PPM DR-TB... 9</b>	<b>9</b>
<b>2.1 Engaging individual health-care providers .....</b>	<b>13</b>
2.1.1 Referral of patients for diagnosis and treatment of DR-TB.....	13
2.1.2 Provision of DOT based on a patient-centred care approach, treatment follow-up and social support .....	15
2.1.3 Diagnosis and treatment of DR-TB.....	16
<b>2.2 Engaging public or private laboratories .....</b>	<b>17</b>
2.2.1 Diagnosis and referral of DR-TB patients for treatment.....	17
2.2.2 Quality assurance for DST.....	19
<b>2.3 Engaging public or private health institutions (e.g. hospital, or medical or health centre) .....</b>	<b>19</b>
2.3.1 Diagnosis, initiation of treatment, and selection of a provider for patient-centred DOT and case management .....	19
2.3.2 Diagnosis, treatment and management of DR-TB .....	22
<b>2.4 Engaging NGOs, professional associations or societies, affected groups, or other public or private organizations .....</b>	<b>23</b>
2.4.1 Providing patient support .....	24
2.4.2 Coordinating PPM implementation.....	25
2.4.3 Advocacy, resource mobilization, prevention and management of stigma and discrimination, regulation or linkage with existing social protection mechanisms.....	27
<b>3 Planning and implementing PPM DR-TB .....</b>	<b>29</b>
<b>3.1 National situational assessment .....</b>	<b>29</b>
<b>3.2 Development of a scale-up plan for PPM DR-TB as part of the national strategic plan for TB .....</b>	<b>29</b>
3.2.1 Mapping potential providers for PPM DR-TB.....	29
3.2.2 Defining PPM DR-TB approaches that are relevant for each type of potential provider.....	30
3.2.3 Planning and budgeting for PPM DR-TB.....	30
3.2.4 Mobilizing funds for scale-up of PPM DR-TB activities.....	30
<b>3.3 Development of the national operational guidelines and tools for PPM DR-TB.....</b>	<b>31</b>
<b>3.4 Implementation of PPM DR-TB activities .....</b>	<b>33</b>
3.4.1 Preparation.....	33
3.4.2 Training.....	33
3.4.3 Logistic arrangements.....	34
3.4.4 Monitoring and evaluation.....	35
<b>Annex I .....</b>	<b>37</b>
<b>References .....</b>	<b>38</b>

## Abbreviations and acronyms

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ADR	adverse drug reaction
CAP-TB	Control and Prevention of Tuberculosis
DOH	department of health
DOT	directly observed treatment
DOTS	core approach underpinning the Stop TB strategy for TB control
DR-TB	drug-resistant tuberculosis
DS-TB	drug-susceptible tuberculosis
DST	drug susceptibility testing
FLD	first-line tuberculosis drug
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
GP	general practitioner
M&E	monitoring and evaluation
MDR-TB	multidrug-resistant tuberculosis
MMA	Myanmar Medical Association
MMD/MOJ	Main Medical Department of the Ministry of Justice (Azerbaijan)
MOH	ministry of health
MOU	memorandum of understanding
MSF	Médecins Sans Frontières
NGO	nongovernmental organization
NSP	national strategic plan
NTP	national tuberculosis programme
PhilCAT	Philippine Coalition Against Tuberculosis
PMDT	programmatic management of drug-resistant tuberculosis
PPM	public–private mix (can also be public–public mix or private–private mix)
PPM DR-TB	public–private mix for the management of drug-resistant tuberculosis
PPM DS-TB	public–private mix for the management of drug-susceptible tuberculosis
PSI	Population Services International
QA	quality assurance
R&R	recording and reporting
RR-TB	rifampicin-resistant tuberculosis
SA	service agreement
SLD	second-line tuberculosis drug
SOP	standard operating procedure
TB	tuberculosis
WHO	World Health Organization

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## Foreword

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Global efforts to further improve case detection, treatment and care for drug-resistant tuberculosis (DR-TB) are urgently needed. In 2013, only 45% of the estimated 300 000 cases of patients with multidrug-resistant TB (MDR-TB; i.e. resistance to at least rifampicin and isoniazid) were detected among all notified pulmonary TB cases worldwide. The missing 55% of MDR-TB cases were either not detected or were managed outside of the national tuberculosis programmes (NTPs) and therefore not reported. In addition, the gap between diagnosis and treatment is growing rapidly in a number of countries. This is due to a rapid expansion of diagnostic capacity that has not been matched by an increase in management capacity. Hence, patients diagnosed with MDR-TB are being placed on “waiting lists” for treatment with second-line drugs. Finally, treatment outcomes for MDR-TB are poor, with only 48% successfully treated in the cohort of MDR-TB patients in 2011.

Public–private mix (PPM) for TB care and control has been implemented and scaled up in many countries. PPM initiatives in a number of high TB burden countries have regularly demonstrated increased case notification and levels of treatment success equal to those seen in the effective public sector. In 2013, non-NTP health-care providers contributed a significant proportion (up to 40%) of the notified TB cases in several countries or settings.

In a major milestone for the history of TB control, in May 2014, the End TB Strategy was adopted by the World Health Assembly of WHO. The End TB Strategy highlights that if we continue with business as usual, ending the TB epidemic will remain a long distant dream. PPM is something that cuts across the three pillars and the 10 components of the new strategy. In particular, it calls for the “... early diagnosis and universal drug susceptibility test (DST)...” (Component 1A), “... treatment of all people with TB including DR-TB ...” (Component 1B), “... engagement of all public and private care providers ...” (Component 2B) and “... Universal Health Coverage and regulatory frameworks ...” (Component 2C). We need to prepare and start working immediately on all these areas if we are to achieve the new target of ending TB established by the World Health Assembly.

Engaging all relevant health-care providers in the management of DR-TB cases is an important intervention to achieve the goal of universal access to DR-TB care and services. Although good practices of PPM DR-TB have been demonstrated in different countries and settings, overall progress in engaging non-NTP health-care providers remains limited. The objectives of the *Framework for engagement of all health-care providers in the management of drug-resistant tuberculosis* are to describe the rationale of, the approaches to, and best practices in engagement of different health providers and partners in the management of DR-TB patients; and to describe the necessary components in planning and implementation of PPM DR-TB activities. This document, that must be seen as one of the complementary recommendations that WHO is issuing to support implementation of the End TB Strategy, will help guide NTPs and partners in rolling-out of PPM DR-TB approaches in different countries and settings.



**Dr Mario Raviglione**  
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## Executive summary

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The Framework for engagement of all health-care providers in the management of drug-resistant tuberculosis has been developed to support countries in the implementation of public–private mix (PPM) for drug-resistant tuberculosis (DR-TB). This document complements other guidance and practical tools on PPM for TB control and prevention. It serves as a guidance document for countries in engaging providers and partners from outside the national TB programmes (NTPs) to address the complexity of the programmatic management of DR-TB.

The framework describes approaches for engaging different health-care providers and partners in diverse aspects of DR-TB care and management, including clinical care, public health tasks, patient-centred care, advocacy, funding mobilization, regulation and social protection. It describes the engagement of non-NTP providers and partners, which is not limited to diagnosis and treatment, but also includes other important aspects of DR-TB care, depending on the capacity and preference of the non-NTP providers and partners.

Approaches to engagement in PPM DR-TB are described by category of health-care provider: individual health-care providers (physician or non-physician individuals); public or private health institutions (e.g. hospital, or medical or health centre); public or private laboratories; nongovernmental organizations (NGOs); professional associations or societies; affected groups; and other public or private organizations. Each approach includes a description, eligibility, potential roles of the health provider, roles of the NTP, implementation considerations and case studies.

The case studies present and highlight best practices in PPM DR-TB in different countries and settings. They have been collected during in-country assessments and reflect contributions from colleagues in the NTPs, the WHO country and regional offices, and other partners working in the area. However, the case studies presented in the document do not represent all the PPM DR-TB best practices currently ongoing; rather, they provide a snapshot of what is happening. To add to the body of evidence presented in the document, a webpage hosted by the WHO Global TB Programme will serve as a repository that will be regularly updated with additional case studies contributed by NTPs and PPM DR-TB partners around the world.

The last section of the framework describes the necessary components or steps for planning and implementation of PPM DR-TB, for adoption by NTPs and partners, and adaptation for their specific settings. An assessment tool (see [Annex I](#)), will support national situational assessments, which are crucial for informing the planning of PPM DR-TB in each country or setting.



# Glossary

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**Public sector**

Those governmental ministries, organizations or facilities that provide governmental services. It includes services provided by the armed forces, police, public academic institutions, and public ministries such as transport, education, health, justice and welfare.

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**Private sector**

Organizations, businesses or individuals that are not part of the governmental services. It comprises individual formal and informal private practitioners, for-profit private hospitals and academic institutions, the corporate sector, and the voluntary or non-profit sector, which includes charitable or nongovernmental organizations (NGOs).

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**Public–private mix (PPM)**

All partnership mixes between organizations, businesses or individuals that are part of the public sector or private sector. The partnership can hence be public–public, public–private or even private–private.

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**Non-national tuberculosis programme (non-NTP) health-care providers**

Public or private health-care facilities or institutions that are not associated with the NTP. Such providers include clinics operated by formal and informal practitioners; health facilities or institutions (e.g. medical centres, and general or specialized hospitals) owned by the public, private or corporate health sectors; charitable organizations or NGOs; prison, military and railway health services; and health insurance organizations.

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**Non-NTP providers and partners**

May include public or private organizations that operate outside the NTP, such as professional associations or societies, NGOs or public sector organizations, or ministries outside the ministry of health.

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**PPM for drug-susceptible TB (DS-TB) (PPM DS-TB or PPM TB)**

PPM activities that provide health and other related services on care and control of DS-TB to patients or populations. PPM DS-TB is an integral part of the overall national TB strategy in a country; it involves the engagement of the different partners and health-care providers in the public or private sectors of the country, under the stewardship of the NTP.

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**PPM for drug-resistant TB (DR-TB) (PPM DR-TB)**

A component of PPM TB that refers to the provision of specific services for the management, care and prevention of DR-TB.

# 1. Rationale and purpose

As noted in WHO's Stop TB Strategy, many patients with tuberculosis (TB) or presumptive TB receive health care from providers outside the public sector (1). Such providers include, for example, private clinics and institutions owned by the public, private, voluntary and corporate sectors, such as general and specialized public hospitals; nongovernmental organizations (NGOs); prison, military, and railway health services; and health insurance organizations. The size, type and role of these providers varies greatly across and within countries, but they are often not associated with the national TB programme (NTP), and thus may not always apply internationally or nationally recommended TB management practices, or report cases to NTPs.

