rGLC COUNTRY SUPPORT MISSION REPORT

Country: Timor-Leste

Inclusive dates of mission: 5 – 11 November 2017

Author(s): Vineet Bhatia, WHO SEARO

Acknowledgments: The author would like to express their thanks to the ministry of Health, National Tuberculosis Control Programme (NTP), Bairo Pite Clinic, Klibur Domin Clinic, National Hospital, National Laboratory, Ermera health post, Bazartete CHC,

Gratitude is also expressed for WHO country office for facilitating this mission.

Special appreciation is extended to all patients who spared time for getting interviewed.

The programme has agreed with open sharing of this report ☒

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Abbreviations and acronyms

aDSM	Adverse Drug Safety Monitoring and Management
AIDS	Acquired immunodeficiency syndrome
ART	antiretroviral therapy
Cfz	Clofazimine
Cs	Cycloserine
Dlm	Delamanid
DOT	Directly observed treatment
DOTS	Directly Observed Treatment Short-course
DMC	Designated Microscopy Centre
DRS	Drug resistance survey
DR TB	Drug-resistant tuberculosis
DTC	District Tuberculosis Coordinator
DST	Drug susceptibility testing
EMR	Electronic medical record
GDF	Global TB Drug Facility
GLC	Green Light Committee
GFATM (GF)	Global Fund to Fight AIDS, Tuberculosis and Malaria
HIV	human immunodeficiency virus
LPA	Line Probe Assay
LJ	Lowenstein Jensen
MDG	Millennium Development Goal
MDR-TB	Multidrug-resistant tuberculosis
Mfx	Moxifloxacin
MOH	Ministry of Health
NGO	Non-governmental organization
NTP	National Tuberculosis Programme
NTRL	National TB Reference Laboratory
Ofx	Ofloxacin
SAMES	Servisu Autonomi Medicamento Equipamento Saude
SDG	Sustainable Development Goals
SEAR	(WHO) South East Asia Region
SISCa	Integrated Community Health Services
SLD	Second-line anti-tuberculosis drug
SL LPA	Second line LPA
SOP	Standard operating procedures
SRL	Supranational tuberculosis reference laboratory
TB	Tuberculosis
WHO	World Health Organization
XDR-TB	Extensive drug-resistant tuberculosis

Executive summary

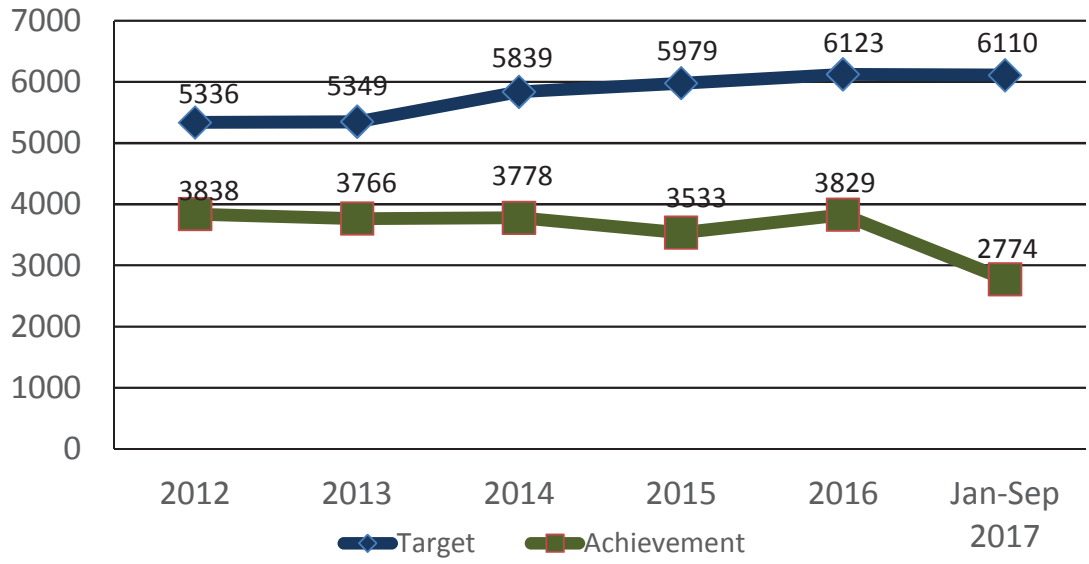
i. TORs of the mission

- Assess whether NTP polices, strategy and guidelines are in line with latest WHO recommendations
- Review progress since the last PMDT mission
- Review country plan on STR implementation
- Participate in discussions on the DRS plan

ii. Overall implementation status of PMDT compared to targets in NSP.

