

TB



Hepatitis

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HIV



# The Joint HIV-TB External Review Mission 2023

Technical Report



# Report of The Joint HIV–TB External Review Mission 2023 Timor-Leste

**Coordinated and supported by:**

Ministry of Health, Government of Timor-Leste

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## Executive Summary

### Snapshot of key observations, challenges and recommendations

#### TB programme

- Timor-Leste, with an estimated incidence of 486 cases per 100 000 population in 2021, is the seventh highest TB burden country in the world in terms of incidence rates and the second highest in WHO South-East Asia Region.
- The Honourable Prime Minister's pledge to accelerate the progress towards END TB in Timor-Leste in September 2021 to achieve 2030 SDG targets by 2025–26 has increased the awareness and importance of TB programme performance at all levels.
- Significant progress has been made in implementing the activities envisaged in the “National Plan for Accelerated Actions for Ending TB: 2021–2025”.
- Almost all national guidelines are aligned with international guidelines. This is perhaps due to the collaboration between the National TB Programme (NTP) and its technical partner (WHO country office).
- TB services are well integrated and provided through the existing health system consisting of the national hospital, referral hospitals (RHs), community health centres (CHCs), and health posts (HPs).
- No drug stockouts or shortages were observed in the field. All diagnosed TB patients are initiated on TB treatment, and more than 90% of the TB patients are successfully treated.
- Several new interventions, such as intensified case finding—triaging and fast tracking—at high patient load health care facilities (National hospital, referral hospitals), mobile van, and community outreach activities (especially in hard-to-reach areas), are providing a high yield of TB patients.
- The number of patients tested with the latest state-of-the-art diagnostics (Xpert MTB/Rif test) and screening tools (such as X-ray machines with artificial intelligence software) has doubled in the last 1–2 years.
- Nearly 90% of TB patients are being tested for HIV, and all those with HIV infection are linked to ART services.
- The NTP has completed the drug resistance survey, piloted vulnerability mapping, and is now conducting the most important TB prevalence survey.

#### Areas for improvement

- Massive (164%) increase in TB cases detected in 2022 compared to 2021, the highest ever in the country. However, data quality issues have been observed during the field visit, and therefore the NTP needs to validate the reported increase in TB patients.

- Key drivers of the high TB burden in the country are malnutrition, smoking and undiagnosed TB patients. In 2022, ~20 000 persons with TB symptoms (1250 per 100 000 population) were identified at health facilities, which is grossly inadequate to detect an estimated ~6400 TB patients in the country. To address the issue of undiagnosed TB patients in the country, doubling/tripling efforts to find TB cases from the current levels required.
- The country has 22 molecular testing platforms (21 GeneXpert and 1 TrueNat) and fewer X-ray machines for chest X-ray. These are mainly located at the national hospital, five RHs, a few high-workload CHCs and a mobile van. This is inadequate to meet the demand for increased case finding. In 2022, as per the NTP data, ~10 000 presumptive TB patients identified at health facilities were not evaluated for TB due to access issues. Therefore, we recommend rapidly expanding molecular testing facilities and digital X-ray machines to all CHCs in the country as a part of general health system strengthening measures. The molecular testing platforms can be used for diseases other than TB (such as Covid-19, HIV viral load (VL), hepatitis, and sexually transmitted infections). Similarly, digital X-ray machines can assess several lung and non-lung conditions besides TB. The distribution of molecular testing platforms and digital X-ray machines may be done strategically to optimize usage.
- There are variations in the TB diagnostic algorithms that are followed in various municipalities and outreach activities. For example, sputum smear examination for TB diagnosis in some municipalities has been stopped. In some other municipalities, persons with pulmonary TB symptoms, who are otherwise eligible for sputum tests, are screened by chest X-rays and referred for sputum tests. Therefore, ensuring uniformity in following the national guidelines is necessary.
- We recommend continuing and expanding the “TB triaging and fast-tracking system” from 40 health facilities to all major health facilities in the country.
- All medical officers at HPs and community health workers (PSFs) are to be sensitized for detecting and referring TB symptomatic from the community and strengthening the existing sputum collection and transportation system from the HPs/Aldea level to the CHCs.
- TB vulnerability mapping has been piloted in about 7000 population in 15 CHC areas, and it is able to identify individuals with multiple risk factors along with their geographical location. This provides a great opportunity for targeted with community-based intensive case-finding activities, TB preventive treatment, and other interventions to reduce their vulnerability (nutritional support to those with severe acute malnutrition, smoking cessation services, and counselling for those with alcohol-use disorder). This needs to be scaled up across the country.
- "Traditional healers" appear to be the first point of care for several TB patients in the community—engagement of traditional healers for early identification of persons with TB symptoms is recommended. Similarly, we have heard about the private health facilities in Dili. They also need to be engaged for early identification of persons with TB symptoms.
- The number and proportion of paediatric TB patients being detected in the country is ~5% of the total TB cases and this is showing a declining trend. The health system’s capacity to evaluate or diagnose paediatric TB patients at the CHC level is grossly inadequate and therefore training/capacity-building of medical officers at the CHCs and HPs needs to be undertaken.

- Only about one-third of the estimated 57 MDR-TB/RR-TB cases in the country were detected in 2022. Laboratory systems for diagnosis of DR-TB needs to be strengthened. The DR-TB treatment services are centralized and is predominantly in-patient care. There is a need to decentralize them for DR-TB treatment to the level of RHs and CHCs with provisions for ambulatory (outpatient) care for DR-TB treatment. There is also need to adopt and scale up newer shorter DR-TB treatment regimens in the country.
- TB screening and TB preventive treatment for people living with HIV (PLHIVs) is not happening in a systematic manner with poor recording and reporting of these services. This needs to be strengthened.
- Contact investigation is being done for Bac+ index cases and needs to be expanded to the contacts of all TB patients.
- All recording and reporting system followed by the NTP in the country (though according to guidelines) is predominantly paper based with multiple forms and manual preparation of reports, causing errors while preparing and compiling the reports. These errors can be simplified by introducing the DHIS-2 system the country plans to roll out. Therefore, we recommend an early roll-out of the integrated DHIS-2 digital recording and reporting system.
- Patients are given an incentive (US\$ 30) after completing treatment and not during the treatment. This incentive system must be reviewed to assess if it meets the patients' requirements effectively.
- Supervision and monitoring from the NTP need to be strengthened with more frequent visits for supportive supervision, guidance, and data validation, and for enhancing innovative solutions for addressing challenges in delivering TB services to all people in the country.
- Partners are attempting several innovations to accelerate progress towards Ending TB in the country. For e.g., intensified case-finding activities in hard-to-reach areas, conditional cash transfers, digital tools such as Kobo for data collection. There needs to be a formal mechanism to encourage, monitor and evaluate these innovations so that the results are interpreted correctly and used for the benefit of all TB patients in the country.
- Engagement of TB patients and their communities is inadequate with very limited mechanisms/platforms to understand and address their medical and non-medical needs before, during and after treatment. Establishing TB patients/survivor groups or organization across the country and their involvement in decision-making, designing, and implementing NTP activities is urgently needed to supplement the efforts/investments being made to accelerate the progress towards ending TB in the country.

### **HIV/AIDS programme**

Timor-Leste has a low-level HIV epidemic, but increasing number of new cases are detected among general population groups such as antenatal clinic (ANC) attendees, STI clinic attendees, and TB patients. Over half of the new cases detected over the last two years have reported to be engaged in high-risk behaviours (MSM/clients of FSW) indicating the role of key population (KP) in HIV transmission and spread of HIV epidemic. Multipartner heterosexual casual networks are also seen to be widely prevalent, with significant contribution to sustaining the HIV epidemic in general

population. STI prevalence among KP, as well as various general population groups, has consistently been higher than 5% over the last several years. On the other hand, condom use among KP groups and general population has remained lower than 50% over similar period. Overall, Timor-Leste is estimated to have around 1500 PLHIVs, with around 200 annual new infections and less than 100 annual AIDS-related deaths.

While the National AIDS Programme has scaled up a comprehensive package of services covering the whole spectrum of prevention, case detection and treatment, there are gaps, issues, and challenges that the programme needs to address, moving forward towards the goals of National Strategic Plan. Summarily, prevention among KP needs to reach saturation levels with refined micro-approaches to prioritize higher risk KP for prevention, pre-exposure prophylaxis (PrEP) and testing. Prevention among general population needs to be prioritized with focus on condom promotion, and information education campaigns through mass media, multimedia, and social media channels to promote awareness of HIV services, risk perception and demand generation for condoms and testing. Availability of treatment for syphilis and hepatitis needs to be ensured. Highest priority needs to be accorded to the elimination of mother to child transmission (EMTCT) of HIV, syphilis and hepatitis in strengthening the tracking and follow-up of pregnancy outcomes among positive pregnant women, and exposed baby follow-up and early infant diagnosis. Coverage gaps in testing of ANC clinic attendees, STI patients and TB patients need to be focused through scaled up testing to HPs. Introduction of index testing strategies, scale up of community-based testing and HIV self-testing for KP and at-risk general population, provision of travel incentives to promote HIV testing, and bridging the gaps between HIV screening and confirmatory testing are critical strategies that will address the gaps in HIV case detection and achievement of the first 95 target.

Significant gaps have been noted in linkages between case detection and treatment initiation, tracking and follow-up of PLHIVs on ART, treatment adherence, VL testing. They have led to gaps in achievement of second and third 95 targets. Clinical case management and management of advanced HIV disease at ART centres need to be strengthened with preparedness assessment, reinforced adherence counselling and addressing factors related to adherence. High levels of treatment failures, over 20%, as reflected by high VLs among PLHIVs on ART warrant a high level of attention and focus on strengthening clinic-based as well as community-based care and support interventions for PLHIVs through active engagement of PLHIV networks, CBOs and FBOs. There is an urgent need to revamp the data management systems, graduate to digital applications such as DHIS-2 and institutionalise individual patient tracking systems, with due lists, defaulter lists, and referral updates. Overall programme management needs to be strengthened through training of programme managers, regional supervisors, municipal HIV and KP coordinators and facility staff, supportive supervision and handholding of facility level staff, periodic critical review of programme performance through quarterly review meetings and biannual joint internal review missions.

The following table presents the key challenges identified in the NAP and the key recommendations offered by the Joint External Review Mission.

<b>Key challenges</b>	<b>Critical recommendations</b>
<b>Low HIV epidemic, but rising trends</b>	<ul style="list-style-type: none"> <li>• Individual-level focus on linkages and tracking across the spectrum - prevention, case detection, treatment and viral suppression</li> </ul>
<b>HIV detection increased, but significant gaps to reach first 95 targets (Detect all cases)</b>	<ul style="list-style-type: none"> <li>• Expand HIV testing to all HPs</li> <li>• Introduce index testing strategies to saturate the spouses/partners of all known HIV cases</li> </ul>
<b>Detecting HIV cases at very late stage</b>	<ul style="list-style-type: none"> <li>• Fix testing gaps for ANC, STI pts, PITC, VCT</li> <li>• Mass media campaigns to promote risk perception</li> <li>• HIV testing of all presumptive TB cases</li> </ul>
<b>Linkage losses between HIV detection and treatment (ART) initiation</b>	<ul style="list-style-type: none"> <li>• Institutionalize case-tracking approach for positive cases reported from VCTs with strong outreach</li> <li>• Develop a UIC across all testing and treatment sites to get 360-degree feedback on registration in care</li> <li>• Involve caregiver and family in HIV care</li> </ul>
<b>Poor treatment adherence and drop-out tracking</b>	<ul style="list-style-type: none"> <li>• Effective preparedness counselling and readiness assessment</li> <li>• Identify and address risk factors associated with poor adherence (financial/distance, migration, mental health, advanced HIV disease, alcoholism, etc.)</li> <li>• Social support package including travel support for PLHIVs</li> <li>• Transfer-in and transfer-out protocols</li> <li>• Interfacility coordination and track PLHIVs between centres</li> </ul>
<b>Higher levels of STI and hepatitis B</b>	<ul style="list-style-type: none"> <li>• Ensure provision of injection benz penicillin for syphilis treatment</li> <li>• Introduce testing for gonorrhoea and chlamydia</li> <li>• Roll out hepatitis B treatment</li> </ul>
<b>Significant gaps in EMTCT of HIV/syphilis/hepatitis</b>	<ul style="list-style-type: none"> <li>• Strengthen tracking of delivery outcomes of +ve pregnant women and baby follow-up</li> <li>• Ensure prophylaxis for all exposed babies</li> </ul>
<b>Saturate HIV prevention and testing among key population</b>	<ul style="list-style-type: none"> <li>• Strengthen peer outreach with clear operational guidelines, microplanning tools for hotspot saturation</li> <li>• Focus to increase repeat HIV testing rates</li> <li>• KP programme to ensure ART initiation, adherence, VLT for +ve KP</li> <li>• Strengthen community ownership and CBO development</li> </ul>

	among KP
<b>Prevention among general population is missing</b>	<ul style="list-style-type: none"> <li>• Focused IEC and mass media campaigns to promote risk perception, condoms and HIV testing</li> <li>• Active condom promotion for triple benefits liaisioning with religious and community leaders</li> </ul>
<b>Gear up programme management and system strengthening</b>	<ul style="list-style-type: none"> <li>• Digitalization of reporting systems with individual tracking (DHIS-2)</li> <li>• Diagnostic network optimization with streamlined sample transport; EQA system</li> <li>• Capacity-building of programme staff in programme management monitoring</li> <li>• National plan for field supervision</li> <li>• Develop centre of excellence in HIV care at HNGV and clinical exchange networks</li> </ul>

# Section 1



**Introduction, epidemiology and  
cross-cutting areas**

## Chapter 1

### Introduction

#### 1.1 Context

Timor-Leste (also known as East Timor) is a small country in South-East Asia, situated on the eastern half of the island of Timor, with Indonesia to the west and Australia to the south. After centuries of colonization and foreign occupation, Timor-Leste gained its independence from Indonesia in 2002, following a long struggle for independence that lasted over two decades. The country faces significant challenges in terms of poverty, unemployment, and social inequality, but has made progress in recent years towards improving its infrastructure, health care, and education systems, and promoting economic growth and stability.

Timor-Leste is a predominantly Catholic country, with a diverse and rich cultural heritage that reflects its history of Portuguese colonization, Indonesian occupation, and indigenous influences. Its official languages are Tetum and Portuguese, though many other languages are also spoken. Timor-Leste is a relatively young democracy with a semi-presidential system of government and has a population of around 1.3 million people. The country has abundant natural resources, including oil and gas reserves, which are its primary source of income. With a predominantly rural and agrarian economy, its major industries include coffee and other agricultural exports.

**Table 1.** Snapshot of key health statistics of Timor-Leste, as of 2021

Life expectancy at birth <sup>1</sup>	69.2 years
Infant mortality rate <sup>1</sup>	34.3 deaths per 1 000 live births
Maternal mortality rate <sup>1</sup>	215 deaths per 100 000 live births
Under-five mortality rate <sup>1</sup>	49.1 deaths per 1 000 live births
Prevalence of HIV among adults (ages 15–49) <sup>2</sup>	0.3%
Prevalence of TB <sup>3</sup>	364 cases per 100 000 population
Prevalence of malaria <sup>4</sup>	97 cases per 1 000 population

Timor-Leste faces significant challenges in terms of health care, with a high burden of communicable diseases, limited access to medical services, and a shortage of trained health care professionals. Malaria, tuberculosis, and dengue fever are among the most common infectious diseases in the country, with rates of transmission higher in rural areas. Other communicable diseases such as

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<sup>1</sup> World Bank. (2021). World Development Indicators: Timor-Leste

(<https://databank.worldbank.org/source/world-development-indicators>)

<sup>2</sup> UNAIDS. 2021. Timor-Leste (<https://www.unaids.org/en/regionscountries/countries/timorleste>).

<sup>3</sup> World Health Organization. 2021. Global Tuberculosis Report 2021: Timor-Leste

(<https://www.who.int/publications/i/item/9789240022452>).

<sup>4</sup> World Health Organization. 2020. World Malaria Report 2020: Timor-Leste.

(<https://www.who.int/publications/i/item/9789240015799>).

hepatitis, HIV/AIDS, and sexually transmitted infections (STIs) are also on the rise. Maternal and child health are also major concerns in the country, with high rates of infant and maternal mortality (Table 1).

Malnutrition and inadequate access to clean water and sanitation contribute to these poor health outcomes. Noncommunicable diseases such as diabetes and hypertension are also on the rise in the country, largely due to changes in lifestyle and diet. Some of the key nutrition-related statistics that highlight the significant nutrition challenges faced, particularly among young children and women, in the country are given in Table 2.

**Table 2.** Snapshot of nutritional status in Timor-Leste

Prevalence of stunting (height-for-age) among children under 5 years <sup>5</sup>	42.3%
Prevalence of wasting (weight-for-height) among children under 5 years <sup>5</sup>	9.7%
Prevalence of underweight (weight-for-age) among children under 5 years <sup>5</sup>	31.8%
Prevalence of anaemia among children under 5 years <sup>5</sup>	53.4%
Prevalence of anaemia among women of reproductive age (15–49 years) <sup>5</sup>	38.3%
Percentage of population consuming less than the minimum dietary energy requirement <sup>6</sup>	27.9%

Timor-Leste has made progress towards improving its health care system with increased investment in infrastructure and human resources in recent years. The government has implemented policies to expand access to essential health services and has partnered with international organizations to provide training and support to health care workers. The country is at the verge of elimination of indigenous cases of malaria while the prime minister of the country has pledged to eliminate TB by 2025.

Patient services are delivered through a network of health care facilities (Fig. 1). There are 321 HPs, one for each village providing primary care services by a team of 3–4 health personnel including a doctor. Community health centres (CHCs) provide primary plus service and have 2–10 HPs in their catchment area. However, it is noteworthy that majority of the health facilities are in the western part of the country, leaving the eastern regions with long distances for people to reach the nearest health centre.

For secondary health services, there are five referral hospitals located in the municipalities of Timor-Leste namely, Baucau, Bobonaro, Covalima, Oecusse and Ainaro. Dili has the national hospital known as Hospital Nacional Guido Valadares (HNGV), which is the largest referral and tertiary care set up in the country.

<sup>5</sup> Timor-Leste. Demographic and Health Survey 2016

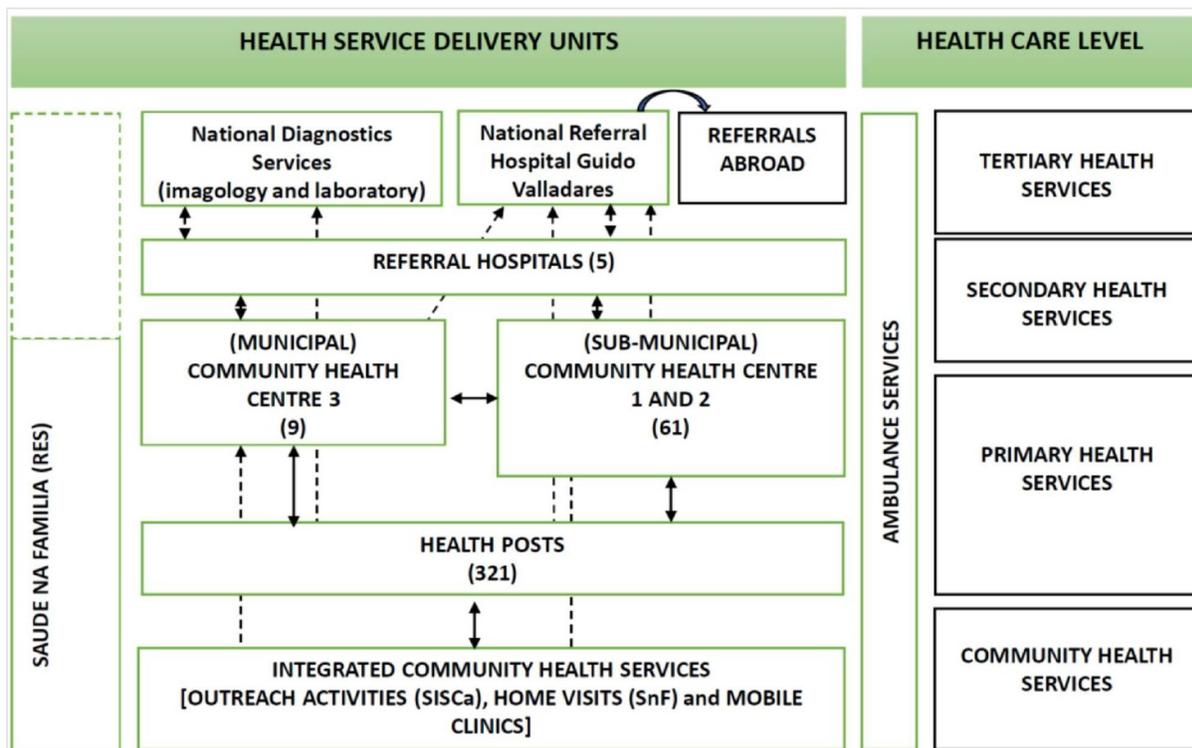
(<https://dhsprogram.com/pubs/pdf/FR322/FR322.pdf>)

<sup>6</sup> Food and Agriculture Organization of the United Nations (FAO). 2021. Timor-Leste

(<http://www.fao.org/nutrition/assessment/surveys/summary-data/en/?iso1=TLA>).

The administration and management of health systems are centrally managed through the ministry of health (MoH) at Dili, the capital of Timor-Leste. The MoH is responsible for developing the policy, technical guidelines, and administration of complete health systems. Health services are based on delivery of a "package of basic services" that includes maternal, neonatal and child health, immunization programmes, TB, HIV and malaria services.

**Fig. 1.** Public health care delivery system in Timor-Leste (November 2019).



The private health sector in Timor-Leste is relatively small and still developing. According to a report by the World Bank, in 2016, there were only 32 private health facilities registered with the MoH, compared to 291 public facilities. Currently, the country has 54 private health clinics, which report to the government on essential indicators. Private sector is concentrated mainly in urban areas, particularly in the capital city of Dili. Private health facilities include clinics, hospitals, and pharmacies, and they provide a range of services, including consultations, diagnostic tests, and medications. However, the quality and standards of care in the private sector are not yet regulated, and there are concerns about the affordability of private health care services for most of the population, who are low-income.

Traditional healers, also known as "osan" in Timor-Leste, have a long history of providing health care services in the country, particularly in rural areas where modern health care services may not be available or accessible. Osan practice a variety of traditional healing methods, including herbal medicine, massage, and spiritual healing, and is often seen as complementary to the modern health care system.

Regarding the health workforce, there were a total of 3427 health workers in Timor-Leste, including 1140 doctors, 2107 nurses, and 180 midwives, as of 2020. The density of health workers is low, with only 2.7 health workers per 1000 population. The majority of health workers are concentrated in urban areas, and there is a significant shortage of them in rural and remote areas. There is also a gender imbalance in the health workforce, with only 22% of doctors and 43% of nurses and midwives being female. There are ongoing efforts to improve the training and retention of health workers in the country, including through the establishment of a national health training centre and the expansion of training programmes for community health workers.<sup>7</sup>

There are several partner organizations working in the health sector in Timor-Leste, including, but not limited to the following:

1. World Health Organization (WHO)
2. The Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM)
3. United Nations Population Fund (UNFPA)
4. United Nations Children's Fund (UNICEF)
5. The World Bank
6. Australian Government Department of Foreign Affairs and Trade (DFAT)
7. United States Agency for International Development (USAID)
8. Japan International Cooperation Agency (JICA)
9. Korea International Cooperation Agency (KOICA)
10. Asian Development Bank (ADB)
11. International Organization for Migration (IOM).

These organizations provide a range of support, including technical assistance, funding, and capacity-building, to improve the quality and accessibility of health care services. They work in areas such as maternal and child health, disease prevention and control, health system strengthening, and emergency preparedness and response.

The general health context and challenges existing in the health system will affect the overall implementation of HIV and TB programmes in the country, as well. At the same time, they also provide the opportunity to strengthen the vertical health programmes through health system strengthening measures and activities.

## **1.2 Background for joint HIV-TB external review mission**

Timor-Leste has a high burden of TB compared to other South-East Asian countries with higher incidence and mortality rates. With a TB incidence rate of 486 per 100 000 and TB mortality rate of 94 per 100 000, the country is the second highest in terms of TB incidence rate and has the highest TB mortality rate in the region (GTB Report, 2022). High levels of poverty, malnutrition, smoking, harmful use of alcohol, and indoor air pollution linked to the lack of access to clean cooking fuel are some of the key drivers fuelling the TB epidemic. The National TB Programme (NTP) in Timor-Leste was

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<sup>7</sup> Timor-Leste Ministry of Health and World Health Organization (WHO). Country Cooperation Strategy 2016-2020.

established in 2002. The NTP is responsible for implementing TB prevention, diagnosis, and treatment services across the country, with support from international partners such as WHO and GFATM.

The first case of HIV/AIDS in Timor-Leste was detected in 2003, according to the Joint United Nations Programme on HIV/AIDS (UNAIDS). Since then, the number of reported HIV cases has steadily increased, though the overall prevalence of HIV in the country remains relatively low compared to other countries in the region. The National AIDS Programme (NAP) in Timor-Leste was established in 2003, a year after the country gained independence from Indonesia. The NAP is responsible for coordinating the national response to HIV/AIDS, including prevention, treatment, care, and support services. The programme is supported by international partners such as WHO, GFATM and UNFPA.

Both TB and HIV diagnosis and treatment services are fully integrated into the general MoH infrastructure, using common health facilities such as HPs and health centres as well as general health staff such as health workers, nurses, and doctors at implementing facilities. Clinical referral systems exist and are made between services in Dili and between Dili and the municipalities. Communities and community-based organisations are also closely involved in both the programmes to develop community-centric services reaching out to the hard-to-reach. Several key innovations such as pilot of TB vulnerability assessment, DHIS-2 integration, use of artificial intelligence for TB diagnosis, etc., along with population mapping and size estimation of key population for HIV are ongoing, with the technical support of WHO.

Timor-Leste has experienced a paradigm shift, from controlling TB and HIV to Ending TB and Ending AIDS. The current national HIV and TB strategies, developed with WHO key technical assistance, are evidence informed and aim to provide equitable access to quality services to all, building on the principles of human rights and gender equality; national ownership and leadership; partnership of government, civil society, communities, and the private sector; participation and empowerment of key affected populations.

Recently the hon'ble prime minister pledged to End TB by 2025, and to implement the National Plan for Accelerated Actions for Ending TB: 2021–2025 (Derived from National Strategic Plan for Ending TB, 2020–24, which will be updated until 2026). The National Strategic Plan (NSP) for HIV, STIs and viral hepatitis 2022–2026 is now drafted with focus on Triple Elimination of HIV, STI and Hepatitis from Mother to Child by 2026.

Currently, the country is implementing the NTP and NAP under the Global Fund Funding Cycle 2021–2023. However, the current phase of the programme was affected by the covid pandemic where substantial health resources were diverted to handle the pandemic response. Post-pandemic, it was in 2022 that the health programmes have regained their lost momentum, scaling up the services back to the pre-pandemic levels and higher.

The national programmes conduct periodic review of the programme implementation as mid-term and end-term external reviews. The last External Review Mission was conducted at the start of the current phase of the programmes in 2019. The country is preparing to apply for the ongoing funding cycle for the period 2023–2026. It is in this context that there has been a need to conduct an external

review of the two national programmes. However, this is the first time that a Joint HIV-TB External Review Mission has been conducted in 2023.

The new realities in epidemiological profile for TB, in the context of comorbidities and social determinants for TB, and 34% sudden sharp increase in TB notification in 2022, calls for an in-depth TB epidemiological review to describe correctly and assess current national TB surveillance and vital registration systems, with particular attention to their capacity to measure the level of and trends in TB disease burden (incidence and mortality). Similarly, in view of the ongoing size estimation of key population for HIV, increased scale up of HIV testing in 2022 and persistent gaps in treatment and HIV VL suppression, there was a felt need to conduct an in-depth HIV Epidemiological Review as well, to better understand the HIV epidemic and its transmission dynamics.

Hence, the HIV and TB Epidemiological Reviews by independent experts have also been commissioned along with the External Review of NAP and NTP. The detailed findings and recommendations of the Epi reviews are presented in separate reports, while brief summary is reflected appropriately in this report, as well.

