rGLC COUNTRY SUPPORT MISSION REPORT

Country: Nepal

Inclusive dates of mission: 25 November – 1 December 2018

Author(s): Vineet Bhatia/ WHO-SEARO

Acknowledgments:

The author gratefully acknowledges the support provided by the NTC team specifically Dr Bhim Singh Tinkari (NTC Director), and his entire team. In-country partners like NATA who provided useful inputs. Dr Suvesh Shrestha from Save the Children Fund provided perspectives from GF management unit as well as on technical issues. The credit of the report goes to the two teams (details in Annexure) who travelled to various health facilities and shared their findings to enrich the report. The author would also like to thank WHO Country Office team, Dr Jos Vandelaer, Dr Lungten Wangchuk, Dr Ashish Shrestha and Ms Sarmistha Shrestha for providing technical and logistics support for the mission.

The programme has agreed with open sharing of this report ☒

Table of Contents

Abbreviations and acronyms

aDSM	Active drug safety monitoring and management
Bdq	Bedaquiline
CHW	Community health worker
Cfz	Clofazimine
Dlm	Delamanid
DOT	Directly observed treatment
DST	Drug susceptibility testing
DS-TB	Drug-susceptible TB
DR-TB	Drug-resistant TB
EQA	External quality assurance
GDF	Global Drug Facility
GF	Global Fund to Fight AIDS, Tuberculosis and Malaria
HIV	Human immunodeficiency virus
HR	Human resources
HRD	Human resource development
IPT	Isoniazid preventive therapy
IRD	Interactive Research and Development
KNCV	KNCV Tuberculosis Foundation, the Netherlands
Lfx	Levofloxacin
LPA	Line probe assay
MDR-TB	Multidrug-resistant tuberculosis
Mfx	Moxifloxacin
NATA	Nepal Tuberculosis Association
MOHP	Ministry of Health and Population
NTC	National Tuberculosis Centre
NGO	Non-governmental organization
NSP	National Strategic Plan
NTC	National Tuberculosis Program
NRL	National TB Reference Laboratory
PLHIV	People living with HIV/AIDS
PMDT	Programmatic management of drug-resistant TB
PPM	Public–private or public–public mix
QMS	Quality Management System
RR-TB	Rifampicin-resistant TB
RTC	Regional Tuberculosis Centre
SAARC	South Asian Association for Regional Cooperation
SLD	Second-line drugs
SRLN	Supranational Reference Laboratory Network
STC	Save The Children
STR	Shorter treatment regimen
TB	Tuberculosis
USAID	United States Agency for International Development
WHO	World Health Organization
XDR-TB	Extensively drug-resistant tuberculosis

Executive summary

i) TORs of the mission

- To review progress made in scaling-up of PMDT activities and specifically implementation status of recommendations from last rGLC mission
- Site visit to assess laboratory implementation, treatment delivery mechanisms and private sector engagement
- To get patent perspective on PMDT service delivery and Review PMDT expansion status, including implementation and introduction of new drugs
- Review DR-TB expansion plan and its alignment with national and regional goals.
- To hold discussions with experts and TWG regarding adoption of recent WHO guidance and rapid communication on management of MDR-TB
- Identify country needs for capacity strengthening and technical assistance on PMDT
- Make recommendations to address key challenges foreseen for transition to new guidelines for management of drug-resistant TB

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

Table 1: Achievement v/s targets in past two years and plans for enrolment in coming years

		2016	2017	2018	2019	2020
Total new cases notified	**Target**	**35171**	**36482**	**38267**	**39159**	**41920**
	Actual	**28928**	**28489**			
Retreatment cases notified	**Target**	**3526**	**3658**	**3837**	**3926**	**4203**
	Actual	**3128**	**3275**			
Estimated MDR-TB cases among notified cases (as per target)		**886**	**919**	**963**	**986**	**1055**
MDR-TB cases enrolled	**Target**	**446**	**545**	**641**	**768**	**962**
	Actual	**386**	**448**			
XDR TB cases	**Target**	**40**	**49**	**58**	**69**	**87**
	Actual	**17**	**19**			

iii) **Key challenges identified in this mission in relation to the ToRs**

- Decentralization of the TB programme (and Health in general) with the new federal structure is a good opportunity for planning care and delivery in future. However, if this is not done urgently, this could prove to be a bottleneck
- Algorithm for diagnosis and treatment have not yet been finalized (discussed during the mission and reached in-principle agreement)
- Cat II continues to be administered (discussed during the mission with TAG and it was agreed to drop this regimen)
- The expansion of services has been slow as compared to the plans
- Diagnosis of paediatric DR-TB cases has been a challenge
- Recording and reporting is weak with incomplete and incorrectly filled forms

- Patient support is not uniformly available across all health facilities (eg. TC, TSC, hostel, home) and there was lack of proper communication between these facilities in terms of patient management, primarily ascribed to new fund flow mechanisms in decentralized system
- Active Drug Safety Monitoring and Management (aDSM), is in early stages and faster implementation and proper budget allocation is needed.