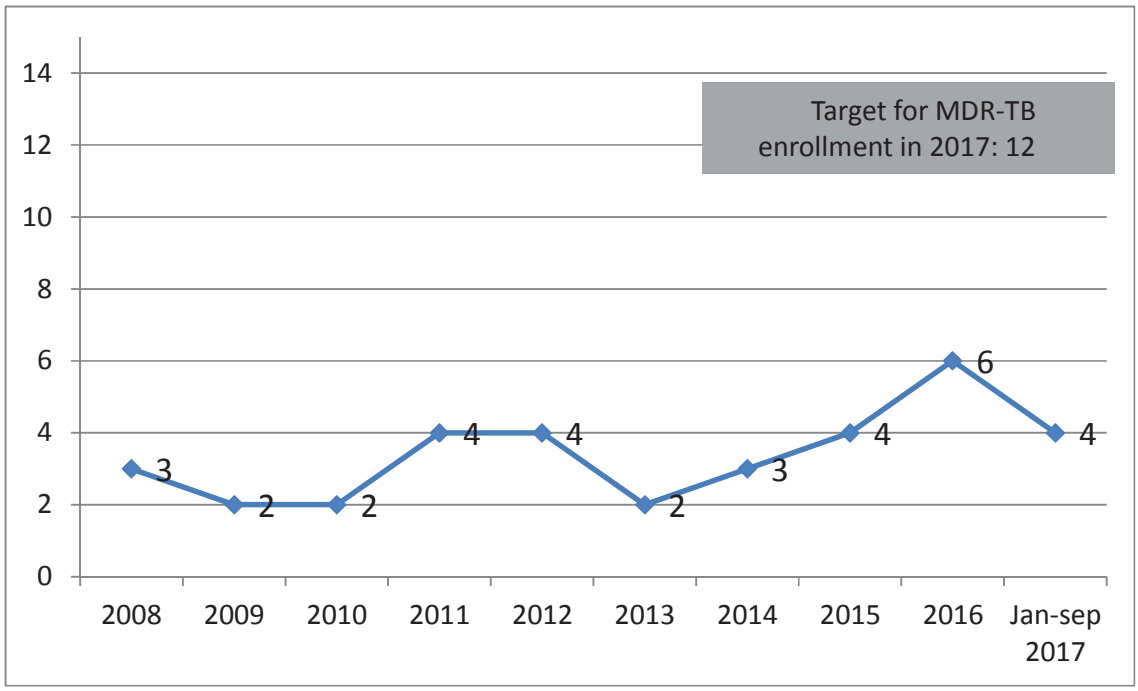
There is an increase in TB case notifications of about 10% in 2016 as compared to 2015. In first three quarters of 2017, the programme has diagnosed 2774 cases. Based on averages of quarter, the programme could reach similar figures of case notification as in past year. However this will be only around 60% of the targets envisaged by the programme

Figure 1: Performance of TB programme in terms of TB case notification



As far as PMDT is concerned, the programme continues to detect very few cases of RR/MDR-TB against the estimated numbers despite introduction and roll-out of GeneXpert machines in recent past

Figure 2: Performance of PMDT in terms of RR/MDR-TB case notification



iii. Significant achievements

- The national TB programme maintained a good treatment success rates for DS-TB cases. The reported treatment success rate for 2015 cohort is 87%
- Increased use of available GeneXpert machines (as compared to last year)
- In process of implementing bold policy of upfront GeneXpert testing
- Recent WHO guidelines on DS and DR TB being adopted
- aDSM committee established, ToRs defined, initial sensitization conducted
- Multiple partners being engaged for support to national programme
- Initiation of active case finding activities

iv. Key challenges identified in this mission in relation to the ToRs

- Only 57% of TB cases being diagnosed. Low retreatment numbers for 2016
- Wide gap between the number enrolled and the estimated RR/MDR-TB cases (6 out of 100 in 2016)
- Timing for establishment of molecular testing for second line drugs is not available
- National reference laboratory yet to be accredited for DST
- Treatment support/ observation during continuation phase remains weak
- ECG and TSH monitoring not routinely done and audiometry is not available

v. Priority recommendations of the mission:

Recommendation	Responsible persons/agency	Timeline	Support required to fulfil the recommendation
• Universal DST should be achieved as soon as possible	NTP	Initiate steps in 2018 for a phased implementation by 2019	
• Timely implementation of the planned drug resistance survey	NTP, NRL and WHO	Early 2018	
• Urgently plan for introduction of rapid molecular test for second line DST	NTP, NRL and WHO	Early 2018	Training can be imparted through WHO support
• Coordinate with SNRL for rapid accreditation of national reference laboratory	NTP, NRL and WHO	Early 2018	Support from SNRL Chennai and possibly KOICA
• Prepare a plan with timelines for transitioning to shorter regimen	NTP	End 2017	
• Check registration status of all drugs included in the shorter regimen	NTP	End 2017	
• Regular and complete monitoring of all patients on second line drugs – ECG and TSH testing should be undertaken as per guidelines – Audiometry equipment need to be purchased at the earliest	NTP and WHO	Early 2018	

vi. Status of priority recommendations of previous mission:

Recommendations	Responsible agency/person	Status
The NTP is heavily dependent on the Global Fund support which has reduced significantly from 4 m US$ (2015-17) 4.8 m US$ (2018-20). There is an urgent need for increasing support from domestic resources for TB services and active seeking of multiple additional donors to fill the gap beyond 2017.	NTP	1. 40% costs of programme (including HR costs) are borne by through domestic resources 2. Advocacy with ministry is ongoing for increasing the envelope In addition to the Global Fund: 3. KOICA supported establishment national lab BSL 2+ – USD 2.1 m. 4. IOM and Burnet Institute supporting active case finding 5. Exploring support for

		expansion of ACF through KOICA 6. TB REACH proposal is being developed by IOM 7. JICA and others being explored
Estimate the prevalence of Rifampicin resistance in the country using Xpert. Requisite number of sputum samples of patients diagnosed with TB can be drawn from the districts, including new and retreatment cases, and transported to the three Xpert sites for testing. The study can be undertaken using the savings from the existing grant in discussion with the Global Fund.	NTP, WHO and GF	1. Protocol for DRS being developed with support from WHO 2. Study is due to start in 2018
The NTP should move towards universal DST using Xpert. This can be done in a phased manner in terms of patient categories and geography. An operational plan should be prepared for implementing the above expansion taking into account the training of staff, mechanism for sputum collection and transportation and availability of the Xpert cartridges.	NTP supported by WHO	Upfront GeneXpert test policy is under process of adoption and expansion. Sputum transportation needs to be worked out
Optimise the use of available Xpert sites by • Revising the presumptive MDR criteria to include all smear positive and then all TB cases. • Diagnosis of smear negative, extra-pulmonary and paediatric TB	NTP	1. Increased use of GeneXpert machines observed 2. Increasing use of GeneXpert for diagnosing TB cases upfront though not universally adopted
Strengthen the sputum collection and transportation mechanism especially from the far off districts.	NTP	Several models being tried including use of motorcycles and hiring of cars based on local possibilities Still difficult from 3 districts – Los Palos, Viqueque and Covalima
Expedite the accreditation of the National laboratory for first and second line DST.	NTP, WHO and SNRL	• Visit from SNRL in January 2017. • One person has gone for training to Japan • Support from SRL being explored for accreditation • Request for MGIT has been sent to the GF. Approvals are awaited
Ensure availability of ancillary drugs for MDR patients admitted at Klibur Domin.	NTP	Available now
The country should transition to WHO recommended shorter regimen for the treatment of MDR/RR cases.	NTP and WHO	• aDSM – national Coordination Committee set-up, ToRs prepared.