### **Objectives**

The scope of this External Review Mission for TB and HIV was to provide a comprehensive evaluation of the HIV epidemiological situation in Timor-Leste, and the KP HIV prevention programme recording and reporting system. It sought to identify cross-cutting issues and gaps that need to be addressed to strengthen the data quality and reporting systems. This was intended to help improve the level of trust that the government, donors, and other stakeholders have in the data reported on the progress made regarding HIV programming in the country. Further, the objective was to review the progress and overall performance of National HIV AIDS and STI programme in Timor-Leste since the last programme review in 2019, and to provide specific recommendations to improve national HIV programme performance by determining direction to achieve the 90-90-90 targets by 2030. In detail, this external evaluation included a performance review of the past three years in areas of: a) leadership/governance/ programme management/health financing and human resources; b) HIV prevention; c) PLHIV access to HIV care, support, treatment, TBHIV including LTBI; d) strategic information; e) STI programme; f) hepatitis; and g) laboratory. Further, it was intended to assess the progress towards achievement of national targets and contributions to regional and global targets, and to review community contributions to the HIV control programme and partnership with various stakeholders and their synergy contributions and outcomes over past three years. Overall, WHO was requested to provide recommendations to improve national HIV programme performance, including to redefine strategic directions and priorities.

Moreover, the aim was to update the current TB-NSP from 2020–24 to 2024–26 in line with the End-TB targets and to support the Global Fund funding request development for joint TB and HIV proposal for 2024–26. The key findings and recommendations from the TB–HIV External Review Mission will also be used to inform the Global Fund proposal development and provide key strategic directions. Overall, the NSP 2024–26 will also act as an investment case to secure adequate funding to realise the

ambition of ending TB in Timor-Leste. For this, multisectoral actions by engaging all stakeholders to address social determinants of TB and HIV were the other key focus area.

The three-yearly external TB and HIV missions in the country to review progress towards WHO Global TB and HIV control targets is an activity planned by the NTP and NAP, which is fully assisted and technically supported by WHO.

### **Brief summary**

The present review of HIV and TB programmes were follow-ups to earlier reviews. External HIV and TB review teams were constituted and comprised three WHO/SEARO/CDS staff (from India, Myanmar and Austria), one WCO/India (Indian nationality), one WCO/Timor-Leste staff (Indian nationality) and nine international consultants (8 Indian nationals and 1 Indonesian), supported by Ministry of Health and WCO/Timor-Leste CDS team. In addition, two Global Fund staff from Geneva (1 M&E Expert from Zimbabwe and one PSM&TB Laboratory expert from Cameroon) joined the mission.

The HIV team was led by Dr Rewari, and the TB team by Dr Srinath. WHO team was able to meet with various stakeholders in Timor-Leste and made extensive field visits to facilities to jointly review current procedures and to discuss potential priority actions to further strengthen surveillance and programme implementation.

The meetings and field visit allocated were organized as follows:

Monday, March 27:

- Introductory meeting with WR with TB and HIV epidemiologists, and representatives from the Global Fund at WHO office in Dili
- Introductory meeting with NTP and NAP Managers, National Director and HoD, CDC at MoH office in Lahane, Dili
  - Review of current TB/HIV programme progress, gaps, and priorities
  - Discussion on focus areas, objectives and expected outcomes from the TB/HIV external programme review and Epi review
- Visit to National Reference Lab
  - Assessment of current HIV diagnostic procedures
  - Review of data flow

Tuesday, March 28:

- Visit to the KP association in Dili, covering for six districts all over Timor-Leste (Dili plus five others)
  - Assessment of outreach work and drop-in clinic
  - Assessment of prevention interventions

- Discussion on population size estimates
- Assessment of testing practices
- Assessment of data acquisition and reporting practices
- Discussion on epidemiological findings and trends
- Discussion on common practices among KP (risk behaviour, condom use, venues, age groups, social networks)
- Assessment of STI testing/treatment options
- Assessment of hepatitis testing/treatment strategy
- Assessment of administrative and personnel structure of the association
- Visit to the PrEP clinic, run by the KP association in Dili
  - Assessment of the project
  - Assessment of the administrative and personnel structure
  - Assessment of routine diagnostics and lab procedures
  - Assessment of SOPs regarding client risk assessment
  - Assessment of current clinical practices
  - Assessment of STI and hepatitis testing and treatment

Wednesday, March 29 and Thursday, March 30:

Field visits to Baucau and Venilale

- Visit to DHS Baucau
- Visit to Referral Hospital in Baucau
  - Assessment of data acquisition and reporting practices
  - Assessment of treatment practices, including storage of drugs and supply chain, expiration, etc.
  - Assessment of diagnostic procedures
  - Brief visit to the emergency department for assessment of usual clinical practices including of assessment of diagnostic equipment
- Visit to CHC Venilale
  - Assessment of data acquisition and reporting practices

- Assessment of ANC clinic procedures
- Visit to KP association Baucau

Friday, March 31

- Meeting with TB and HIV epidemiologists, and representatives from the Global Fund at WHO office in Dili
- Visit to Maluk Timor ([HIV – Maluk Timor](#)), an Australia-supported NGO which currently provides stigma-free and comprehensive ART treatment for around 250 HIV+ patients
  - Assessment of the HIV clinic
  - Assessment of testing practices
  - Assessment of data acquisition and reporting practices
  - Assessment of patient monitoring
  - Assessment of HIV treatment and follow-up
- Visit to Estrela +, an NGO supporting PLHIVs
  - Discussion on treatment adherence
  - Discussion on follow-up
  - Discussion on increased capacity to access health care services
  - Discussion on violence prevention, nutrition, stigma and discrimination
- Meeting with UNFPA
  - Discussion on key findings from KP programme
  - Discussion on transparent sharing of data
  - Discussion on project implementation and key recommendations so far from the PrEP project
  - Discussion on sexual and reproductive health strategy development
  - Discussion on electronic data collection and storage/integrated database development
  - Discussion on future research; i.e. IBBS, cross-border studies, sentinel surveillance, self-testing, dedicated interventions for KPs, female condoms, influence of social media

Saturday, April 1 and Sunday, April 2

- Meeting of the TB and HIV epidemiologists and consultants, and representatives from the Global Fund at WHO office in Dili
  - Discussion on findings for TB and HIV so far
  - Discussion on key recommendations
  - Discussion on findings on cross-cutting issues
  - Preparation of briefings

Monday, April 3

- Field visit findings meeting with NTP, NAP, CDC and DGF teams in Lahane, MoH Dili
  - Briefing on first findings and key recommendations
- Meeting with WR with TB and HIV epidemiologists and consultants, and representatives from the Global Fund at WHO office in Dili
  - Briefing on first findings and key recommendations
- Meeting with CCM chair and vice-chair and Executive Council with TB and HIV epidemiologists and consultants, and representatives from the Global Fund at WHO office in Dili
  - Briefing on first findings and key recommendations
- Follow-up meeting with NTP and NAP managers with TB and HIV epidemiologists and consultants, and representatives from the Global Fund at WHO office in Dili
  - Discussion on first findings and key recommendations Tuesday, April 4
- Field visit to the HIV clinic within the National Hospital in Dili
  - Assessment of routine testing procedures
  - Assessment of treatment practices of the currently 341 enrolled patients on ART
- Field visit to the ANC clinic within the National Hospital in Dili
  - Assessment of routine testing procedures of pregnant women

**Table 3.** Number of total tests and the positivity rate

2022 ANC	Total tests (n)	HIV pos (n)	Hep B (n)	Syphilis pos (n)	HIV positivity rate (%)	Hep B positivity rate (%)	Syphilis positivity rate (%)
January	65	2	2	3	3.1	3.1	4.6
February	64	2	5	8	3.1	7.8	12.5
March	60	2	2	5	3.3	3.3	8.3

April	35	0	1	1	0.0	2.9	2.9
May	71	1	6	3	1.4	8.5	4.2
June	49	0	5	3	0.0	10.2	6.1
July	46	1	1	1	2.2	2.2	2.2
August	43	1	0	2	2.3	0.0	4.7
September	58	1	1	3	1.7	1.7	5.2
October	49	0	1	5	0.0	2.0	10.2
November	40	1	3	2	2.5	7.5	5.0
December	53	0	3	4	0.0	5.7	7.5
<b>Total 2022</b>	<b>633</b>	<b>11</b>	<b>30</b>	<b>40</b>	<b>1.7</b>	<b>4.7</b>	<b>6.3</b>
<b>2023 ANC</b>	<b>Total tests (n)</b>	<b>HIV pos (n)</b>	<b>Hep B pos (n)</b>	<b>Syphilis pos (n)</b>	<b>HIV positivity rate (%)</b>	<b>Hep B positivity rate (%)</b>	<b>Syphilis positivity rate (%)</b>
January	50	0	3	3	0.0	6.0	6.0
February	40	2	2	3	5.0	5.0	7.5
March	45	1	0	3	2.2	0.0	6.7
<b>Total 2023</b>	<b>135</b>	<b>3</b>	<b>5</b>	<b>9</b>	<b>2.2</b>	<b>3.7</b>	<b>6.7</b>

- Field visit to the blood bank attached to the National Hospital in Dili
  - Assessment of screening procedures
  - Assessment of testing practices
  - Assessment of referral of patients
  - Assessment of storage of blood
  - Assessment of data acquisition and reporting practices

**Table 4.** Number of total tests and the positive rate, Timor-Leste, 2017–2019

<b>Blood donors</b>	<b>Total tested (n)</b>	<b>HIV pos (n)</b>	<b>Hep B pos (n)</b>	<b>Hep C pos (n)</b>	<b>Syphilis pos (n)</b>	<b>HIV positivity rate (%)</b>	<b>Hep B positivity rate (%)</b>	<b>Hep C positivity rate (%)</b>	<b>Syphilis positivity rate (%)</b>
2017	3 170	28	243	25	178	0.9	7.7	0.8	5.6
2018	3 938	37	267	22	196	0.9	6.8	0.6	5.0
2019	4 052	37	198	5	196	0.9	4.9	0.1	4.8
<b>Total</b>	<b>11 160</b>	<b>102</b>	<b>708</b>	<b>52</b>	<b>570</b>	<b>0.9</b>	<b>6.3</b>	<b>0.5</b>	<b>5.1</b>

- Field visit to the national reference lab
  - Assessment of the quality assurance procedures

- Assessment of data acquisition and reporting practices
- Field visit to Bairo Pite Clinic
  - Assessment of treatment practices of the currently 236 enrolled patients on ART.

### **1.3 The JERM team and its scope of work**

The three-yearly external TB and HIV missions in the country to review progress towards WHO Global TB and HIV control targets is an activity planned by the NTP and NAP, which is fully assisted and technically supported by WHO. The MoH and the Global Fund Country Coordinating Mechanism (CCM) requested WHO Country Office for Timor-Leste (WCO-TLS) to provide support in the following high priority programmatic activities:

1. Identifying a team of external experts in conducting an External Review Mission for TB and HIV
2. Update the current TB NSP 2020–24 to 2024–26 in line with the End-TB targets through a stakeholder workshop and writing-up of NSP
3. The Global Fund funding request development for joint TB and HIV proposal for 2024–26.

The recommendations from the Joint TB-HIV External Review Mission will provide strategic direction to inform the next The Global Fund Joint TB-HIV Funding Request 2024–26; and update the TB NSP to 2024–26, keeping innovation, and key changes proposed in the revised NTP TB guidelines in diagnosing and treating TB and drug resistant TB (DR-TB) in mind. The NSP 2024–26 will also act as an investment case to secure adequate funding to realise the ambition of ending TB in Timor-Leste. Multisectoral actions by engaging all stakeholders to address social determinants of TB and HIV will be another key focus area.

Identification and recommendation of experts were provided by WHO upon request from MoH and country coordinating mechanism (CCM), after intensive search for experts matching with the expertise and skillsets needed in assessing the following key components of TB and HIV External Review Mission:

1. TB and HIV burden evaluation and surveillance: Epidemiology and data quality review
2. RSSH progress, health system influence, TB and HIV programmes contribution to health system
3. HIV prevention and latent TB infection (LTBI) management
4. TB–HIV collaborative activities, focusing on key and general population for targeted interventions
5. Integrated and comprehensive community mobilization
6. TB and HIV diagnosis and MDR-TB
7. Mother and childhood TB, and EMTCT
8. Laboratory network and services
9. Finance and procurement and supply system
10. Information and IT systems for data reporting and management.

Detailed list of the experts involved in JERM and Epi Review is given in Annex 1.

The scope of work of the experts who are part of the JERM is as follows:

1. All the experts of the Review Mission will conduct detailed in-depth review of their respective thematic areas
2. They will contribute to the development of the Mission report, which will be finalized and compiled by the review team leaders
3. They will present the findings of the Mission to the national authorities as well as key programme stakeholders and municipal administration in Timor-Leste
4. Formulate recommendations for the NSP 2024–26 towards Ending TB Epidemic, and finalization of the revised TB and DR-TB guidelines for Timor-Leste
5. Final report of the review mission shall be submitted to the MoH and WHO by the team leaders
6. Development of first draft of Joint TB-HIV funding application 2024–26 for The Global Fund.

The JERM is advised on the current challenges, strategic vision and its evidence-based approach by the National Director and the Head of Department, Communicable Diseases from the MOH, the Chair & the Executive Council of Global Fund Country Coordinating Mechanism (CCM), and WHO Representative to Timor-Leste. The JERM is supported by the National Programme Managers and their support teams from both the national programmes, regional supervisors, municipal coordinators, municipal administration, division of the Global Fund, MoH, as well as by the technical officers and consultants of WHO Country Office, Timor-Leste.

#### **1.4 Methodology and review process**

The JERM expert team has undertaken an intensive and in-depth review of various aspects of the two national programmes through a multidisciplinary mixed methods approach, including desk review, stakeholder interactions, field visits and observations and focused analysis. The process of review was interlaced with frequent observation sharing, feedback and internal review sessions, within the JERM team as well as with the MoH officers. The key methods adopted by the JERM team and Epi review teams are as follows:

1. Desk review and document review
2. Meetings and discussions with programme managers and technical officers at MoH-NAP, partners and WHO
3. Meeting and discussion with GF CCM Chair and Executive Council
4. Visits to national hospital, national blood bank and national lab
5. Visits to KP association and KP drop-in-centres
6. Visits to referral hospitals and municipal health offices (Dili, Baucau, Elmeira, Covalima, Manufai, Suai, Venilale, etc.)

7. Visits to central and municipal warehouses and central quality control unit at national lab (the nodal point for all stock management)
8. Visits and documentation review at CHCs
9. Visits and documentation review at voluntary counselling and testing (VCT), ART clinics, ANC/PMTCT clinics, STI clinics, etc.
10. Review of M&E System – data collection tools, reporting formats, consolidation, analysis and action taken
11. Detailed analysis and review of programme data
12. Review of epidemiological evidence, surveillance and modelling outcomes
13. Special data collection efforts to extract key data from the registers to inform epidemiological review
14. Detailed review of the IT systems and tools for data management, including the ongoing development of DHIS-2
15. Detailed review of the PFMS and financial procedures.

Detailed date-wise schedule of the Epi Review and JERM is given in Annex 2.

## Chapter 2

### Epidemiology

#### 2.1 Epidemiology of TB

##### Observations

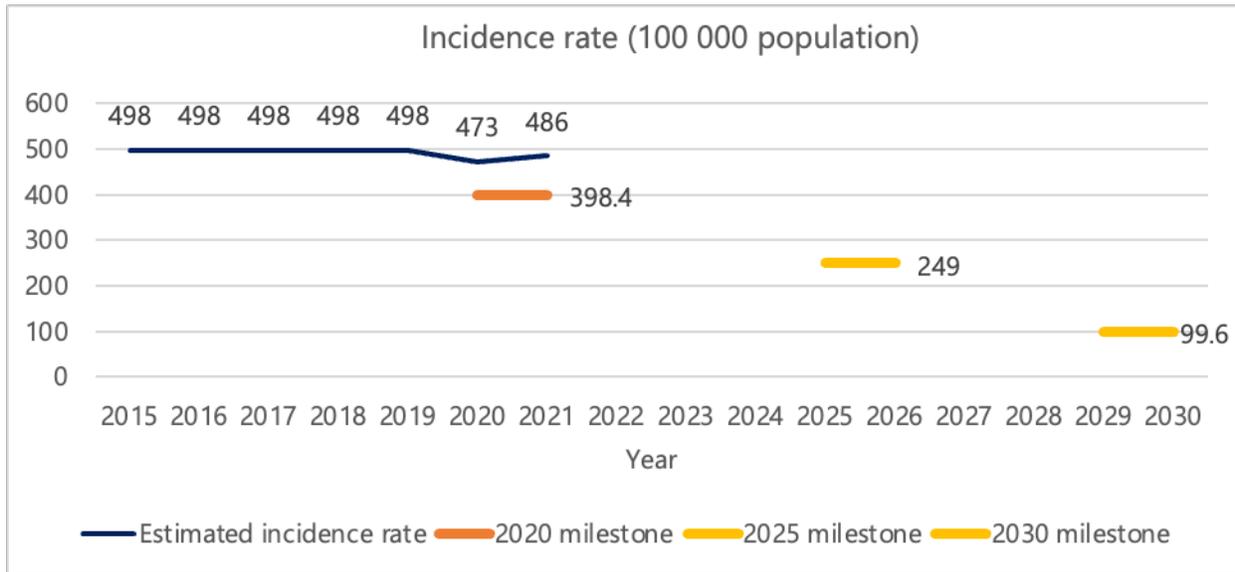
The number of incident TB cases in 2022 was estimated at 6400 (4300–9000) in Timor-Leste. Although the number of TB patients was small when compared to the high TB burden countries, the country had an estimated incidence rate of 486 (range: 322–684) per 100 000 population in 2022, which was the 7th highest in the world and second highest in WHO-South-East Asia Region. The estimated number of TB deaths in the country is 1200 (range: 760–1800). The TB mortality rate is 94 (57–140) per 100 000—the third highest in the world.<sup>8</sup>

The estimated incidence rate and the TB mortality rate continue to remain high between 2015 and 2022. It is estimated that 83% of TB patients and their families experience catastrophic costs (the second highest in the world)<sup>8</sup>. The country has grossly missed achieving the 2020 End TB targets of a 20% reduction in the incidence rate, a 35% reduction in the number of deaths and 0% catastrophic costs incurred by TB patients and their families compared to the baseline year 2015. It is also not on the course of achieving the End TB 2025 milestones (50% reduction in TB incidence rate, 75% reduction in the number of TB deaths and 0% catastrophic costs compared to the baseline year 2015) and the SDG 2030 TB targets (80% reduction in TB incidence rate, 90% reduction in the number of TB deaths and 0% catastrophic costs compared to the baseline year 2015) (Fig.2–4).

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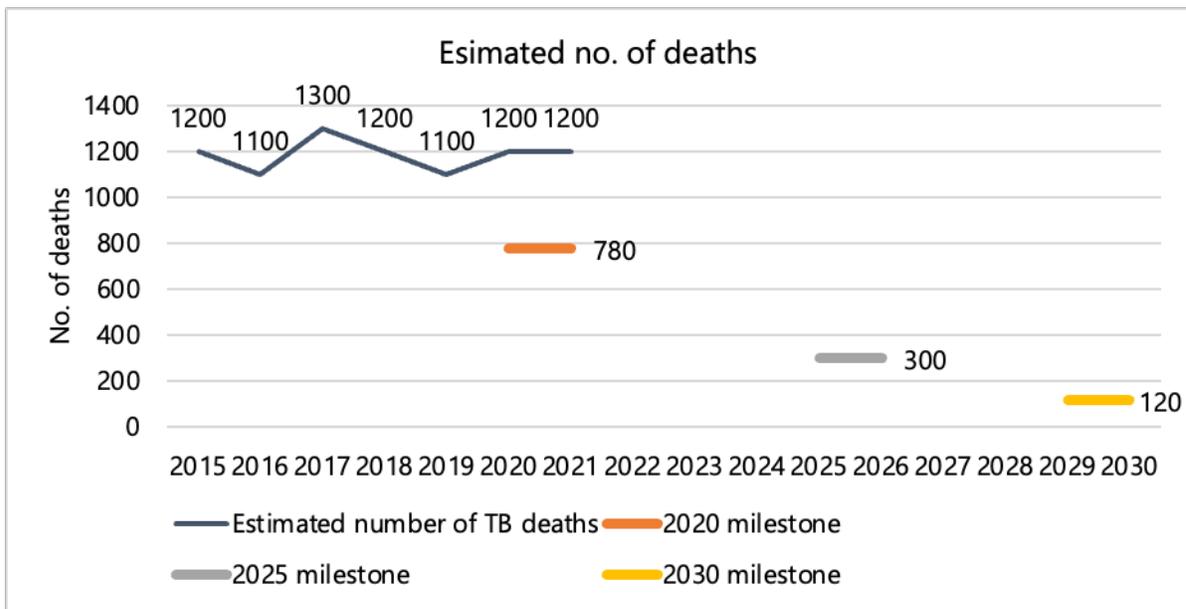
<sup>8</sup> WHO Global TB Report, 2022.

**Fig. 2.** Trends in the estimated incidence rates and progress towards achieving the End TB 2020, 2025 and 2030 targets, Timor-Leste.



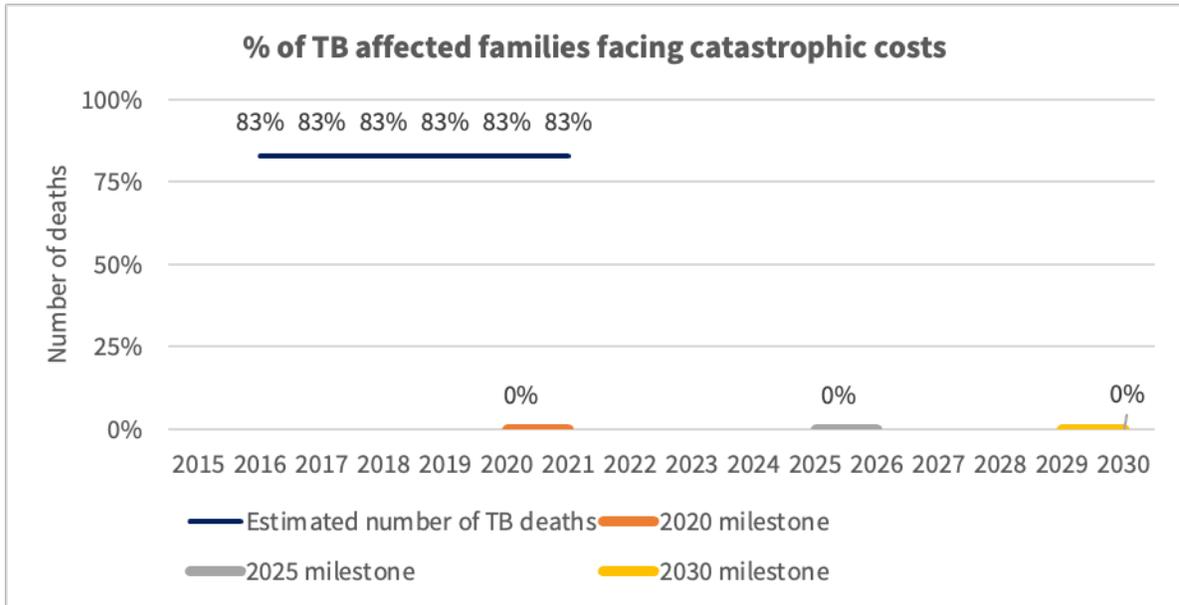
Source: WHO Global TB Report 2022.

**Fig. 3.** Trends in the estimated number of TB deaths and progress towards achieving the End TB 2020, 2025 and 2030 targets, Timor-Leste.



Source: WHO Global TB Report 2022.

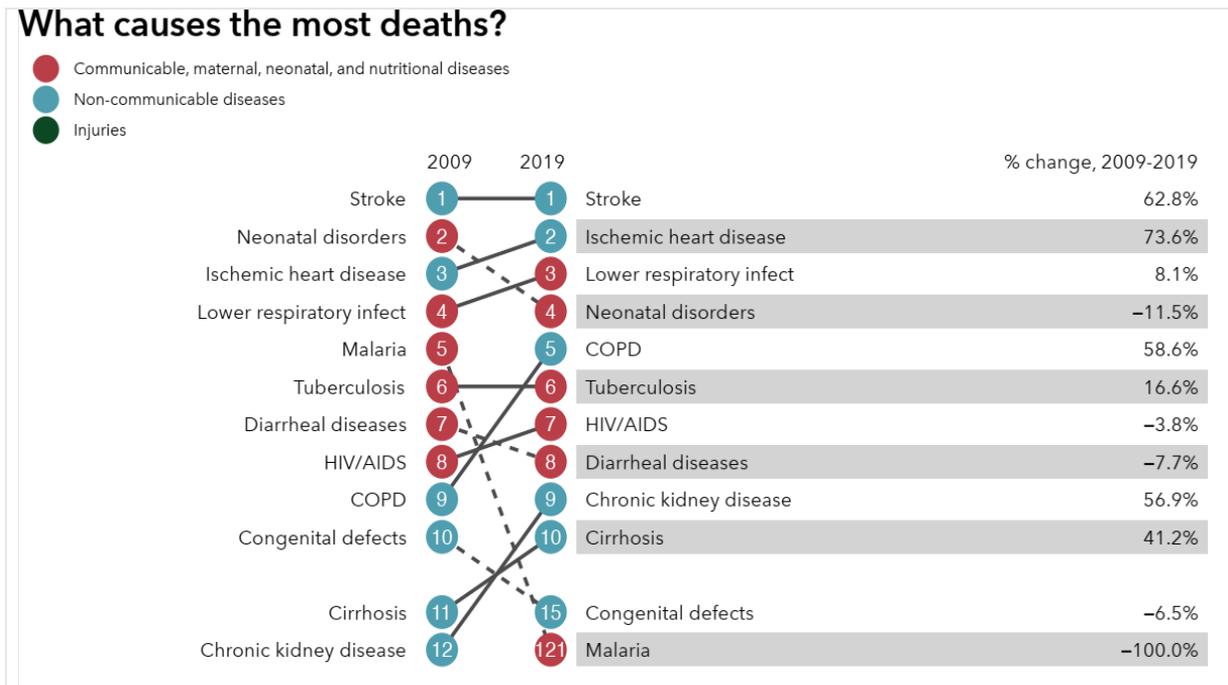
**Fig.4.** Trends in the estimated catastrophic costs incurred by TB patients and their families and progress.



Source: WHO Global TB Report 2022.

According to the estimates by the Institute for Health Metrics and Evaluation, TB is the sixth leading cause of mortality in Timor-Leste in 2019 (Fig. 5). TB has remained the sixth leading cause of death between 2009 and 2019.

**Fig. 5.** Leading causes of death in Timor-Leste, 2009–2019.



Source: <https://www.healthdata.org/timor-leste>

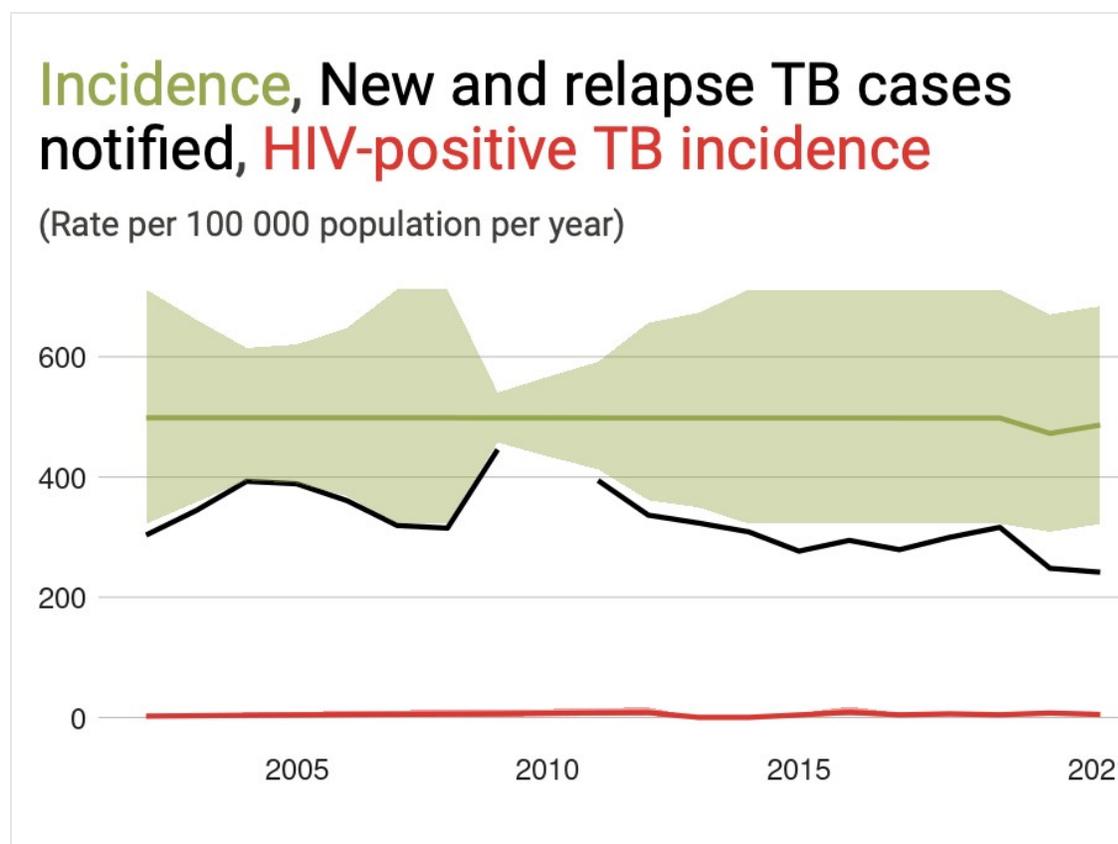
The major reasons for the high TB burden in the country are the high prevalence of TB-specific risk factors (malnutrition and smoking) (Table 5), large numbers of undiagnosed TB patients in the community, as is evidenced by the gap in the estimated incidence and TB notification rate in the country (Fig.6), delays in the diagnosis of TB, health system challenges in the early and comprehensive diagnosis of TB.