Priority recommendations of the mission:

Recommendation	Responsible persons/agency	Timeline	Support required to fulfill the recommendation
• Planning meeting of provincial heads/ responsible persons could be organized to discuss TB and MDR-TB planning, and sensitization	NTC/MOHP and other relevant ministries	Q1 2019	
• Critical need to disseminate standard diagnostic algorithms to all health facilities including Government, private and NGOs run facilities	NTC	Q1 2019	STC and WHO to support
• Treatment delivery mechanisms need to be relooked to make them simpler, easy to access and efficient	NTC/MOHP	Q1 2019	STC and WHO to support
• Update national guideline to the new guidelines for management of H resistant as well as RR/MDR-TB	NTC	Q1 2019	rGLC and WHO HQ support along with country partners
• Strengthening recording and reporting including roll-out of new electronic DHIS II based platform	NTC and GF PMU	Q2 2019	
• Patient adherence mechanisms are important and should be enhanced e.g. rehabilitation support	NTC/MOHP	Ongoing	
• Streamlining of financial support for patients specifically with new federal structure	NTC/MOHP and other ministries	Q2 2019	

Status of Priority recommendations of previous mission:

Recommendations	Responsible agency/person	Status
Continue implementing the still ongoing or partially implemented recommendations of the 2016 rGLC	NTC and Partners	Ongoing
The PMDT Transition Plan, after updating with recommended diagnostic algorithms and regimen, including new drugs, should be implemented as planned.	NTC and partners	Completed (for the previous guidelines but needs to be reworked considering new guidance)
Revival of partner coordination will be essential to streamline support and technical assistance to the NTC, especially in the light of the decentralization process, which is expected to be intensified after the ongoing elections. High turnover of senior management staff in NTC requires dedicated support from partners. PMDT Officers from WHO and partners are needed to support the leadership of the NTC, to maintain and ensure institutional memory, and streamline and coordinate activities and Technical Assistance.	Partners under leadership of WHO	Not completed
Case finding: The revised diagnostic algorithm should clearly lead to and visualize the correct DR TB regimen: Short Regimen, conventional regimen and regimen using new drugs. GeneXpert test to be used as the initial test in high risk groups for DR TB. In areas with restricted access, conventional diagnostic procedures will be followed, but priority for GeneXpert testing will be given to sputum smear positive cases. Results of the planned Prevalence Survey may be used to target enhanced/active case finding among (DR) TB risk groups and vulnerable populations, other than household contacts and PLHIV.	NTC and partners	Completed. The diagnostic algorithm now needs to be disseminated
Laboratory: Refer to the recommendations from the recent laboratory missions. Decentralize GeneXpert sites and FL and SL LPA to all provincial laboratories.	NTC and partners	Ongoing

6. Treatment: Start Short Regimen (as pilot) and use of longer regimen with new TB drugs before end 2017 and scale up countrywide by March 2018. Ensure that aDSM is in place, the DR TB Guidelines are updated and finalized, and capacity building done. NTC Director needs to fill out and sign the Bdq request Annex 1 in order to trigger the GDF procurement process as soon as possible.	NTC and partners	completed completed
Treatment delivery: Make an inventory of district capacity for ambulatory treatment of DR TB cases, including options for patients for admission to hospital and/or hostel. Intensify training of district staff and community health workers for ambulatory and community-based patient care.	NTC and partners	Ongoing
aDSM: Follow the recommendations outlined in the PMDT Transition Plan of 2017. Consider conducting death audits on all DR TB patients who died, with focus on those using the new and repurposed drugs.	NTC, MOHP and partners	Ongoing
Recording and Reporting: Ensure that the new electronic DR TB Patient Tracking and TB Laboratory System is able to provide all information needed to manage DR TB patients including aDSM data. Provide a roadmap with timelines toward full functionality.		Ongoing
10. Infection Control: Immediately implement administrative measures at the Regional Centre in Pokhara and Stupa Community Hospital in Kathmandu. Organize an IC mission to review, update and implement the IC plan and roadmap and mainstreaming TB-IC in the existing system, in alignment with current policies (PMDT guidelines, PMDT Expansion plan). In preparation of the planned IC mission, assign IC focal points at national and regional level to supervise infection control measures for DR-TB health facilities	NTC and partners	Institution specific recommendations have been reported to be completed but country wide implementation of IC remains weak

Supervision: Enhance the supervisory visits in the field to include new diagnostics used in PMDT, following the algorithms towards choosing the correct treatment, implementation of the agreed regimen, with new drugs and STR, aDSM (SAE identification and clinical management), interim outcome monitoring including of patients on community DOT, study death analysis, and consistency in paper based and electronic recording and reporting system.	NTC and partners	Ongoing