		Formats yet to be printed. Doctor sensitized on shorter regimen • LPA yet to be established – may arrive next year depending on funding availablity
Strengthen community engagement for creating awareness about TB and MDR-TB and creating mechanisms for patient support to ensure early diagnosis, adherence and treatment completion. Introduce counselling services for MDR patients and their families.	NTP and partners	• Sensitization activities undertaken DTC, ADTC and DTAs for interaction with community • 2 Video films for community produced and being shown • Community engagement with ACF being followed • Movies given to SRs showing in respective districts
Develop capacity building plan across all cadres of staff including the Timorese doctors who are being recruited in the health system.	NTP	• Capacity building undertaken • national level Routine training for all doctors at districts (1-2 doctors/ batch) • Others – TB/HIV, EP, Paediatric TB

Achieved	
Some progress/ ongoing	
No change	

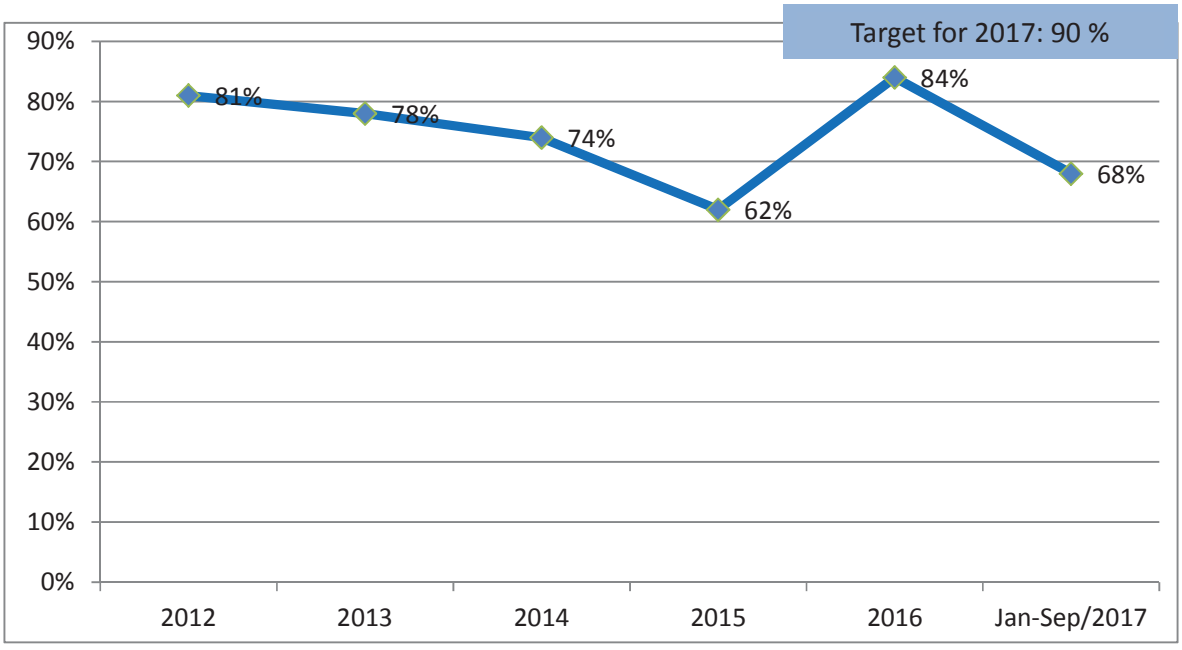
Detailed report

A. Introduction/Background

Timor-Leste is an island nation with a population of 1.26 million[1] and an annual population growth rate of ~1.6%. The country has made substantial progress in re-establishing infrastructure after massive destruction in 1999 and 2006. Approximately 31.1% of the population lives below the national poverty line, living on less than US$ 0.88 per person per day. Life expectancy at birth was 68.2 years in 2014. A large part of country consists of difficult terrain. The hilly and mountainous areas make travel difficult and because of scattered population, there are large distances between residence and designated microscopy centres. The public health care delivery facilities in the 13 Municipality of Timor-Leste include 69 community health centres (CHCs), 315 health posts, 162 mobile clinics (all providing primary health care to the community), and linking with six referral hospitals providing mainly secondary and tertiary care. Under the Servisu Integradu da Saúde Communitária (SISCa) initiative over 470 SISCa posts have been established for health out-reach activities.

Current estimates indicate that TB incidence in the country is among the highest in the South-East Asia region and among top 10 in the world. Both TB diagnostic- and treatment services are fully integrated into the general MOH infrastructure, using common health facilities such as health posts and health centers as well as general health staff such as health workers, nurses and doctors at implementing facilities. There are 76 TB laboratories including 18 designated microscopy centres, 49 TB laboratories and 9 in private clinics.