**Table 5.** Number of TB cases attributable to the five risk factors

<b>Cases attributable to the five risk factors</b>	<b>No. of cases (range)</b>
Undernutrition	2100 (1400–3000)
Smoking	990 (150–2600)
Harmful use of alcohol	260 (49–650)
Diabetes mellitus	170 (33–430)
HIV	130 (33–280)

Source: WHO Global TB Report 2022.

**Fig. 6.** Gaps between estimated incidence and notification of TB in Timor-Leste.



Source: WHO Global TB Report 2022.

## Estimates of MDR/RR TB

The country conducted a nationally representative drug resistance survey (DRS) in 2019<sup>9</sup>. According to this survey, the MDR/RR-TB estimates among new TB cases are 0.65% (95% CI: 0.2%–1.3%) and among previously treated cases it is 2.7% (0.5%–8.2%). The MDR/RR-TB burden found in the DRS is lower than the estimates before the survey. According to these estimates, the estimated number of MDR/RR-TB patients in the country is 57 (2021).

### Major gaps

The major gaps in the understanding of the TB burden estimates are as follows:

- The country's National TB Programme has been unable to diagnose and treat all TB cases in the country due to the weak health infrastructure for TB diagnosis. It also has a very weak vital registration system. Therefore, the NTP's surveillance system is unable to provide information on the actual burden (incidence and mortality) of TB in the country. Therefore, the estimates of TB burden (incidence rate and mortality rate) are derived indirectly.
- A close examination of the existing NTP surveillance system (recording and reporting systems) of the country reveals the following:
  - Standard recording and reporting formats maintained at all health facilities (presumptive TB register, lab registers, treatment cards, TB registers, quarterly case finding report, TPT register, etc.). Most of the recording and reporting formats are in paper-based formats, and only aggregate reports of the TB data at the national level are in electronic form.
  - Weaknesses in the recording and reporting currently done using the paper-based system; majorly recording errors and inconsistencies were noted in the registers.
  - There were also human resource capacity gaps on how to compile quarterly reports or do minimal data analysis at the CHC and municipality levels.
  - Weaknesses were also observed in data validation and verification by TB coordinators at the municipality and national levels.
  - Inadequate supportive supervisory visits from national to the municipalities. Currently, it appeared that one municipality is visited for supervisory visits every quarter, and the supervisory visits are unstructured, without any efforts for data validation. There were also no reports of observations and recommendations made during supervisory visits.
  - Cohort analysis and reviews are reported to be happening, but this is based on past data with minimal opportunities for improving the outcomes of patients who are undergoing cohort analysis.

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<sup>9</sup> [Experience on the first national anti-TB drug resistance survey \(DRS\) in Timor-Leste | Global Health Research and Policy | Full Text \(biomedcentral.com\)](#)

## Recommendations

- Urgent need for NTP data validation to remove errors in reporting so that the data from the NTP's surveillance system reflects the realities of case finding and treatment outcomes.
- Continuous capacity-building of health care workers at all levels (CHCs, municipal and national) on TB monitoring and evaluation through training, onsite mentoring and coaching to ensure availability, analysis, feedback, and use of the data to improve service delivery and programme management.
- Increase in the number of supervisory visits to at least one municipality per month.
- Continue with regular cohort analysis and review meetings.
- Initiate a mechanism of internal evaluations.
- Intensive technical support for transition to electronic case-based surveillance for TB using DHIS2.

## Chapter 3

### Cross-cutting areas for TB and HIV

HIV and TB are very closely interrelated to each other by their epidemiology, risk factors as well as their collective impact on mortality of HIV–TB coinfecting patients. Further, both the disease control efforts share between them a lot of common operational mechanisms as well as strategic priorities, besides infrastructural arrangements such as laboratory services, procurement and supply chain systems, health care workforce, etc. This JERM has reviewed both the National TB Programme and the National AIDS Programme collectively and in a coordinated manner, in order to identify a lot of synergies that can be leveraged by both the programmes, and thereby contribute to their improvement. Timor-Leste is also planning to submit a joint HIV–TB funding request for the upcoming Global Fund funding cycle.

In this context, it is felt that before going into programme-specific discussion, it is important to deliberate upon the key cross-cutting issues for TB and HIV, as they will have bearing on the individual programme-specific issues and recommendations that follow in the subsequent chapters. This section summarises the progress, key observations and challenges and key recommendations related to cross-cutting areas for TB and HIV.

#### 3.1 TB–HIV collaborative activities

##### Status and progress

##### Observations on HIV testing of TB patients and linkage to ART care

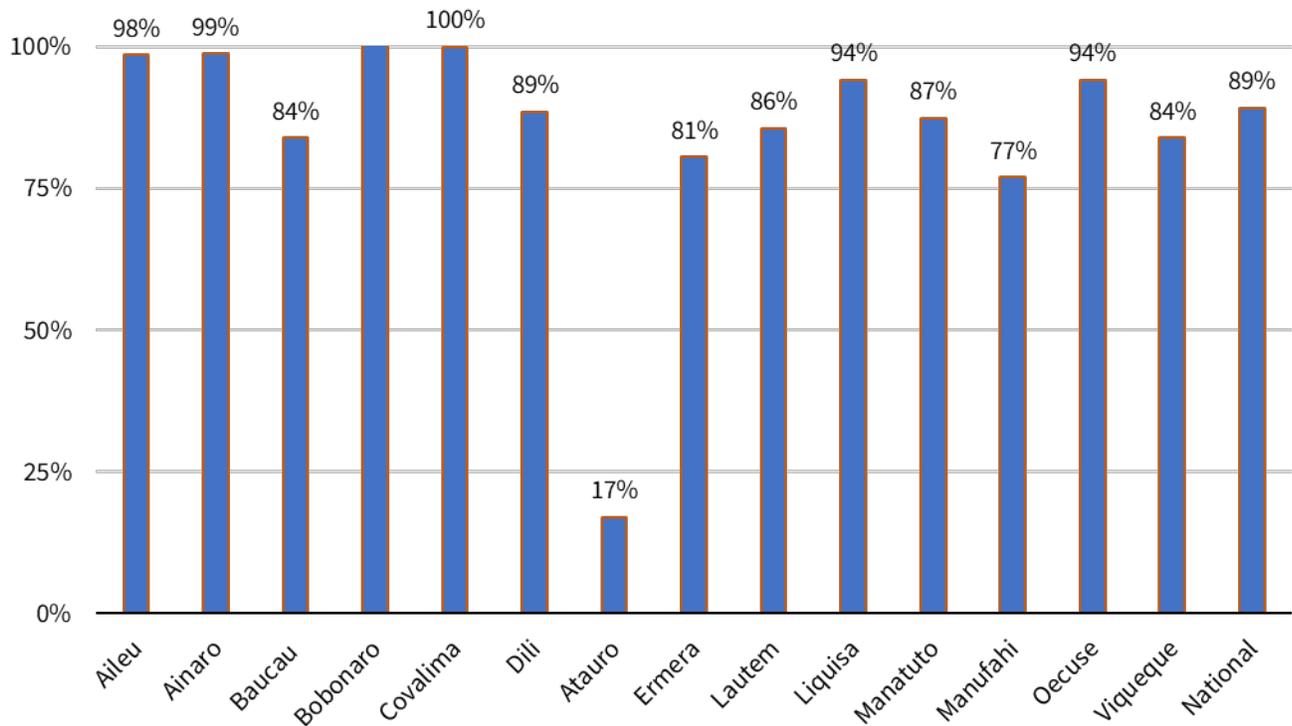
1. The HIV testing of TB patients and the HIV positivity rate for the years 2016–2022 are given in Table 6. The HIV testing of TB patients has improved from 84% in 2016 to 89% in 2022. The HIV positivity rate among those tested is between 1.43% in 2020 and 0.73 in 2022.
2. The HIV testing of TB patients across various municipalities for the year 2022 is given in Fig. 7. The testing rates range from 17% in Atauro (the newly formed municipality) to as high as 100% in Covalima and Bobanaro.

**Table 2.** HIV testing of TB patients in Timor-Leste, 2016–2022

Year	No. of TB patients	No. of TB patients tested for HIV	No. of TB patients positive for HIV
2016	3731	3130 (84%)	26 (0.83%)
2017	3579	2742 (77%)	25 (0.91%)
2018	3906	3138 (80%)	37 (1.17%)

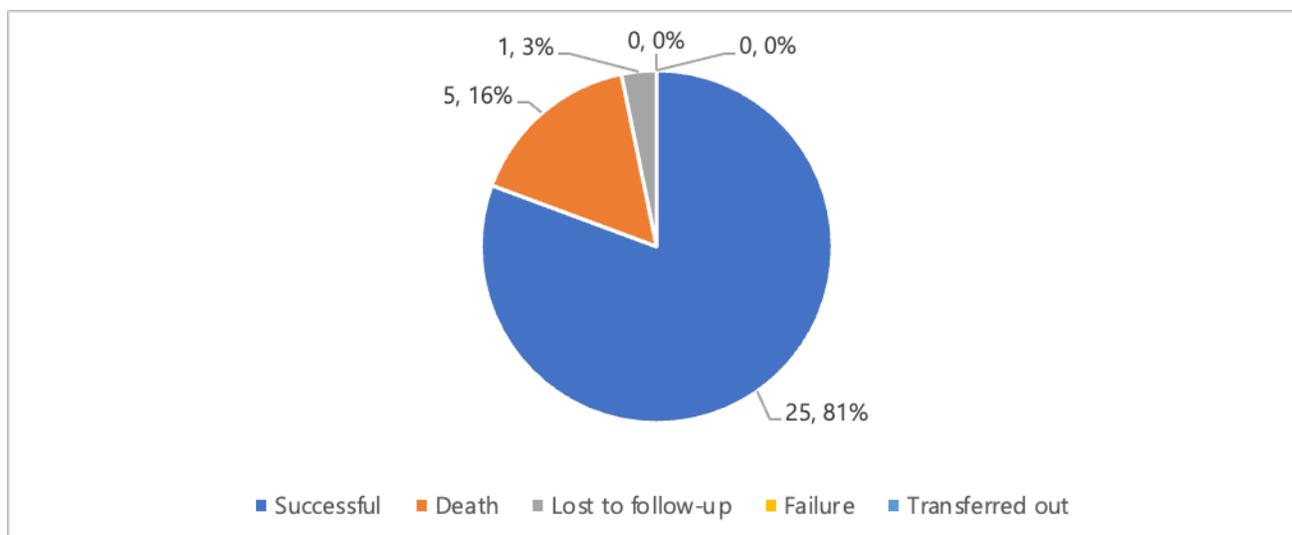
2019	4240	3599 (85%)	33 (0.91%)
2020	3295	2933 (89%)	42 (1.43%)
2021	3268	3030 (93%)	31 (1.20%)
2022	5370	4788 (89%)	35 (0.73%)

**Fig. 7.** HIV testing of TB patients across municipalities (2022).



3. HIV testing is being done at the CHC level and its results are documented in the TB registers. Shortages of confirmatory HIV testing kits were observed at one of the CHCs visited (Zumalai CHC in Covalima municipality).
4. No major delays were observed between TB diagnosis and HIV testing. All HIV-positive TB patients were linked to ART services (reported).
5. TB treatment outcomes of HIV-positive TB patients (31 patients, 2021 cohort) show that the treatment success rate is about 81% with 16% death rates (Fig. 8).

**Fig. 8.** Treatment outcomes HIV positive TB patients, 2021 (n=31 patients).



6. Anecdotal evidence in one of the municipalities visited indicates that HIV testing of persons with presumptive TB (with negative TB test results) has contributed to the detection of a few HIV-positive patients.
7. Collaboration between TB and HIV programmes at the municipality levels is sub-optimal for the delivery of TB preventive, diagnosis, and treatment services for PLHIVs.

### **Recommendations on HIV testing and linkage to ART care**

1. HIV testing for TB patients is to be continued to achieve 100% coverage by the end of 2023. Discussions are to be held with municipalities with low HIV testing rates to understand the operational challenges and undertake measures to address them.
2. Shortage of HIV test kits to be addressed. Expansion of HIV screening tests to the HP level to be considered to improve access to HIV testing.
3. A death audit is to be conducted to understand the reasons for deaths among TB-HIV patients. This will help in understanding the gaps in care and the reasons for the late diagnosis of HIV.
4. KPs for HIV are being mapped nationally and the numbers are being updated. HIV testing of presumptive TB patients pilot project to be implemented in geographical areas with high HIV KPs. In these settings, all presumptive TB patients may also be offered to undergo HIV counselling and

testing. Based on the feasibility, acceptability, and yield of HIV-positive individuals, further decisions to continue or scale up be undertaken.

5. Information about TB prevention, diagnosis and treatment should be disseminated widely among KPs. Screening for TB is to be included along with HIV screening protocol for KPs.
6. Improvement in coordination mechanisms between TB and HIV programmes at the national, municipality and CHC levels. There is a need to hold formal quarterly review meetings to discuss progress, challenges, and joint actions. Better utilization of existing GeneXpert/TruNAT platforms for VL monitoring, and STI infection testing to be done.

### **Gaps, issues and challenges**

1. As noted earlier, Timor-Leste is one of the countries with a very high burden of TB and rising trends of HIV epidemic. In terms of disease burden, TB accounts for a very large proportion of public health challenges as compared to HIV. Based on the programmatic data reviewed during the exercise, it is noted that a sizeable proportion of HIV case detections are occurring among TB patients, which indicates that the programme is detecting HIV very late, when the person has presented with TB symptoms to a TB clinic. Further, a sizeable proportion of deaths reported among PLHIVs, most of which occur within the first six months to one year after detection and treatment initiation, is noted to be among cases of HIV–TB coinfection. This evidence underlines the importance of focusing on HIV coordination activities in the country.
2. While some cases are presenting with HIV–TB coinfection, in other cases TB is occurring as an opportunistic infection (OI) among PLHIVs after their detection and treatment initiation.
3. Based on the global evidence and practices, guidelines have been issued for TB screening among PLHIVs and HIV testing for all TB patients. Timor-Leste has shown improvement over the last many years in HIV testing of TB patients, which is reported to be at around 90% in 2022. However, the same level of coverage has not been noted with respect to TB screening among PLHIVs. The documentation on TB screening for the 4S symptoms is not clear, consistent, and adequate at various ART centres. The reporting of TB screening among PLHIVs could not be traced properly from ART centres to the district HIV coordinator, and then to the national programme.
4. According to the international as well as national guidelines adopted by MoH in Timor-Leste, all the PLHIVs should be given TB preventive therapy (TPT). However, TPT coverage among PLHIVs in the country is also noted to be very low. The documentation and reporting on TPT coverage is also a challenge.
5. As per the recent updated guidelines for ART for PLHIVs, an additional single dose of dolutegravir needs to be added for all HIV–TB cases who are on rifampicin + TLD regimen. This guideline is not being followed currently in the country for which the country must procure single tablets of dolutegravir apart from the fixed dose combinations.
6. Lastly, TB screening and TBT are not being provided to the KP through the KP interventions, which is an important gap in HIV–TB service delivery.

In order to strengthen HIV–TB activities focusing on prevention of coinfections as well as early detection and better management of coinfecting cases, the following key recommendations may be considered:

### **Strategic recommendations**

1. Test all presumptive TB cases for HIV. It will be a high-yielding strategy to minimise late detections of HIV cases. While it may add a case load of around 20 000 cases annually, it is likely to improve early detection of HIV cases, and thereby significantly contribute to reducing mortality among the coinfecting cases.
2. Introduce TB screening and provision of TPT for KP through the KP prevention interventions.

### **Operational recommendations**

3. Provide fresh guidelines and instructions to the doctors and counsellors at all ART centres to carry out 4S screening for TB symptoms among all PLHIVs, as well as testing of suspected cases for TB.
4. Strengthen the documentation of 4S screening and TB testing among PLHIVs at the ART centres and focus on monthly reporting of the service delivery.
5. Promote provision of TPT to all PLHIVs along with proper documentation and reporting.
6. Estimate the requirement for single-dose dolutegravir tablets and make a procurement plan for their procurement. Develop and issue guidelines for introduction of this additional single-dose of dolutegravir for all HIV–TB cases who are on rifampicin and TLD regimen.

## **3.2 Laboratory services**

### **Status and progress**

1. HIV testing for confirmatory diagnosis is currently offered at all 73 CHCs, five regional labs as well as the national lab. HIV screening using the Determine test is done at various service delivery points in the national hospital, national blood bank as well as private clinics, which send screened reactive samples to the national lab for confirmation.
2. HIV testing under the NAP follows the three-test protocol with rapid antibody detection for confirmation, first, the Determine test, followed by STAT-PAK and Uni-Gold test kits. Sometimes test kits of other brands are also provided to the facilities. The three-test protocol is uniformly followed across all the testing centres.
3. Syphilis and hepatitis testing is done at all CHCs and higher labs using rapid antibody detection kits.
4. Dual test kits to test for HIV and syphilis are supplied to the KP prevention programme for KP testing. The supplies are usually adequate and are based on indent raised by the KP units from time to time.
5. CD4 test for HIV positives newly detected and registered for care is limited to the national lab where a point of care CD4 testing machine is available.
6. HIV VL testing is available at the national lab and has now been expanded to other regional labs as well. It is done using the GeneXpert machines.

7. DNA PCR testing for early infant diagnosis among exposed babies is available only at the national lab.
8. Besides disease-specific laboratory services, clinical care of PLHIVs also requires basic routine investigations such as complete blood picture, routine biochemistry, liver function test, kidney function test, etc. Renal parameters such as serum creatinine, urine protein are also required for screening the patient before initiation of PrEP. Presently, these services are only available at regional labs and national lab, and samples are sent from the HIV clinics and PrEP clinic for testing.

### Gaps, issues and challenges

1. **Sample collection and transport from HPs to CHC for HIV/STI/hepatitis testing is limited, thereby limiting the scope of HIV testing and HIV case detections. No clear guidelines in place:** All HPs do not provide HIV testing services, though it is envisaged in the revised NSP that is yet to be implemented. Also, there are no clear guidelines as well as regular practice of collecting samples at the HPs and sending them to CHC for testing.  
A significant number of pregnant women visit the HPs for their antenatal care and only a proportion of them come to CHC where blood collection and testing happens. This is a **potential missed opportunity to reach out to a large number of pregnant women for HIV, syphilis and hepatitis testing**. In the context of increasing number of positive cases being detected among pregnant women, lack of sample collection and transport mechanisms between HPs and CHC is a critical gap.
2. **Sample transportation mechanisms between peripheral labs and national lab to be streamlined and well documented.** There are diverse mechanisms of sample transportation noted between the CHCs, regional labs and the national lab. They are not standardized and are not often accompanied with appropriate documentation, leading to delays in sample transport and obtaining test results. Sample tracking mechanisms including reporting of rejected samples are not in place.
3. **Multiple formats of referral slips and limited documentation of the source of sending samples at the national lab:** The national lab maintains a record of the referral slips received along with the samples. However, a variety of referral slips have been noted from various sources in the National Hospital as well as peripheral referral points. The information mentioned in these different types of referral slips is not uniform and complete. The documentation at national lab on the samples received from various sources is also not uniform, and it is not recorded for some samples. This recording of the source of sample is only limited to paper-based documentation and it is not entered in LIMS. Hence, it is very difficult to count the samples received from various sources at the national lab and the positivity rates among them, while you can only know the total number of samples received each day.
4. **Inability to track samples received for HIV confirmation based on the source of referral to national lab:** This is a very important gap, especially with respect to HIV screened reactive samples sent for confirmation to the national lab from over 10 different units within the National Hospital (ANC clinic, TB clinic, national blood bank, skin VD clinic, ObG clinic, male and female ward, paediatric unit, emergency, VCT, etc.) as well as from CHCs, regional labs and private clinics.

It is leading to linkage losses where many people are lost between screening and confirmation test. For example, in 2022, national blood bank had detected 57 cases that have screened positive for HIV and referred them to VCT and national lab for confirmation. However, lack of documentation at national lab to easily identify the number of samples received from blood bank limits our understanding on tracking those screened reactive cases. Further, it is not possible to understand the positivity rates and patterns among various clients managed and referred by different departments or health care facilities.

5. **Return of test results in paper mode:** While the national lab has electronic laboratory information management system and all sample-related documentation is done electronically including generation of test reports, the reports are not shared in electronic manner to the peripheral labs that have sent the sample. Dependency on paper-based issue of test results adds to the delay in clinical care as well as raises chances of missing the reports.
6. **EQA protocols for HIV/STI testing are lacking:** Internal and external quality control protocols and practices are very critical in ensuring appropriate diagnosis, especially when laboratory testing is scaled up and decentralized, and more and more health facilities get to perform laboratory tests in peripheral areas. However, a well-defined external quality assurance programme with components such as repeat testing of all positives and a small proportion of negatives at a higher lab, proficiency testing or panel testing of higher labs from national and international reputed laboratories, internal quality control evaluations focusing on laboratory arrangements, technical skills of laboratory personnel and documentation practices has been found to be lacking.
7. **No system of HIV test kit batch validation process in place:** Quality of HIV test kits may not always be the same across all batches, even from the same manufacturer. There are cases of false positives reported with some test kits at some centres, identified on noting consecutive positives or too many positives than the expected pattern and repeat testing with a different test kit. If adequate care is not taken, it may lead to unwanted disclosure and exposure to treatment besides other psychosocial effects. False negatives are even more serious as a patient who deserves treatment and needs to take care goes uncautioned and uninformed.
8. Regular information sharing on the availability or stock outs of test kits for HIV, VL, DNA PCR, etc. between service delivery points which refer cases or send samples for testing and the referral labs or the national lab which receives the samples is lacking. Unaware of the fact that kits have been supplied after a reported stock out situation, the service delivery points such as EMTCT unit does not send samples of babies exposed to HIV positive mothers for DNA PCR testing, leading to gaps in baby tracking.
9. **Waste management practices** are not uniformly followed for safe disposal of used test kits, sample processing consumables and biological material at various CHCs and regional labs.
10. Single screening test is being performed for syphilis antibody detection. But **confirmation with TPPA/TPHA is not being done** routinely. While antibody reactivity indicates the presence of syphilis infection, it does not reflect active infection or recent sexual activity as syphilis antibodies tend to circulate in the body for a very long time.
11. **CD4 testing is not being done routinely for all PLHIVs who are newly detected** and linked to treatment. Although it is part of the guidelines, it is not being focused and implemented at all ART

centres. CD4 is a good marker of stage of HIV infection at the time of detection and reflects how early or late we are detecting new cases. Hence it has a very high strategic value for programme planning, as well as patient care.

12. **Testing for acute STIs** such as chlamydia and gonorrhoea is not available under the programme.
13. **Lack of availability of basic routine laboratory tests** such as complete blood picture, routine biochemistry, urine examination, blood sugars, liver function tests, kidney function tests, etc. is a limitation at HIV clinics and PrEP clinics. Samples are sent for these routine tests to national lab, and it takes time to get the results back, based on which doctors have to take appropriate decisions on treatment or initiation of PrEP.

### Strategic recommendations

1. Introduce HIV screening using single test at all HPs and enable them as HIV screening centres. All the cases who are screened reactive can then be referred to CHC for confirmation or samples can be sent to CHC for confirmation. HPs provide the last mile service delivery on various health issues including immunization, maternal child health, TB and HIV. The wide network of HPs in the country offers a unique opportunity to scale up HIV services and take them closer to the target population, especially the pregnant women.
2. Carry out Diagnostic Network Optimization
3. Establish external quality assurance systems (EQAS) protocols for internal quality control and external quality control (repeat testing of all positive samples and 3–5% of negative samples every quarter, at a higher lab and reconciliation of results). Enrol national lab for annual proficiency testing/panel testing with an international lab. National lab can conduct proficiency testing for referral labs, and referral labs can do it for CHCs and other peripheral labs.
4. Establish HIV test kit validation protocol involving national lab and any other well-performing regional lab, to sample check every batch of HIV test kit procured under the programme with known HIV positive and negative samples, before they are distributed to the testing centres.
5. Explore the use of GeneXpert machines for testing chlamydia and gonorrhoea and requirement of appropriate cartridges on a pilot basis at National Hospital and one other Regional Hospitals, where STI cases are reported to be high. Based on the lessons learnt from the pilot, decisions on sustaining and scaling it up may be taken.

### Operational recommendations

6. Issue guidelines and encourage sample transportation from HPs to CHCs for HIV, STI and hepatitis testing till screening facilities are scaled up to all the HPs.
7. Establish individual and sample tracking mechanisms between the two levels to minimize linkage losses as well as to ensure timely provision of test results to the patients.
8. Coupling the above with focus on testing all pregnant women and mass/multimedia campaign to promote risk perception and voluntary testing in the general population can be a potential strategy to promote testing as well as HIV case detection in the country.
9. Streamline and strengthen sample transport mechanisms between peripheral labs and national lab for confirmation testing, with standardized uniform referral slips capturing all the required information.

10. Ensure documentation of source of referral in LIMS at the national lab to facilitate better tracking of screened reactive cases as well as to understand positivity patterns.
11. Ensure electronic reporting of test results from the national lab.
12. Establish a protocol for confirmatory testing of syphilis reactive cases with TPHA at a higher lab along with provision of the necessary test kits and setting up clear documentation and sample tracking mechanisms.
13. Issue fresh instructions to all ART centres to perform CD4 testing on all newly detected and newly linked PLHIVs at the time of registration and initiation of ART. This information should also be reported as a part of routine monthly reporting to NAP.
14. Plan for setting up of basic biochemistry machines at CHCs for routine laboratory tests among PLHIVs as well as KP clients prioritized for PrEP.
15. Obtain HIV test kit consumption/utilization reporting through m-supply only, so that balance and new indent can be easily reviewed, before distributing the next lot of test kits.

### **3.3 Procurement and supply chain management**

#### **Status and progress**

##### **National coordination structure**

##### **National team**

###### **Current status/strengths**

1. The HIV, TB and malaria respectively have staff with the responsibility to track the use of commodities, conduct or consult with other staff to estimate the national needs for the programmes, and provide quantities to the procurement staff to place orders with the Global Fund and government resources.

###### **Challenges and opportunities**

1. There is some disconnect in the strengths of the respective staff handling logistic roles as there are siloed approaches, thus not capitalizing on the respective opportunities for sharing experiences.
2. Although supply planning seems done mostly for the TB programme, there is no clear process of it as part of the routine monitoring of the consumption and ordering cycle, and it comes rather as an input to inform just orders.
3. There is no clear-cut frequency for the national quantification process.

###### **Recommendations**

1. A well-structured logistic management unit or TWG should be created that will ensure the end-to-end responsibility, coordination, and visibility of the various stakeholder inputs for a more optimal health production management that captures the quantification processes, supply planning and product management once delivered in-country.

2. The programmes need to have a clear visibility on all sources of health products received in-country as stock information to inform national need should not only be for those provided through the government and Global Fund resources (if other sources do exist).