The Stop TB Strategy emphasizes the need for the NTP to develop and maintain strong stewardship capacity, to guide and oversee collaboration between private and public providers (1). Such collaboration is referred to as public–private mix (PPM<sup>2</sup>). The feasibility, effectiveness and cost–effectiveness of involving different types of health-care providers using a PPM approach have been demonstrated in many settings. The basic premises of PPM are as follows (1):

- the financial resources to establish and sustain the collaboration are provided or facilitated by the NTP;
- drugs are provided free of charge or heavily subsidized; and
- fees for tests and consultations are waived or kept to a minimum.

The strategy notes that the first step in engaging health-care providers in TB care and control is to map all relevant public and private providers in a given setting, and the next is to identify suitable roles for such providers (1).

A range of guidance documents and tools have been developed to guide implementation of PPM mechanisms, and they form the basis of PPM for prevention and control of TB, including for drug-resistant TB (DR-TB). A number of WHO publications describe approaches and practical tools for implementation of PPM for TB care and control; in particular:

- **Engaging all health care providers in TB control. Guidance on implementing PPM approaches (2)**
- **Public–private mix for DOTS: Practical tools to help implementation (3).**

A tool for national situation assessments for PPM has also been developed, to guide assessment of country situation and of the preparedness of the NTP and partners for implementation or scale-up of PPM in a country (4). The most recently developed PPM toolkit – **Public–private mix for TB care and control: A toolkit (5)** – helps NTPs guide the engagement of relevant non-NTP providers in delivering TB services, in line with national guidelines and the **International standards for tuberculosis care (6)**.

Over the past decade, PPM TB activities have been implemented and scaled up in many countries. At the global level, a subgroup on PPM for TB care and control has been established as part of the Stop TB Partnership, to support the scale-up of PPM approaches. PPM initiatives, implemented in a number of high TB burden countries, have increased case notification; for example, in 2013, non-NTP health-care providers contributed 10–40% of the notified TB cases in countries reporting to WHO on PPM TB initiatives. In addition, non-NTP partners working within the PPM framework have achieved a high treatment success rate (7).

Encouraging progress has been made in engaging non-NTP providers in basic TB care and control activities; however, there has been limited progress in engaging such providers in the care and management of DR-TB. Globally, in 2013, an

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2 Can also include public–public mix or private–private mix

estimated 3.5% of new and 20.5% of previously treated TB cases were multidrug-resistant TB (MDR-TB) (7), and an estimated 480 000 MDR-TB cases emerged worldwide. Management of DR-TB is still a big challenge; globally, in 2013:

- only 8.5% of new bacteriologically confirmed TB cases and 17% of those previously treated for TB were tested for DR-TB;
- only 45% of the 300 000 estimated MDR-TB patients were detected among the notified pulmonary TB cases; and
- among the 136 412 detected MDR-TB or rifampicin-resistant TB (RR-TB) cases, only 97 000 (71%) were reported to have started on MDR-TB treatment with second-line TB drugs (SLDs).

The gap between diagnosis and treatment is growing in many countries, due to a recent rapid expansion in diagnostic capacity that has not been accompanied by an increase in management capacity. Hence, an increasing number of patients diagnosed with MDR-TB or RR-TB are being placed on “waiting lists” for treatment with SLDs.

Another challenge in DR-TB management is the current poor treatment outcomes. Of the 2011 MDR-TB patient cohort, only 48% were successfully treated (7). Thus, accelerated global efforts on improving MDR-TB case detection, treatment and care are urgently required. Greater efforts are needed to achieve the goal of universal access to care for MDR-TB by 2015, outlined in the Global Plan to Stop TB and the 2009 World Health Assembly Resolution 62.15 (8, 9). Engaging all relevant health-care providers in the management of DR-TB cases is an important intervention that is needed to achieve that goal.

The End TB Strategy – a new global strategy and targets for TB prevention, care and control after 2015 – was endorsed by the Sixty-seventh World Health Assembly in May 2014. The strategy encapsulates the holistic response required to end the global TB epidemic. It has 10 key components founded on three core pillars:

- integrated patient-centred care and prevention
- bold policies and supportive systems
- intensified research and innovation.

The strategy cautions against inaction, and re-emphasizes the importance of PPM in TB care and control (10):

*... leaving a large proportion of care providers out of an organized response to tuberculosis control has contributed to stagnating case notification, inappropriate tuberculosis management, and irrational use of tuberculosis medicines leading to spread of drug-resistant tuberculosis. NTPs will have to scale up country-specific public–private mix TB (PPM TB) approaches already working well in many countries.*

Effective scale-up of engagement of all care providers in the management of both drug-susceptible TB (DS-TB) and DR-TB patients requires countries to pursue an appropriate mix of six strategic work-streams, depending on the local context (7):

- enhancing investments to ensure that they are commensurate with the magnitude of the problem of engaging all care providers, and to ensure that NTPs and ministries of health (MOHs) have the capacity to support scale-up of PPM interventions, with a goal of achieving universal access to quality care for TB and DR-TB, based on national and international standards;
- optimizing and expanding engagement of large hospitals, academic institutions and NGOs;
- sharing the burden of engaging numerous solo private practitioners with “intermediary organizations” such as social franchising and social enterprise institutions, NGOs with the capacity and skills to work with private practitioners, and professional societies and associations;

- mobilizing and supporting the corporate sector to initiate and expand workplace TB programmes;
- implementing regulatory approaches (e.g. mandatory case notification, rational use of TB medicines, and certification and accreditation systems) to identify and support collaborating providers; and
- engaging communities and civil society to create demand for quality TB care from all public and private care providers.

It is expected that these six work-streams will be adapted and integrated into national strategic plans based on the post-2015 End TB Strategy.

Important lessons for future strategies can be drawn from over a decade of experience in implementing PPM activities by NTPs and their partners in diverse country settings, which demonstrate good practices of PPM DS-TB. This experience with DS-TB can be used to expand PPM initiatives to include the care and management of DR-TB patients. Programmatic management of DR-TB (PMDT) is much more complex than that of DS-TB. Hence, a framework for NTPs and their partners is needed to:

- describe approaches for the engagement of non-NTP providers and partners in implementation of PMDT;
- document and share examples of best practices of PPM DR-TB in different countries; and
- provide operational guidance and options to NTPs and partners on the implementation of PPM approaches for DR-TB management.

This framework for PPM DR-TB fulfils those requirements. It also supports the implementation by non-NTP health-care providers of the *International standards for TB care* (6), and the WHO *Guidelines for programmatic management of drug-resistant TB* (11) and the companion handbook to those guidelines (12). Finally, this framework also supplements the guidance on implementing PPM approaches and the PPM for TB care and control toolkit (2, 3,

5), by expanding PPM approaches to DR-TB management.

The framework has been developed from:

- materials and inputs from the national assessments conducted in Myanmar, Nigeria, Pakistan and Turkey from late 2013 to early 2014 (13-16);
- experiences and best practices of implementing PPM DR-TB in other countries;
- a wide-ranging consultation meeting of PPM and PMDT experts, held in June 2014 (17); and
- feedback from core members of the PPM TB subgroup of the Stop TB Partnership on the draft framework document.

The framework can be used by the NTP or intermediary organizations engaged with the coordination, planning, resourcing and implementation of PPM DR-TB activities in a country or setting. It can serve as guidance for developing national operational guidelines on PPM DR-TB, adapted to the local context. The framework can also be used by other stakeholders involved in implementation of PPM for DR-TB activities (e.g. public or private institutional health-care providers, NGOs, professional associations, physician or non-physician individuals) to understand and select appropriate approaches for their engagement in and implementation of PPM DR-TB activities. Finally, it can serve as a reference document for use by funders who support TB control programmes.

## 2. Approaches to engagement of relevant care providers and partners in PPM DR-TB

**Management of DR-TB can be undertaken by different health-care providers, depending on the capacity and interest of each provider category (Table 1). However, stewardship by the NTP is crucial for the engagement of non-NTP care providers and partners.**

A variety of approaches are available for engaging different health-care providers in PPM TB. These approaches can be applied to the management of DR-TB. The most appropriate approach for a particular setting will depend on:

- capacity of each care provider in relation to diagnosis, treatment and care of DR-TB
- availability of and access to diagnostics for DR-TB and SLDs for treatment
- health-care facility's infection control measures
- willingness of the health-care provider to manage DR-TB cases
- available financing mechanisms
- legal frameworks related to health-care provision

Different approaches to engaging care providers in PPM DR-TB, based on the provider's capacity in relation to diagnosis and treatment of DR-TB, are presented in *Table 1* and *Fig. 1*.

The NTP, together with the PPM DR-TB coordinating body and appropriate intermediary organizations, should assess the capacity of potential providers and partners before engaging them in any activities. Specific criteria for such capacity assessment should be defined in the national standard operating procedures (SOPs) for PPM DR-TB, according to the local context.

Assessing capacity will help the NTP or its intermediary to assess capacity and thus

confidently assign specific tasks to providers. If the required capacity is not available, training or arrangements for capacity-building should be provided to potential providers. In assessing capacity, it is important to know the provider's experiences in management of DS-TB or in PPM for DS-TB:

- individual providers already engaged in delivery of DS-TB services – these providers will need additional training on the identification of presumptive DR-TB cases and the referral process, and information on where DR-TB services are available;
- private or public health-care providers that are already part of the PPM network for DS-TB – capacity of these providers needs to be assessed to see whether they can also provide services for DR-TB patients; more training and resources may be necessary to enhance the capacity of these providers to provide DR-TB care; and
- individuals, private or public health institutions, and other providers who have yet to be engaged in both DS-TB and DR-TB services delivery – the approach and the training content for these providers will be entirely different.

Decisions about the categories of providers involved in the PPM will greatly impact what needs to be implemented programmatically. In a specific setting, for clinical function, there is also a need to distinguish between solo or individual providers according to their capacity or qualification. An example might be:

- non-qualified general practitioners (GPs) – may only identify and refer all presumptive DR-TB cases;
- qualified GPs and internists – may also identify and refer all presumptive DR-TB cases; or may identify, diagnose and then refer; and

- chest, infectious diseases and TB specialists
  - may identify, diagnose and refer or treat DR-TB cases (with caveats on treatment, as outlined below).

A country may decide, for example, that the only specialists that can treat DR-TB patients are those who are affiliated to an institution that is supported or accredited by the NTP, or by their own health facility or clinic that is linked to the NTP within a defined PPM mechanism. The country may also decide that diagnosis and initiation of DR-TB treatment should occur only in association with certain types of health facilities (e.g. an institution or hospital). In such a country, all GPs who are not affiliated with a public or private institution or hospital would need to be trained in identification and referral of presumptive DR-TB patients, but not in diagnosis or treatment of DR-TB. This situation would have major implications for PPM DR-TB training requirements, planning and budgeting.