Figure 3: Case detection rate of new bacteriological confirmed cases diagnosed 2012 to 2017



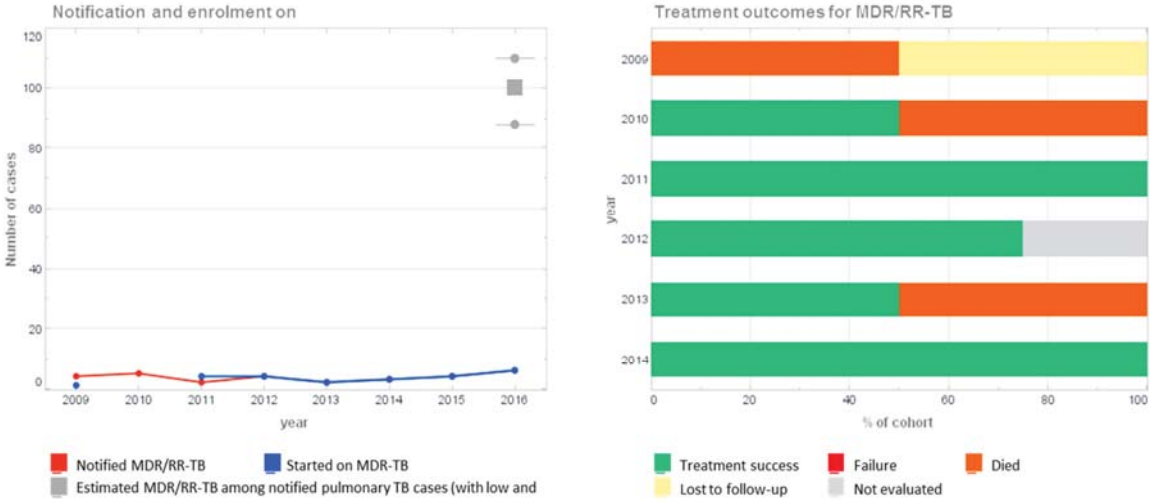
[1] https://data.worldbank.org/country/timor-leste

B. Overall DR-TB programme performance

While there has been some steady progress with TB programme implementation, it is seen that only 57% of the estimated incidence of TB cases being diagnosed by the programme. Further, while that has been a significant increase in number of relapse cases being notified, rising to 126 in 2016 from 86 in 2015, there has also been a sharp decline in other previously treated cases to 13 in 2016 from 195 in 2015. Total number of TB cases being diagnosed and specifically retreatment cases being diagnosed has direct impact on possibility of DR-TB cases being screened.

In 2016, only 6 cases of RR/MDR-TB cases were notified, far below the WHO estimates of 100 such cases among notified pulmonary TB cases. While this could be attributed to uncertainty in estimates, it is also possible that not enough cases are being screened for drug resistance. It is hoped that true picture of drug-resistance proportions will emerge after the planned drug-resistance survey helping the programme undertake better planning. Adoption of universal DST will also help programme move forward with detection of all possible DR-TB cases and providing appropriate treatment.

Figure 4: Trend of PMDT programme performance since 2009



Planning for drug-resistance survey (DRS) was under-way during this mission. The DRS consultant discussed the protocol as well as implementation arrangements with NTP and sub-national programme managers.

Since the cohorts are small, it is difficult to comment on treatment outcomes in terms of percentages. For the 2014 cohort, all cases were successfully treated.

Recommendations:

- An assessment of the true burden of drug-resistance, specifically rifampicin resistance and multi-drug resistance is urgently needed. All efforts should be made to implement DRS as per planned schedule

C. Role of partners in delivery of TB and MDR-TB care

The government provided health system is complemented well by the non-government health providers and faith based health service providers. A TB culture and DST laboratory has been established with support from KOICA (Korean International Cooperation Agency) which is functional since April 2016. Currently the laboratory is performing cultures and is not accredited for DST. An MDR-TB in patient facility has been established at the premises of the NTP's NGO partner, the Chester Ryder Foundation at Klibur Domin. HIV services are also provided by NGOs and community based organisations (CBOs). These include 1. Estrella Plus 2. Caritas Dili 3. Esperanza. Additionally, IOM is supporting active case finding (ACF). WHO through its country office provides continuing technical support in the form of development of guidelines and policies. The country office also support fostering of partnerships and mobilizing resources for the programmeThe programme is exploring support for expansion of ACF with several funders – KOICA and Burnet Institute. A TB REACH proposal is being developed by IOM in coordination with the programme and WHO. JICA and other support is also being explored for supplementing the programme gaps.