Achieved	
Some progress/ ongoing	
No change	

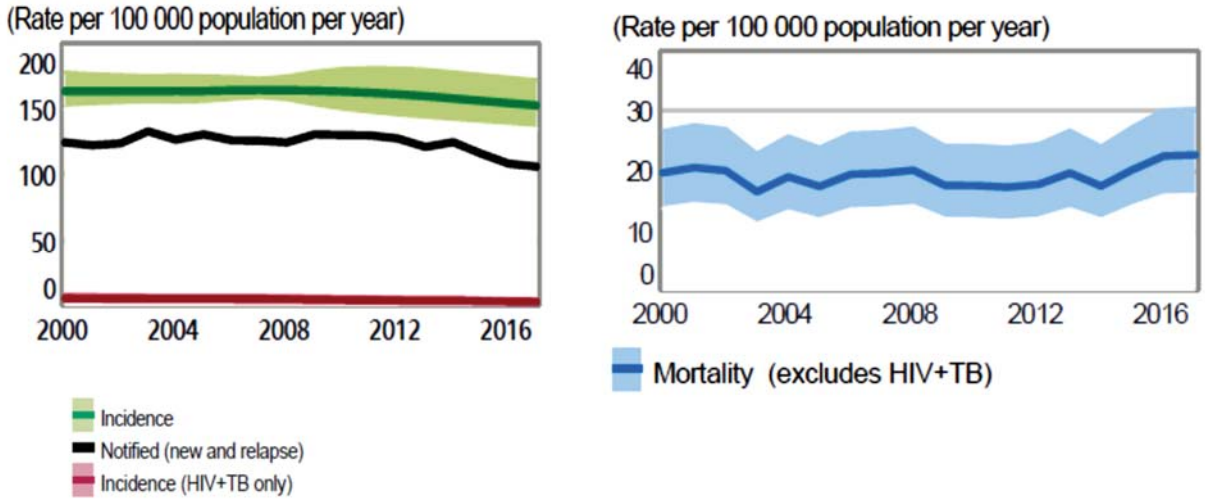
Detailed report

Introduction/Background

The National Tuberculosis Centre (NTC) is the central body responsible for policy, planning, implementation, monitoring and evaluation of the National TB control Programme (NTP). The National Strategic Plan is a key instrument to appropriately manage and implement NTP. It highlights the overall aim for the control of TB and clearly defines the goal(s) that needs to be reached as well as the Operational Objectives that should be achieved in the next five-year through strengthening TB control efforts. NTC has established Program Management Unit (PMU) at the central level for overall management of the Global Fund grants. This PMU consists of an overall coordination, finance, monitoring & evaluation, sub recipient management, training, procurement and technical sections for private public partnership and advocacy, communication & social mobilization.

At the Regional level, NTP activities are planned and carried out in coordination and cooperation of the Regional Health Directorate. At the Regional level fulltime permanent Regional TB Leprosy Officers are appointed and are responsible for program implementation, training, monitoring & evaluation and supervision of program activities and drug logistics. At the District level, the District Health Officer/District Public Health Officer is responsible for planning and implementation of NTP activities within the district. Within the district, the basic unit of management for diagnosis and treatment are district hospital and the primary health care centres. Directly Observed Treatment is available at Health Post, Sub Health Post and other health institutions within the district.

Figure 1: Estimated trends of incidence and mortality in Nepal (2000-2017)



Overall there has been a decline in TB case notification without a corresponding decline in incidence estimates for the country. There are also concerns regarding rise in estimated mortality among TB cases

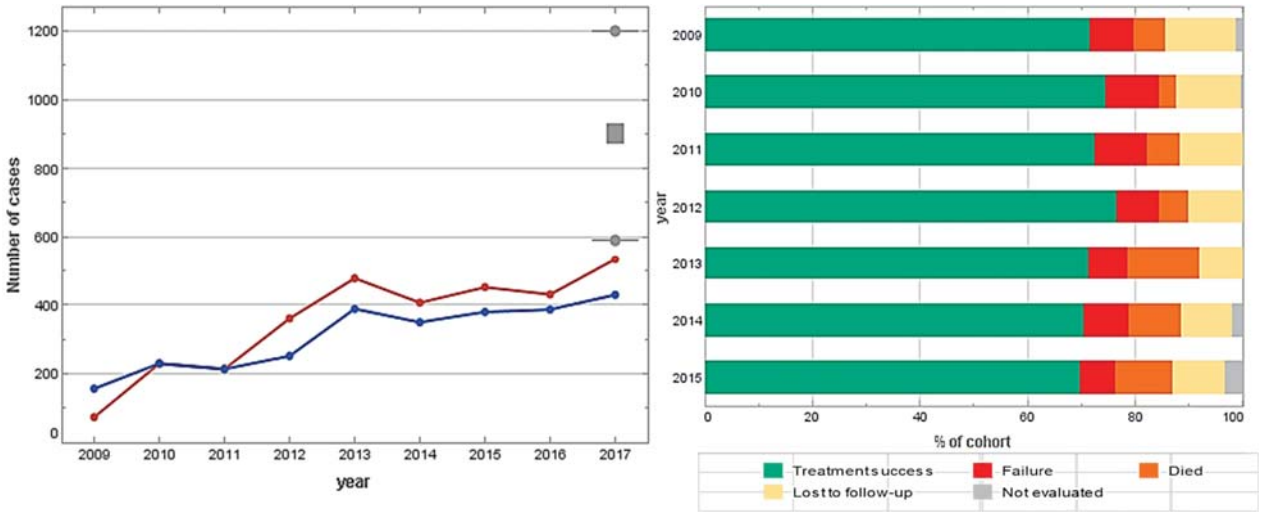
Recommendation

Although this mission did not look at DS-TB in depth, it appears from the available data there is challenge with access to TB services in general that not only leads to under-reporting but also delayed diagnosis and hence the deaths. Possibility of under-reporting of TB-HIV co-infection can also not be ruled out as was also evident during review of facilities for DR-TB. Low number of TB cases being diagnosed also means a low number of DR-TB cases being diagnosed.
The programme needs to investigate the issues of accessibility, improving TB services in all sectors and cross-referral among TB and HIV programmes

Overall programme performance (DR-TB)

Overall the number of cases being diagnosed with RR/MDR-TB have been steadily increasing. However, and increasing gap between those enrolled and those started on treatment was observed for 2017. This was ascribed to reporting issues from laboratory testing sites (reporting of tests rather than patients) and in some cases initial loss to follow-up of migrants from neighboring countries.