**Table 1. DR-TB task mix for different provider categories** (green: function is relevant; orange: function is not relevant)

Function (and relevant sections)	Task (and relevant sections)	NTP	Public or private health institution	NGO <sup>a</sup>	Professional association or society <sup>b</sup>	Individual private practitioner	Non-physician individual <sup>c</sup>	Public or private laboratory
<b>Clinical</b> (Sections 2.1, 2.2 and 2.3)	Identify and refer presumptive DR-TB patients (Section 2.1.1)	Green	Green	Green	Orange	Green	Green	Green
	Diagnose DR-TB (with capacity or access to DST or rapid molecular test) (Sections 2.2 and 2.3)	Green	Green	Green	Orange	Green	Orange	Green
	Initiate DR-TB treatment (Section 2.3)	Green	Green	Green	Orange	Green	Green	Green
	Identify and supervise treatment supporters (Section 2.2.1)	Green	Green	Green	Orange	Green	Green	Green
	Supervise treatment (Sections 2.1.2 and 2.3.2)	Green	Green	Green	Orange	Green	Green	Green
<b>Public health</b> (Sections 2.2.1, 2.4.1 and 2.4.2)	Coordinate, monitor and evaluate PPM DR-TB activities	Green	Green	Green	Orange	Green	Green	Green
	Ensure effective drug supply and management	Green	Green	Green	Orange	Green	Green	Green
	Carry out quality assurance for laboratories	Green	Green	Green	Orange	Green	Green	Green
	Notify, record and report DR-TB cases	Green	Green	Green	Orange	Green	Green	Green
	Train care providers	Green	Green	Green	Orange	Green	Green	Green
	Carry out policy development and advisory tasks <sup>d</sup>	Green	Green	Green	Orange	Green	Green	Green
	Promote infection control practices	Green	Green	Green	Orange	Green	Green	Green
<b>Patient-centred care</b> (Sections 2.1.2, 2.3.2, 2.4.1 and 2.4.2)	Provide social support: informational or educational, psychological, and material support (which may include cash, economic support and income protection)	Green	Green	Green	Orange	Green	Green	Green
	Prevent and manage stigma and discrimination	Green	Green	Green	Orange	Green	Green	Green
	Palliative or end-of-life care	Green	Green	Green	Orange	Green	Green	Green
	Advocacy	Green	Green	Green	Orange	Green	Green	Green
<b>Advocacy, funding mobilization, regulation and social protection</b> (Section 2.4.3)	Funding mobilization	Green	Green	Green	Orange	Green	Green	Green
	Regulation <sup>e</sup>	Green	Green	Green	Orange	Green	Green	Green
	Linkage with existing social protection mechanisms	Green	Green	Green	Orange	Green	Green	Green
	Health promotion	Green	Green	Green	Orange	Green	Green	Green

DR-TB, drug-resistant tuberculosis; DST, drug susceptibility test; NGO, nongovernmental organization; NTP, national tuberculosis programme

a In special cases, NGO runs clinical facilities that can implement clinical function.

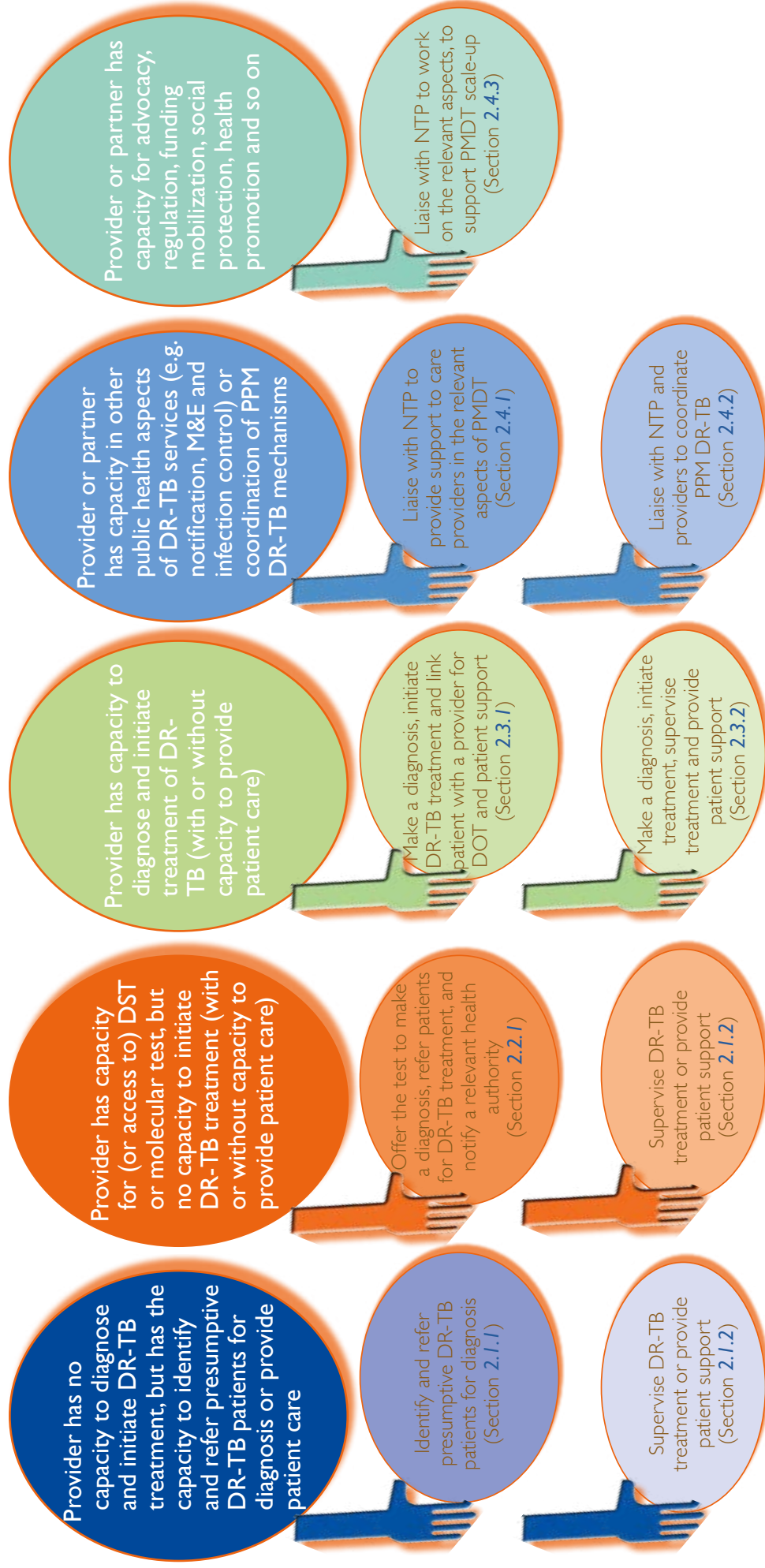
b A professional association or society is generally not in a position to actually implement all of these functions, rather it is likely to serve as the umbrella organization for training and interfacing with the NTP or other stakeholders for delivering different tasks.

c Includes, for example, nurse, community health worker, pharmacist, traditional healer, treatment supporter or volunteer.

d Stewardship of the NTP and public institutions is crucial in policy development. NGOs and professional stakeholders normally engage in policy development and advisory tasks.

e As with policy development, the NTP and other public institutions are primarily responsible for regulatory tasks. However, the engagement of civil and professional societies is important in promoting regulation for TB (e.g. regulations on TB drugs and standardized TB practice in all health sectors, as shown in several countries).





**Fig. 1. Approaches to engagement of care providers in PPM for DR-TB, based on provider's capacity**

## 2.1 Engaging individual health-care providers

**Private practitioners (e.g. GPs, family physicians or specialist physicians) taking care of TB patients should be able to identify and refer presumptive DR-TB cases for diagnosis and treatment.**

Engaging all individual private practitioners taking care of TB patients in a referral model for DR-TB is one of the most important approaches for implementation of PPM DR-TB. All such practitioners participating in PPM for DS-TB should be trained on identification of patients who have a high risk of DR-TB, and their referral to a relevant health facility for diagnosis of DR-TB. Such practitioners should be regularly informed of national and local updates on policies, guidelines and procedures. Individual practitioners with specific training on supervision and monitoring of DR-TB treatment can also take on the supervision of treatment of DR-TB patients, once treatment has been initiated by a specialist physician or a PMDT centre.

Non-physician individuals (e.g. private pharmacists, community health workers, traditional healers, voluntary treatment supporters and key affected people) are currently engaging in PPM for TB care and control; for example, by identifying and referring patients with presumptive TB, supervising treatment or providing patient support. These individuals can also be engaged in DR-TB service activities such as:

- identifying patients with presumptive DR-TB and referring them for diagnosis, treatment and care;
- promoting and supporting patient-centred care, and providing daily directly observed treatment (DOT), including identification and reporting of side-effects of SLDs;
- providing DR-TB patients and their family members with TB health education,

especially on infection control, means to prevent and manage stigma and discrimination, and procedures to follow for early case detection of TB disease among contacts; and

- participating in advocacy and communication activities at community level to support TB and DR-TB control.

With all of the approaches described in this section, the important components of technical and managerial support, and monitoring and evaluation (M&E) should be provided by the NTP or relevant partners. Recording and reporting (R&R) arrangements should be well planned, and implemented in line with the NTP's R&R system (which will generally need technical support from the NTP or a technical partner).

### 2.1.1 Referral of patients for diagnosis and treatment of DR-TB

**Description:** Health-care providers identify patients who are at risk of having DR-TB or who meet criteria for testing for DR-TB according to the national guidelines, and refer them to a relevant health facility with capacity of diagnosis and treatment of DR-TB.

#### Eligibility

Those eligible for this approach are all individual health-care providers who are:

- individual physicians taking care of TB patients but having no capacity or being unwilling to treat, manage or monitor treatment of DR-TB patients, or working in health facilities that do not have sufficient infection control measures for management of DR-TB patients; and
- non-physician individuals who have access to TB patients but have no capacity for diagnosis or treatment of DR-TB patients.

## Roles of health-care providers

- Identify patients in whom DR-TB is suspected (e.g. those with treatment failure, relapse, contact with a MDR-TB case, or no sputum conversion after 3 months of treatment) or any other patient who meets the criteria for DR-TB testing, according to the national policy.
- Refer patients at risk of DR-TB to the relevant health-care facilities for diagnosis of DR-TB.