Recommendations:

- The country is in urgent need of plugging gaps in resources for the TB programme (including MDR-TB component). WHO can support programme in raising funds from various donors.
- Greater role of partners with implementation capacity in activities for intensified case finding should continue to be explored

D. Case finding strategy

The presumptive MDR patients are tested by Xpert. There are currently 3 Xpert sites (Bairo Pite, National Laboratory and Klibur Domin) with 4 machines, each of which caters to 6-7 districts from where samples are received. The presumptive MDR cases are identified by the District TB Coordinators/Assistants and sputum samples are collected and transported to the respective Xpert site through various means. There is no information on the proportion of eligible presumptive MDR patients tested by Xpert which makes it difficult to assess the missed cases

The programme is in process of implementing bold policy of upfront GeneXpert testing.

Table 1: Presumptive DR TB tested, RR TB detected & enrolled

Drug-resistant TB care, 2016	New cases	Previously treated cases	Total number***
Estimated MDR/RR-TB cases among notified pulmonary TB cases			100 (88–110)
Estimated % of TB cases with MDR/RR-TB	2.8% (2.4–3.1)	13% (10–15)	
% notified tested for rifampicin resistance	37%	96%	1 421
MDR/RR-TB cases tested for resistance to second-line drugs			6
Laboratory-confirmed cases		MDR/RR-TB: 6, XDR-TB: 0	
Patients started on treatment ****		MDR/RR-TB: 6, XDR-TB: 0	

Recommendations:

- Universal DST should be achieved as soon as possible while allocating matched resources. It is informed that the country has proposed universal DST in next GF grant. To provide a simple idea of possible costs
    - Scenario 1 – GeneXpert test done for all TB cases put on treatment and those found to be at risk for DR-TB. This is the minimum essential and would need:
        - assuming 4,000 cases all forms in next year
        - 400 other high risk cases
        - Total need for cartridges is 4,400 which is approx USD 66,000 (@USD 15/cartridge)
- Scenario 2 – For all symptomatics upfront GeneXpert testing. This is the ideal situation based on available resources
        - assuming 10% positivity – 40,000 tests
        - Another 400 tests for high risk cases
        - Total need for cartridges is 40,400 which is approx USD 606,000

E. Laboratory services and expansion plan

The country now has 4 GeneXpert machines with significantly improved utilisation over past year. Purchase of MGIT is being discussed through the GF support. There are 76 TB laboratories including 18 designated microscopy centres, 49 TB laboratories in programme and 9 in private clinics. BSL 2+ national reference laboratory has been established with support from KOICA and is functional since April 2016. The laboratory is performing cultures but is yet to be accredited for DST for both first and second line drugs. Culture isolates are being transported to SNRL for DST. However turnaround time for getting the rsults appears very long.

For second line DST the samples are currently transported to SNRL at NIRT Chennai. However, timing for establishment of molecular test for second-line DST is still not available. The national reference laboratory is yet to be accredited for DST. Although, sputum transportation has improved to some extent, with lesser average time in samples reaching the reference laboratories for DST, there still appear to be a few challenges because there is no single model that can be applied across the country.

Table 2: Use of GeneXpert for tests

Site	January - September 2016	January - September 2017
National laboratory	95	500
IOM (only recently started)	NA	199
Klibur Domin	238	511
Bairo Pite (currently out of order)	731	805

Recommendations:

- Plan for establishing molecular testing for second line drugs needs to be in place urgently
- Coordinate with SNRL for rapid accreditation of national reference laboratory
- While a single solution to transportation from all districts may not be a feasible option, some of the successful models appropriate for local requirements (e.g. use of motorcycle for combined sample transportation) need to be scaled up quickly

F. Treatment strategy

The national programme is using standardised longer regimen for RR/MDR-TB patients.