## Warehousing, warehouse and storage and in-country distribution

### Governance/processes/infrastructure

#### Current status/strengths

1. There is a structure with coordination between SAMES Dili, its regional warehouses with HIV, TB and malaria programmes at the central and municipal levels.
2. Despite the variability in the topography of the country and location of facilities, it is evident, there is a clear understanding of the chain of management of health products from central SAMES Dili to regional SAMES and/or municipal warehouse, then to CHC and to HPs.
3. There was above average in adequacy of staffing numbers and staff competency to meet the functions in warehousing operations.
4. SAMES Dili has a 2022 version of warehouse SOP.

#### Challenges and opportunities

1. Increasing demurrage costs due the financial processes with the Dili Sea port. Because of the privatization of the Dili Sea port, closure of port financial transactions from November to January imply any uncleared goods during that period would be delayed for clearance and thus demurrage costs.
2. SAMES site safety against flood is currently sub-optimal, and thus apart from the reception and sorting rooms, which have had a proper flood risk mitigation action implemented, the entire complex has a heightened risk of damage of resources if a similar flood were to occur.
3. There seems not to be a defined ordering and order-fulfilment cycle/calendar from lower level to next higher level (even though the CHC visited said it orders monthly) and vice versa. As such, many ad-hoc and nonstandard practices such as ordering through phone calls takes place, with the consequence being inconsistency in the quality of records, especially at the lower tiers, e.g. CHCs of the product handling chain.
4. **Delayed approval** of deliveries from regional warehouse to CHCs and by implication to HPs. Regional SAMES requires approval from central SAMES warehouse in Dili to release products to municipality and CHCs, and yet there seems not to be a real concern for delays in the approval processes for these orders and thus its impact on deliveries of health products to CHCs and by consequence HPs. This probably is due to the absence of a performance benchmark for supply chain-related tasks at all levels of the distribution cycle.

5. Non-respect of TB treatment algorithm by some clinicians who request patients to extend TB treatment beyond six- or nine-month regimen yet with no programmatic coordination around this. This could be a good case for AMR surveillance if clinicians noticing patients' treatments are not successful after the established treatment period, and more so as MDR-TB cartridges are already available to test and detect this real-time. The implications of this will be possible stock out or stock tension due to insufficient stock levels to meet such extensions, including poor use of the opportunity for MDR-TB testing.

#### Recommendations

1. There is a need for coordination between SAMES, programmes, drug/pharmacy regulatory department to map out and understand the processes and steps/timelines for national financial and port operations that impact the importation of health and non-health products for the disease programmes. This information should be made to programme staff critically responsible for ordering process.
2. Conduct comprehensive facility-wide flood risk assessment of SAMES.
3. SAMES, municipalities and CHCs to define timelines and responsibilities for ordering and deliveries, including disseminating the competencies in SAMES Warehousing SOP to the municipal levels.
4. Set **a performance benchmark for supply chain-related tasks at all levels** of the distribution cycle to include the approvals. Central (Dili) level pharmacists are expected to make for regional warehouses to release products.
5. Absorption of some of the volunteer pharmacists serving at the warehouses into the public service (if government has the available resources) could be a good investment to strengthen the quality and staffing needs in the warehousing processes.
6. Institute **routine (monthly) technical coordination** between central and municipal teams (to include programme, clinical and procurement/logistic teams) to discuss among others case needs for AMR surveillance, which may be pushing clinicians to extend patient treatment, and thus needs for more health products than planned.

## Warehousing

### Current status/strengths

1. Country led management of storage through SAMES, which is a national parastatal. This allows country ownership and capacity-building on the competencies in warehousing practices.
2. The main (permanent) building structure of SAMES regional warehouse in Baucau Municipality is of good standard and well managed by the team there. The reception and main storage warehouse blocks at SAMES central warehouse in Dili are also of good quality.
3. There seems to be above 75% adequate storage capacity, thus guaranteeing the ease to handle volumes of shipments received.

## Challenges and opportunities

1. While SAMES reception and sorting spaces have had implementation of flood mitigation actions, other storage spaces such as the WFP-donated warehouse, and the oxygen cylinder-sorting warehouse, show the risk of the impact of flood has not been considered to a larger scale.
2. Municipal and other non-block warehouses are not meeting the minimum standard requirements to allow proper stock management.
3. There is no adequate storage space in WFP-donated warehouses housing covid consumables.
4. There is no clear documentation on the actual storage space available in country.

## Recommendations

1. Implement a complex-wide mitigation of any flood risks to all lower ground floors (oxygen cylinder rooms, WFP warehouse), including the construction of adequate water expulsion gutters (canals) at SAMES Dili complex.
2. Renovate and improve warehouse capacities at municipal and CHC levels for drugs and test kits.
3. The programmes to work with SAMES to determine how much storage space (in cbm) is available for handling products at the various levels of SAMES and municipalities (and where necessary, the CHCs).

## Inventory management

### Challenges and opportunities

1. Storage management spaces are sub-optimal and managed from central (SAMES Dili reception/sorting room) to CHC levels.
2. Practice of first in, first out (FIFO) and first expired, first out (FEFO) not consistent at lower (CHC) level and some expired drugs, including soon to expire paediatric treatment TB drugs are on the shelves
3. Stock cards are not updated regularly
4. Weak monitoring, analysis of warehouse temperature conditions, and thus no evidence of response to temperature excursions which can hamper the integrity of medicines.
5. There is no clear evidence on awareness and knowledge on the notion of and thus no definition of maximum and minimum stock levels at all levels of storage (central SAMES, regional SAMES, municipality and CHCs), and thus weaknesses in tracking, anticipating and quickly responding to stock (over and under) risk levels.
6. There is sparse documentation of stock used (consumption data) at CHC and documentation of this seems most appropriately generated only upon the programme's site supervision, and not routinely as a standard quality practice from most sites.

### Recommendations

1. Standardize and institutionalize the duties on each step in the stock management process.
2. Mechanisms to identify, shift and utilize short expiry drugs; FIFO not being practiced; expired drugs on shelves.
3. Stock consumption reporting to be strengthened; stock cards to be updated regularly
4. Conduct a regular review and analysis of stock and stock data.

5. There needs to be capacity-building on the generation, analysis and use of data of logistic (such as stock) and service data (such as consumption data) that informs the national quantification process, including on how to manage storage spaces at CHCs.

## Transport and last mile distribution

### Current status/strengths

1. The delivery process from central warehouse (SAMÉS) to intended beneficiaries is very well understood at the different tiers with each tier having its last mile for product delivery as shown below:
  - a) SAMÉS Dili delivering to regional SAMÉS and municipality (having municipal hospital and regional hospitals)
  - b) Municipality delivering to communities with CHCs
  - c) CHCs delivering to Soucos with HPs.
2. Distribution trucks/vans are available to SAMÉS at central and Dili to handle vaccines and drugs, while a combination of transportation means are available from CHCs to HPs.

### Challenges and opportunities

1. There is weak evidence of the documentation of proofs of delivery (POD) at CHCs.
2. Delays in approving orders at the regional SAMÉS by pharmacists located at central SAMÉS.

### Recommendations

1. SAMÉS should train municipalities on how to document evidence of reception, and municipalities in turn role out same skills to CHCs so as to curb the weak practices of ordering through phone calls.
2. Using phone calls should be for follow-up of orders and deliveries and not as the principal means of placing orders, but further there should be a system for tracking the fulfilment of orders, if telephone calls are found as the most appropriate.

## Tools used, data visibility and quality, information management and reporting

### Current status/strengths

1. A hybrid of paper-based and web-based (mSupply) being used with personnel (pharmacists) well versed, and thus there is some level of technology penetration and connectivity.
2. There is hardware (desktop and tablets) used to key in stock looked very well handled.

### Challenges and opportunities

1. mSupply is sub-optimally used and needs to be reviewed not just as a tool for ordering, but the options it provides be exploited so to allow better end-to-end visibility of the movement of health products.

3. Phone calls for ordering is not standardized as there are no records for such calls, including confirmation of the order fulfillment from those calls.
4. Even though the paper-based system is used nationally for TB requisitions and supplies, no records were seen at CHC Venilale and regional hospital laboratory on the movement of health products at points of use. Same with medicines dispensed, as even though showed some graphical depictions of analysis of products distributed from January to August 2022 and number of patients served, there wasn't clear evidence of a national process of procedure to account for the allocation of products.

#### Recommendations

1. Shift from manual to digital documentation, tracking and reporting of stock management (receipts, use, indent).
2. There is a need to integrate TB health product movement to the level of visibility already achieved by HIV programme, especially as TB is a larger programme in terms of the resources it consumes for health products.
3. Assess warehouse storage volumes in line with national patient projections as contributed by each municipality, define minimum and maximum stock levels at all tiers. Use this information to triangulate the order fulfillment cycle so as to correct ad-hoc practices.
4. There is need to develop and professionalize capabilities in supply chain space.

#### Limitations of this review

1. The information reported is based on the sites and persons spoken too.
2. Unfortunately, the efforts to meet the medicine (drug) regulatory department (authority) was not successful as the director was called into another meeting prior to the review team's visit, and so there was no better opportunity to discuss the procedures around policy on choice and use of products, importation procedures, quality control, and the update to the essential medicines list.

#### Gaps, issues and challenges

1. **Frequent stock outs of test kits** for HIV, syphilis, hepatitis, and DNA PCR cartridges for early infant diagnosis have been reported from the field. Non-availability of nevirapine syrup (NVP) to be given to exposed babies has also been reported from some facilities.
2. **Injection benzathine penicillin** is not being procured under the programme, which is essential for treating syphilis. With high rates of syphilis positivity among various subgroups including pregnant women and thereby the risk of congenital syphilis among exposed babies, it is a critical gap in the programme.
3. **Non-uniform, inconsistent, incomplete, paper-based reporting of test kit consumption/utilisation data:** The quality control department at the national laboratory is the central agency that manages the supply and distribution of all laboratory test kits and consumables to all the public health facilities in the country, including all CHCs from all

municipalities. They receive the request for issue of test kits from various health facilities through m-supply software. They review the indent comparing it with the consumption report submitted by that facility for the previous month or quarter and based on that they approve the indent. Only after their approval, the facility or the municipality can collect the approved quantity from SAMES. However, it has been noted that the **consumption reporting is not electronic and does not come through m-supply. It is paper based** with diverse formats and reporting structures from various public health facilities. The consumption reporting is not uniform and complete every month from all facilities. The data from the physical reports are manually entered into an excel sheet at the quality control department every month. However, several gaps are noted in the excel sheets due to non-reporting. More importantly, even the national hospital, which is one of the very big consumer of laboratory test kits has not been reporting the consumption data over the last one to two years.

4. **No routine aggregation and triangulation of lab test kit consumption and balance with test results and service delivery reporting:** The consumption reports received from the facilities mention the details of test results in terms of positive and negative outcomes. However, the test results are not entered into excel due to heavy workload at the quality control department, and only the number of test kits consumed is entered. Hence triangulation of test kit consumption data with service delivery statistics on testing does not happen. It is an important mechanism in improving data quality of service delivery statistics as well as promoting accountability in stock management of test kits at all facilities.
5. **Documentation of HIV test kits supply and consumption, not differentiated by 1st, 2nd and 3rd test kits:** Consumption reports on HIV test kits do not mention the numbers of three test kits separately. They only report total positives and total negatives, not being clear about whether they are screened positives or confirmed positives. As an extension of the above issue, the quality control department does not know the need for and consumption of second and third test kits (STAT-PAK and Uni-Gold) at various health centres in the country. In the absence of consumption documentation of HIV test kits separately for each of the three kits, the basis on which those kits are currently being distributed is not very clear.
6. **Equipment maintenance** is noted to be a major challenge, leading to dysfunctional machines lying unrepaired at some centres.
7. **Warehouse facilities** at municipality level have issues of adequate storage, safety and improper condition of storage racks and shelves.
8. Gaps have been noted in guidelines and **practice of temperature control**, temperature monitoring, in the refrigerator and in the room, and reporting of the temperature maintenance for test kits during storage.

### Strategic recommendations

1. Shift to a fully functional digital monitoring system for procurement monitoring. Expand use of m-supply to track all stocks of drugs and test kits, and all processes of inventory management—indent, approval, distribution and consumption reporting. Put in place mechanisms to identify, shift and utilise short expiry drugs. Encourage FIFO to be practiced at all centres.

2. Immediately plan to procure injection benzathine penicillin and make it available at all CHCs and regional hospitals, in view of the high prevalence of syphilis cases.
3. Equipment maintenance to be planned at the time of purchase through extended warranties/plan modalities to shift to rental model.

### **Operational recommendations**

1. Effectively forecast and procure HIV/STI/hepatitis test kits, VL and DNA PCR cartridges, etc., to avoid stock outs and ensure availability at all CHCs, referral hospitals and national lab.
2. Ensure real-time/weekly test kit consumption reporting through m-supply from all the centres that are conducting tests. Make consumption reporting mandatory to receive test kits next time.
3. Ensure separate consumption reporting of all three test kits used for HIV testing, along with the test results, to enable appropriate estimation of 2nd and 3rd test kits for confirmation.
4. Carry out monthly reconciliation of commodity consumption data with service delivery statistics. Build analytics from the test kit distribution and consumption reporting to analyse the patterns of utilization by various facilities and support better forecasting for procurement.
5. Develop appropriate mechanisms with donor support to procure commodities required in very less quantities for which standard procurement procedures may not be feasible or productive (NVP, dolutegravir single-dose tablets, DNA PCR cartridges, etc.).
6. Renovate and improve warehouse capacities at municipal and CHC levels for drugs and test kits.

## **3.4 Programme monitoring**

### **Status and progress**

1. M&E unit of the NAP at MoH is the central unit consisting of M&E officer and data manager assisting the national programme manager in monitoring the HIV programme in the country.
2. All the CHCs and regional labs send monthly individual level excel-based data of HIV testing and ART services to the NAP M&E unit, which then summarises the data at the national level. The M&E unit deduplicates the records and identifies the lost to follow-up (LFU) cases.
3. Unique identifier code (UIC) is issued to all the clients tested for HIV and the same is reported to NAP that enables deduplication and proper linking. The same is also used at ART centres on initiating the patient on ART, though the ID that is primarily used and documented everywhere to track an individual is the VCT number (usually given as alphanumeric serial number).
4. There are nine regional supervisors monitoring the NAP in 13 provinces, supported by 13 HIV Coordinators, one in each municipality. Dili has two HIV coordinators. They facilitate reporting from the CHCs and coordination between the facilities and NAP.
5. UNFPA, the sub-recipient responsible for implementing KP prevention programme, submits quarterly PUDR as per the Global Fund format to NAP, which summarises the progress on the pre-defined key indicators. At the municipality level, where the DIC is operational as well as at the KP association level, individual level records, both in registers and excel sheets, are well-maintained on service delivery, including distribution of condoms and testing for HIV/STI. The format where

one page is dedicated for one KP to document all the services provided in one year, is a best practice, that enables better planning at the peer volunteer level in the field. Counsellor maintains the register of testing for HIV/STI, which is regularly updated with the tests conducted at the DIC as well as in the field.

### Gaps, issues and challenges

1. There are critical gaps in the documentation, reporting and monitoring of the following key aspects of the programme:
  - a) Linking of HIV positives to ART
  - b) ART initiation
  - c) Adherence on ART
  - d) Drop out tracking and relinking
  - e) Transfer-in and transfer-out of PLHIVs between ART centres
  - f) VL testing and repeat testing every year
  - g) PLHIVs with high VLs
  - h) EMTCT: Tracking of HIV/syphilis positive pregnant women for pregnancy outcomes
  - i) EMTCT: Tracking of exposed babies and early infant diagnosis (EID)
  - j) Six-monthly repeat testing of negative KP
  - k) Partner notification, screening and management for STI/HIV/hepatitis
  - l) TB screening and TPT uptake among PLHIVs.
2. Documentation at facility level is siloed, ridden with redundancies, very difficult to interconnect and track; need to be revised and simplified. Reporting through HIV coordinators is not standardized through pre-defined formats.
3. Patient profiling, capturing the basic demographic and risk information, is missing at all service delivery points.
4. Individual tracking approach across prevention, testing and treatment continuum is missing, with no monitoring of due lists, defaulter lists, follow-up documentation, etc.
5. Monitoring and supervision by regional supervisors and HIV coordinators is not very regular to all the centres, including the National Hospital in Dili. The cadre is sub-optimally utilized to review the data accuracy, verify the data and improve reporting, as well as to track KP, PLHIVs, positive pregnant women, exposed babies, partners of positive cases, etc. Their capacities are limited to provide the required supportive supervision and handholding to the facility staff in the areas of data management, patient tracking and performance monitoring.
6. The data management at KP prevention programme is robust and complete, but the following issues need attention and refinement:
  - a) Resetting the coverage to zero at the start of every year
  - b) No segregation of coverage and service delivery statistics by old and new registrations
  - c) Individual KP-wise documentation of service delivery in the paper-based formats is entered into excel every month as independent dataset, and not linked to data of previous months. This limits the possibility of linking, tracking the KP, identifying the service dues and defaulters, etc., resulting in some of the HIV positive KP, not linked to treatment

- d) Risk profiling and prioritization are not done for various services such as HIV testing, condom demand estimation, STI screening, etc.
  - e) Reporting of coverage data of male sex worker (MSW) is combined with female sex worker (FSW), which may not correctly reflect the programmatic as well as epidemiological picture
  - f) While UNFPA reports quarterly PUDR to NAP, issues have been reported in sharing of detailed programme information and individual-level service delivery data with NAP. Individual-level data on KP service delivery will enable better understanding of the repeat service uptake, repeat testing of negative KP, tracking of positive cases, etc. It has also been reported that NAP officers are not allowed to visit and review the programme data being managed at the KP association/municipality DIC. This is an important area to be improved through coordination and discussion.
7. Information sharing between ART centres and two CBOs—Estrella Plus and Caritas—for drop out tracking is informal and not properly documented. The documentation of the field-level efforts made by the CBOs in tracking and linking the dropouts is also not regular and complete.

### **Strategic recommendations**

1. Focus on digitalization of reporting systems with individual tracking as an urgent need and high-priority activity under M&E to improve patient care as well as overall programme outcomes. The process of integrating with DHIS-2 shall be hastened with clear timelines and deliverables.
2. Institutionalize individual patient tracking approach from KP programme till VL testing of HIV positives and till 18 months testing of HIV-exposed babies, covering the entire spectrum of prevention-testing-treatment continuum. Introduce common UIC across all programme interventions. Develop due lists, reminders, notifications and defaulter lists at every step of the tracking, with pre-defined staff responsible for responding immediately to the dues/misses/defaulters and taking necessary action.
3. TNA (Trigger-Notification-Action) protocols to be put in place to alert the respective nodal person on critical events such as HIV positive detection, pregnant women detected positive, delivery of a positive pregnant woman, drop out of a PLHIV on ART, VL test missed, high VLs on ART, etc. Who should be notified and what action should be taken need to be specified in advance.
4. Conduct structured capacity-building of programme staff in M&E, indicators, monitoring skills, data analysis and data use, and especially in individual tracking approaches.
5. Data quality assurance protocols to be defined and put in place; regular data validations and verifications by municipal HIV coordinators, regional supervisors and national M&E needed; Feedback to facilities to be given regularly.
6. Quarterly review meetings with municipal programme officers and partners (SRs) to consolidate, review, report and explain achievements and gaps on quarterly basis should be conducted by NAP.
7. Half-yearly internal evaluations by MoH or Joint Implementation Review Missions (JIRM) by MoH and partners to identify and fix challenges in the programme may be institutionalized.

## Operational recommendations

1. Develop clear data definitions and calculation guides for all programme indicators.
2. Deduplication of individual case records to be done real-time or every week; and appropriate linkages/transfers to be documented.
3. Monthly review meetings with municipal HIV coordinators and programme officers on linkages, misses and defaulters should be conducted by the national M&E team.
4. Mechanisms for transparent and smooth sharing of data between MoH and SRs should be put in place. MoH to take lead in data review, analysis and data use of data from all programme components, under all SRs.
5. Programme target achievement responsibilities and monitoring responsibilities to be fixed at municipal and national levels to specific programme staff, with reporting and accountability measures.
6. Strengthen individual drop-out tracking mechanisms between the ART centres and CBOs, and report outcomes of defaulter tracing efforts.

## 3.5 Strategic information and DHIS 2

### Status and progress

1. Three rounds of HIV Sentinel Surveillance (HSS) were conducted in Timor-Leste—2010, 2013 and the last round in 2018–19. The last one was conducted in seven municipalities among ANC clinic attendees, STI clinic attendees, TB patients, FSW, MSM-TG, uniformed personnel, with the addition of behavioural questions for KP, making it HSS Plus 2018–19. All the samples were tested for HIV and syphilis.
2. Three rounds of integrated biological & behavioural surveillance (IBBS) were conducted in Timor-Leste in 2004, 2011 and 2016 among KPs.
3. Three rounds of demographic health survey (DHS) were conducted in Timor-Leste in 2003, 2010 and 2016 among general population.
4. HIV estimations are developed using Spectrum model with the support of UNAIDS.

### Gaps, issues and challenges

1. The current epidemiological evidence is not fully adequate to explain and model the HIV epidemic in Timor-Leste. Especially, the evidence on the high-risk networks and transmission dynamics among general population is limited.
2. All surveillance activities should focus on more detailed profiling of KP practices and behaviours, preferences for service uptake, mobility and migration, partner volumes and networks, etc.

### Key recommendations

1. Institutionalize case-based surveillance, serving both epidemiological and programme needs.
2. Undertake a systematic data collection exercise at all ART centres focusing on the 1000 cases on ART to capture past and present epidemiological information on their risk behaviours, possible

routes of transmission, network dynamics, partner volumes, etc. with due consent and anonymity.

3. Carry out secondary data analysis of PLHIV case data and testing client data that is already available with the programme over the last five years to identify vulnerabilities, patterns and geographic distribution.
4. Plan for another round of IBBS among KP needed for detailed and accurate profiling with detailed biomarker component. It will help in adjusting HSS prevalence estimates and to improve Spectrum modelling.
5. Plan to conduct a HIV behavioural survey among general population using household survey design, as a one-time effort to understand risk networks and transmission dynamics; wherever possible, options to integrate it with other surveys may be explored. In view of the significant transmission dynamics reported and noted during the review and the evidence from past rounds of DHS, this will be a great addition to the body of evidence to understand the HIV epidemiology and transmission dynamics in Timor-Leste.
6. Carry out programmatic validation of mapping and population size estimates every six months to update the denominator data for KP programming.
7. Undertake estimation of KP operating in virtual space using recent approaches.
8. Apply geo-prioritisation strategic scale up and saturation of services using existing data.
9. Initiate a process of structured compilation of evidence needs at national and municipal levels under NAP and roll out operational research plan on identified priority areas.

## **DHIS 2**

### **Background**

- As part of the National Strategic Plan for 2020/21–2024/25, the NTP envisions point-of-care data collection, enabling real-time actionable information management.
- NTP also plans to expand the household vulnerability electronic case-based surveillance system VATS on a national level to all regions across the country. This will require infrastructure investment, training programmes and political commitment.
- Establishing a real-time access to data for the stakeholders.
- WHO country office had invited HISP India to support the ministry on establishing, and further expanding electronic case-based surveillance for TB, HIV and malaria using DHIS 2.
- As to establish the electronic case-based surveillance, the discussion on the requirements and forms were done with the M&E team.

### **Situation assessment**

#### **Key findings**

Data collection process: The current data collection is manual, and information of patients is collected on detailed paper forms. The process of data collection is duplicated at the CHC and at the municipality level. Reporting to national systems is quarterly. Multiple registers/formats of

similar information are maintained and there is duplication of effort in manual data entry across levels.

**Table 7.** Electronic TB notification data collection and use

ELECTRONIC TB NOTIFICATION DATA COLLECTION AND USE					
	TARGET	CURRENT SCALE	COLLECTION TOOLS	DATA TYPE	DATA USAGE
National level 			Data not collected from this level		DHIS2 Dashboard Excel based Reports
Regional level 			Data not collected from this level		Excel based Reports
Municipality level 	13	13	Paper Based + Excel	Line Listed , Aggregate	Excel based Reports
CHC Level 	73	73	Paper based	Line Listed	No Data usage at this level
Community level 			Data not collected from this level		No Data usage at this level

**Training manpower:** Expanding the case-based electronic TB and HIV surveillance system would increase data entry burden and requires training of health professionals at all planned facilities. With the current HR availability at facilities, trainer manpower for data entry is an immediate need.

**Internet availability:** Its unreliability affects data entry and analysis even in the initial 73 CHCs. Scaling up to more disconnected and marginalized community areas will require political will and investment.

**Interoperability:** Programme is currently unable to generate data from GeneXpert system due to the high costs of integration, hence the utilization of GxAlerts is not at par.

### Observations

Following are some other observations and noteworthy suggestions based on the group findings:

**Community based screening:** There is a strong network of community networks, which can help in mobilizing the screening and identification of TB and HIV cases, and this network needs to be tapped into to ensure increase in active case finding and reduction of LFU. The spiritual healers network needs to be activated to enable treatment and services through CHCs.

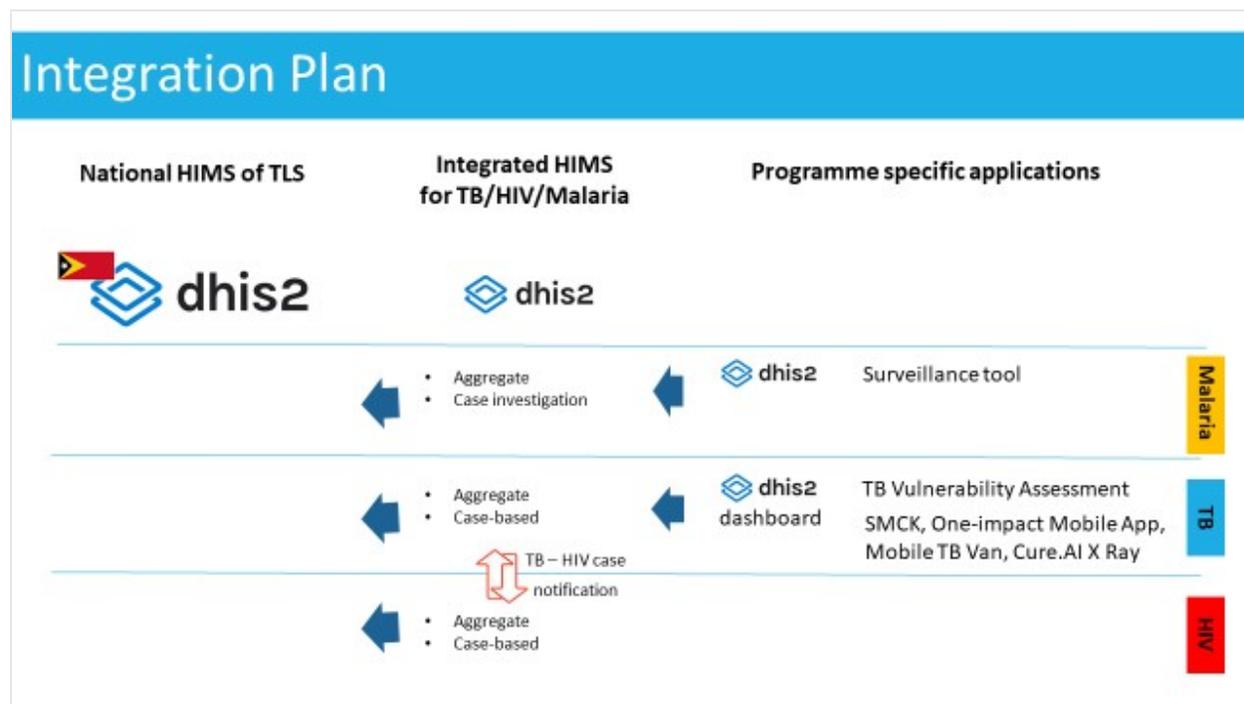
Social media/other channels: Channels like Facebook and WhatsApp communities should be used to encourage affected population for repeat testing, counselling, information dissemination, etc., which would help in increasing community engagement.

Data understanding: Empowering the lower units to understand the power of data and its usage for better case management will be useful. It also will help in effective QA and enable better data collection.

CHC support: Enabling better infrastructure and capacity-building at CHC will enable single source of data entry reducing duplication of efforts at municipality level. Also designing framework/model of increase in testing capacities is essential.

Leveraging technology: Current applications (mSupply, VATS) should be expanded for effective coverage of data collection for other diseases like HIV, etc.

**Table 8.** Integration plan for HIV, TB, and malaria with national HMIS



### Description

In proposing the integration plan, following aspects, which were highlighted by the MoH and vertical health programmes, were carefully considered:

- Minimizing redundancy/duplication of data entry and repetitive data entry work at the grassroots level.
- Reuse existing work and innovations to the best possible extent.