## Roles of NTP

- Provide training on identification of patients at risk of having DR-TB.
- Provide updated information about addresses and contact details of the nearest or most convenient health facilities for referring patients for diagnosis and treatment of DR-TB.
- Ensure that the facilities receiving patients provide adequate communication and

feedback to the referring non-NTP health facilities or providers on the outcomes of the investigations or treatment of the referred patients.

- Take overall responsibility for M&E of the programme implementation.

## Implementation considerations

- Loss of referred patients is a common problem that requires measures such as establishment of good links between the referring health-care providers and the PMDT sites for notification of patient referral, and support for or facilitation of transport for the patient between two health facilities.
- Good communication and feedback mechanisms between the PMDT sites and the health providers referring patients are needed to maintain the effectiveness of the patient referral system and collaboration.

## Case studies

### Myanmar

**U**nder the USAID-supported Control and Prevention of TB (CAP-TB) project managed by the Myanmar Medical Association (MMA) in Myanmar, private practitioners involved in PPM for TB are trained in identification of patients with high risk of DR-TB and in their referral to a nearby PMDT site for diagnosis and treatment of DR-TB. The private practitioners are updated with the national diagnostic algorithms for diagnosis of DR-TB, and informed about the designated PMDT centres in the local setting for patient referral. Under the project, patients suspected of having DR-TB are identified and referred to the PMDT sites for testing and diagnosis of DR-TB. (15)

### Philippines

**I**n the Philippines, the Philippine Coalition Against Tuberculosis (PhilCAT), a multisectoral organization, is involved in a PPM initiative – supported by the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) – for the referral of patients with presumptive DR-TB disease – mainly previously treated TB cases – to the existing PMDT treatment centres, for proper diagnosis and management. PhilCAT has a mandate to expand the orientation and training to private practitioners and hospitals for proper identification of presumptive DS-TB and DR-TB cases, proper referral (using the NTP referral form), R&R of cases, and subsequent referral to PMDT satellite treatment centres for quality assessment and management.

## 2.1.2 Provision of DOT based on a patient-centred care approach, treatment follow-up and social support

**Description:** Health-care providers deliver DOT services for DR-TB patients following the principles of patient-centred care as outlined in Chapter 12 of the *Companion handbook to the WHO guidelines for the programmatic management of drug-resistant tuberculosis (12)*

### Eligibility

Those eligible for this approach are individual health-care providers (e.g. GPs, family physicians, pharmacists, nurses, midwives, community health workers or volunteers) who are willing and have the capability to provide DOT, based on a patient-centred approach for DR-TB patients.

### Roles of health-care providers

- Assess the educational, material, emotional and social needs of patients for treatment adherence.
- Link patients to formal or informal social support networks that can enable or improve adherence to treatment.
- Provide DOT, health education and treatment follow-up for DR-TB patients.
- Identify and report any adverse drug reactions (ADRs) or special events during treatment, and refer the patient to the treating physician for consultation.
- Track patients who are unable to adhere to treatment, identify and resolve the problems preventing adherence, and bring patients back into treatment if possible (if unable to bring a patient back into treatment, health providers should seek assistance from the NTP services).
- Remind patients about follow-up consultations with the PMDT centres or physicians.

- Record and report each patient's treatment information, as required by the NTP policy.
- Depending on the NTP or treatment centre's arrangement and the health-care provider's capacity, receive, manage and provide TB drugs to patients through DOT on a daily basis (and deliver enablers for treatment adherence, if required).
- Explore whether patients are being stigmatized or discriminated against, and liaise with the local social actors that can help to prevent and control the effects of such discrimination.

### Roles of NTP

- Ensure that the NTP's treatment centres or the NTP's partners (e.g. NGOs and professional associations) provide training to the DOT providers on supervision of treatment, infection control measures and health education.
- Ensure that the NTP's treatment centres or the NTP's partners provide a regular supply of drugs and other materials, M&E and necessary technical support to the health-care providers.
- Ensure access to the appropriate social protection schemes for which the patient is eligible.

### Implementation considerations

- Because ambulatory or community-based care is recommended for management of DR-TB patients (*II*), non-NTP health-care providers, especially individual providers, can potentially engage in and contribute to the community-based management of patients; for example, by providing treatment supervision and social support.
- If non-physician individuals are involved as treatment supporters (including providing supervision of treatment adherence), those individuals need to be trained on infection control measures to avoid transmission of the disease. Joint treatment supervision by health workers and volunteers or community treatment supporters is an option (e.g. with the health-care workers providing the DOT in the morning and the volunteers providing it in the afternoon).

## Case studies

### Myanmar

In the CAP-TB project implemented by MMA and four other NGO partners in Myanmar, community-based treatment supporter networks have been established to provide DOT and social support to patients on MDR-TB treatment. The treatment supporters are trained by MMA and the NTP on treatment supervision, infection control and health education. They work closely with the community health workers and the NTP's basic TB management units to supervise the patient's treatment; they also provide patient support and health education for DR-TB patients. These treatment supporters receive monetary incentives from the project (15).

### Philippines

In the Philippines, an initiative has been established that engages local treatment partners in promoting treatment adherence of DR-TB patients. The regional TB coordinators, in collaboration with relevant local government units, identify committed local treatment partners for the supervision of the treatment of DR-TB patients at home. Such community-based health care is provided to patients who are weak and bedridden, and thus cannot make daily visits to a treatment centre. The initiative has been implemented in two regions of the Philippines, and is expected to be extended to other regions in the future, to improve treatment adherence more widely. It also supports the NTP's plan of decentralizing DR-TB treatment and care services, and bringing services closer to the patient's residence.

### Turkey

In Turkey, family physicians collaborate with the TB dispensary network to provide DOT, treatment follow-up and patient support to DR-TB patients. After being diagnosed and initiated on treatment in a chest diseases hospital, such patients are referred to a local TB dispensary or a family physician for DOT and treatment follow-up. The family physician or TB dispensary will refer DR-TB patients to the respective chest diseases hospital for regular assessment of treatment progress or (in some cases) for management of ADRs or special events during the course of DR-TB treatment (13).

#### 2.1.3 Diagnosis and treatment of DR-TB

Individual private practitioners do not always have the laboratory capacity for drug susceptibility testing (DST) or rapid diagnostic tests for DR-TB in their own clinics. However, they may have access to such tests in other laboratory facilities in the local settings, and thus be able to diagnose DR-TB. Several GPs are not interested in treating or managing DR-TB patients, and would prefer to refer such patients to a PMDT site for treatment. However, specialists in TB, chest diseases or infectious diseases are more likely to

be interested in treatment and care for DR-TB patients. Where specialist physicians have access to diagnostic tests, and have capacity for treating DR-TB (e.g. having training and experience in managing DR-TB patients) it is important to engage such physicians in a PPM approach for the diagnosis and management of DR-TB patients. Often, senior private physicians can work with the NTP as facilitators or resource persons for training other health professionals on DR-TB care and management. The approaches for engaging private specialist physicians in the diagnosis and treatment of DR-TB patients are



similar to those for engaging a health institution in such services (see Section 2.3).

## 2.2 Engaging public or private laboratories

**L**aboratories outside the NTP that have the capacity for conventional DST or rapid molecular diagnostics for detection of DR-TB should be engaged in a PPM mechanism for DR-TB.

### 2.2.1 Diagnosis and referral of DR-TB patients for treatment

**D**escription: Laboratories or health-care providers with DST capacity can diagnose DR-TB and refer DR-TB patients to a relevant health facility or health authority for treatment of DR-TB.

#### Eligibility

Those eligible for this approach are public or private laboratories that are in a health facility (e.g. hospital, medical centre or practitioner's clinic), or stand-alone laboratories that have the capacity for diagnosis of DR-TB but no capacity for the initiation of treatment or case management of the disease. Also eligible are health facilities that have laboratory capacity but are unwilling to manage DR-TB patients because of issues such as insufficient infection control measures.

#### Roles of the laboratory or health-care provider

- Comply with the national policy on diagnostic algorithms for DR-TB diagnosis, and meet the required national quality assurance (QA) standards, including identification of presumptive DR-TB patients, and use of the NTP's recommended diagnostics for the diagnosis of DR-TB.

- Refer diagnosed DR-TB patients to a centre that is qualified to treat such patients and is most convenient for the patients.
- Notify a relevant health authority for surveillance or management (or both) of the patient.
- Provide proper documentation, including identifiable information and laboratory test results in relation to DR-TB, for the patient's referral or notification.

#### Roles of NTP

- Ensure QA of all laboratories that have the diagnostic capacity for detecting DR-TB (including conventional DST and rapid diagnostics), to meet the required national QA standards.
- Provide up-to-date information about addresses and contact details of the nearest or most convenient qualified health facilities for DR-TB treatment.
- Provide training support for health-care providers on the national algorithms for diagnosis and management of DR-TB.
- Ensure that health facilities or authorities receiving patients or receiving notifications provide adequate communication and feedback to the referring or notifying health facilities or providers; this communication and feedback should cover receipt of the referred patients or notifications, and outcomes of the treatment.

#### Implementation considerations

- Notification of a DR-TB case (which is separate from the referral process) to a designated DR-TB treatment centre or a relevant health authority is necessary to ensure that the DR-TB patient will be included in the surveillance system and can be tracked in case of referral failure.
- A laboratory R&R system needs to be in place to record DR-TB patients detected at the laboratory, and to report the data to the NTP. When a DR-TB patient is diagnosed at a laboratory, that laboratory also needs to notify an appropriate authority about the patient, so that appropriate public health measures can be

## Case studies

### India

**P**D Hinduja laboratory is a large private laboratory in Mumbai, India, that has been performing conventional culture and DST for TB for almost two decades. It is also the only laboratory in the city accredited by India's National Reference Laboratory for culture and DST for both FLDs and SLDs. The laboratory was approached by the NTP for the procurement of culture and DST services for TB patients in the public sector in Mumbai. A PPM scheme for culture and DST was formulated, and a memorandum of understanding (MOU) was signed by the laboratory and the NTP in 2009. PD Hinduja has served as a referral laboratory for the city of Mumbai, with referrals from many private and public care providers across India. A sputum collection and transport scheme, supported by NGOs, serves the needs for culture and DST at the PD Hinduja laboratory. A network of more than 30 sputum collection centres has been established across the city, with twice-weekly collection and transportation of sputum samples to the laboratory within 6 hours of collection. The laboratory now receives more than 30 000 samples for culture per year, and over 20% of its workload is serving requests from NTP facilities. The laboratory has recently been certified for SLD DST, and is the only private laboratory in the country accredited for such testing. This will be a cornerstone for the rolling out of baseline SLD DST in Mumbai. The initiation of the PPM scheme with PD Hinduja laboratory paved the way for other private laboratories to collaborate with the NTP, and three more private laboratories have now been certified for FLD DST in Mumbai (18).