Figure 2: Case enrollment and treatment success trends in Nepal (2009-2017)



Treatment success rate among RR/MDR-TB cases have been steady above 70% which may be considered good as compared to global average.

Table 2: Number of notified TB and MDR-TB cases and outcome of cohorts as reported to WHO

	2009	2010	2011	2012	2013	2014	2015	2016	2017
Notified TB cases	35407	35609	35954	35635	35438	37025	34323	32056	31764
% new TB cases tested for rifampicin resistance	1	1	0	1	13	14	12	74	15
% previously treated TB cases tested for rifampicin resistance	7	6	0	24	25	26	28	90	29
Notified MDR/RR-TB cases	73	229	213	360	477	406	451	430	533
Patients started on MDR-TB treatment	156	229	213	251	388	349	379	386	429
MDR/RR-TB cases in treatment outcome cohort	158	251	229	238	257	286	333	448	
Estimated MDR/RR-TB among notified pulmonary TB cases (best estimate)									900

However, there also seem to be reporting issues when we look at the number of patients initially reported to put on treatment and subsequent reporting of results of the yearly cohort, 2 yrs. later. As can be seen in Table above that the numbers need to be reconciled

Recommendations:

- The national programme should strive to even further improve the treatment outcomes with use of more effective drugs as per recent recommendations
- Error in reporting of treatment outcomes need to be sorted out at least for the most recent cohorts

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

Various partners support delivery of TB and MDR-TB care in Nepal. An important aspect that was discussed during the mission was the engagement of Medical Colleges. It was learnt that as of now there are 20 Medical colleges/ institutions imparting medical education in the country out of which only 8 are currently engaged (1 was engaged earlier). Treatment Centres (TC) are located at BPKIHS, National Medical College and Karnali Medical College while Treatment Sub-Centre (TSC) Patan Institute, Nepal Medical College, Kohalpur Medical College, Institute of Medicine, Manipal Medical College, Lumbini Medical College (earlier). There is little monitoring of performance of these colleges in respect of TB services.

Another example of PPM is Genetup lab being run by Napal Anti TB Association (NATA). The lab has the status of National Reference Laboratory.

One of the Mission teams visited Genetup and Patan TSC.

Genetup: There is a NGO hospital under NATA linked to NATA chest hospital with 25 beds and DR-TB hostel with capacity of 15 patients. OPD work load 10,000 follow up cases and 4000 new visits related to chest illness per year. Of the 600 cases detected a year, around 32% (194) remains with the center and rest are linked to TB centers elsewhere closer to patient's home. Genetup also serves as the Treatment center for DRTB which caters to 6 sub centers. Around 70-80 DR TB cases were registered and treated each year- Currently 47 DR-TB cases under treatment (26-RR and NDR cases; 18 Pre-XDR and 3 XDR cases). Loss to follow-up, particularly for DR-TB, has been reduced significantly in the recent year to less than 0.5 %

Overall both the centers are performing well in delivery of DR-TB services, Registers are well maintained in the Treatment centers such as Genetup but needs improvement in Patan

While the patient under DOTS at the centers are managed well, there are issues with referrals who are supposedly linked to the DOTS centers nearer to patients' home after diagnosis as the patients are not tracked until enrollment in next referred center, this may lead to initial LTF in DS cases. However, almost all the DR cases are linked to care and registered at the treatment centers