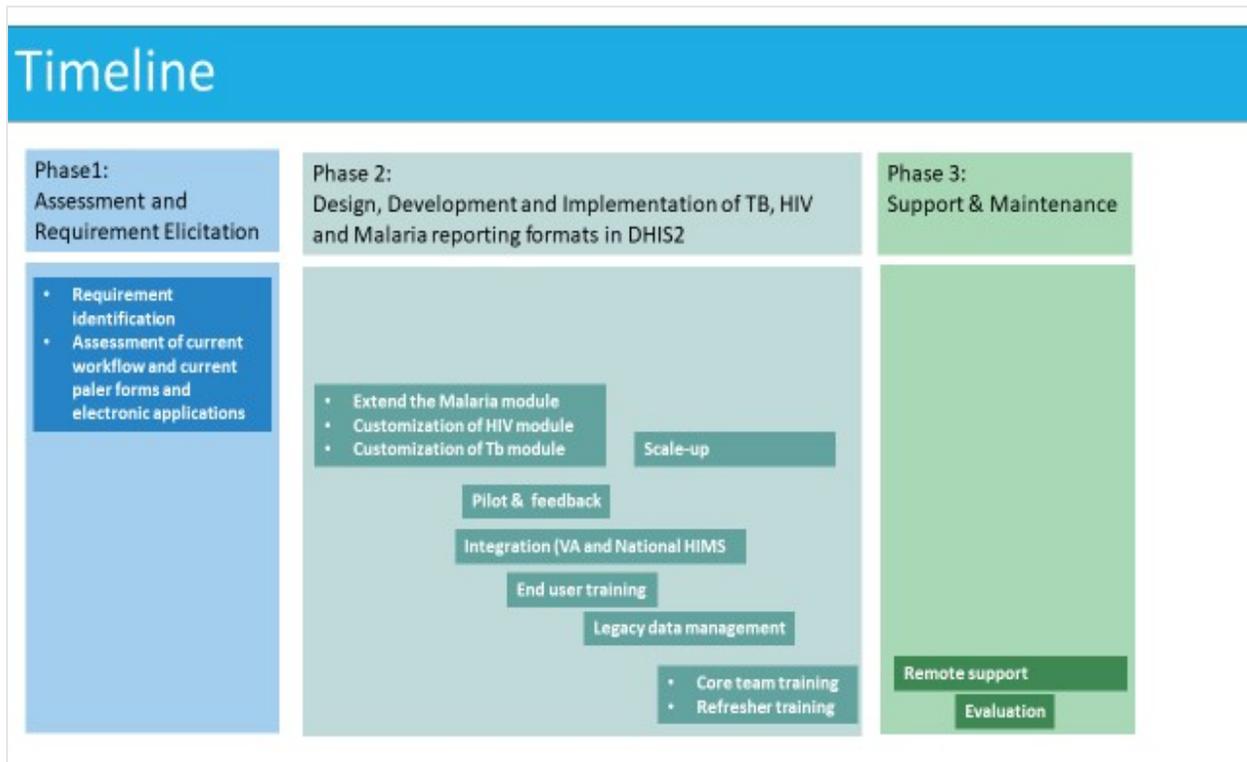
- Cost-effective solution in long-term perspective with least recurrent expenditure such as license/subscription fee and hosting fee.
- Sustainability of the proposed solution/s and aligning the same with the ICT infrastructure maturity and technology advancement of the country.
- Inculcating local ownership and capacity-building from the early stages of work.

Hence, it is proposed to converge existing and new electronic data flow to a single integrated DHIS2 instance which is being used as a staging server before integrating the same with the national HIMS (also, DHIS2 based). With this approach, it is expected to avoid any service interruption at national HIMS, which is critical to the routine operations of the MoH, Timor-Leste.

The three programmes, TB, HIV/AIDS and malaria, will be separately created in the integrated DHIS2 instance with the separate user privileges to each programme as per its operational hierarchy. Separate dashboards for the three programmes to suit the administrative hierarchy need to be aligned with those for the MoH, GF ATM Country Coordination Mechanism, GF M&E unit and relevant funding/development partners.

### Proposed workplan

**Table 9.** Timeline for proposed workplan



## Current implementation status

**HIV:** Forms have been designed in the DHIS2 application replicating the data reporting formats for HIV programme. Creation of indicators and dashboards is in process.

**Malaria:** Malaria instance access has been provided and work in progress for the upgradation.

**TB:** Integration plan identified for integration with vulnerability assessment tool, and data fields for DHIS2 have been created in the excel formats.

**Table 10.** VA data collection stages with possible tracker programme stages

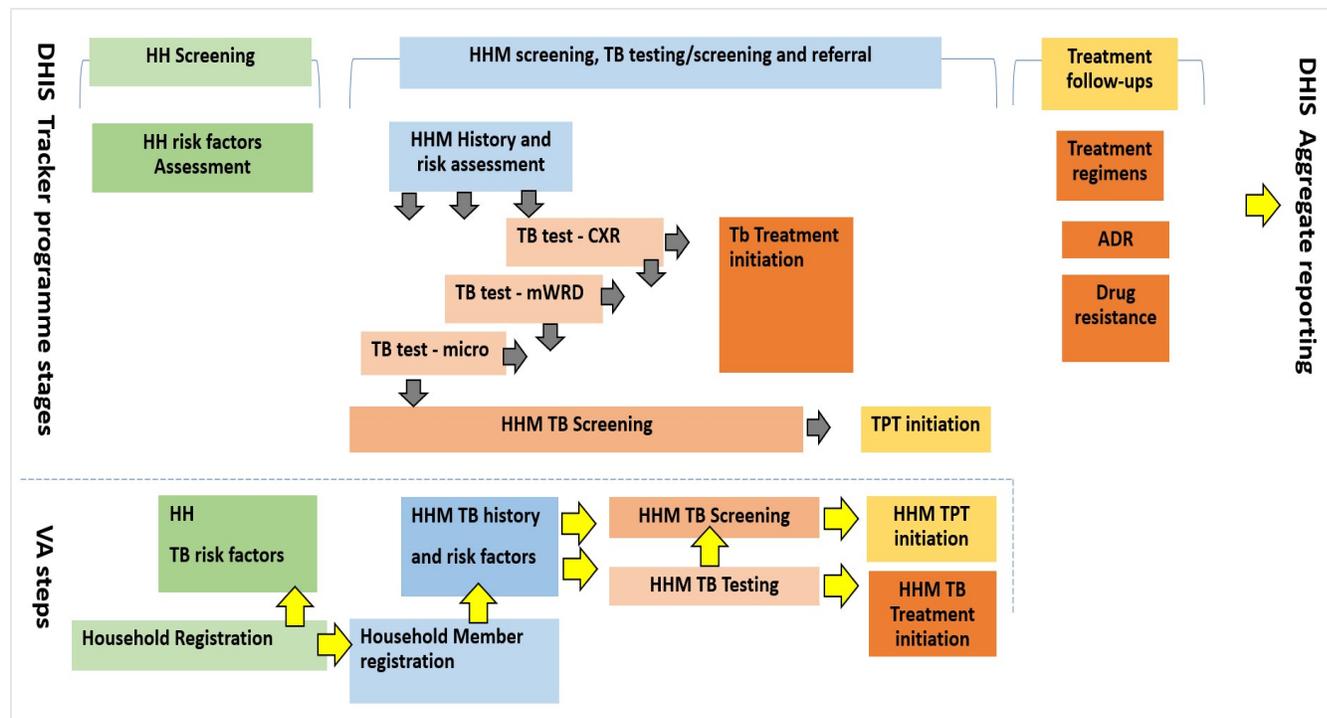


Table 10 maps existing VA data collection stages with possible tracker programme stages to elaborate the data element-level mapping. Since VA platform does not collect TB treatment follow-up (TB treatment and TB prevention treatment regimens), those steps will have to be created on the DHIS2 platform exclusively. Similarly, the adverse drug reaction and TB drug resistance surveillance components will also only appear in DHIS2 platform.

## Recommendations

Following are some of the key recommendations suggested based on the findings:

**Strategic costing plan:** As a first step, it is important for the country to create a comprehensive costed action plan for enhancement and scale up for the TB case-based surveillance system.

Based on NTP’s vision and the recommendations for improvements, the plan should clearly define targets with actionable interventions and funding requirements supported with a detailed work plan along with timelines. The plan will help the country to assess and monitor the progress to ensure that any risks can be duly mitigated.

**Table 11.** Data elements used in VA mobile app

Data elements used in VA mobile app					
<p><b>Household Registration</b></p> <ul style="list-style-type: none"> <li>Household number</li> <li>Address</li> <li>Date of visit</li> <li>CHC code</li> <li>Name of the head of the household</li> <li>Number of family members</li> <li>History of TB in the household in the last 3 years</li> <li>If yes then when was the person treated (year)</li> <li>Indoor cooking</li> <li>Solid fuel use for cooking</li> <li>If yes, which solid fuel is used</li> <li>Indoor pollution</li> <li>HH Regno.</li> </ul>	<p><b>Household Member Registration</b></p> <ul style="list-style-type: none"> <li>Name</li> <li>Age (in years)</li> <li>Gender</li> <li>Present at the time of survey</li> <li>TB symptoms</li> <li>MUAC (in cm)</li> <li>Feas history of TB</li> <li>Was the TB present in the last 3 years</li> <li>History of current tobacco smoking</li> <li>BCG Vaccination Status</li> <li>BCG Scar Status</li> <li>Alcohol use</li> <li>Audit scale score</li> <li>Risk factors identified at the household</li> <li>UIC</li> </ul>	<p><b>Screening and Referral</b></p> <ul style="list-style-type: none"> <li>Symptoms</li> <li>How long have you been coughing?</li> <li>How long you have been suffering from fever?</li> <li>Duration of weight loss</li> <li>Duration of loss of appetite</li> <li>Duration of weight loss</li> <li>Duration of swelling in the neck or under the arm pit</li> <li>Refer to service</li> <li>Refer to facility center</li> <li>Date of referral</li> </ul>	<p><b>TB Testing</b></p> <ul style="list-style-type: none"> <li>Date of Testing</li> <li>Comorbidities factors</li> <li>Method of Testing</li> <li>Test Outcome(Smear)</li> <li>Type of mWRD</li> <li>Test Outcome(mWRD)</li> <li>Test Outcome(Chest Xray)</li> <li>Test Result</li> <li>Eligible for TB treatment</li> <li>Refer for TPT</li> </ul>	<p><b>TB Treatment Initiation</b></p> <ul style="list-style-type: none"> <li>Treatment Initiated</li> <li>Program ID</li> <li>Date of treatment Initiation</li> </ul>	<p><b>TPT Initiation</b></p> <ul style="list-style-type: none"> <li>Comorbidities factors</li> <li>Treatment Initiated</li> <li>Regimen</li> <li>Date of treatment Initiation</li> </ul>



**Implementation and scale of TB case-based notification systems:** With the help of HISP India and the local DHIS2 implementation the NTP has already established DHIS2 environment which has the core infrastructure in terms of database and deployment environment. It has built the DHIS2 expertise and capacity which acts as a strong foundation for executing the vision of implementing a comprehensive and integrated real-time case-based TB surveillance and notification system.

It is recommended that this existing capacity is leveraged for expanding the DHIS2 tracker app. While the current tracker has been planned to cover the details for creating case-based notification system for both drug susceptible (DS-TB) and DR-TB patients, the application should also include monitoring of entire continuum of care including presumptive screening, referral, treatment initiation, treatment adherence, treatment outcome and contact tracing in real-time.

The solution architecture should support adding all the above components in phases supported with versioning to ensure seamless upgrades and continuity.

The existing VATS application, which already has some of these templates and already built on DHIS2 tracker systems, should be leveraged for fast-tracking the software development processes. Other tracker tools such as WHO Prevent TB tool can be used as reference for adopting the modules.

**Expansion and scale up of VATS app:** One of the challenges observed during the data collection processes is the lack of availability of real-time data for stakeholders. One effective way to overcome the data is to support the current data collection processes by introducing a mobile application, which is in line with the country's efforts of improving the overall digital ecosystem.

The existing VATS application used for assessing the vulnerability has been able to identify core areas of intervention and also supplement other programmes. It has also been able to help digitize the TB index—contact tracing and identifying TPT patients with screening and other details.

Scaling up the VATS app implementation, which has already been highlighted as a strategic component in NSP, needs to be expedited along the expansion of the scope of the application including other modules for treatment adherence, follow-up, outcome, etc.

Additional features on data collection, security, offline data collection, encryption, version management, etc., should be extended for use even for aggregate data reporting, specially from facilities with limited IT infrastructure should be reviewed.

This would also ensure that the data structures are consistent. Also, the app is supported with a configurable set up to support any updates/changes to the programme.

Additionally, the DHIS2 mobile framework uses open-source technologies like Java, Postgres, React and Android. They are easily supported by country IT teams also, and the standard best practices of mobile development like version management, data encryption, etc., make this as a more robust solution.

**System integration:** One of the challenges highlighted is leveraging the data collected from the multiple sources into the main DHIS2 systems as a central system for effective use.

The current DHIS2 platform and infrastructure need to be extended to support integration with external systems like GeneXpert, Truants, digital X-ray outputs, pill bill boxes and other adherence tools, current LMIS and CLM systems, which helps in using the data effectively for the continuum of care for the patient as highlighted by the national programme.

Recommended exchange/ETL tools like Talend and Informatica, which include these features, make the data management task much easier, and simultaneously improve data warehousing evaluation.

The data exchange process should follow and comply with FHIR and GDPR standards for more secured and seamless data exchange supporting standard data taxonomy and meta data management processes.

The DHIS2 platform's architecture is easily compatible with these standard tools and processes making this an effective solution.

**Data use:** Advanced dashboard analytics to strengthen the current M&E framework.

The NSP 2021–2025 clearly emphasizes on the importance and need for improving data use. This can be made possible by making case-based TB data and patient line listing available at the lowest level health functionary involved in TB care.

Building on the current DHIS2 visualization module, which offers a comprehensive dashboard for reviewing of programme and data indicators, additional features of pivot table, event reports which support dimensions, data aggregation reports and individual line lists and with timeline views are extremely useful.

Once a robust data analytics and data-use model has been established with the current DHIS2 and other systems, then a more advanced analytical dashboard should be designed linked to the new case-based TB. To achieve this, and to strengthen and expand the data visualization scope and making effective use of data for predictive modelling, data science for advanced analytics, it is also recommended to use best of the breed tools like Tableau and Power BI, which offer these features. The current DHIS2 platform offers APIs, which can be connected for these applications and be used as an extended analytical component of the data analysis framework.

**Capacity-building for application maintenance:** One of the main challenges highlighted is the ongoing maintenance and enhancements of the platform. Since the application requires regular updates and to ensure effective adaptation and scale up, the system support team requires trained personnel on DHIS2.

Strengthening the NTP team with trained system administrators will help in improving and expediting the planned implementations.

**Contact tracing application implementation:** An active focus on contact tracing becomes crucial to strengthen the TB surveillance efforts of the country and for reaching out to all TB positive individuals. The standard guidelines for household screening can be incorporated as a module in the national TB notification tool and be implemented to fast track the country's efforts to eliminate TB and target the initiation of preventive treatment for all TB contacts.

**Additional systems:** To make sure that paper-based patient records data are integrated with the DHIS2 tracker systems, technical solutions like OCR can be reviewed.

The DHIS2 platform supports reading from these structures. This would help in data upload of all historical data with less difficulties.

**e-learning:** Digital training packages to train health professionals on DHIS2 data entry, information use, M&E and workflows.

The MoH must engage in development of a comprehensive e-learning module for app training to address the challenges with periodic training of facility level staff to orient them on using DHIS2 for direct data reporting.

While DHIS2 offers standard training modules on the application, training tools like Moodle built on standard Learning Management System (LMS) framework can be reviewed for application rollouts.

Additionally, for training and updates on the latest manual of procedure and continued medical education on TB care, modules can be developed for TB health providers, administrators at facility and district levels to develop and enhance M&E competencies for ensuring a consistent programme oversight, especially for the case-based tracker roll out within the existing applications.

Guide TB platform developed by WHO Philippines is a good example of e-learning module for health staffs involved in TB care.

**Patient interactive systems:** Tracking LFU cases and enabling real-time notifications for patients are highlighted as the main challenges. Establishing a direct and secured mechanism for engaging with patient has potential for drastic improvements in tracking LFU patients.

Application like “One Impact” which has been endorsed by Stop TB can be used as it will help channelizing the needs of the community for information dissemination, structured feedback collection and issue resolution.

Auto generation of notification and messaging by the system through communication channels like Social Media, IVRS and SMS outbound messages should be explored. Open-source applications like Open MRS can be used for these activities.

**Strategic technical recommendations:** Application upgrades, including server augmentation and infrastructure upgrades. To make sure that systems implementation and scale up of application is supported well, the key need is to have a long-term strategic plan, which would cover the technical and operational objectives.

The strategy recommended would cover the following core areas:

**Technical upgrades:** Based on the architecture, the upgrade would be done with the database, a middleware system, the operating system or the hardware.

Additionally, the architecture should support the integration layer, which would be needed for data exchange with other national/external systems. The technologies that need to be brought in and the areas of interconnection need special focus.

Recommended data system architecture would include updating the version of the current DHIS2 to 2.38, which offers better features on data management, encryption, data exchange standards.

Apart from this, version 2.38 also supports compliance to GDPR standards and offers more controlled data encryption practices.

**Performance optimisation and testing:** To support the national scale up and implementation strategies it is very essential to have system(s) and application testing done to enable fool proof platform, and which also helps in architecture updates and augmentation.

While core teams from the user community who are involved in the testing learn and automatically get trained, automated system and application testing tools like Selenium and Appium may be considered. Load testing tools, which help in data base sizing and planning need to be adapted for effective planning.

**Application and system security audit:** To strengthen the current systems framework and ensuring long-term sustenance, it is important to have regular evaluation of the security of the information and systems by measuring how well it conforms to an established set of criteria.

These would also include developing a framework, which should outline policies in line with recommended standard policies like HIPAA other country guidelines cover.

1. Patient data management
2. Server and infra guidelines.

Apart from application measures offered by DHIS2 for patient data security, hosting solutions offered from Azure also cover these as part of their deployment options, which can be considered as part of systems hosting.

### **3.6 Financing and allocations**

#### **Financing of the HIV and TB programme: an overview**

The Global Fund procures all drugs and diagnostics for the TB and HIV programmes in Timor-Leste through the Global Drugs Facility (GDF) annually. SAMES receives these drugs and diagnostics and manages their distribution. The only procurement carried out by the local government pertains to the HIV testing kits. While 50% of the kits required in the country are procured by the local government, the remaining are procured by the Global Fund.

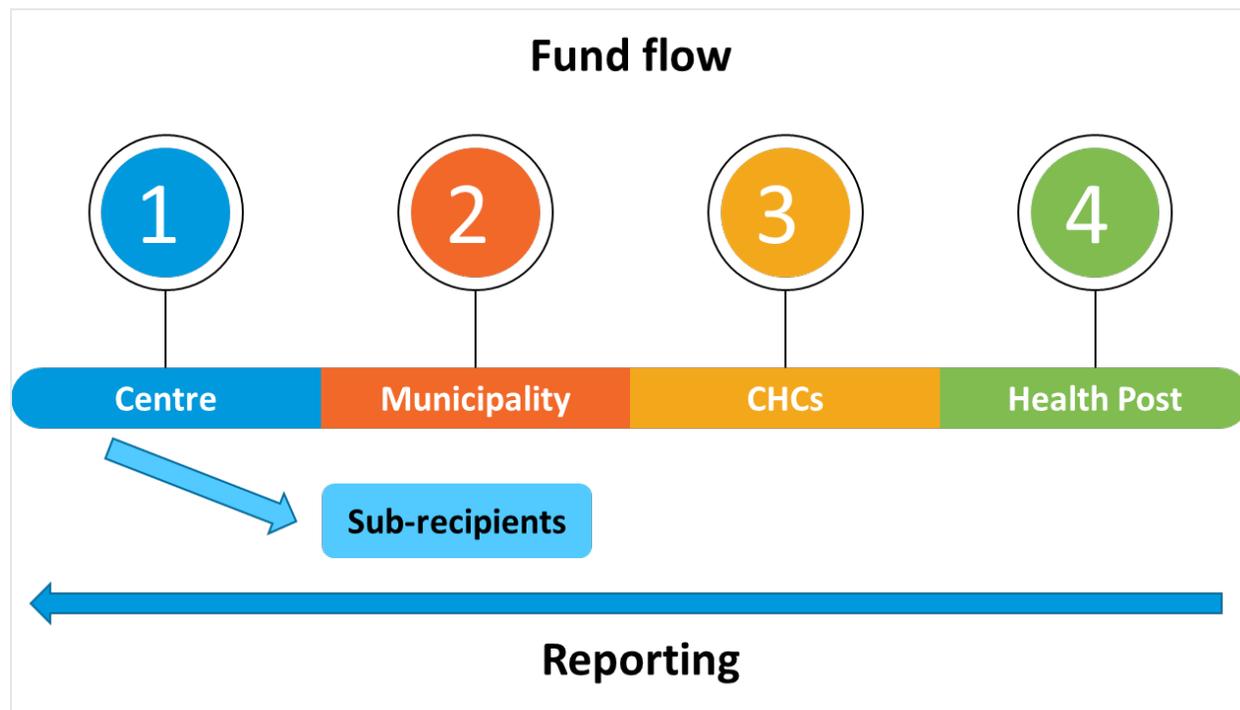
The salaries of the human resources are paid by the local government. The Global Fund provides communication allowance in cash to the programme manager at the rate of US\$ 150 per month as well as the regional supervisor at a monthly rate of US\$ 75. The programme manager for the TB programme at the national level is paid US\$ 500 per month as incentive.

The Global Fund transfers the TB and HIV budget for a three-year cycle to the MoH. The 14 municipalities receive money from the MoH in each quarter for the TB and HIV programmes, based on their requests after submitting a financial report for the preceding quarter. Other than the municipalities, there are six sub-recipients under the TB programme including one facility treating MDR-TB, clinics and faith-based organizations which carry out treatment, advocacy and case finding. The National Institute to Combat HIV/AIDS, an autonomous body, is one of the sub-recipients under the HIV programme, which focuses on advocacy, and receives money directly from the local government. The MoH transfers some of the Global Fund budget to the UNFPA, which is a sub-

recipient under the HIV programme. The quarterly budget for each municipality and sub-recipient is decided based on stakeholder consultations, and only up to a fixed proportion of the sanctioned amount for the budget cycle can be provided to the sub-recipients. In addition to the amounts dispersed quarterly, there are certain adhoc requests by the municipalities for amounts/costs related to the trainings and active case findings.

Annual expenditure under each programme is reported by the MoH to the Global Fund at the end of the year in the template provided by them. Within the country, the finances are managed and reported as provided in Fig. 9. In each quarter, the money flows from the centre managed by the Global Fund finance team to the municipalities, and from the municipalities to the CHCs from where funds are then transferred to the HPs. The CHCs prepare and submit the financial reports to the municipality. The municipality compiles the reports and submits them to the programme manager at the national level, which is in turn submitted to the MoH. The report compiled by the programme staff at the CHC level is approved by the CHC manager, and then submitted to the district/municipal TB coordinator (DTC) at the municipality level. Apart from the DTC, an assistant district/municipal TB coordinator (ADTC) is also involved in the process. The DTC then gets the report approved by the finance officer and the municipality office as well as the director municipality before its submission to the programme manager at the national level. The submission process usually takes more time resulting in three to four-week delays in its submission.

**Fig. 9.** Fund flows and financial reporting under the TB and HIV programmes.



The finances at the municipality level are handled by the district TB assistants (DTAs). This leads to delays in both financial as well as programmatic reporting. Other activities such as supervisory visits also suffer. Since the report is not prepared and shared with the MoH on time, the funds for the next quarter cannot be disbursed to the municipalities leading to delays. In the meantime, the municipalities continue to carry out some operations and have to be reimbursed later for the funds spent. Nonetheless, some activities are deferred. Such issues were not observed among the sub-recipients who appeared to be submitting their reports and receiving funds on time.

The patients receive consultation, diagnostic tests as well as TB and HIV medicines free of charge at the health facilities. Community volunteers even take TB medicines to the patients' homes every day or each week. Out-of-pocket expenditure among patients is however substantial and in the form of wage loss due to missing work, expenditure on transportation, etc. This leads to a lack of treatment adherence. Catastrophic expenditure among TB patients and their households was found to be substantial in the country. To mitigate this and encourage treatment adherence among TB patients, cash incentives were introduced.

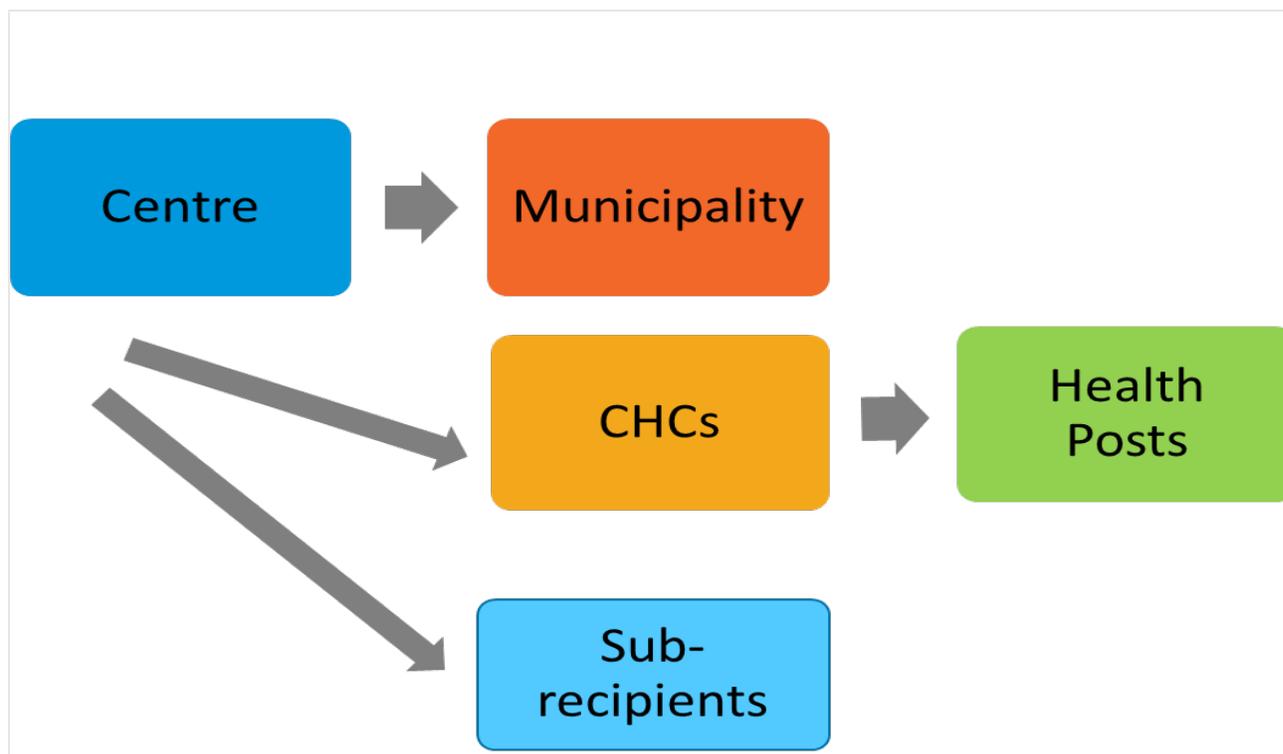
The patients receive incentives under the TB programme. First-line TB patients are entitled to a cash payment of US\$ 30 upon completion of treatment. The only facility for MDR-TB receives US\$ 120 per patient treated per month for providing nutritious food to the patients. Community volunteers (PSFs) working with TB patients are paid US\$ 10 per case tested positive and US\$ 60 per DOTS treatment completed in cash. The PSFs working with PLHIVs are paid US\$ 75 per month. In districts which have partnered with KOICA, a monthly incentive at the rate of US\$ 30 is paid to patients to support with nutrition. This amounts to a total of US\$ 180 for six-month DOTS treatment. A one-time pay out of US\$ 30 per patient is provided at the time of treatment commencement. There appeared to be some confusion regarding the payments of incentives by KOICA at the municipality level.