### Turkey

**P**ublic and private health providers in Turkey have access to an extensive TB laboratory network that includes 75 public and private laboratories with DST capacity for first-line TB drugs (FLDs), and 26 laboratories with rapid diagnostics for detection of DR-TB (as of February 2014). However, only chest diseases hospitals have the capacity for initiating treatment of DR-TB patients. Those health facilities that lack DR-TB treatment capacity have to notify the provincial health directorate about DR-TB patients, to arrange their treatment. The provincial TB coordinator will then contact the patient, provide the person with information, and refer the patient to the most convenient PMDT site (normally a chest diseases hospital in the local area) for initiation of DR-TB treatment. Patients are normally started on SLD treatment and hospitalized for a certain period of time before being referred to a local TB dispensary for ambulatory-based DOT.

The same arrangement is made for the stand-alone private laboratories, which receive laboratory requests from, for example, hospitals, medical centres and corporate or migration health services. When a laboratory has diagnosed a DR-TB case, that laboratory is required by law to notify the diagnosed DR-TB patient to the provincial health directorate. The legal requirement for notification of TB in general and DR-TB is well complied with in Turkey, and a majority of the diagnosed patients have been reported to the provincial health directorates and the NTP. In a special "active surveillance" project implemented in five provinces, the registers and records of the health facilities (including laboratories and treatment departments) are reviewed on a monthly basis to record any diagnosed TB patients who had not been notified to the national TB surveillance system. This active surveillance system ensures that almost 100% of DR-TB patients are notified and enrolled for treatment (13).



put in place to provide proper treatment for the patient.

- Notification of DR-TB cases needs to be managed with caution by the NTP and care providers, to avoid duplication. The NTP needs to have clear policy on DR-TB notification for each care provider, and develop an effective R&R system (preferably electronic, with clear patient identifiers to mitigate duplication of notifications).
- Qualified laboratories can also participate in training health professionals and undertaking M&E on different aspects of laboratory and diagnosis of DR-TB.
- Laboratories with culture capacity can also participate in treatment follow-up testing for DR-TB patients.

### 2.2.2 Quality assurance for DST

All countries need to have a national policy and legal framework that will ensure that all TB laboratories offering DST participate in and comply with the QA for DST facilitated by the NTP, national TB reference laboratory or appropriate national laboratory services authority. The QA mechanisms are in place to ensure the quality of DR-TB diagnosis; hence, all laboratories providing diagnostic services for DR-TB patients need to show that they meet the legally required national QA standards.

To engage all TB laboratories, the NTP needs to take a leading role in QA policy formulation. The NTP needs to initiate and sustain collaboration with the non-NTP laboratories; send the panel test for QA and receive reports from the laboratories; monitor and evaluate QA activities and compliance of the laboratories with the QA programme; and provide training or support to laboratories where necessary.

For laboratories setting up newer automated or semi-automated molecular platforms that use cartridge-based or strip-based tests, and that rely heavily on internal quality controls, the NTP needs to have a QA programme. This programme would cover panel testing at

the time of installation and calibration to verify performance of the instrument, quality-control testing of new lots (incoming batches) of tests, and monitoring of performance indicators (including errors and other invalid results) to help identify suboptimal performance during routine use.

## 2.3 Engaging public or private health institutions (e.g. hospital, or medical or health centre)

“Public or private institution” refers to all public and private hospitals, medical or health facilities; it includes government, parastatal (e.g. corporate, military and prison health services), and for-profit and non-profit private hospitals or health facilities. Such institutions need to be engaged in PPM DR-TB, because many of them routinely provide consultation, diagnosis or treatment for large numbers of presumptive or diagnosed TB patients, including those with DR-TB. To facilitate such engagement, the existing TB services or PPM mechanisms for TB or DR-TB should be assessed (see *Annex I*). Depending on the capacity for and interest in PMDT, a health institution can engage in different DR-TB tasks, as outlined in *Table I* and *Fig. 1*.

### 2.3.1 Diagnosis, initiation of treatment, and selection of a provider for patient-centred DOT and case management

**Description:** Health providers diagnose and prescribe or initiate treatment for DR-TB patients. The patients are then referred to another health facility or a community DOT supervisor for case management.

#### Eligibility

- Health providers eligible for this model are hospitals that specialize in chest or

lung diseases, infectious diseases, or TB; referral health centres for TB or DR-TB; and private chest physicians or private TB or DR-TB specialists with the capacity to diagnose DR-TB, and to prescribe or initiate DR-TB treatment. However, health providers often do not have the capacity (e.g. lack the human resources or have insufficient TB infection control measures) to provide patient-centred DOT and case management for the whole course of treatment. In other cases, DR-TB referral health facilities are not convenient for delivering daily DOT to TB patients (e.g. long distance between the patient's home and the health facility); therefore, DOT and treatment follow-up need to be arranged with another health facility or a community-based health worker.

- Referring diagnosed DR-TB patients for case management is only feasible when a peripheral health-care facility or a network of family physicians, community health workers or volunteers is in place, with the training and capability to implement community-based DOT for DR-TB patients. TB basic management units (i.e. those without full capacity for PMDT) can also provide DOT and undertake case management for DR-TB patients, once those patients have been diagnosed and prescribed a treatment regimen by a DR-TB referral centre.

### **Roles of health-care provider**

- Comply with the national policy on diagnosis and treatment of DR-TB, including following the national diagnostic algorithms, using the NTP's recommended diagnostic tools or qualified laboratories, and following treatment regimens.
- Identify the nearest qualified DOT provider, and refer diagnosed DR-TB patients for DOT and case management.
- Notify a relevant health authority to arrange drug supply for treatment of the patient at the health-care provider's facility or with the referred DOT provider.
- Enclose proper documentation and instructions on DR-TB treatment for each

patient referral, including doses of SLDs and monitoring of treatment, for the health facility or provider receiving patients for case management.

- Provide referral services or refer patients to a relevant health-care facility where necessary for regular consultation or assessment of treatment progress, and management of ADRs and complications.
- Apply the NTP's recommended R&R system for management of patients' information, and comply with the MOH or NTP's procedures on reporting of notification and treatment information related to the DR-TB patients.

### **Roles of NTP**

- Ensure QA of all laboratories with the capacity for detecting DR-TB, including conventional DST or rapid diagnostics.
- Provide training support for health-care providers on the national diagnostic and management algorithms for DR-TB.
- Supply SLDs for initiation of DR-TB treatment, and auxiliary drugs for management of ADRs.
- Provide programmatic support, and ensure quality of DOT delivered by the health facilities or providers receiving DR-TB patients for case management.
- Ensure that the R&R system is effective, and provide sufficient coordination or technical support to health-care providers referring and receiving patients, to ensure that they capture and manage all the necessary patient information, including notification and treatment outcomes.

### **Implementation considerations**

- Mapping DOT providers in the local areas is important for identifying an appropriate DOT provider for each patient before referral.
- A good communication and feedback mechanism between the referral DR-TB centres and DOT providers needs to be established to ensure the success of treatment for the patients.

## Case studies

### Nigeria

By the end of 2013, Nigeria had 10 PMDT centres, one of which had been established outside NTP facilities. PPM DR-TB efforts also focus on shifting from hospital-based care to ambulatory care for DR-TB patients. The private health-care provider had managed to reduce the duration of hospitalization to an average of 3 months for DR-TB patients (16).

### Pakistan

In Pakistan, PMDT sites have been established in public and private hospitals. By December 2013, 17 PMDT sites had been made functional at three private and 14 public tertiary hospitals. The DR-TB patients are referred to the community-based DOT provider network once they have been diagnosed and initiated on treatment by the PMDT sites. At Gulab Devi Chest Diseases Hospital in Lahore city of Punjab province (a PMDT site based at a non-profit private hospital), a community health worker who is a trained DOT provider is identified for each patient, based on the updated list and addresses of the DOT providers in the local region, before the patient is discharged from the hospital. The patient is then referred by the PMDT site to the local community health worker and the appropriate TB basic management unit for DOT case management.

Indus Hospital, Karachi, is another private hospital implementing PPM DR-TB activities, with all DR-TB patients managed on an ambulatory basis, and DOT provided by community-based treatment supporters. In the PPM DR-TB model in Pakistan, the PMDT-site hospitals continue to provide referral services during the course of treatment (e.g. regular assessment of progress and management of ADRs or complications) for DR-TB patients. A number of e-health innovative technologies have also been implemented at the PPM DR-TB sites for TB surveillance and treatment management. These include an electronic notification and reporting system, a system for mapping geographical distribution of patients and treatment supporters, electronic reimbursements for transport fees, and use of text messaging for reporting laboratory results or monitoring of treatment adherence (14).

### Turkey

In Turkey, four chest diseases hospitals are referral centres for DR-TB. All the patients either suspected of having DR-TB or diagnosed as having DR-TB are referred to one of these chest hospitals for confirmation of the diagnosis and initiation of treatment with SLDs. The DR-TB patients are usually hospitalized for a certain period of time before being discharged and referred to a TB dispensary (i.e. a TB basic management unit) for DOT and case management. The chest physicians at the referral chest diseases hospitals review the DR-TB patients on a monthly basis to assess treatment progress. In addition, those hospitals receive patients referred by TB dispensaries for assessment and management of any special events during the treatment course, such as ADRs or complications. A web-based TB management system is implemented in all the referral centres and TB dispensaries, which allows for real-time updating of each patient's information throughout the course of treatment (13).

## 2.3.2 Diagnosis, treatment and management of DR-TB

**Description:** Health providers diagnose, initiate treatment and manage DR-TB patients for the entire course of treatment.

### Eligibility

Health providers eligible for this approach are public or private health-care institutions (e.g. hospitals or medical centres), clinics with specialists in chest diseases, pulmonology, infectious diseases or TB that have the capacity for diagnosis, treatment and case management (including patient-centred DOT) of DR-TB patients.

### Roles of the health-care provider

- Comply with the national policy on diagnosis, treatment and case management of DR-TB, including diagnostic and management algorithms, and the NTP's recommended diagnostic tools or qualified laboratories, treatment regimens or treatment principles, DOT and social support for the patient.
- Notify a relevant health authority, according to the MOH or NTP's guidance, to arrange the drug supply for treatment of the patient.
- Apply the NTP's recommended R&R system for management of patients' information, and comply with the MOH or NTP's procedures on reporting of notification and treatment outcomes for the DR-TB patients.
- Provide services or refer patients to a relevant health-care facility when necessary, for regular consultation or assessment of treatment progress, and management of ADRs or complications.

### Roles of NTP

- Ensure QA of all laboratories with the capacity for detecting DR-TB, including conventional DST or rapid diagnostics.