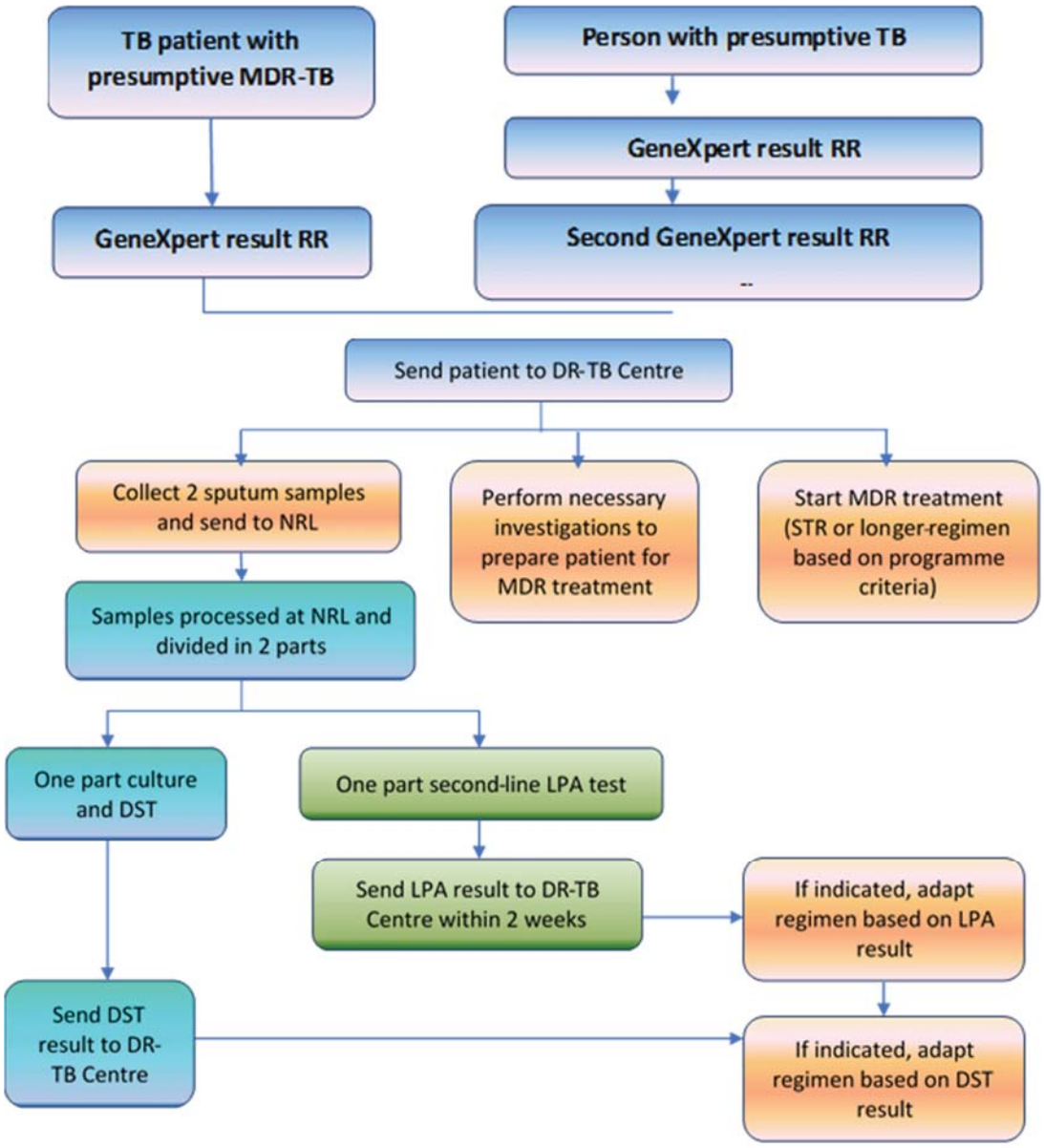
It was observed that diagnosis and treatment provided at private centres is not always free.

Recommendations:

- Medical colleges provide a huge opportunity to reach missing cases of TB and MDR-TB. These can also supplement resource needs for referral centres
- Formation of medical college task force to engage all medical colleges meaningfully – Should at least be TSC with possibility to provide expert referral service as and when needed
- Ensure free services for TB and MDR-TB patients (and other diseases as per national policy)
- Roll out of the PPM mechanisms including high case load facilities such as these two centers will have better impact on case finding, timely treatment and decrease in catastrophic cost to patient of both DS and DR-TB

Case finding strategy

Figure 3: Diagnostic algorithm presented that was and in use at the time of the mission



The algorithm was discussed and modified during the mission

Sputum collection is done at the health facility and sub centers send packed samples to diagnostic facility if not at the same location. Diagnostic algorithms are used but may not necessarily be what is the NTC Guideline.

- TB-HIV collaboration:

All TB patients are not tested for HIV due to non-availability of the kits and other administrative reasons in some of the facilities. Issues with supply of HIV test kits which may lead to non-testing of DR-TB cases for HIV. There is a significant need to scale this up.

Recommendations:

- Critical need to finalize, endorse (done) and disseminate (needs to be done) standard diagnostic algorithms for all health facilities including Government, private and NGOS
- GeneXpert cartridge to be provided in adequate amount and develop check and balance mechanisms in the private /semi-private health facilities to ensure patients actually get free of cost GeneXpert diagnosis.
- Ensure interrupted supplies of laboratory consumables to all facilities specifically NRL in non-government sector
- Ensure adequate supply of HIV test kits

Laboratory services and expansion plan

There are two national reference laboratories for TB - NTC laboratory and Genetup with established culture, DST and LPA for first and second-line drugs. Liquid culture by MGIT at the NTC reference laboratory is non-functional due to non availablity of certain equipment while in Genetup laboratory MGIT commenced 2 weeks ago and all biosafety cabinet functional except for one which will be soon commissioned. Three regional laboratories have established solid culture. There is a plan to set up LPA at these three regional laboratories. There has been a steady increase in the number of GeneXpert sites. Now there are 57 GeneXpert sites. GeneXpert testing is becoming the more important first diagnostic test for all presumptive TB patients, as reflected in the diagnostic algorithms. Sputum referral system is available via courier from the diagnosis and treatment sites to GeneXpert sites and reference laboratories for reference laboratory services such as culture, phenotypic DST or LPA.