Delays were observed in payment of incentives to both the patients as well as the PSFs. Data on case finding and treatment completion are collected by the municipality and validated before sharing with the centre for release of payments. Once payment is received at the municipality, the municipality coordinator then pays the incentives to both the patients and the PSFs. The TB patients were found to be unaware of their entitlements. Hesitance was observed among the municipality staff in informing the patients as they appeared to not want to build the expectation of incentives for treatment of other illnesses.

### **Financing of the HIV and TB programmes: proposed reforms**

There is recognition in the MoH for the need for evidence-based budgeting while taking into account cost implications. The government is receiving support on the financing from WHO, World Bank, Global Fund and USAID. KOICA also provides support in active case finding through IOM. There are plans for decentralizing the public finance management system (PFMS). Performance-based financing (PBF) is seen as a way to incentivize good performance judged on the basis of realistic performance indicators developed keeping in mind the health system of the country. Microplanning for specific programme areas based on situation analysis is being carried out.

**Fig. 10.** Proposed fund flows and financial reporting under the TB and HIV programmes.



Plans for decentralization would entail directly transferring funds as well as incentivizing performance at the facility level, where the implementation of the programmes takes place, from the centre rather than the current system of funds flowing to the facilities through the programme managers at the municipalities (Fig. 10). To facilitate this, finance officers have already been recruited at half of the CHCs. There are plans to recruit such officers in the remaining CHCs as well. These officers are expected to assist with both financial management and reporting as well as microplanning. Separately, some funds will be transferred to the municipalities for programme management. The MoH would like to ensure that the financing for specific programmes like the TB and HIV programmes are handled by the finance department at the municipality level, which already manages the overall finances.

For PBF too, the plan would be to incentivize the performance by the facilities directly by the centre and some small incentive provided to municipalities for their management performance. The three indicators they have in mind for PBF are linked with case finding, screening and successful treatment. Well-defined job descriptions are being developed and roles are being redefined for HRH at the facility and municipality levels. This should lead to improvements in service delivery, data reporting and financial management. There are plans to set up a dedicated health financing unit at the centre.

## Findings and recommendations

Key challenges were identified in three broad areas as listed below. Each challenge is followed by recommendations.

### Challenge 1: PFMS reform and PBF

The proposed decentralization of financial management as well as reporting at the facility level may lead to better challenges with regards to both capacity as well as infrastructural limitations. It is encouraging to hear that there are plans to train the finance officers in book-keeping and bank reconciliation among others. The plans for PBF may also lead to added challenges with regards to programme data collection and reporting capacity.

#### Recommendations:

- Finance officers at CHCs will require intensive trainings in managing and reporting finances. Finance officers at the municipalities will require similar trainings along with trainings for effective supervision. Such trainings will require substantial resources, the provision for which should be accordingly made.
- Municipalities as well as CHCs should be consulted to identify infrastructural requirements and provisions should be made accordingly.
- PBF implementation would require a robust HMIS. Without accurate monitoring of the performance, financing cannot be effectively linked to performance. The current paper-based system has its limitation and is being revamped and digitized under DHIS2. Programme staff will require intensive trainings on the use of the new platform.
- Digitization of the PFMS on the lines of HMIS should be considered for ease of monitoring and reporting as well as increased transparency and accountability.
- The decentralization of the PFMS as well as PBF should be piloted in two or three districts before scaling it up. This would allow for the identification of both areas of successes and challenges so that the models can be accordingly adapted before implementation across the country. Additionally, indicators for measuring performance at the ground level should be simple to understand, monitor and report.

### Challenge 2: Issues with patient and PSF incentives

Delays in incentive transfers for patients and PSFs were observed along with a lack of buy-in at the municipality level for patient incentives as well as a lack of knowledge among patients regarding their entitlements.

### Recommendations:

- A dedicated fund should be made available at the municipality level in each quarter for incentive payments based on projections of case detection and treatment completion. This would minimize the delays in incentive transfers and motivate the PSFs to carry out their responsibilities as well as encourage patients to seek and complete treatment.
- Better coordination with partners would help avoid confusion and ensure that programme coordinators are aware of the different incentive programmes as well as the entitlements for the patients.
- Consultations with the municipality officials would help understand the reasons behind their hesitation, especially with regards to the patient incentives. This would help identify the exact reasons behind the hesitation and propose solutions. Awareness campaigns for the programme staff, PSFs and patients would ensure all parties are aware of the incentive programmes and their entitlements, as well as help ensure buy-in with the programme staff.

### Challenge 3: Substantial out of pocket expenditure (OOPE)

TB/HIV patients are receiving treatment including medicines free of charge, and hence no direct medical OOPE was observed. There are, however, indirect expenses associated with transportation, provision of nutrition, wage loss, etc.

### Recommendations:

- A community survey to estimate the extent of out-of-pocket spending among TB and HIV patients in accessing treatment should be carried out. An earlier survey found considerable catastrophic expenditure among TB patients and their households, but the information needs to be updated to reflect the current situation. A similar survey among HIV patients should also be considered.
- A revision of the incentives offered to patients based on the new findings should be considered to ensure treatment adherence.

## Section 2



## Review of the National TB Programme

## Chapter 4

### Case finding

#### 4.1 TB prevalence survey

The NTP is undertaking Timor-Leste's first national TB prevalence survey (NTPS) with the help of its partners to improve the disease burden estimates in the country.

The primary objectives of the survey are to:

1. estimate the prevalence of bacteriologically (MGIT culture) confirmed pulmonary TB among the adult population (aged  $\geq 15$  years) in Timor-Leste in 2022;
2. update all population-based estimates of the burden of disease (measured as incidence, prevalence, and mortality) using results from the prevalence survey in combination with an in-depth assessment of surveillance and programmatic data and other survey data;
3. identify the extent to which people with TB or those with symptoms suggestive of pulmonary TB have already sought care from health-care providers and, if so, with which types of care provider, or if not, reasons for not seeking care; and
4. provide a baseline for future measurement of trends in the burden of disease caused by TB.

#### Observations on the TPS

The TB–HIV joint review mission participated in a meeting between the NTPS, MoH and WHO on 31st March 2023 at the Menzies Office in Dili. Some major concerns were expressed regarding the survey methodology and the preliminary results, as listed below:

- Whether the selected 50 clusters are adequate (based on the 2015 population census) and representative of all geographies and population sub-groups in the country?
- The AI CAD software being used for the chest X-ray reading and the cut-off of 0.6 has not been validated for the country.
- The screening and diagnostic algorithm being used for determining the prevalence of bacteriologically confirmed pulmonary TB is not the recommended one and needs to be changed. MGIT is used only for Xpert Ultra test-positive cases. MGIT and Xpert Ultra should have been done simultaneously on all those who screened positive to get good accuracy of the TB prevalence in the country.
- Breakdown of the biosafety of the BSL-3 lab in the national reference laboratory compromises the implementation of MGIT culture and it is the critical piece of the diagnostic algorithm.

- Huge discordance between Xpert ultra positive and MGIT culture results (in the 49 Xpert ultra positive samples that were conducted as of 3rd April 2023). They could have repeated Xpert ultra to confirm the positivity. This has not been done and the positivity of 43 samples (6 are culture positive) is questionable.

### Recommendation on the TPS

- Given these above-mentioned observations/concerns, the recommendation from the TB-HIV joint review mission for the NTP and WHO Country Office is to conduct a deep dive into these issues so that urgent remedial actions can be taken on aspects that impact the validity of the results.

## 4.2 Case detection

Fig. 11 shows the trends in TB case detection in the country between 2017 and 2022. There was an increasing trend in the number of TB cases detected between 2017 and 2019, which was halted by the Covid-19 pandemic-related disruptions in 2020 and 2021. In 2022, there has been a sharp increase in the number of TB cases detected (64% more TB cases than in 2021; 25% more TB cases when compared to 2019 (pre-covid time)). The trends in the Bac+ TB cases detected also show that there was a falling trend in the number and proportion of Bac+ cases between 2017 and 2019, which has been reversed in the 2020–2022 period. In 2022, there has been an increase in the number of Bac+ cases detected, however, the proportion of Bac+ cases have remained the same between 2020 and 2022. At the national level, nearly half of all TB cases are Bac+ and the remaining are diagnosed clinically.

**Fig. 11.** Trends in the total TB cases, Bac+ TB cases and proportion of TB cases that are Bac+, 2017–2022.



## Observations on TB case detection

### Low levels of presumptive TB identification at OPDs

The trends in total presumptive TB identified among OPD attendees, the number of patients of those identified who underwent the TB tests, and the number (and percentage) of those who were found positive, are given in Table 12.

**Table 12.** Trends in total presumptive TB identified among OPD attendees, Timor-Leste, 2017–2022

Year	Total OPD	Total presumptive TB	Presumptive TB rate among OPD attendees (%)	Access to TB lab	Gap between presumptive TB and access to lab	No. of TB cases found Bac+ positive	Positivity rate (%)
2017	978 740	14 373	1.47	13 891	482	1 500	11
2018	1 198 875	89 650	7.48	36 990	52 660	2 801	8
2019	1 472 934	27 560	1.87	21 949	5 611	1 758	8
2020	1 437 619	18 096	1.26	14 294	3 802	1 578	11
2021	1 420 779	14 590	1.03	13 801	789	1 709	12
2022	1 749 265	30 319	1.73	21,97,5	8 344	2 578	13

Based on the data, low levels of presumptive TB persons (<1.75%) were identified at health facilities in 2017, 2019, 2020, 2021 and 2022. As per the data available from the pilot TB vulnerability survey, and preliminary findings of the TB prevalence survey (data not shown), the prevalence of persons with TB symptoms at the community level is about 3–6%. Therefore, the prevalence of persons with TB symptoms among OPD attendees is expected to be at least 3%. The NTP’s operational guidelines mention that at least 5% of the OPD attendees may be having any TB symptoms (cough, fever, weight loss, loss of appetite, night sweats) and all those with TB symptoms should be investigated for TB.

### Gaps between the number of presumptive TB identified at health facilities and the number who underwent TB investigations (access to lab)

As shown in Table 12, in 2022, about 8344 (27.5%) persons identified at health facilities did not undergo TB investigations and this represents a huge gap in access to diagnostic services.

### Gaps in “triaging and fast-tracking” of presumptive TB patients at high workload health facilities

The NTP with support from its partners has initiated intensified case-finding efforts at 40 high-workload health facilities (National hospital, 5 RHs and 34 CHCs) in 2021. This intervention involves

placing a volunteer who screens all persons attending health facilities at the OPD counters and those with TB symptoms are guided to undergo further evaluation for TB. It is called “Triaging and Fast-tracking”. The data of how many people were screened for TB disease, how many persons with TB symptoms were identified, what tests they underwent, and the number of TB cases detected were readily available for the national hospital and five RHs and the data are provided in Table 13. In 2021 and 2022, about 2348 patients with TB were diagnosed with this intervention (1071 patients Bac+, 1102 clinically diagnosed pulmonary TB and 175 patients with extra-pulmonary TB).

**Table 13.** Triaging/fast tracking of presumptive TB patients at high OPD load health facilities

	<b>2021</b>	<b>2022</b>	<b>Total</b>
No. of OPD registrations	53 551	190 423	243 974
No. screened	14 832	83 259	98 091 (40%)
No. with TB symptoms	992	5568	6 560 (7%)
No. tested with chest X-ray	387	3 615	4 002 (61%)
No. tested with Xpert MTB/Rif	393	3 572	3 965 (60%)
No. tested with smear microscopy	260	1 401	1 661 (25%)
Bac+	100	971	1 071 (16%)
Clinically diagnosed	126	976	1 102 (17%)
Extra-pulmonary	29	146	175 (3%)
Total TB patients diagnosed	255	2 093	2 348

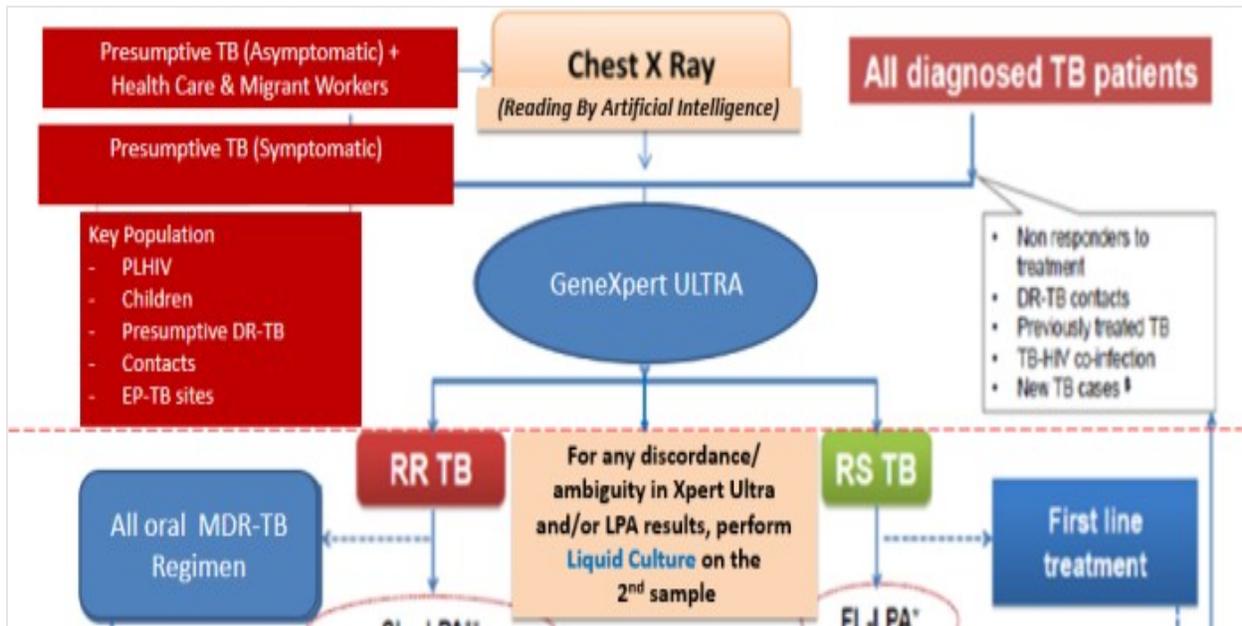
Two major gaps in this intervention are:

- a) Only 40% of those attending OPD in 2021 and 2022 were screened for TB. There was only one health volunteer per health facility to do the screening and due to this limitation, not all OPD attendees could be screened.
- b) About 7% of those screened were identified with TB symptoms and fast-tracked to undergo TB evaluation of which only 61% underwent chest X-ray, 60% underwent Xpert MTB/Rif test and 25% underwent sputum smear examination. The reasons why a lesser percentage of persons with TB symptoms underwent chest X-ray, Xpert or sputum smear examination were not clear. The external review mission team was informed that the persons with TB symptoms were referred to the medical officers of the general OPD and based on the medical officer’s assessment patients underwent TB tests.

### **Multiple diagnostic algorithms are being followed across the country**

The diagnostic algorithm recommended by the NTP in its guidelines for moving towards Universal-DST is given in Fig. 12.

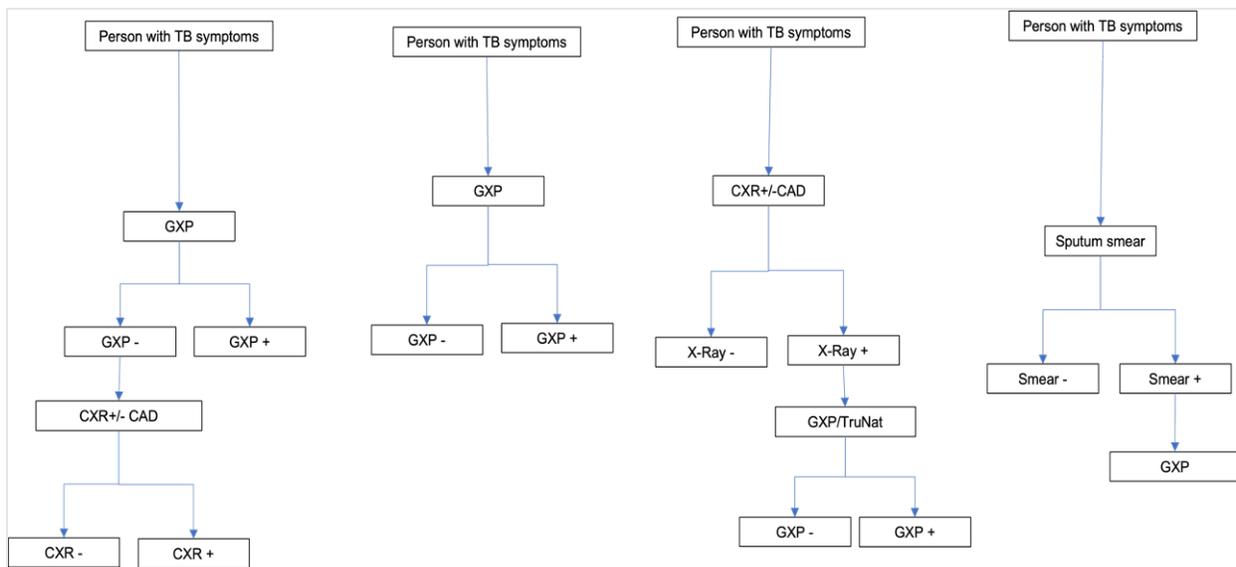
**Fig. 12.** Diagnostic algorithm recommended by NTP as part of Universal DST for all presumptive TB.



Source: Comprehensive TB guidelines for National TB Programme. p. 53.

However, various diagnostic algorithms are being used for TB diagnosis at health facilities based on what is locally convenient. These algorithms are shown in Fig. 13. This indicates that there is no equity in the access to various diagnostic services and non-confirmation to the national diagnostic algorithms in several health facilities. In some municipalities, sputum smear microscopy for diagnosis has been stopped completely, instead, sputum samples are collected and transported to the nearest Xpert testing facilities with delays.

**Fig. 13.** Various diagnostic algorithms being followed in the country.



### **Inadequate molecular testing machines to cater to the needs of all persons with TB symptoms**

There has been an increase in the use of up-front molecular diagnostic tests (Xpert MTB/Rif tests) for diagnosis as per the new UDST algorithm; however, there are only 21 Xpert MTB/Rif machines in the county. These are located mainly at the national hospital, five RHs and a few CHCs. Therefore, not all presumptive TB patients across the country have easy access to this test. In 2022 it was estimated that only 16 210 of the presumptive TB persons were tested with the Xpert test. In the population of Timor-Leste, with an estimated incidence of 486 cases per 100 000 cases, doing 1246 Xpert tests per 100 000 population is grossly inadequate. This calls for a four-fold increase in Xpert tests to at least 5000 tests per 100 000 population.

### **Inadequate sputum collection and transportation systems**

Although there are sputum collection and transportation systems in place from CHCs and HPs (without Xpert) through PSFs and public health nurses of HPs, sputum collecting is done after samples from 2 to 5 patients. This system causes delays in diagnosis, and sputum collection selectively from high TB probable cases.

### **Non-engagement of traditional healers**

A few patients interviewed during the external review mission mentioned that they initially sought care for their TB symptoms from "traditional healers". Upon further discussion with the medical doctors at HPs, CHCs and with the TB staff at the municipalities, it was clear that traditional healers play an important role in the health/medical care in Timor-Leste, especially for TB among low-income families. There have not been any attempts made to engage them in the past for the identification and referral of persons with TB symptoms. Therefore, their engagement seems imminent for early and comprehensive diagnosis of TB among the Timorese.

### **Contact investigation is being done in contacts of Bac+ TB patients only**

As per the national guidelines, the contact investigation is done for the contacts of Bac+ TB patients only and not contacts of all TB patients as per the latest WHO's TB screening guidelines (Module 2)[6]. All contacts of Bac+ patients are line listed on the index case TB treatment cards. The screening algorithms that are being used to rule in/out TB disease are based on symptoms only due to limited access to chest X-ray. So, there is a potential for non-diagnosis of TB among close contacts. Also, the close contacts are screened for TB disease at the time of index case diagnosis. The field staff conducting the contact investigation mentioned that there are difficulties at the peripheral levels (predominantly due to lack of capacity) to diagnose TB among child contacts (Further details in the section on paediatric TB).

### **PLHIVs are not systematically screened for TB disease**

PLHIVs are one of the highest-risk groups for TB. There are ~1200 PLHIVs on ART in the country during 2022. Systematic screening of all PLHIVs during every visit for TB disease is either not done or documented in the records of ART centres. Some screening/diagnostic tests such as C-reactive protein

and point-of-care urine LAM tests are important for the early detection of TB, which are not available at ART centres/clinics.

Community-based active case finding is being done, but the population in which this case finding is being done is not systematically documented

A community-based active case detection project has been implemented in Timor-Leste by the IOM and Klibur Domin with funding from KOICA in coordination with the NTP. The project aimed to increase TB detection from hard-to-reach areas (defined as localities >40 km from the municipality headquarters) of Bobonaro, Baucau, Covalima, Dili (Metinaro/Atauro) and Ermera municipalities. It has installed GeneXpert IV module machines at Ermera, Baucau, Atauro and Bobonaro. It uses a mobile health team equipped with portable digital X-ray machines to identify people with TB symptoms from these hard-to-reach areas. In this intervention, a door-to-door survey has been done to identify persons with TB symptoms. Those identified with TB symptoms undergo a chest X-ray examination from the mobile clinics. Sputum samples are collected from those with abnormal chest X-ray for Xpert MTB/Rif Ultra testing. The results of this project are shown in Table 14.

**Table 14.** Results of community-based intensified case detection project in Timor-Leste, 2020–2022

INDICATORS	Year 2020	Year 2021	Year 2022	Total
Total population screened by Project	3722	25184	39290	68196
Total CXR conducted by Project	1906	7161	13733	22800
Total CXR abnormality identified in project using clinician interpretation	657	2633	4997	8287
Total Presumptive cases (excluding KD abnormal CXR)	224	2390	4968	7582
Total GeneXpert conducted by Project	724	2605	7422	10751
Total Bacteriological positive identified by project	55	180	473	708
Total Clinical Diagnosis made in Project	0	180	333	513
Total TB cases identified and referred for treatment by the Project	55	360	806	1221

In Table 15, people with TB symptoms identified by community volunteers who visited the mobile clinic and underwent chest X-ray have been counted under “total population screened by the project”. The actual population denominator from which these TB cases were identified is unknown, and therefore estimating the number needed to screen to detect one case of TB cannot be done from this data. Nevertheless, this intervention indicates that large numbers of TB cases can be detected from hard-reach-areas as shown in Table 15.

**Table 15.** Contribution of the community-based active case finding in hard-to-reach areas to the TB case detection

Performance	Year 2020	Year 2021	Year 2022
Total Number of TB cases identified in Timor-Leste (NTP Data)*	NA	3268*	5370*
Number of TB cases identified by KOICA funded TB Project	55	360	806
Project's contribution towards total TB cases per year identified in Timor-Leste	NA	11%	15%

Apart from this intervention, community-based door-to-door active case finding that attempt systematic screening of everyone in the community (on a large scale), including the risk factors for TB, by TB vulnerability assessment using the mobile TB application, is yet to be scaled up the county as of now due to inadequate resources. The recently held pilot implementation of TB Vulnerability Assessment using mobile TB application highlighted the persons with TB symptomatic in the community is around 3%.

**Chest X-ray facilities, far and few. TB patients with negative molecular test results may be missed at peripheral health facilities without X-ray facilities**

The total number of X-ray machines in the country is <10. This is grossly inadequate to do the screening of asymptomatic high-risk individuals (e.g., household contacts, PLHIVs, people with multiple comorbidities). In a couple of CHCs that we visited, the medical doctors mentioned that their patients do not have access to chest X-ray, and therefore there is a huge challenge in the diagnosis of Bac-negative (clinically diagnosed) pulmonary TB patients.

**Implementation of “One-Stop Mobile TB Diagnostic Van”**

One mobile diagnostic van has been introduced by the NTP in November 2022, with support from WHO, to bring testing facilities closer to the community (Photograph 1). The van is equipped with a digital X-ray with CAD and the TruNat TB test (a molecular test that diagnoses TB in one hour and also tests for resistance to the drug rifampicin). It also has an electronic medical record facility synchronized with artificial intelligence for reading digital X-ray films.

**Photograph 1.** One-stop mobile diagnostic van comprising digital X-ray machine, CAD software and TruNat machine.



This van is being used in Dili (the capital city). The mobile van visits four different CHCs (on rotation) in a month and spends one week (Monday to Friday) at one CHC, parked in front of the CHC building. Presumptive TB patients, as identified by the medical doctors of the CHCs, are referred to this diagnostic van, where they undergo chest X-ray first. If the chest X-ray shows TB-specific abnormalities, then the individuals are tested with the TruNat test as per the SOP. Since inception, about 4500 persons have undergone a chest X-ray (on an average of ~30 chest X-rays per day), and about 500 persons with TB-specific abnormalities have been identified. A total of ~600 persons have undergone the TrueNat test and 40 Bac+ patients have been identified in the last six months. Mobile TB van intervention can be further expanded to locations/facilities within the municipalities, where a smaller number of people are accessing the health facilities, on a campaign mode to increase its demand.

### **Recommendations to improve case finding**

1. Expanding molecular tests (Xpert or TrueNat) to all CHCs. 100% of people with presumptive TB are to be covered with molecular tests by the end of 2024 from the current levels of 44% in 2022.
2. One standard algorithm is to be followed across all the health facilities. NTP to communicate the algorithm that needs to be followed at health facilities and municipalities, if there are any deviations in the diagnostic algorithms to be followed due to local conditions (as a temporary measure).
3. Increase the frequency of sputum transportation from CHCs and HPs to molecular testing facilities. Even if there is one person's sputum sample, the sample transportation is to be initiated so that delays in diagnosis can be minimized.

4. Re-sensitization of all health care workers, and medical officers throughout the country on the identification of presumptive TB persons. The presumptive TB identification rate among OPD attendees (currently at 1.73%) is to be increased to at least 3–4% through intensive supervision and monitoring activities.
5. "Triaging and fast tracking" to be strengthened with more human resources (volunteers) at the national and referral hospitals. This intervention is to be expanded to more hospitals/CHCs. Impact assessment to be undertaken.
6. "Traditional healers" to be engaged for early and enhanced case finding.
7. Contact investigation needs to be continued with an enhanced screening/algorithm (including chest X-ray and molecular tests). Contact investigation to be expanded to contacts of all TB patients.
8. All PLHIV on ART are to be screened for TB disease at every visit and documented in the ART files and included in the HIV reporting formats (to enable monitoring). HIV programme to Urine TB-LAM tests and C-reactive protein tests to enable early and complete diagnosis of TB.
9. WHO recommends that systematic screening of populations with high TB prevalence (>500 persons per 100 000) be undertaken. NTP should plan for undertaking this activity, guided by the results of the ongoing TB prevalence survey and TB vulnerability assessment surveys.
10. Increase the number of portable digital X-ray machines with CAD software for all CHCs to be used for improved case finding among asymptomatic high-risk groups and in those with negative molecular test results.
11. Mobile diagnostic van can be further expanded to health facilities where smaller number of people are accessing the health facilities on a campaign mode to increase its demand.
12. Community-based active case findings are to be expanded along with TB vulnerability assessment and conducted in all areas with a high proportion of vulnerable populations.