- Provide training support for the health-care providers on the national diagnostic and management algorithms for DR-TB.
- Provide programmatic support and ensure quality of patient-centred DOT provided by the health facilities or providers that receive DR-TB patients for case management.
- Supply SLDs and auxiliary drugs for the management of ADRs, and provide M&E support to the health-care providers on drug management.
- Ensure that the R&R system is effective, and provide sufficient coordination or technical support to the health-care providers, to ensure that they capture and manage all necessary patient information, including notification and treatment outcomes.

### Implementation considerations

It is required that health-care providers applying this model provide DOT, and follow up patients for the entire course of treatment. If a provider cannot do this, it is necessary to arrange for referral of the patient to a DOT centre, or for the patient to be linked up with a community-based DOT provider (see Section 2.3.1).

## Case studies

### Myanmar

In Myanmar, Médecins Sans Frontières (MSF) is involved in an NGO-based PPM model that offers a comprehensive package of diagnosis, treatment, case management and patient support for MDR-TB patients. As of December 2013, this PPM model for MDR-TB had been implemented in 12 MSF clinics, covering 38 townships in four regions. Although only a rapid diagnostic test (Xpert MTB/RIF<sup>2</sup>) is provided at the MSF health-care facilities, with conventional DST being offered by the NTP laboratories, TB physicians working at the MSF facilities provide consultation services on diagnosis, and initiate treatment for DR-TB patients. The clinics, together with their DOT supporter network, provide DOT and patient support (including food packages and social support) to the MDR-TB patients. MSF clinics receive SLDs from the NTP, and have links with the local TB management units of the NTP for R&R (15).

### Philippines

In the Philippines, PMDT (DOTS-Plus) activities were first initiated by an NGO in a private medical centre in 2000, with support provided by the department of health (DOH) and professional organizations. In 2014, eight of 44 operational PMDT treatment facilities were NGO-based. Operation of those eight NGO-based PMDT sites complies with the NTP's policies and guidelines on DR-TB regarding diagnosis, treatment, case management and R&R. The compliance with the national policies is mandated by a government administrative order issued by the DOH. Diagnosis and treatment (including SLDs) for DR-TB patients in these NGO-based PMDT centres are free of charge, with support provided through Global Fund grants. Staff of the private clinics have the capacity for advocacy activities, and work in close collaboration with the local NTP coordinators and local government officials to mobilize and provide additional support to the patients (e.g. providing transportation, food packages and monetary assistance during the course of treatment).

<sup>2</sup> Xpert MTB/RIF is an automated, cartridge-based nucleic amplification assay that simultaneously detects TB and rifampicin resistance directly from sputum; the test takes less than 2 hours.

## 2.4 Engaging NGOs, professional associations or societies, affected groups, or other public or private organizations

NGOs with health facilities (e.g. a hospital, or a medical or health centre) can engage in all PPM DR-TB models, from identification and referral of people with presumptive DR-TB, to diagnosis, treatment and care of people with diagnosed DR-TB. Many NGOs and professional associations play an intermediary

role in PPM TB models; for example, coordinating care providers, public or private hospitals, individual GPs, private pharmacies or private laboratories. That mechanism can also be expanded to different models for the management of DR-TB patients, depending on the capacity and interest of the care providers. Roles could range from identifying and referring presumptive DR-TB patients, to diagnosis and treatment, or supervising treatment and providing patient support. The functions of NGOs and professional associations are to provide coordination, technical and managerial

support, training and M&E. In addition, NGOs and professional associations could be engaged in training health professionals (physicians, nurses, laboratory professionals and other health-care workers) on PMDT, advocacy, resource mobilization, policy formulation, health promotion and regulation of TB, including DR-TB.

## 2.4.1 Providing patient support

**Description:** Organizations or individuals provide DR-TB patients with any type of patient support, such as food packages or nutritional supplements, transport fees, accommodation, palliative care, and psychological or educational support.

### Eligibility

Those eligible for this approach are patient support providers who are not necessarily health-care providers. Patient support providers can be for-profit or non-profit organizations, NGOs, private companies, corporate organizations or networks of individuals.

## Roles of patient support providers

- Coordinate with the NTP and treatment centres to assess the need for patient support.
- Ensure provision of patient support that meets the need of patients and is in line with the national policy.

## Roles of NTP

- Establish and formalize a working mechanism in agreement with the patient support providers.
- Provide support and M&E for the mechanism.

## Implementation considerations

- Close collaboration between the NTP and patient support providers is required to assess the need for and to establish optimal mechanisms for providing patient support, based on the local context.
- Close collaboration between the NTP and patient support providers on advocacy is important for sustaining funding for patient support.

## Case studies

### Pakistan

In Pakistan, a private corporation, Supply Chain Utility, is working with the NTP under an MOU for the provision of food packages for all DR-TB patients who are enrolled for treatment. After diagnosis and enrolment for treatment of DR-TB, the treatment facility provides a voucher to the DR-TB patient for receiving a food package provided by Supply Chain Utility. The arrangement with Supply Chain Utility is convenient for the patients; also, as the provision of the food package is kept separate from the health-care facilities, it reduces the workload for health-care workers. Funding for the support is provided through grants from the Global Fund (14).

### Turkey

In Turkey, the Anti-TB Associations (NGOs with a long history of working on TB) provide patient support to TB patients, including those with DR-TB. The support provided includes food packages, transport fees, accommodation, monetary incentives and other services, depending on the patient's needs as assessed by the treating physician. The Anti-TB Associations in Turkey receive funding for patient support and other TB activities via the local provincial governments, from income generated from entertainment activities (13).



## 2.4.2 Coordinating PPM implementation

**Description:** NGOs or other public or private organizations work as intermediate bodies coordinating PPM implementation. In collaboration with the NTP, these organizations help to coordinate health-care providers outside the NTP (e.g. private practitioners, private laboratories, private pharmacies or informal health-care providers) who are delivering TB care or DR-TB services. This mechanism can be considered as a private–private mix model when an NGO collaborates with private providers.

Franchising mechanisms can be applied in certain settings when a brand name can be granted to the health-care facilities that are participating in such PPM initiatives, as seen in the examples of Green Star in Pakistan and Population Services International (PSI) in Myanmar in the case studies for this section.

### Eligibility

Providers eligible for this approach are organizations that have sufficient management capacity to work in TB control, and are interested in doing so.

### Roles of the intermediary or coordinating body

- Assess situations, identify and select PPM providers, establishing a suitable mechanism with each type of health-care provider, and signing an agreement for the PPM mechanism for provision of TB services.
- Provide technical or funding support, training and M&E.

- Coordinate with the NTP in relation to arrangements for TB drugs and other necessary supplies (e.g. laboratory materials) for the activities of health-care providers.

### Roles of NTP

- Provide technical and M&E support for implementation of the model or models.
- Supply TB drugs or diagnostics, where relevant, for TB patients managed by the health-care providers in the model.

### Implementation considerations

- Sustainability of the established mechanism, and funding to support it, should be considered carefully before the start of the activities.
- Building the technical, managerial and M&E capacity of the coordinating organizations or bodies is important for the success of the PPM model.
- Incentives of different types for health-care providers may be necessary in some settings. However, the possible influence of incentives on important programmatic or epidemiological indicators should be considered carefully, and should be avoided as much as possible by careful planning of the incentive mechanisms.



## Case studies

### Azerbaijan – a tripartite mix for control of TB and DR-TB among patients released from prisons

In Azerbaijan, a countrywide tripartite collaboration agreement was signed between three entities – the Main Medical Department of the Ministry of Justice (MMD/MOJ), the NTP and Support to Health (an NGO) – to ensure continued treatment management for TB and MDR-TB patients following their release from prisons. This partnership has achieved TB treatment adherence among almost 100% of the patients who are released from prisons. The PPM partnership has set clear targets for health education and patient counselling, the exchange of clinical information between the two MMD/MOJ and NTP health management systems and health facilities, and follow-up of patients after their release from prison.

MMD/MOJ and Support to Health work together on health education sessions in prisons, collect clinical and follow-up information through working closely with health personnel at DOT facilities, and manage and supply incentives to patients and health-care personnel (supported via Global Fund grants). Support to Health follows up closely with patients and their family members, and provides psychosocial support, incentives and enablers, and juridical support. The valuable support of the NGO is important in ensuring treatment adherence and patients' reintegration into civil society. As a result of the active involvement of Support to Health, the engagement of the various communities in the fight against TB has significantly increased.

This PPM approach has dramatically diminished the rate of loss to follow-up, and has contributed considerably to the increase of treatment success among MDR-TB patients, which has risen from 65% to 83% over recent years.

### Myanmar and Pakistan – NGOs as intermediary entities coordinating implementation of PPM TB

The MMA is a professional association in Myanmar that works as a mediator for the PPM model, coordinating private practitioners in TB care and prevention. MMA signs MOUs with selected private practitioners, provides training on TB diagnosis and treatment, coordinates with the NTP for provision of TB drugs and technical support on M&E (including R&R), and provides incentives (part time salary) for private practitioners for their TB work. The association also trains private practitioners on infection control, and on identifying and referring patients at high risk of DR-TB for the diagnosis and treatment of DR-TB (15).

Green Star in Pakistan and PSI in Myanmar, both NGOs, have established successful franchising mechanisms for PPM TB, working with private practitioners and private laboratories. Private practitioners and laboratories participating in the established PPM models are granted the privileged brand names of Green Star or PSI in their clinics or laboratories. This is a win-win collaboration between NGOs and private health-care providers in a PPM model for TB care. Although the PPM model coordinated by PSI in Myanmar is mainly for care of DS-TB patients, the health-care providers in the Green Star's model have been trained on identification and referral for diagnosis and treatment of patients suspected of having DR-TB (14, 15).

### 2.4.3 Advocacy, resource mobilization, prevention and management of stigma and discrimination, regulation or linkage with existing social protection mechanisms

#### Eligibility

Providers eligible for this approach are all NGOs, professional associations or societies, public or private organizations or individuals that are interested and have the capacity to work on addressing stigma and discrimination, advocacy, resource mobilization and legislation for TB.

**Description:** In collaboration with the NTPs, organizations (e.g. NGOs and professional associations or societies) or individuals arrange relevant activities to promote TB control activities, improve TB awareness, reduce stigma and discrimination on TB, and advocate at different political levels (e.g. state, regional or community level) for TB support and funding for control programmes, and for regulation or interventions to address specific TB problems.