8 Cm-Lfx-Eto-Cs-Z / 12 Lfx-Eto-Cs.

The treatment dosage and regimen being provided to patients were found to be as per WHO guidelines. Treatment cards and patient files well maintained. Contact investigations are being done, though there is scope for improvement. Patients get individual accommodation during hospitalisation in Klibur Domin. This is primarily because patients number is less. The patients diagnosed as MDR-TB are admitted at Klibur Domin in-patient facility, located in district Liquica, for the entire duration of the Intensive Phase (8 months). The clinical assessment and pre-treatment evaluation (including blood tests) is done at the National Hospital in Dili. Klibur Domin does not have facilities to manage any severe complications /adverse reactions (ARs). The nearest tertiary centre is the National Hospital at Dili in which a ward has been constructed for admitting the MDR patients. After the IP the patients are referred to their respective districts where they continue ambulatory treatment. DOT is weak during the CP with patients being handed over medicines for upto 4 weeks for self-administration.

Treatment support/ observation during continuation phase remains weak. Only two weight bands in the treatment card (<45 kg and >45 kg)

Recommendations:

- Prepare a plan with timelines for transitioning to shorter regimen
- Check registration status of all drugs included in the shorter regimen
- Allow for different weight bands in the treatment card

Treatment delivery (DOT), adherence and social support

Patients receive treatment and meals while admitted to the hospital. NTP has initiated a 'Nutritional Support Scheme' for the MDR patients on treatment. Under this scheme the patients are provided free food while admitted at Klibur Domin during IP and 'necessary' food items during CP although the latter is not in a structured manner. This is coordinated by Klibur Domin and the respective District TB Coordinator. However during admission, patients loose earnings and the family have to depend on informal social security measures. There are no formal patient support mechanisms once patient is on continuation phase

Recommendations:

- Strengthening community engagement may include income generation activities for patients and other social support mechanisms – during admission and after discharge from hospital.
- These mechanisms could be extended to all TB patients to reduce the catastrophic costs.

G. Pharmacovigilance/ aDSM

As a step towards implementation of shorter regimen in the country, a National Coordination Committee has been set-up and the ToRs prepared. However recording and reporting formats are yet to be printed. It was informed to mission team that some initial sensitization have also been conducted for the clinicians and members of the aDSM team.
It was observed that adverse events (AEs) are recorded in patient files but reporting mechanism is not yet in place. Further ECG and TSH monitoring are not routinely done and audiometry equipment is not available.

Recommendations:

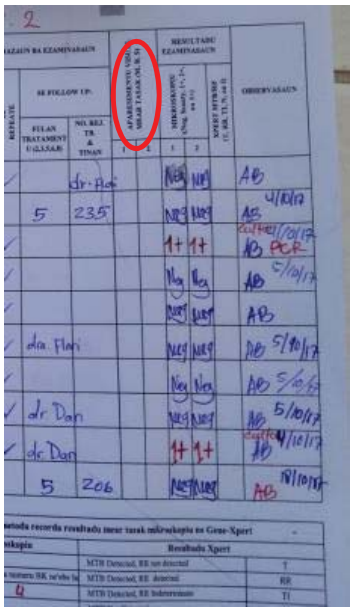
- All health workers should be sensitized to pro-actively monitor AES at each contact with patient, record them and report them
- Mechanism of reporting AEs with clear roles and responsibilities should be put in place
- aDSM should be adopted as a practice in general rather than specific for shorter regimen to be introduced
- ECG and TSH testing should be undertaken regularly as per the guidelines.
- Audiometry equipment needs to be purchased at the earliest. Support from partner agencies can be sought, if needed
- Each patient file should include charts and tables for clinical and lab monitoring schedule as well as trend of results

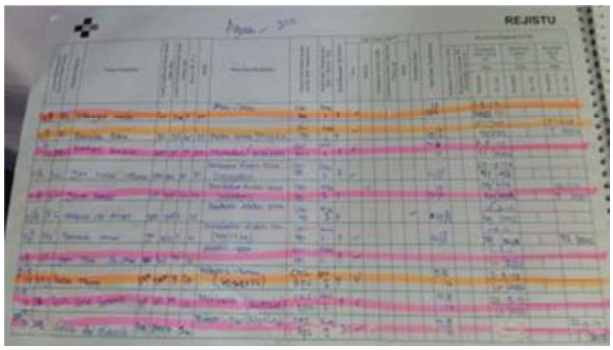
H. Drug management

Servisu Autonomo Medicamesto Equipmento Saude (SAMES) which is an autonomous agency for procurement of logistics and drugs etc. is responsible for clearance, storage and distribution of TB medicines including SLDs. The MDR drugs are stored in a temperature controlled room within the larger SAMES drug store at Dili. No stock-outs reported at any of the places visited. Medicines were found to be well stored and organised