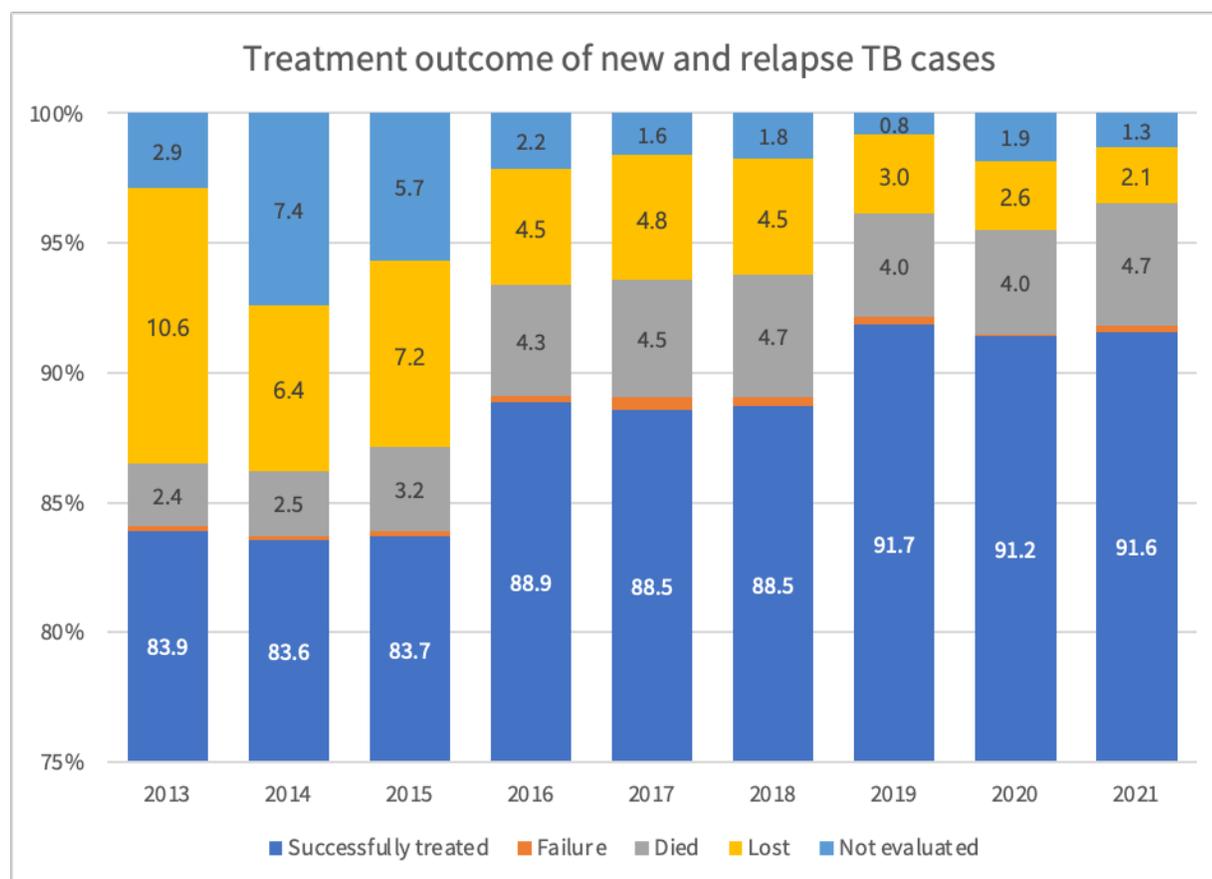
## Chapter 5

### Treatment

#### 5.1 Observations

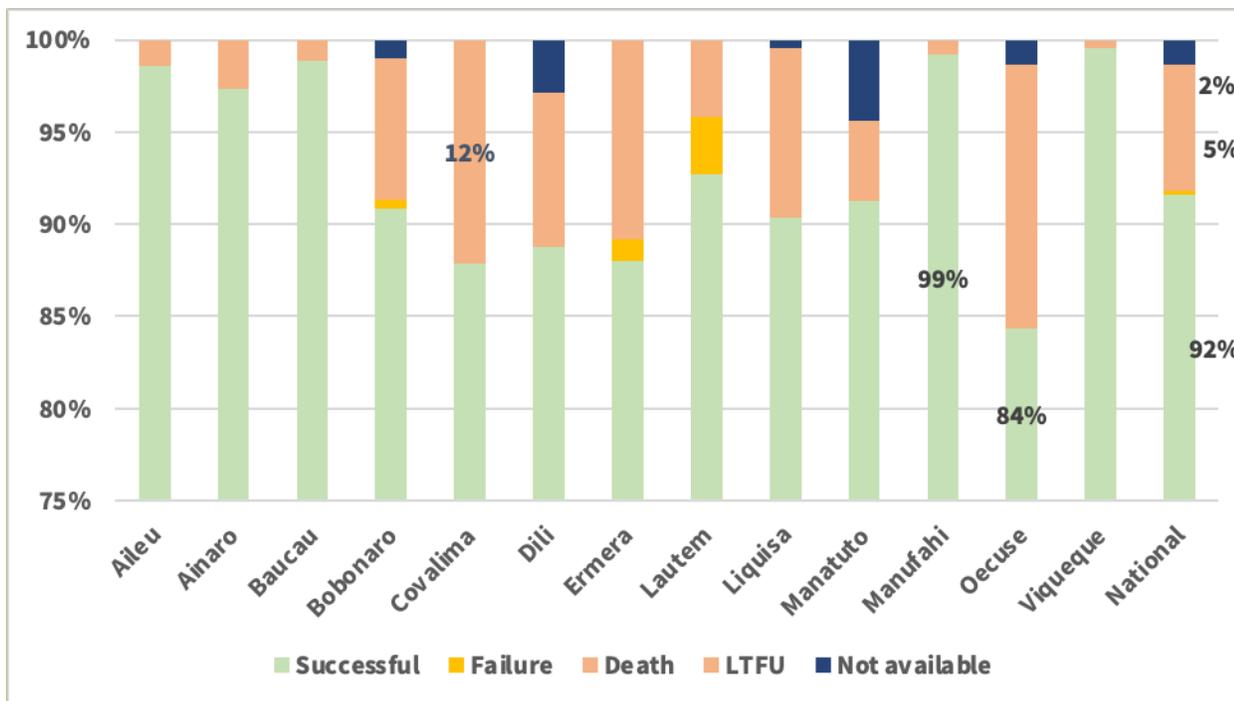
1. Standard TB treatment regimens with FDC drugs are being used according to body weight. No drug shortages were observed during field visits, despite a 164% increase in case of detection in 2022 compared to 2021, as the NTP maintains a 100% buffer stock of TB medicines.
2. The country is showing an increasing trend in the treatment success rate of patients initiated on DS-TB regimens over the last 10 years. The treatment success rate has improved from 83.9% in 2013 to 91.6% in 2021 (Fig. 14). Failure rates are low (<1%) and the LFU rates have declined from 10.6% in 2013 to 2.1% in 2021. TB death rates have increased from 2.4% in 2013 to 4.7% in 2021. The percentage of TB patients not evaluated for treatment outcomes has declined from a peak of 7.4% in 2014 to 1.3% in 2021.

**Fig. 14.** Treatment outcome of TB patients on first-line TB treatment regimens, 2013–2022.



- The treatment success rate of patients initiated on drug-sensitive anti-TB treatment regimens disaggregated by municipalities shows that it varied across municipalities (99% in Manufahi to 84% in Oecuse) for the 2021 cohort (Fig.15). The major reasons for unsuccessful TB treatment outcomes are death (highest in Covalima at 12%).

**Fig. 15.** TB treatment outcomes of TB patients across municipalities and national level, 2021 cohort.



- Community-based DOT providers are engaged in the delivery of treatment services in a decentralized manner. Treatment cards are fully updated.
- TB patients paid US\$ 30 upon completion of TB treatment. Several TB patients, that the team interacted with, were in need of financial support to meet their day-to-day requirements during TB treatment and not after TB treatment.
- Based on the discussions with the NTP staff, the mechanism for tracking/documentation of referrals and transfer out to ensure continuity of care is sub-optimal.
- Electronic pill boxes are proposed to be piloted to support adherence of TB patients. Recently, WHO, with support from its IT partner, supported the development of digital adherence technology for implementing the electronic pill boxes.
- Screening for comorbidities other than HIV is very poor. Diabetes screening for TB patients is not being done due to shortages of glucometers. Although weight has been measured in all TB patients, it is being used only for dosing purposes. Weight/BMI is an important indicator of poor treatment

outcomes, and it can also be used for triaging TB patients for the provision of additional nutritional support or clinical care.

## **5.2 Recommendations**

1. To continue the services. Improved supervision and monitoring to further optimize the TB treatment outcomes by introducing a system of triaging patients for intensive medical/nutritional care (BMI<16.5, not able to stand without support (standing with support/squatting/sitting/bedridden).
2. A death audit is to be done to ascertain if there were any preventable causes of death and undertake measures to prevent future deaths among TB patients.
3. To evaluate the current payment mechanism of US\$ 30 to TB patients on completion on whether it is meeting the intended purpose.
4. Patient tracking system (using digital tools, DHIS2) to be fast-tracked, and implemented in the country to ensure uninterrupted treatment services to the patients.
5. Operational research is to be conducted to document the additional value of the electronic pill boxes over the existing mechanism and the decision to scale up be made after the evaluation results.
6. Glucometers to provide for screening of TB patients. Linkage to care (diabetes drugs) to be ensured.
7. Screening for smoking, alcohol-use disorder and mental health disorders (depression) are to be considered.
8. Nutritional support to be provided for people with very severe malnutrition through multisectoral collaboration.

## Chapter 6

### Prevention

#### 6.1 Observations

1. TPT is being provided to household contacts (children, adolescents, and adults) of Bac+ patients after ruling out TB disease. A list of contacts of the index TB patients is listed on the back of the TB treatment cards. All persons initiated on TPT are documented in a TPT register (TPT coverage among children <5 years is nearly 100%; among adults, it is increasing).
2. FDCs of 3RH and 3HP are being used. Children and adolescents aged <14 years are given an FDC of 3RH. All adults aged  $\geq 14$  years are given a 3HP regimen. The dosages are given according to the body weight.
3. TPT is self-administered. Data on TPT completion rates were not available.
4. Coverage of TPT among PLHIVs is very low (reported at 20–30%). The team was informed that this is due to refusals to take TPT.
5. Expansion of TPT to other clinical and high-risk groups is yet to be done.
6. TB infection tests. The NTP informed us that TST and IGRA are not available/not feasible in the country due to laboratory capacity issues.

#### 6.2 Recommendations

1. To continue the services. Improved supervision and monitoring to further optimize the delivery of TPT services.
2. On priority, TPT coverage among PLHIVs is to be increased through improved awareness generation, engagement of KP groups, training of ART medical officers and by ensuring availability of TPT drugs at ART sites. PLHIVs, who are initiated on a 3RH regimen, will need double the dose of dolutegravir to be taken during morning and evening. No increase in the dosage of dolutegravir is needed for those PLHIVs who are on a 3HP regimen.
3. NTP to constitute an expert committee to undertake decisions to expand TPT to the contacts of all pulmonary TB patients, those with a history of TB, history of contact with an index case in the past 2–3 years (who have not been provided TPT), people with multiple risk factors (severe malnutrition, alcohol-use disorder, current smoking, etc.).
4. Feasibility of introducing a TB infection test—TB antigen skin-based test (cy-TB test)[7]—needs to be piloted, and thereafter decisions to scale up the most suitable TB infection test to be made.
5. TPT has the potential to reduce TB incidence by more than 60% in the country, if used on a mass scale [8,9]. In the absence of an effective vaccine, mass TPT can be considered in a campaign mode. Before the use of mass TPT, there is a need to strengthen the diagnosis and treatment capacity of the health system as TPT can only be given to an individual after ruling out TB diseases.

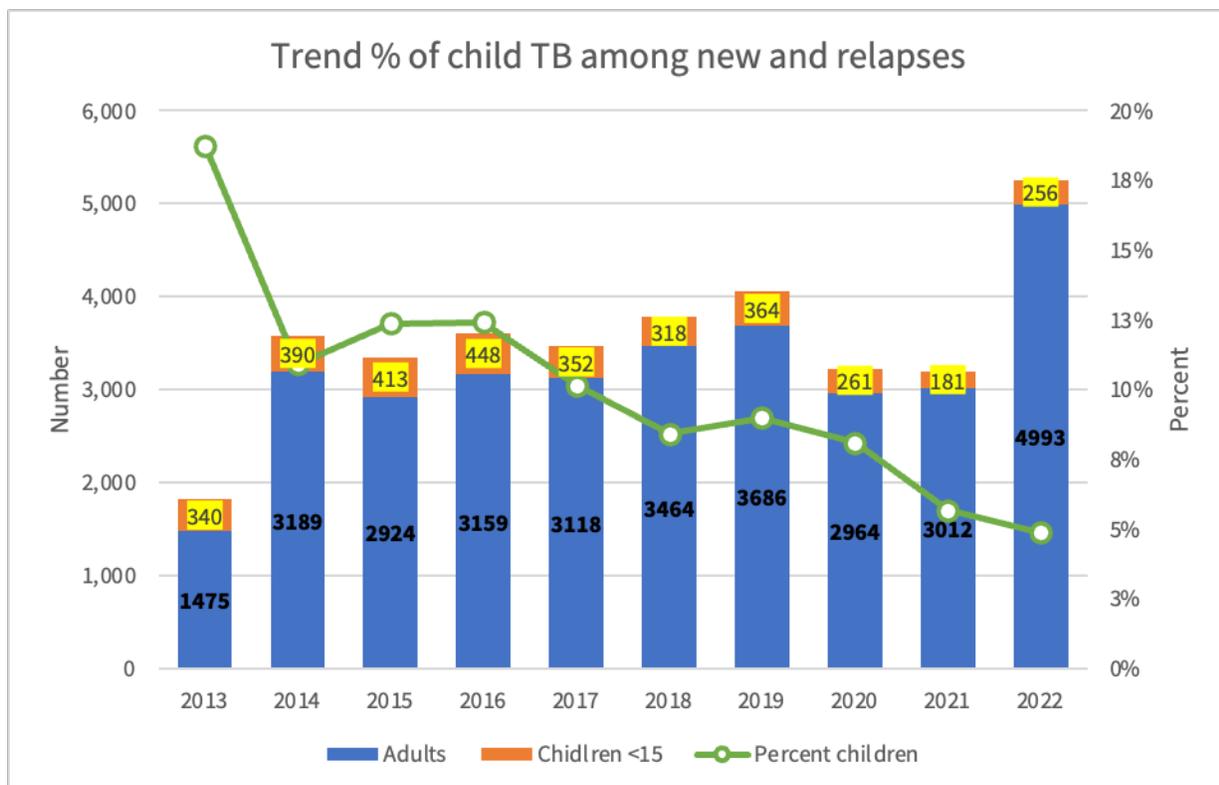
## Chapter 7

### Childhood TB

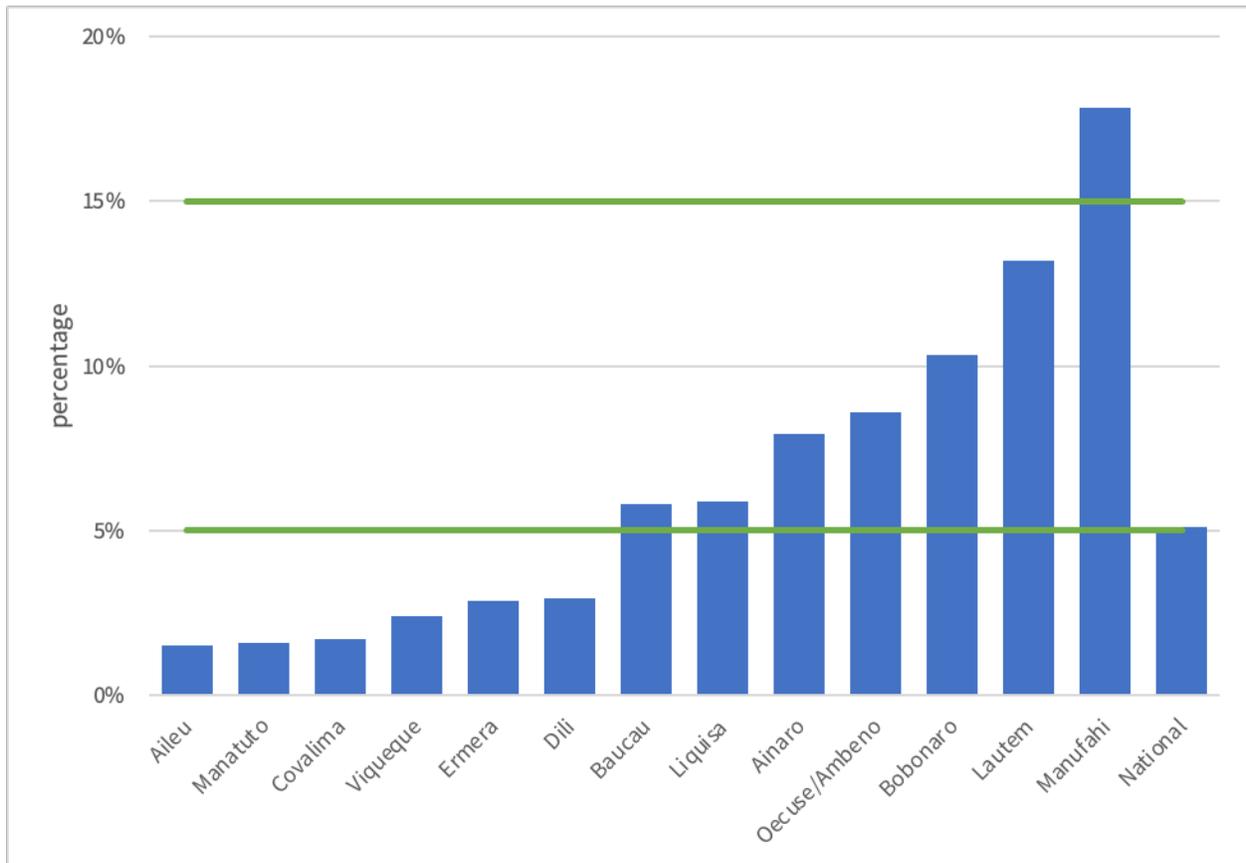
#### 7.1 Observations

Children and young adolescents aged under 15 years represent about 11% of all TB cases globally. However, in Timor-Leste, it was below 10% in the last five years, being the lowest at 5% (256/5249) in 2022 (Fig. 16). The proportion between under five years and 5–14 years was 1:1.9 in 2022 and the number of bacteriologically confirmed TB cases (under five years) in 2022 was zero. There were two MDR-TB patients under 15 years in 2021, but no such cases in 2022. These findings of underdiagnosis warrant interventions for improving childhood TB/ MDR-TB case findings. Moreover, the childhood TB proportions varied among municipalities, which means there would be different regional needs and demands which NTP should explore further (Fig. 17).

**Fig. 16.** Trend in the percentage of children (age <14 years) among new and relapse cases 2013–2022.



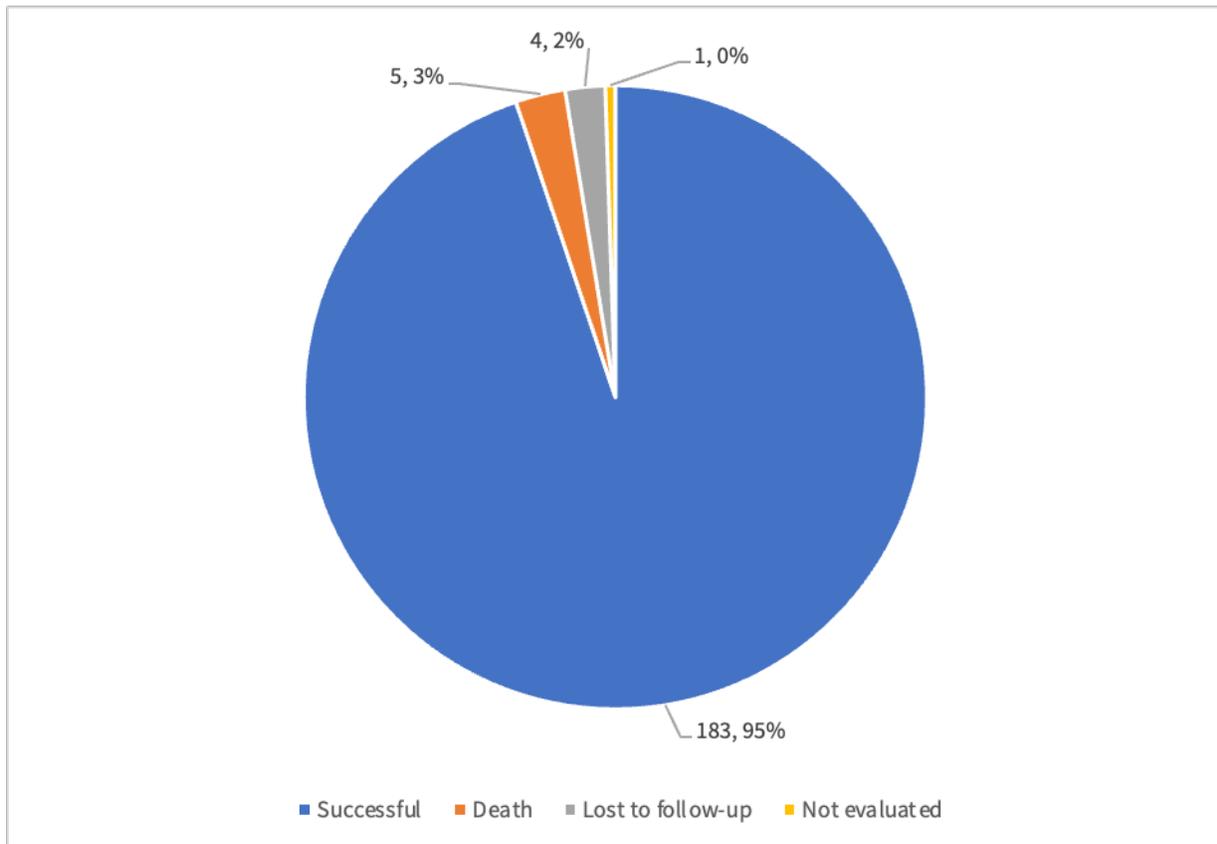
**Fig.17.** Percentage paediatric population (aged < 14 years) among new and relapse patients, 2022.



The major reasons for this gap include challenges with specimen collection and bacteriological confirmation of TB in young children due to the paucibacillary nature of TB in this age group, the lack of highly sensitive point-of-care diagnostic tests and misdiagnosis due to the overlap of nonspecific symptoms of TB with other common childhood diseases.

Apart from these case finding issues, the treatment success rate of childhood TB cases was 95% (Fig.18). Awareness about childhood TB and MDR-TB among health care workers is limited. Contact tracing activity is not happening in a timely manner. Small number of populations and numbers of paediatric TB patients lead to difficulties in the procurement of second-line child formulation.

**Fig. 18** TB treatment outcomes of new+ relapse cases age <14 years, 2021.



## 7.2 Recommendations

1. The NTP, together with technical partners, needs to discuss adopting the updated recommendations of WHO module 5 (use of stool specimen to test with Ultra for case finding; treatment regimens: 4-month DS-TB regimen for non-severe TB; BDQ and DLM use for all age groups of children) in Timor-Leste context.
2. To enhance childhood TB/MDR-TB case finding (systematic, timely and effective contact tracing, reverse contact tracing to know the DST of source case).
3. To strengthen the diagnosis of childhood TB (Ultra and stool, CXR both AP and Lateral).
4. Awareness raising about childhood TB/MDR-TB among health care workers.
5. Training on updated policy and guidelines (different levels of health staff).
6. Finding ways for importing child formulation of second-line anti-TB drugs for the treatment of DR-TB among children.

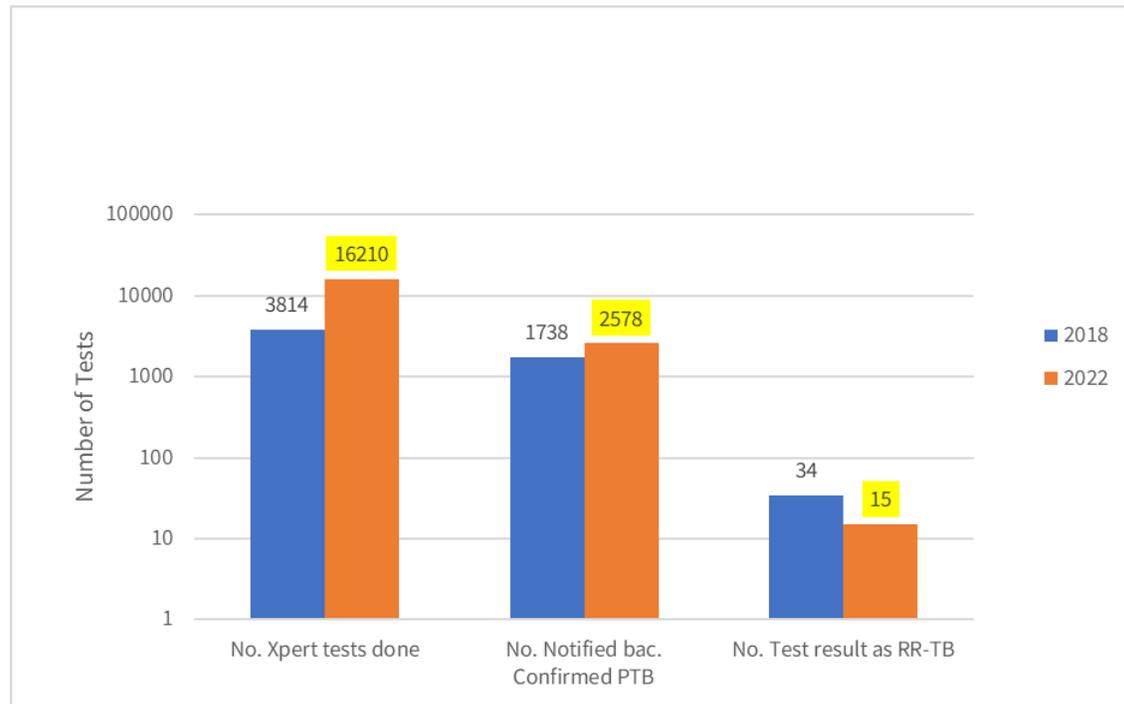
## Chapter 8

### MDR-TB

#### 8.1 Case-finding strategies

**DR-TB case-finding strategies:** NTP adopted WHO-recommended rapid molecular test as the front-line testing for the diagnosis of TB in 2022. As a result, the total number of Xpert tests performed in 2022 increased four times that of 2018<sup>10</sup> (from 3814 to 16 210). Total bacteriologically confirmed pulmonary TB notification increased significantly in 2022. However, the number of test results as “RR-TB” did not increase in parallel, but less than 2018 RR-TB notification (Fig. 19).

**Fig. 19** Xpert tests done and the test results as “RR-TB” in 2018 and 2022.



The review team noticed the variations in the TB diagnostic algorithms that are followed in various municipalities and outreach activities (as discussed previously). The health facilities of different categories have different levels of diagnostic services, and thus staff in peripheral service delivery points may use smear microscopy for diagnosis when the specimen transportation to the nearest Xpert site is challenging. However, in any situation, NTP needs to make sure that all registered TB patients are tested for first-line anti-TB drugs at the baseline, record, monitor and report this indicator.

Table 16 shows the variance between the number of notified bacteriologically confirmed TB cases and the number of Xpert test results as “T, TI and RR-TB” in 2022. Among this variance of 584 patients, a small proportion would be either false sputum smears positive with Xpert “N” or non-

<sup>10</sup> Mid-Term Review of the National Tuberculosis Control Programme, Timor-Leste, 2019.

tuberculous mycobacterium (NTM). Many of them did not receive first-line drug susceptibility tests, but were just diagnosed by smear microscopy which was not under EQA.

**Table 16.** Comparison between the confirmed TB cases and the number of Xpert test results in 2022

Indicators	No. of tests
Xpert test results as “T”	1 785
Xpert test results as “TI”	194
Xpert test results as “RR-TB”	15
Xpert test results as “T, TI and RR-TB”	1 994
Notified bacteriologically confirmed TB cases	2 578
Variance (%)	584 (23%)

Both WHO guidelines and the national guidelines (4.9 Moving toward Universal DST) recommend proceeding to **culture for the test results with “TI”**-MTB positive and rifampicin susceptibility indeterminate. However, the **functionality of the culture and DST laboratory** has been a challenge to practicing the policy and some RR-TB could have been missed to be diagnosed among this group.

The current practice at Klibur Domin Hospital is to perform contact tracing of MDR/RR-TB patients when patients are discharged. This leads to several negative impacts, especially for very young children who can progress to severe forms of TB/MDR-TB. A brief standard operational procedure for contact tracing to annex the existing national guidelines will help health staff perform their contact-tracing activities effectively. Proper contact tracing is costly and labour-intensive, and therefore NTP needs to invest in this important area and explore innovative approaches for effective and systematic contact tracing.