#### Case studies

##### Bolivia

In Cochabamba, a city of 2 million people in Bolivia, a local MDR-TB advisory committee has been established since 2005. The committee provides advisory and technical support to the local TB programme on the management of MDR-TB. The members from the private sector (comprising up to 50% of the committee members), and especially the Pneumology Society, a professional association, have been important actors in the committee since its inception. They have been providing significant contributions to the committee's activities, together with the NTP and other public entities, and demonstrating their commitment by the voluntary contribution of their time. Face-to-face meetings are held on a monthly basis, and extraordinary meetings are requested for the review of severe cases of MDR-TB or those having ADRs. The MDR-TB committee members work as technical advisors to the local TB programme on policy and regulatory aspects, especially in relation to enforcement of the regulations on mandatory TB notification and dispensing of anti-TB drugs. Through these efforts, mandatory case notification and a ban on over-the-counter sales of FLDs have been enforced.

The Pneumology Society is also actively involved in promoting compliance with the national TB and MDR-TB policies among its members in both the public and private sectors. All SLDs and other costs related to MDR-TB treatment (e.g. hospitalization and drugs for ADRs) are covered by the government; therefore, when a DR-TB patient is diagnosed in a private clinic, the NTP is contacted and coordination is established between the respective private clinic and the nearest health centre, to provide SLDs and laboratory services such as culture and DST. Once the patient is released home, the peripheral health centre takes responsibility for the person's care and treatment.

## Philippines

In the Philippines, Samahan ng Lusog Baga Association, a non-profit NGO, actively works as a patient support group. The association is based at the Lung Center of the Philippines, and comprises former TB or MDR-TB patients who have been cured or have completed treatment. This group of former TB patients undertakes advocacy work and peer counselling among patients in the PMDT treatment centres. Representatives of the association also give testimonies during *World TB Day* activities, and at the annual or monthly professional lung association conventions. They also serve as resource speakers in promoting health and education on basic facts about TB and MDR-TB, and disease prevention and control during community outreach in deprived urban populations. The group works in close collaboration with the NTP and Department of Health (DOH) on the development of national policy and strategic plans for TB. As a member of the Country Coordinating Mechanism, the group is strongly involved in the development, assessment and submission of proposals for funding approval by the Global Fund and other stakeholders

## Turkey

In Turkey, TUDADER (an NGO working only for TB advocacy), the Anti-TB Associations of Turkey, and the Turkish Thoracic Society (a professional association) have a long history of working in advocacy for TB. These three bodies work actively and in collaboration with the NTP to organize several advocacy, communication and resource mobilization activities every year in support of the TB programme in Turkey. They contribute significantly to the *Tuberculosis Education and Propaganda Week* (the week following the first Sunday of January each year), with activities such as media releases, community awareness, symposia and training. They also assist with other advocacy activities throughout the year to raise awareness of and bring attention to TB control, and strongly support the NTP in advocating for government support for TB-related legislation, policy development and resource allocation (13).

## 3 Planning and implementing PPM DR-TB

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### 3.1 National situational assessment

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A national situational assessment is important for the planning and the implementation of PPM DR-TB activities in each country. A careful country-specific analysis of the current status of management of DR-TB patients, with a focus on all the various health-care providers, will show the way forward towards achieving the goal of universal access to quality diagnosis and treatment for all cases of TB, including those with DR-TB.

A country assessment tool (*Annex 1*) has been designed and field tested in four countries. This tool enables a country or other users to gather the necessary data that will serve as a basis for designing a sound plan for expanding DR-TB management by engaging all relevant care providers. The objective of the tool is to help countries to move towards engagement of all relevant health-care providers in DR-TB management, by facilitating a comprehensive assessment of a country's current situation in terms of PPM TB and DR-TB. The tool involves:

- collecting information about all current PPM TB activities and DR-TB management, with a focus on non-NTP health-care providers; and
- identifying steps to initiate or expand PPM DR-TB, through the engagement of appropriate health-care providers.

The tool basically acts as a questionnaire to elicit the needed information. It comprises five parts:

- Part A: Overview of the TB epidemiological situation and performance of the NTP
- Part B: PPM for DS-TB
- Part C: Programmatic management of drug-resistant TB
- Part D: PPM for DR-TB
- Part E: Summary and conclusions.

The assessment tool will help users to:

- obtain an overview of a country's current PPM TB activities and management of DR-TB;
- assess the preparedness and potential of the NTP and partners for expansion of PPM for DR-TB management; and
- document existing PPM models for DR-TB, and suggest new approaches for public-private collaboration in DR-TB management.

The tool is generic, and simply provides a structure and suggested questions for the assessment. However, some questions may not be applicable to a particular country or setting, in which case it may be necessary to adapt or modify the tool. The assessment normally requires about 10 working days of one or two resource persons – with visits to different health facilities of the NTP and potential partners for PPM for TB and DR-TB, and interviews with key informants – to obtain an overview of ongoing PPM and PMDT activities, and the potential for implementation of PPM DR-TB.

### 3.2 Development of a scale-up plan for PPM DR-TB as part of the national strategic plan for TB

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#### 3.2.1 Mapping potential providers for PPM DR-TB

A mapping exercise is needed, to map potential DR-TB service providers across the country or regions. This mapping exercise will help in estimating the scope of the PPM DR-TB scale-up and, later, the resources required for the national scale-up plan. The overall picture of the number of potential providers and their distribution will also help in planning for expansion of PPM DR-TB.

### 3.2.2 Defining PPM DR-TB approaches that are relevant for each type of potential provider

The findings of the national assessment on PPM DR-TB are used to identify potential health-care providers and their possible roles in the scale-up of PPM DR-TB activities. The potential providers for PPM DR-TB have been described in detail in Section 2.

One or more suitable PPM DR-TB approaches should be defined for each type of health-care provider, based on the working models described in Section 2 of this document. A consultation process should be initiated by the NTP or key partners (or both). The process should involve assessing key potential providers for their acceptability, and assessing the feasibility of particular models in specific settings.

### 3.2.3 Planning and budgeting for PPM DR-TB

The planning process should be led by the NTP, and should involve all key partners and representatives of potential health-care providers for PPM DR-TB. Planning for PPM DR-TB should be part of the process for developing the national strategic plan (NSP) for TB, which should capture subnational level (e.g. provincial and district) plans. A WHO toolkit provides guidance on the main steps involved in developing an NSP (19). Designation of a PPM focal person at the national level is important, and non-NTP providers, partners and key affected populations (e.g. former TB or DR-TB patients) should be part of the planning and budgeting processes.

Some of the key steps in planning and budgeting for PPM DR-TB are as follows:

- defining long-term aims, objectives, targets and a timeline based on the priorities and implementation capacity of the NTP and partners;
- identifying:
  - interventions and activities to be implemented;

- human resource needs for coordination and implementation;
- roles of different actors in the scale-up plan;
- estimating the budget for implementation of the plan; and
- identifying or mobilizing resources for planned activities:
  - national and local government investment, and the role of the government sector are crucial, as are the joint social responsibilities of different sectors and partners; and
  - resources from local and international organizations and professional associations can tap into existing local or national government resources.

*Table 2* presents an example of the suggested activities and costings for PPM DR-TB. The list of activities presented needs to be expanded and adapted to fit the needs of the specific country context. Many of these activities can also be integrated into broader costing themes, such as human resources, supplies or M&E, as outlined in the WHO planning and budgeting tool (20).

### 3.2.4 Mobilizing funds for scale-up of PPM DR-TB activities

As part of the NSP, the NTP and its partners need to proactively work on mobilizing the required funds for the PPM DR-TB action plan. The implementation of PPM DR-TB can be financially supported by government, nongovernment or external funders. It is important to increase domestic financing, to avoid dependence on external funding and to ensure sustainability. Domestic funding can be from the public sector, from both national (or federal) and local government sources. In addition to traditional financing mechanisms (e.g. grants or reimbursements for services), innovative financing mechanisms should be explored and implemented (e.g. franchising mechanisms, social business models, insurance schemes and results-based financing). Also needed are the application of new technologies,

and integration with other health services for the sustainability of the PPM initiatives (21).

### **3.3 Development of the national operational guidelines and tools for PPM DR-TB**

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National operational guidelines for implementation of PPM DR-TB should be developed. These guidelines should provide tools and instructions for the NTP, partners and health-care providers to work in line with the national policies on PMDT and PPM. They can be a part of the national PPM guidelines or the PMDT guidelines, or can form a stand-alone document. The operational guidelines should include instructions on key components such as:

- description of PPM DR-TB models applicable for each type of health-care provider – including roles and responsibilities of health-care providers, NTP and partners – by each PPM DR-TB model;
- mechanisms for collaboration between the PPM DR-TB providers, NTP facilities and partners in the programmatic

management aspects (e.g. drug supply, capacity-building and R&R), and technical aspects for diagnosis, treatment and management of DR-TB patients;

- M&E, including tools for R&R, supervision and evaluation; and
- SOPs for the implementation of PPM DR-TB activities.

Practical tools for PPM DR-TB should also be developed, to facilitate the implementation of the operational guidelines; examples are:

- tools for surveillance and M&E – for example, registers (paper-based or electronic, and including treatment or laboratory registers), laboratory request forms, treatment cards, case notification forms, and quarterly reports on case notification and treatment outcomes; and
- tools for referral of patients – patient referral forms and feedback forms.

The operational guidelines and tools should be made available for all partners involved in implementation of PPM DR-TB.



**Table 2. Suggested costing for PPM DR-TB activities**

No.	Activities	Coordinating partner <sup>a</sup>	PPM provider <sup>b</sup>	NTP	Patient	Total cost	Available funding and funding sources	Funding gap
<b>1</b>	<b>Setting up the coordination body</b> Human resources (recruitments and salary) Formalization of the collaboration between the NTP or coordinating partner (or both) and the care-provider Administrative costs							
<b>2</b>	<b>Training for care providers</b> Training for new PPM DR-TB providers Refresher training							
<b>3</b>	<b>Diagnostic services</b> Setting up diagnostic arrangements Costs for diagnostic tests Transportation of sputum samples							
<b>4</b>	<b>Curative services and monitoring treatment</b> Costs of hospitalization Costs of baseline and follow-up investigations for TB Costs related to drugs Management of adverse effects Referral for specialist services (e.g. audiometry and ophthalmology) Palliative care Additional ambulatory services and DOT delivery							
<b>5</b>	<b>Patient support</b> Travel for diagnosis Travel for treatment (DOT and follow-up) Social and psychological support Food and nutritional support Other support							
<b>6</b>	<b>Infection control measures</b>							
<b>7</b>	<b>Monitoring and evaluation</b> Establishment of R&R system for new providers Training on R&R Supervision and technical support Evaluation							
	<b>Total cost</b>							

DOT, directly observed treatment; DR-TB, drug-resistant tuberculosis; NGO, nongovernmental organization; NTP, national tuberculosis programme;

PPM, public-private mix, public-private mix or private-private mix; R&R, recording and reporting; TB, tuberculosis

<sup>a</sup> NGO or institution coordinating PPM TB/DR-TB among care providers (e.g. the national chest society for coordinating PPM DR-TB among private chest physicians).