Sub centers send the sputum to Reference laboratories but packing standards not followed well specially the triple packaging.

Patient have to pay NPR 20 for sputum test but GeneXpert for sputum is free and not free for EP samples- changes NPR 2500/ EP sample.

Table 3: Laboratory expansion plan v/s actual achievement at the time of mission

	2016	2017	2018	Actual	2019	2020
GeneXpert			57	58	66	72
Number of labs certified to do FL C&DST	4	4	4	2	2	2
Number of labs certified to do culture only	5	5	6	3	3	3
Number of LPA machines available for DST	2	4	6	2	5	5
Number of labs certified to do SL DST	1	3	3	2	2	2

Overall capacity for RR testing using GeneXpert is based on 44 machines with 4 modules and 13 machines with 2 modules. Therefore, available capacity based on 250 working days and at least one round

- 44X 1000 = 44 000
- 13X500 = 6 500
- Total = 50 000 (conservative) – 100 000 (ideal)

The team was informed that current functioning as per most recent trimester is 5000 tests per month which appears to be an ideal situation and needs to be sustained

Recommendations:

- Ensure continuous laboratory supplies in adequate quantity
- Ensure support for preventive maintenance of the laboratory equipment
- Additional human resource to cater to all the demand of a NRL as well as catering to sub centers
- Need to engage private hospitals in an innovative mechanism to ensure quality diagnosis and decrease cost for patient.

Treatment strategy

The current system of treatment involves delivery of services through following designated facilities

- DRTB treatment centre
- DRTB sub-centre
- DRTB hostel/home
- Hospitals providing care
- Referral centre
- Diagnostic centre

While concept of treatment centre and sub-centre is clearer, it seems that ToRs for all centres are not available. Moreover, multiplicity of institutions appears to be causing following challenges

- No clear linking of sites, including that for sample transport except for identifying treatment centre and administratively linked sub-centre.
- With multiplicity of institutions, patient convenience is compromised. Patient needs to travel to and fro from one centre to another to get complete set of services
- There are also logistics and management challenges
- Recording and reporting also suffers specifically during transfer of patient from one centre to another. It was observed that not all records and reports are sent to referred centre when patient is transferred or decentralized for treatment constinuation.

There has been expansion of DR-TB treatment facilities but apparently the number TSC have decreased. It is also not clear whether the programme intends to continue with the 'hotels' as this idea was supposed to be replaced with other mechansims as per thinking a few years back.

Table 4: Expansion of treatment services since 2016

Activity	2016	2017	2018	Actual	2019	2020
DR TB treatment centre	18	21	24	21	27	31
DR TB sub-centre	92	103	113	86	124	135
DR-TB Referral centre	2	5	5	2	5	5
Hospitals with trained staff for MDR-TB treatment	2	5	5		5	5
Pilot and expansion of services to health posts		7	21		42	49
Hostels - reduce to one per region	8	3	0	7	0	0

Treatment regimen

As of now most patients are on longer regimen as per the recmmendations applicable till the availablity of new evidence in 2018.

Table 5: Second-line regimen in use in the country

Regimen	Drugs and duration
Shorter treatment regimen	4 Km Mfx Eto H^h Cfz E Z / 5 Mfx Cfz E Z
Standard MDR longer treatment regimen	8 Km Mfx Eto Cs Z / 12 Mfx Eto Cs Z
Pre-XDR regimen with FQ resistance	8 (Km Lzd Eto Cfz Z 6((Bdq /Dlm))/ 12 (Lzd Eto Cfz Cs Z)
Pre-XDR regimen with resistance to SLID	8 (Lfx Lzd Eto Cfz Z Bdq/Dlm 6 months)/ 12 (Lzd Eto Cfz Lfx Z)

XDR regimen	12 (Eto Cs Lzd Cfz Z 6(Bdq/Dlm)) / 12 (Eto Cs Lzd Cfz Z)

- It is seen that in longer regimen only 2 of the most efficacious drugs are being used in the longer MDR-TB regimen as per new classification
- Kanamycin is no longer recommended as a second line drug
- Pre-XDR regimen can also be further strengthened

Patient support

Various mechanisms for patient treatment adherence support available in the country include

- Hostel for admission of patient that live far off or who are unable to commute for treatment It was worked out that t costs approx. NPR 15-20 000 per patient per month for hostel admissions
- Additional NPR 1 000 is provided directly to patients staying in the hostel
- Ambulatory patients receive NPR 3 000 per month