I. Recording and reporting, and data management

The mission team observed that plenty of data is available and being recorded. Lab and treatment registers in general are well maintained and filled adequately. However presumptive DR-TB (Suspect) registers are not properly maintained at several places. Hence it is not possible to compare referrals with actual tests being done. It was also found that GeneXpert results are recorded separately and often not entered in lab registers





Recommendations:

- Maintenance presumptive TB register needs to be emphasized with all health workers to monitor and track referrals
- GeneXpert test results need to be entered in the lab register for understanding of result patterns

J. Infection control

NTP has developed comprehensive IC guidelines with technical support of WHO covering administrative, environmental and personal protection. There was availability of PPE but variable use was observed in different facilities. Good use of natural ventilation was found in national referral hospital, Klibur Domin and other facilities. However at Bairo Pite (private clinic) there was crowding in patient waiting areas and mixing of patients. Doctor's chamber had all windows closed and no mechanical ventilation except for an air conditioner.

The crowding at Bairo Pite can partly be attributed to the fact that the clinic caters to a much larger proportion of patients as compared to other facilities. However some small administrative measures could greatly reduce the risk of cross-infection among visiting patients

Recommendations:

- Infection control should be strictly followed in all health facilities to cut the chain of transmission. Administrative measures and triage of patients may be applied at these facilities.
- Patient crowding in closed spaces should be avoided. Waiting areas can be made well ventilated
- Clinic designs should allow for maximizing use of natural ventilation wherever possible

K. Human Resource Development

Standardized training modules for medical and paramedical staff have been developed and the key NTP staffs including the Regional TB Supervisors, District TB Coordinators and DOT providers have been trained in PMDT formally. There are training modules available for medical and paramedical staff on PMDT. Additionally, the NTP has hired an expert for clinical management of MDR TB who is competent and constantly supporting MDR-TB management at Klibur Domin and supporting CP as well. One Timorese doctor has been recently trained in National Institute of TB and Respiratory Diseases in New Delhi on clinical and programmatic management of PMDT assists in the clinical management of DR-TB patients.

Recommendations:

- Continuous training and capacity building will be needed for some time specifically because of low case load of patients and possibility of trained personnel to forget imparted knowledge if they are not in touch with patients for some time.
- Training needs for newer diagnostic techniques and implementation of shorter regimen should be assessed and plans developed

L. PMDT plan including funding source

Table 3: Summary budget with areas of intervention as per the National Strategic Plan

Intervention	2018	2019	2020	Total
MDR-TB - Case detection and diagnosis: MDR-TB	1,164	1,164	1,164	3,491
MDR-TB - Treatment: MDR-TB	115,189	71,907	55,547	242,643
MDR-TB - Engaging all care providers (MDR-TB)	24,000			24,000
MDR-TB - Collaborative activities with other programs and sectors (MDR-TB)	12,000			12,000

Table 4: Funding landscape

	Global Fund				Government				Above Allocation				Other Sources			
	2018	2019	2020	Total	2018	2019	2020	Total	2018	2019	2020	Total	2018	2019	2020	Total
MDR-TB: Case Detection and Diagnosis	1,164	1,164	1,164	**3,491**	-	-	-	**-**	-	-	-	**-**	-	-	-	**-**
MDR-TB: Treatment	115,189	71,907	55,547	**242,643**	-	-	16,702	**16,702**	4,118	42,420	43,225	**89,762**	-	-	-	**-**

Agenda of the mission

Dates	
6.11.2017	**Day 1**
	Meeting with NTP
	Meeting with NL and initiation of DRS discussion
	Visit to Klibur Domin
7.11.2017	**Day 2**
	Visit to Bairo Pite
	Discussions with IOM on active case finding activities
8/11/2017	**Day 3**
	Visit to Ermera Health Post
	Visit to Bazartete CHC
	Meeting with WR
	Discussions at WHO office
9/11/2017	**Day 4**
	Meeting with Clinical Director and aDSM team
	Discussions on progress of PMDT
10/11/2017	**Day 5**
	Debriefing of rGLC mission