<sup>b</sup> Health-care provider such as private practitioner or chest physician, or parastatal health facility (hospital or health centre)

## 3.4 Implementation of PPM DR-TB activities

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### 3.4.1 Preparation

#### Selection of service providers or partners for implementation of PPM DR-TB

Once potential service providers for implementation of PPM DR-TB have been identified and mapped (see Sections 3.2.1 and 3.2.2), providers should be selected, based on the implementation plan and on prioritization according to the following factors:

- providers that have already been participating in a PPM mechanism for DS-TB and performing well, especially those that have the interest in and capacity for working on DR-TB;
- providers that are currently diagnosing and treating significant numbers of DR-TB patients, but are not involved in any PPM approach and do not report DR-TB patients to the NTP;
- providers located in convenient settings that are feasible for piloting a new PPM DR-TB model; and
- potential partners that have a strong capacity for supporting or coordinating different aspects of PMDT.

#### Seeking agreement and signing an MOU or service agreement between the PPM DR-TB provider and the NTP or an intermediary partner

Communication and discussions with the service providers need to be initiated by the NTP or a PPM coordinating or intermediary partner. Often, having an intermediary partner between the NTP and the provider facilitates coordination of the PPM mechanisms. An agreement between the NTP or intermediary coordinating partner and providers needs to be formalized in an MOU or service agreement (SA) that is signed by all parties involved. The MOU or SA should include:

- one or more clearly defined models of collaboration for PPM DR-TB activities;
- clear roles and responsibilities of all the parties involved, including the service provider, NTP and partner; and
- requirements for the provider's compliance with the national policies and guidelines for TB and PMDT.

All MOUs and SAs should accord with the legal framework of the country. Furthermore, the NTP and its partners should work with the relevant national government authority to revise the country's legal framework if it limits the implementation of PPM activities. Players' interests, including incentive or profit attractions for private providers, need to be considered and stated clearly in the MOU or SA between the NTP and providers.

#### Recording and reporting forms, and registers or electronic databases for surveillance, patient management and drug supply

All of the required registers, forms and electronic databases need to be designed and made ready before the implementation of a PPM DR-TB approach. Depending on the PPM DR-TB approach, a paper-based R&R system normally requires a register for DR-TB patients, a laboratory request form, referral and referral-feedback forms, treatment cards, a case notification report, a treatment outcomes report and drug management forms. Other forms may be required for particular approaches. An electronic data management system is feasible for the purposes of surveillance and management of patients, and can be made available (directly or via the Internet) for the PPM DR-TB providers to enter data on individual patients. Such systems can also incorporate other programmatic management aspects, such as drug management.

### 3.4.2 Training

Training needs to be coordinated by the NTP or by a PPM DR-TB coordinating or intermediary

partner, and to be provided to all the providers at the start of PPM DR-TB implementation. Also needed are regular refresher training, ongoing supervision and on-the-job training related to individual patient management and programmatic management. Depending on the objectives and contents of the training, trainers or supportive supervisors should be from the NTP, MOH, academic institutions, professional associations or technical partners qualified to train on PPM DR-TB. Contents of the training should fit the capacity-building needs of the providers in the particular PPM DR-TB model being used, as shown in Table 3.

### 3.4.3 Logistic arrangements

#### Drug supply and management

The SLDs used to treat DS-TB patients would normally be procured, managed and subsequently supplied by the NTP to those PPM DR-TB service providers who offer DR-TB treatment services, and the NTP would ensure the QA of the procured SLDs (this is the same

as the process that is applied to the FLDs). SLDs should be supplied free of charge to patients managed under any PPM DR-TB mechanism. An appropriate mechanism is required for the supply of quality assured SLDs from the NTP to the PPM DR-TB health facilities or providers who offer DR-TB treatment services. Quantification of drugs for a supply should be based on the number of patients detected by the health facility, the treatment regimens used, the stock level and the shelf-life of the drugs. A drug reporting and ordering system needs to be established, and a good communication channel between the NTP, coordinating partners and health-care providers should be in place, to ensure regular supply and avoid expiration of SLDs.

#### Supply of diagnostics and laboratory materials

Supply of diagnostic tests or laboratory materials needs to be arranged between the NTP and the health facilities or health providers offering the diagnostic services. The arrangements for the

**Table 3. Recommendations on training content for providers under different approaches**

Approach or provider	Content of training for providers <sup>a</sup>
Patient referral approach	Infection control, identification of patients for DST, and the processes for referral of patients or sputum transfer
Approaches involving diagnosis, treatment and management of DR-TB patients	Full PMDT package
Approaches involving provision of DOT or patient support	Supervision of patient treatment; social, psychological, nutritional and other patient support; monitoring of patients during treatment (including identification of ADRs, laboratory testing and clinical consultation schedules)
Laboratory providers involved in diagnosis of DR-TB	Laboratory QA process, national policy on diagnostic algorithms, mandatory notification of all positive DST results and the notification procedures, feedback of laboratory results and patient referral process

ADR, adverse drug reaction; DOT, directly observed treatment; DR-TB, drug-resistant tuberculosis; DST, drug susceptibility testing; PMDT, programmatic management of DR-TB; QA, quality assurance; R&R, recording and reporting

<sup>a</sup> Training on the use of R&R tools should be included in all trainings, as part of the monitoring and evaluation component.

supply or logistic support will depend on the MOU or SA between the NTP, coordinating partner and diagnostic services provider. A reporting and ordering system should be in place for diagnostics and laboratory supplies. In addition, the laboratory QA programme should be coordinated through the national TB reference laboratory or the NTP's laboratory network.

### **Supply of recording and reporting forms and registers**

R&R forms and registers need to be made available to health providers before the implementation of a PPM DR-TB model. The pre-designed forms and registers supplied will depend on the approach to engagement of the care provider in DR-TB management.

### **Provision of social support**

DR-TB patients require social support such as education, information, material (transportation fees, food packages and nutritional supplements, and accommodation) and psychosocial counselling (12). Often, different kinds of support can be coordinated or delivered by different providers or partners (e.g. NGOs, private or public institutions, and charity or faith-based organizations). Patient support provided by the NTP's partner organizations is especially important when the NTP's resources are too limited to provide sufficient support to all patients. However, coordination by the NTP or PPM coordinating partner is important, to ensure that patients receive the necessary support from the resources available; also, coordination can help to avoid duplication of activities among providers or partners. Options for accessing social schemes need to be explored, to obtain sustainable support for DR-TB patients.

## **3.4.4 Monitoring and evaluation**

### **Recording and reporting**

R&R is often a challenge for providers from outside the NTP as they start to work with the TB surveillance system, especially for DR-TB.

As mentioned above (in Section 3.4.1), an R&R system should be defined for implementation of each PPM DR-TB model. The R&R system for PPM DR-TB should emphasize the need to define one source of case notification and to avoid duplicate notifications. Each MDR-TB case may potentially be notified by more than one care provider (e.g. the diagnosing laboratory, private specialist or hospital) in the patient care pathway. The notification and R&R system should therefore be designed to ensure that each patient is notified only once, and to effectively detect and address duplication of notification when it occurs. Electronic R&R has advantages over paper-based R&R systems in management of duplication of notification, and in management of treatment enrolment data.

After training providers on using the provided tools, support from the NTP or technical partner is needed to set up and operate the system in the service provider's health facilities. The support for the R&R system should be provided through regular supervision by the NTP or partner's supporting staff. The R&R for PPM DR-TB should be incorporated into the NTP's M&E system; there should not be a separate M&E or R&R system for PPM DR-TB.

### **Supervision and technical support**

Regular supervisory visits should be planned and conducted by the NTP or coordinating partners, to support the providers in implementing PPM DR-TB. Regular technical and programmatic support for the implementation of PPM DR-TB is crucial, to address the many challenges that the service providers will face in their engagement and in their compliance with the technical and programmatic requirements of the NTP. Different types of support should be provided by the NTP or PPM DR-TB partners, in relation, for example, to diagnosis and treatment, drug supply and management, patient referral and coordination between health-care facilities or providers.

For PMDT, cohort analysis is essential to determine whether or not the system is working

to cure patients, and to determine reasons for success or failure of the intervention. Cohort analysis for DR-TB is more complex than that for DS-TB, and thus is often a challenge for PPM providers who become involved in DR-TB treatment and case management. Therefore, supervision and technical support provided by the NTP or relevant intermediary partners on R&R and cohort evaluation is crucial, to assure that PPM mechanisms provide a high quality of treatment to DR-TB patients. From the start, careful cohort evaluation of PPM DR-TB activities should be undertaken on a regular basis (generally quarterly), based on assessment of patients' treatment progress. Through supportive supervision mechanisms, it is possible to identify and address clinical management questions, logistical issues, problems with laboratory performance, inadequacies in data collection and management, needs for training or equipment and many other problems. If these problems can be sorted out early, the intervention can progress much more effectively.

### **Monitoring performance and progress**

The performance of each provider should be monitored using indicators that are suitable for the PPM DR-TB approach that the provider is participating in. Indicators to be used could include:

- number of patients referred for diagnosis of DR-TB (by conventional DST or rapid diagnostics)
- number of referred patients diagnosed with RR-TB or MDR-TB (RR-TB/MDR-TB)
- number of TB patients diagnosed with RR-TB/MDR-TB
- number of RR-TB/MDR-TB patients enrolled for MDR-TB treatment
- treatment success rate of enrolled RR-TB/MDR-TB patients
- proportion of enrolled RR-TB/MDR-TB patients receiving DOT

- proportion of enrolled RR-TB/MDR-TB patients receiving DOT and social support.

Assessment of performance and progress should be conducted on a regular basis (e.g. quarterly and annually). To enable this sort of M&E to be carried out, the system by which providers are incorporated into the overall NTP activities must be considered carefully from the start. Generally, the intermediary organization that provides the interface between the provider and the NTP (or local TB control programme) can facilitate implementation and M&E of PPM mechanisms. Review meetings – with the participation of providers, partners and NTP coordinators – are helpful for periodic review of progress. Such meetings also facilitate exchanges of experience among PPM providers, and necessary discussion on solutions to address common challenges.

## Annex 1

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### **Situation assessment tool to engage all relevant care providers in drug-resistant TB (DR-TB) management at country level**

The assessment tool is available in the WHO website and can be accessed at: <http://www.who.int/tb/publications/public-private-mix-drug-resistant-tb/>



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