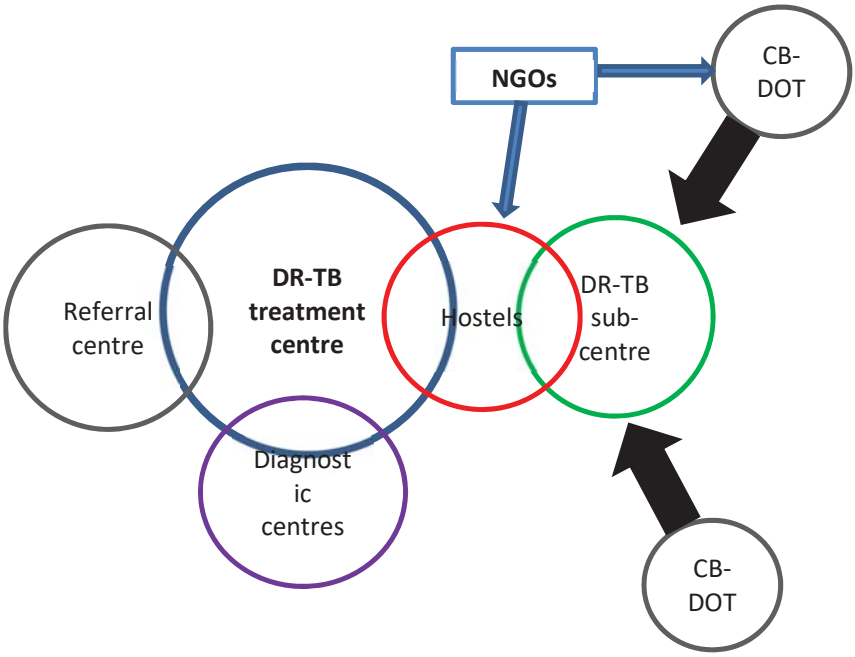
However, some patients at two of the visited facilities reported that they are not getting the financial support

Recommendations:

Treatment delivery mechanism

- Transition to federal structure provides a good opportunity for planning care and delivery in future. Planning meeting of provincial heads/ responsible persons could be organized to discuss TB and MDR-TB planning, and sensitization of heads on needs of TB programme
- DR TB treatment centre should be the nodal point for delivery of DR-TB service within a defined geographical area and act as a sub-provincial management unit.
- These should preferably include referral facilities (specialists for AE management), hostels/ in-patient, diagnostic centres – wherever possible to have single point of care
- All zonal hospitals should at least be treatment centres
- TSC should be for outreach to the community, complemented by CBDOTS. Some TSCs could also have hostel if not possible at treatment centre. All major hospitals should at least be TSC
- Similarly, some diagnostic centres could be stand-alone entities for outreach
- Overall minimize stand-alone entities like hostels and referral centre

Figure 4: A schematic representation of treatment delivery structure linking various facilities



Treatment regimen

- As discussed and agreed in TAG meeting, phase out Cat II
- Update guideline as per latest WHO recommendation and implement them at the soonest possible. Transition plan discussions and preparation should start December 2018
- Replace injectable Kanamycin with Amikacin in STR
- Corresponding update of training modules to follow
- Engage medial students and residents in orientation on the new guideline- low cost high impact orientation possible in such set up
- Produce and disseminate desk reference for treatment regimen for all TC and TSC

Patient support

- Patient adherence mechanisms are important and should be enhanced e.g. rehabilitation support
- Streamlining of financial support for patients specifically with new federal structure
- Some patients will continue to need in-patient support, but this may be less than what is practiced now, specifically with all oral regimen
- Community based treatment with support from CBOs may be explored

Pharmacovigilance/ aDSM

There has been a significant progress in implementation of aDSM in recent months. National level training of key staff has been done and sub-national trainings are in process. Staff trained of the DR-treatment centers have been trained on aDSM. Tools for recording and reporting have been developed. During the visit, it was also found that some state of the art equipment are available at Treatment Centres (TC).

However, as of now, aDSM in totality has not started. Adverse events are being identified and managed on time, and there is no drop out due to side effect reported yet. In several cases reports of biochemistry tests performed were available. In other cases, specifically those patients at a sub-centre, such reports were not available because of incomplete transfer of documents from TC to TSC.

It was also found at one of the TCs that although the staff claimed that baseline tests for all patients using audiometry and ECG is done, there were no records available to verify. Regular follow-up using these tests is also doubtful.

There is also no identified and sufficient budget planned for management of side effects of and effective scale up of aDSM activity.

Recommendations:

- Continued hand holding and on-site training, explaining the importance of recording for appropriate patient management
- Complete transfer of copy of test reports should be done when transferring a patient from TC to TSC or another health facility.
- Sufficient budget should also be allocated for management of side effect for patient and effective implementation and expansion of aDSM activities.

Drug management

Overall, no stock out of any drugs in the last one year was reported. At most stores, FEFO is being followed. Drugs are being stored well under appropriate conditions. The stocks of SLDs in the country are in accordance with the anticipated needs.

Recommendation:

- Status of registration for new drugs needs to be verified for uninterrupted use n future

Recording and reporting, and data management

DHIS II platform based electronic R&R being rolled out with the GF support. As of now 11 TC and 22 GxP sites are reporting using the electronic system. Some of the visited facilities have their own electronic system for laboratory but parallelly maintain paper-based records.

In some of the facilities, incomplete/ inaccurately filled treatment cards were observed with following deficiencies –

- Several sections of the treatment cards often not filled.

- Sometimes drug dosages are not clear (only mentioned X tablets/ X capsules without actual dosage mentioned)
- Incorrect recording of drugs administered
- Duration of injectables was not correctly recorded with errors on both sides – sometimes les, sometimes more numbers recorded
- Injectable given was not clearly marked, and it was difficult to make out from the card whether it has actually been given

Recommendations:

- Further on-site training needs for clarity on shorter and longer regimen so that drugs are accurately administered and recorded. This can be improved by regular supervision
- Desk reference materials may be provided to all TC and TSC for quick reference on drugs being administered to the patients and follow-up needs
- Since programme intends to continue to use two different regimens, it could consider colour coding of cards for different regimen

Infection control

While some progress is made in improvement of Infection Control at all facilities, there is still room for improvement. FAST is being implemented to reduce risk of infection in OPD settings. However, not all facilities are implementing it yet. Administrative, environmental and personal protection measures being undertaken in some, but not all, facilities. Often the OPDs are not well-ventilated in hospital and there is no fast tracking of patients with cough. Although recommended in the national guidelines, there are no IC committees at most of the facilities.

Laboratory IC was also found not up to the standard for disposal of contaminated materials.

Specifically, in the hostels, the in-patient facilities have sub-optimal infection control. The hostels are crowded with a mix of RR, MDR, pre-XDR and XDR patients in same vicinity (though not same rooms). There are upto 3 patients per room with inadequate ventilation.

Recommendations:

Laboratory (NRL)

- Need for a bigger backup autoclave for processing laboratory waste
- Set up IC committee

Health facilities and hostels

- Having infection control nodal point/ committee at large facilities
- Reducing patient number to those who critically need it at the hostels
- Ideally only one person per room in hostel to reduce risk of cross-infection

Supervision of the programme

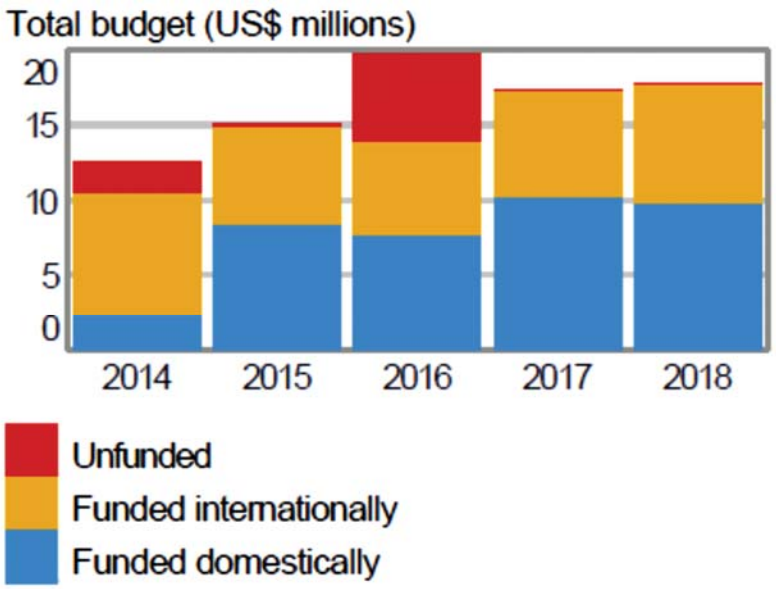
Although supervisory activities are being undertaken from national to sub-national level, these are not regular. Provincial level supervision also needs to be strengthened, as is obvious from previous sections on recording and reporting.

Recommendations:

- Supportive supervision system within TB partners network with NTC collaboration needs to be developed and strengthened to identify issues on time and provide support.

PMDT plan including funding source

Figure 5: Funding trends for TB control (2014 – 2018)



Though the overall budget for TB seems to be increasing, a large proportion of TB funding is through international sources (particularly the Global Fund). It also appears that domestic budget for TB has decreased slightly between 2017 and 2018. The budget allocation in 2017 and 2018 is a bit less ambitious than 2016.

Recommendation

- The programme should develop actual estimates of funding needs for ending TB (and MDR-TB) in the country and attempt to mobilise funding accordingly. Prevalence survey being conducted may provide useful guidance in this regard
- Domestic funding for TB needs to increase with particular use of innovative financing mechanisms.

Annexure 1: Agenda of the mission

SN	Dates	Mission agenda	Responsible Persons/ Participants
1	26-Nov Monday	Briefing with WR at WHO	WR, CDS Unit
		Briefing at NTC with NTC Director	Director, planning, M&E, sections chief
		Visit to NTC DR-TB Clinic	
		Visit to NTC LAB	
2	27-Nov Tuesday	**Group A**	Dr Vineet, Dr Tinkari, Mr Badri, Dr Ashish, Mr Gokul, Mr Krishna, province supervisor
		Fly to Dhangadhi, Far western region	
		visit to Seti zonal hospital	
		visit to NAPID Nepal (DR TB Hostel)	
		stay at Dhangadhi	
		Group B	Dr Lungten, Dr Naveen, Ms Kamala, Mr Gokarna, Dr Suvesh, Dr Promod
		Visit to GENETUP (DR-TB center)	
		Visit to Patan Hospital (DR-TB sub center)	
3	28-Nov Wednesday	**Group A**	
		Visit to Tikapur Hospital (treatment sub center)	
		Fly back from Nepalgunj to KTM	
4	29-Nov Thursday	Discussions at NTC on Group A and B findings and missing information – Technical staff, Save The Children and WHO	
5	30-Nov Friday	DR TB TWG Meeting and debriefing	
		De briefing with WR at WHO	