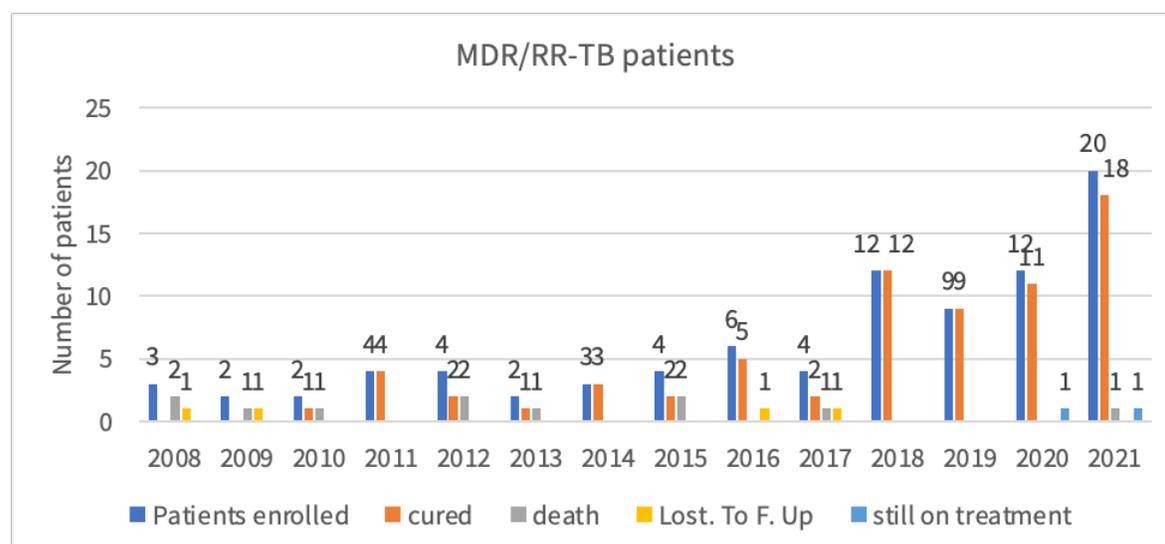
## 8.2 Recommendations

1. To enhance and sustain universal DST by establishing more Xpert machines/TrueNat or strengthening the specimen transportation system.
2. To make sure that all registered TB patients are tested for first-line anti-TB drugs at the baseline; record, monitor and report this indicator.
3. To ensure the functionality of the culture and DST laboratory, refresher training for the interpretation of Xpert results, and practice the policy for “TI”
4. To enhance childhood TB/MDR-TB case findings (refer to childhood TB chapter)
5. To develop a standard operational procedure for systematic contact tracing, annexed to existing national guidelines.

## 8.3 Case enrolment, monitoring, and treatment outcomes

NTP Timor-Leste, with technical assistance from WHO/rGLC mechanism, made good progress in case enrolment and case management. The enrolled numbers of patients in 2021 and 2022 were 20 and 19, respectively. The numbers of MDR/RR-TB patients who received treatment and their outcomes are shown in Fig. 20.

**Fig. 20.** MDR/RR-TB patients' and their treatment, 2008–2021.



Regional green light committee (rGLC) mission conducted in July 2022 evaluated the programmatic management of drug-resistant tuberculosis (PMDT) and gave a two-day clinical capacity-building training to health staff. The mission also provided recommendations to improve PMDT (Table 17).

**Table 17.** Status of priority recommendations of rGLC mission (July 2022)

Recommendations	Responsible agency/person	Status
<ul style="list-style-type: none"> <li>Facilitate <b>decentralization</b> for DR-TB treatment</li> <li>Facilitate <b>ambulatory</b> (outpatient) for DR-TB treatment</li> <li>Establish <b>mechanisms for routine monitoring</b> of the MDR-TB patients at Klibur Domin, and from municipalities and CHC/referral centres</li> </ul>	<ul style="list-style-type: none"> <li>✓ NTP</li> <li>✓ National referral hospital</li> <li>✓ Local municipal hospitals</li> <li>✓ Support from WHO-TL</li> </ul>	<ul style="list-style-type: none"> <li>Done</li> </ul>
<ul style="list-style-type: none"> <li>To review all DR-TB cases, including DR-TB <b>Patient interview</b>, and ensure completion of <b>R &amp; R forms</b>, and periodic reporting to NTP</li> </ul>	<ul style="list-style-type: none"> <li>✓ NTP</li> <li>✓ National referral hospital</li> <li>✓ Local municipal hospitals</li> <li>✓ Support from WHO-TLs</li> </ul>	<ul style="list-style-type: none"> <li>In process</li> </ul>
<ul style="list-style-type: none"> <li>Enhance MDR-TB treatment services, including aDSM system</li> <li><b>aDSM- recording, reporting</b> and management of adverse reactions</li> </ul>	<ul style="list-style-type: none"> <li>✓ NTP</li> <li>✓ National referral hospital</li> <li>✓ Local municipal hospitals</li> <li>✓ Support from WHO-TL</li> </ul>	<ul style="list-style-type: none"> <li>In process</li> </ul>
<ul style="list-style-type: none"> <li>Empower the clinical expert committee (CoE) on the National Referral Hospital to manage DR-TB cases</li> <li>Revitalization of CoE</li> </ul>		<ul style="list-style-type: none"> <li>Not resumed yet</li> </ul>

## 8.4 Other observations

- All notified cases were enrolled in PMDT in the last three years.
- The treatment success rates were satisfactory with around 90% in the last three years.
- About 30 medical doctors have been trained for MDR-TB
- A new model of care (ambulatory and decentralized) has been launched; patients can receive follow-up consultations at referral hospitals (n=5).
- Teleconsultation for MDR-TB clinical management is in place, but not regularly.
- The functions of the clinical expert committee (CoE) have not resumed yet.
- On-site supervision of decentralized sites has not started yet.
- Non-availability of essential job aids such as Ishihara test books and tuning forks
- Patients' card does not include some key variables such as comorbidities/coinfection and concomitant medicines.
- Sustained availability of reagents for biochemistry tests at referral hospitals, and transportation costs to send specimens to the national laboratory in Dili, which can affect the quality monitoring and care of MDR-TB patients at decentralized sites.
- The functionality of the culture facility, which is essential to monitor patients' responses and detecting failure cases early.
- The functionality of drug susceptibility test facility for second-line medicines, which is essential to diagnose additional resistances.
- Small numbers of patients in the country require a small number of XDR cartridges, which is a constraint for importing them.

## 8.5 Recommendations

- To discuss and adopt updated WHO recommendations in the local context, to amend MDR-TB updates (treatment regimens: BPAL/M regimen, MDR-TB regimens for children, definitions of drug resistance, definitions for outcomes) to the existing NTB guidelines.
- To supply essential job aids to KLIBUR DOMIN and five referral hospitals.
- To revitalize the CoE with the following proposed ToRs:
  - a) to engage in the development of NTB guidelines.
  - b) to provide training to health staff in referral hospitals.
  - c) to do supportive supervision to decentralized sites; and
  - d) to perform cohort review.
- Initial training and refresher training for health staff at all levels (aDSM, recording and reporting).
- To strengthen the new model of MDR-TB care (ambulatory and decentralized) by:
  - a) Ensuring access to biochemistry tests
  - b) Set-up of TB wards in referral hospitals
  - c) Supportive supervision to referral hospitals.

## Chapter 9

### Community engagement

Community involvement is essential for TB control. Community can assist in case detection, act as treatment and health advocates, and mobilize people through advocacy activities. However, the community needs the support and involvement of other stakeholders, such as community leaders, community-based organizations (CBOs), TB patients, and ex-TB patients, who are also crucial in TB control programmes to carry out their roles.

As part of the ERM, the places visited are Catholic Relief Services (CRS), Bairo Pite Clinic, and ISMAIK (Isolation ward) during this visit. From the results of the visit, the team found various good things related to community involvement that could be adopted in the context of TB elimination, as well as challenges and recommendations that could be used as improvements for the TB programme in the future.

#### 9.1 Observations

##### Catholic Relief Services

Established 45 years ago, they have worked in advocacy (providing knowledge about TB) and focused on changing behaviour for the past two years. The other areas of CRS's focus are on nutrition (Sensitive agriculture and food security), aquaculture, climate change adaptation, disaster risk reduction, emergency response, TB prevention (just for advocacy for change behaviour). The activities covered 26 parishes in five (Esmera, Bakau, Fikeke, Likisa, and Manufake) of the 13 districts. Their activities are funded by the Global Fund, and from CRS Centre, America.

CRS coordinates with pastors to raise TB awareness during their sermons and facilitates screening and testing of the ~200–300 people who attend the sermon in cooperation with other NGOs. Sputum samples are collected and transported to Dili or the nearest testing site. Results are made available within an hour and up to two days for locations/districts that are difficult to access (e.g., located on a hill) and will require transport, accommodation, and longer time.

CRS has developed module for pastors in collaboration with MoH. The module provides guidance on how these priests can provide education about TB, but stay consistent with the sermons. The module is national, but it has only been used in five districts of their area. In addition, CRS also facilitates recruiting young volunteers from church parishes and conducting TB awareness and bible messages in catholic schools. CRS submits reports of their activities to NTP every three months.

**The challenges being faced by CRS includes** the need for a budget support for transportation-related costs for new staff. The programme only covers five districts out of 13 districts in Timor-Leste, and there is an unmet need in the other districts of the country. The coordination depends on the pastor's time availability. There are no appropriate vehicles to reach remote areas and lack of human resource person in their TB programme (only three persons in charge).

##### Bairo Pite Clinic

Bairo Pite Clinic is mainly focused in supporting TB services in Dili district, and contact tracing in Bobonaro and Ermera districts. It works closely with the local district health office, including the

village head, RT, and church leaders. The clinic has 26 staff and 7–8 volunteers to support staff. It provides TB treatment (DOTS), performs contact tracing and door-to-door visits for raising TB awareness and active case finding. It also provides nutrition support to MDR/RR-TB patients from GF (US\$ 60) in food.

ACF is carried out in Atabae through counselling, screening, and sputum checks. At Bairo Pite Clinic about 100–200 patients visit each day and by screening all of them for TB disease, a total of 305 positive cases of TB were detected in the last one year. About 30% of patients came from outside Dili (from outside the city/district with a distance of 1–2 hours from the city, up and down the mountain valley).

Some of the experiences engaging with the community includes during 2019–2020, due to limited staff and the large number of patients who had problems taking medicine at health care centres, 15% of patients dropped out; in 2020–2023, due to an increase in the number of volunteers, there was no drop out (volunteers help deliver medicine for TB patients).

TB patients get enabler money from GF of US\$ 200 for six months for nutrition. Initially, the enablers were given in cash, but since the money was not used for nutrition/misused, the clinic changed the form of assistance by working with supermarkets. Patients can exchange coupons at the supermarket and get what they need (rice, etc.).

Anecdotally, patients who get nutritional support improve treatment very quickly compared to patients who don't get it. Weight gain is faster. Moreover, patients whose sputum positive can become negative at one month of follow-up DOTs compared to those who don't get nutritional support. Malnutrition is a main issue in Timor-Leste. In case patients do not come to clinics, health workers bring the medicine to the patients' houses. There is routine counselling every day from the clinic for drug reactions.

The challenges observed are:

- Stigma and discrimination: Stigma and discrimination from the families are very high (50%) due to misbeliefs. The director of Bairo Pite Clinic said that 50% of families do not want to accept TB patients, even though they are on DS-TB treatment, not DR-TB. They want to treat this patient in isolation. The Covid survey found that women with TB are the most affected by stigma and discrimination. They believe more in alternative medicine before going to the doctor. They believe that they are sick with TB because they had something wrong with their ancestors and did things that were not good, and so they were cursed to get sick with TB.
- No community gathering or sharing to raise more effective awareness.
- Human resources are limited. Health worker volunteers also work on holidays/weekends and beyond working hours. Unlimited working staff, even outside working hours/holidays to pick up and deliver medicine to patients so that patients don't drop out. Even though they were given TPT for prevention, these volunteers were not rewarded.
- They don't have the adequate operational vehicles that can reach all areas in the district.
- There is no transport cost for the person who will deliver the medicines to the patient's house even outside of their work hours (nights, holidays).

### **ISMAIK (Isolation ward)**

ISMAIK is a catholic organization led by Sister Maria Lourdes Martins. As is well known, stigma and discrimination against TB are still extreme in Timor-Leste. ISMAIK sends patients for treatment in isolation in a remote area. It has several buildings (houses) for female patients, male patients, a place

to eat, and a gazebo. The ERM team met 18 TB patients and one nurse. People living in ISMAIK, whose treatment is complicated, are at high risk for non-adherence/withdrawal from medication.

**Photograph 2.** The ERM team met 18 TB patients and one nurse



### Observations

1. Patients voluntarily come to this isolation place primarily because they fear transmitting TB, if treated at home.
2. The family always comes to visit the patients.
3. Some of the patients have full support from their families.
4. ISMAIK provides things like beds, and meals, not only for the patients but also for the family.

### Challenges

1. One room has two beds; if the patient is visited by a family (1–2 people), the family will sleep with the patient (ideally in separate rooms between patient and family rooms).
2. Nutrition is provided only by the church; there is a need to ensure that government can provide that too.
3. There is no transport for patients when discharged from the ISMAIK clinic.

### Recommendations

1. Establishing DR-TB survivors' organizations/groups/communities in districts/cities with high TB/DR-TB cases facilitated by faith-based organizations (FBOs) They can facilitate regular capacity-building of patient organizations/groups/communities of patients, such as how to start a patient organization, be a patient supporter, operate computers, advocate, etc. Involve TB survivors/patients' groups/FBOs as patient supporters to improve adherence among patients on treatment.
2. Empowering the community in actively promoting, preventing, and even curative TB through the community from people affected by TB programmes. TB patient groups/patients supporters' tasks are to look for TB suspects, assist TB suspects in physical and sputum examinations at the nearest health service, and monitor patients taking medication for six months. They must also transfer positive energy to TB patients because patients may get bored or experience side-effects that reduce their motivation to continue treatment.
3. Involve more TB survivors/groups of TB patients/patients and TB organizations as members of the CCM and TB TWG and have regular review/monitoring meetings between community, CRS, NTP, WHO, and CCM.

4. Involve patient organizations, patient groups/communities, and TB organizations in every TB-related activity and decision-making process at all levels, including M&E.
5. To develop quality health services feedback mechanisms via CBMF or CLM, for example, one Impact.

**Several recommendations by the TB-JMM of 2019 (listed below) seem to have not been implemented:**

1. Develop a framework for community engagement in the NTP, which includes, but not limited to the involvement of community members in outreach activities. The same framework should be adopted nationwide and linked directly to the NTP.
2. Provide transport support as per the terrain, motorcycles or bicycles, etc., for volunteers to visit households on a daily basis for symptomatic screening and sputum collection as needed.
3. Develop a clear plan to engage with traditional healers. Traditional healers can play a huge role in spreading awareness about TB in the community, to remove stigma and in finding the people with TB symptoms. There is a need to set up a programme for this with clear objectives and a few identified interventions. It can start with a small group of traditional healers initially which can then be expanded subsequently.
4. The community workers will need to be paid a small salary regularly rather than based on patients completing treatment as there is no incentive to visit other households for finding people with TB symptoms.

The best practices and challenges observed in these visits have shown that the community can contribute more to TB care and achieve the highest possible coverage of TB diagnosis and treatment. Volunteers in the community have an essential role in providing TB treatment to TB sufferers and increasing public awareness of TB and case finding in the community.

These recommendations emphasize the efforts of health workers and community volunteers to ensure patient access to effective TB treatment and treatment success. Intervention must be carried out on an asset basis, an approach that emphasizes positive capabilities and maintains the strengths and resources of local communities, rather than an approach based on their needs, deficiencies, and problems. Involving all ministries, empowering stakeholders at the village and national level, including people affected by TB/TB survivor, to play a critical role in prevention and control efforts. It increases community-based TB activities. This intervention will increase community knowledge about TB, education activities, and early case detection. It is hoped that the community/society can participate more actively in TB case finding by changing the mindset that TB elimination is not only the task of the MoH, but the involvement of the community/society is significant in this matter.

## Chapter 10

### Laboratory

#### 10.1 Background

##### Laboratory services and expansion plan

The laboratory network consists of the NTRL, 13 Xpert MTB/RIF sites and 76 peripheral smear microscopy labs.

**NTRL:** The NTRL is in Dilli and has a BSL 3 culture and DST facility developed by KOICA, and is functional since April 2016. The laboratory is equipped with a MGIT 320, one Xpert MTB/RIF (16 module), one Xpert MTB/RIF (4 module) and LED-FM. Currently the lab has five lab technicians, one data entry officer, one microbiologist (international expert) under the overall supervision of the executive director.

The NTRL is performing solid culture and DST for the first-line drugs (Rif, INH, Sm and Emb) and second-line drugs Oflox and Km. The BSL 3 facility has stopped functioning since February 2020 in want of repair of the air handling unit (AHU) and replacement of HEPA filters. Efforts are being made for repairing the BSL 3 facility with funds having been allocated and vendor identified. Partial requirement for lab accreditation has been completed and the retesting is being performed. In the absence of agencies providing preventive maintenance and breakdown services for equipment, there is an ongoing risk of laboratory work getting stalled if any of the equipment breaks down.

The programme is moving towards universal DST and as per the revised algorithm all TB patients will be offered DST for Rif, INH and second-line drugs (FQs and SLIs) as per the recent WHO guidelines. While DST for Rif will be by Xpert MTB/RIF, the DST for other drugs will be done at NTRL by phenotypic method (following accreditation). The phenotypic DST has a long turn-around time (TAT) and can impact clinical management of the patients resulting in unfavourable outcomes. LPA can provide the DST results rapidly for appropriate patient management. The LPA laboratory has been developed and inaugurated, and its accreditation is under process.

The NTRL is responsible for the EQA of all the labs, which includes onsite evaluation (OSE) and RBRC. RBRC is being done regularly (quarterly) with the LTs of the laboratories bringing the required number of positive and negative slides to the NTRL. However, onsite visits are few and irregular due to limited manpower. The OSE (whenever conducted) and RBRC reports have not been shared with the respective laboratories, and there is no follow-up on action taken.

**Molecular testing Xpert MTB/RIF:** In 2022 there are 13 Xpert sites as shown in the map (Photograph 3).

**Photograph 3.** Molecular testing facilities in Timor-Leste, 2023.

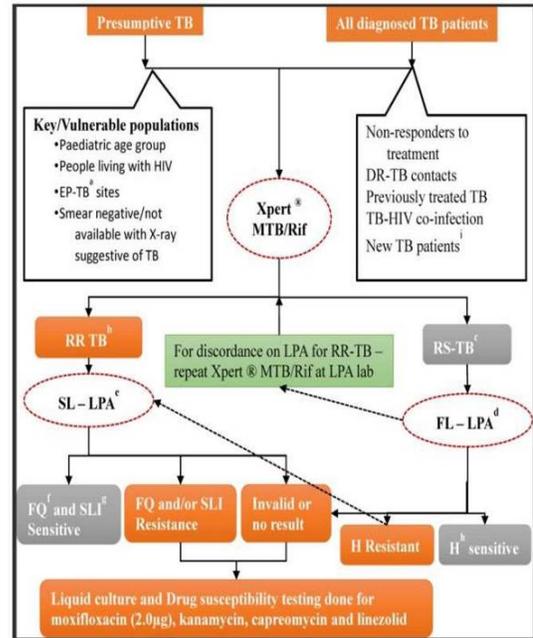
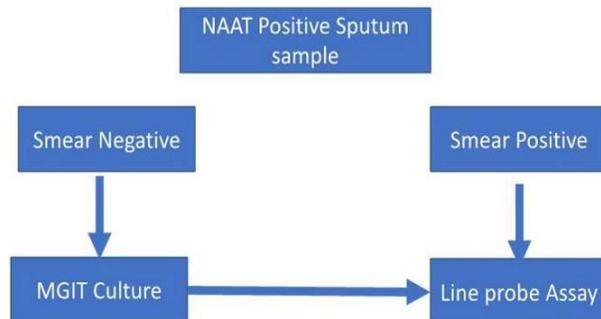


The annual target of 90% case detection has not been reached in most of the districts except for Liquiçá for this year. The GeneXpert facility is presently underutilized and with case detection less than 90%, the machines can be put to use in a systematic manner to achieve 90% case detection rate. Each 4-module system has capacity for 2500 samples per year. Less than half of the available Xpert capacity is currently utilized. Establishing an efficient sample collection and transport system can help in improving the utilization of the existing GeneXpert machines for TB diagnosis. EQA for GeneXpert has been done for only four centres including NTRL.

### Feasibility to expand WHO-recommended rapid diagnostic tests, culture, DST at national and sub-national levels

- a) TrueNat: Feasibility testing needs to be performed in the CHC-level laboratories, and once the issue with feasibility is sorted, the machines can be placed in PHC for upfront molecular testing.
- b) Line probe assay (LPA): All positive samples by molecular testing will be subjected to LPA (on sputum or on culture).
- c) All first-line resistance samples will be subjected to second-line testing.
- d) The results from GeneXpert Ultra (mainly TI) should be carefully observed and common policy is applicable for all the samples.

# LPA algorithm



Note: All NAAT positive samples will be transported to the NTRL LPA lab, in the LPA lab another smear will be done and based on the results the direct LPA or LPA from culture will be decided.

## Other observations

- Biosafety cabinets available at CHC and PHC are not working or not installed.
- The results from GeneXpert Ultra (mainly TI) should be carefully observed and common policy is applicable for all the samples.
- Laboratory information management though present (Dilli) is not the effective means of results sharing and at most places it is the manual report.

## Recommendations

### 1. NTRL:

- A separate generator needs to be installed for smooth functioning of the laboratory. A biomedical engineer needs to be in place to cater for routine electrical and BSL3 issues.
- AMC/CAMC needs to be maintained continuously for the BSL3 for uninterrupted LPA work.
- The MGIT needs to be upgraded to MGIT 960 to cater liquid culture needs and DST for newer drugs.

**2. Strengthen the EQA for smear microscopy:** The senior laboratory technicians (LTs) at the 13 district microscopy centres (DMCs) should be actively engaged in the process and allocated five microscopy centres each. The senior LTs will perform OSE and RBRC regularly (quarterly basis) and follow-up on the recommendations and action taken. The NTRL will supervise the senior LTs and conduct the OSEs and RBRC for the DMCs and a few randomly selected microscopy centres. SOP should be prepared by the NTRL on these lines and the senior LTs sensitized/trained, and the process implemented.

**3. Introduce EQA for Xpert MTB/RIF:** The EQA for Xpert MTB/RIF should be expanded to all molecular testing sites and include the following components:

- It should be ensured that the annual calibration is done timely.
- The NTRL should monitor the rate of invalid results and errors on a monthly basis and take appropriate action.
- Panel testing should be performed annually. The panels (MTB neg; MTB pos, Rif sensitive; MTB positive, Rif resistance) will be prepared by NTRL and supplied to all Xpert sites for testing.

**4. Strengthen recording and reporting (R&R):** The NTP should digitalize recording and reporting from CHC upwards. A case-based, web-based software was developed for the DRS (<https://tb.ms.gov.tl>). Transition to electronic case-based reporting system as per the proposed plan in DHIS2 with WHO technical assistance should be implemented. NTP and MoH should ensure availability of computers and internet at CHCs. Train the staff in filing the records and reports correctly and monitor them (Table 18).

**Table 18.** Training for NTEP personnel

<b>Observations</b>	<b>Recommendation</b>
The results from GeneXpert Ultra (mainly TI) should be carefully observed and common policy is applicable for all the samples	The training on GeneXpert interpretation needs to be provided to lab technicians and treating clinicians on yearly basis
Country lacks capacity to perform DST on the newer drugs used for the treatment of MDR-TB patients	Country can send two lab technicians to SNRL Chennai yearly for the comprehensive training
Comprehensive training on TB diagnosis for TB lab technicians is lacking	Country can send two lab technicians to SNRL Chennai yearly for the comprehensive training
Modular training on National TB Elimination Programme needed	Country can send two executives to SNRL Chennai yearly for the modular training

Communication of the lab reports from NTRL and Xpert sites to the CHCs should be electronic.

- Bacteriologically confirmed paediatric TB diagnosis is limited, and therefore stool testing for all the clinically diagnosed paediatric patients is highly recommended for increasing the bacteriology positivity rate and DR-TB detection in clinically diagnosed paediatric patients.
- **Improvement in sample collection and transportation system:** Under the DRS survey, samples were transported from all the municipalities to the Xpert sites and NTRL within the prescribed timelines through human carriers who are adequately incentivized for this work. The same mechanism can be replicated for transporting samples from the microscopy labs to the Xpert sites. The decentralization of GeneXpert has laid down an important facility to also increase the UDST for presumptive TB patients; the present UDST rate for the country is very low at 32%.
- Biomedical waste management is a challenge in PHC and CHC as there was no proper discarding of the infected sputum and testing material. Strengthen waste management and establish linkage with local hospitals (clinic) for waste management.
- Urgent need for LIMS system which can integrate GeneXpert results, LPA results and other TB diagnostic tests (GeneXpert DHIS2, etc.).
- Biomedical engineers need to be recruited locally at least one for a municipality to take care of instruments, minor repair and training.

- The present laboratory capacity (human resources and equipment) is not supportive of IGRA, and therefore, testing for TB infection can be introduced and performed using Cy-TB skin test in the light of acute shortage of laboratory staff.
- Liquid culture and DST one round of EQA has been performed in 2020, but the retesting is not completed. Yearly EQA needs to be done by SNRL Chennai and retesting needs to be initiated.

## Section 3



Review of the National AIDS Programme

## Chapter 11

### HIV/STI prevention

Globally, prevention has been the mainstay of all HIV control efforts over the last four decades. Prevention of HIV transmission from KP to bridge population to general population to children has been the basic premise to reduce new infections. HIV epidemiology and transmission dynamics in almost all the countries underlines the critical role of prevention of HIV transmission between various population groups, along with a scaled up treatment coverage of those infected. Prevention is the first and foremost arm of the prevention-testing-treatment continuum of HIV care, and is also the most important pillar of a community-centric, community-driven response to HIV epidemics.

As noted in the epidemiology section, the number of cases of HIV diagnosed each year are on a rise. The same is also true about the positivity rates of HIV, STI and hepatitis at various municipalities among different population groups. Thus, the prevention interventions become the key to reduce transmission and incidence of new cases of HIV, STI and hepatitis. The country has also pledged to triple elimination of mother to child transmission of HIV, STI and hepatitis, a lofty, but achievable goal, through strengthened and focused prevention interventions.

The External Review Mission has reviewed the prevention interventions under the NAP in Timor-Leste, with a focus on the comprehensiveness of guidelines, implementation progress and gaps, challenges, and their overall impact on reducing new infections. It has offered strategic as well as operational recommendations to address the challenges and reverse the tide of the epidemics. The observations and recommendations have been presented below for the five key prevention interventions under NAP.

#### 11.1 KP prevention

Prevention among KP (MSM including MSW, TG, FSW and clients of FSW) and their partners is critical for achieving the goals of HIV epidemic control. Since KP account for over half of HIV cases, prevention package for KP and their sexual partners has a direct impact on reducing new HIV infections as well as AIDS-related mortality.

Implemented through a community-led, peer outreach model, KP prevention interventions aim to saturate the KP groups and their sexual partners with a basic prevention package consisting of regular contacts, behaviour change communication, STI screening and management, and distribution of condoms and lubricants. Screening and testing of KP for HIV, syphilis and TB, linking the positives with treatment, ensuring treatment adherence, retention and viral suppression through follow-up visits, peer counselling, home visits, drop-out tracking, etc. may also be delivered through the KP interventions, for greater effectiveness.

#### Status and progress

##### Service delivery model

1. Prevention interventions for KP have been rolled out in Timor-Leste under the overall leadership and technical guidance of various agencies including Family Health International (FHI) and the

MoH in the past. Currently, the interventions are implemented under the overall guidance of UNFPA, who is the sub-recipient (SR) of the Global Fund Grant 2021–23 for KP prevention.

2. KP interventions are providing basic service package of prevention services to FSW, men who have sex with men (MSM) and transgenders (TG) in six municipalities.
3. A significant development is that the intervention is being implemented by the community-based organisation, KP Association, led by community leaders, for the first time, as a fully registered, formal body. This reflects a key milestone in the community empowerment and community-centric and community-led response in the country.
4. One KP Intervention office-cum-drop-in-centre has been set up in each municipality to ensure decentralized programme implementation. DICs have been set up as KP-friendly spaces in each municipality. They are common DICs for all KP typologies. They have counselling room, clinic, hang out and waiting areas.
5. DICs are strengthened with the following staff: DIC officer, counsellor, data entry officer, outreach officers for FSW and MSM, and peer leaders.
6. Significant scale up of outreach activities has been achieved through recruitment of a wide network of over 120 peer volunteers (FSW-, MSM-, TG-), who are recruited from the community itself.
7. The basic service package includes outreach, information, condom distribution and HIV testing. All the KP are met every month by the PV, given information about HIV, STI, condom, etc., given 24 condoms per month and mobilized for HIV testing.
8. The DIC provides counselling and testing for HIV and syphilis, using RDT or dual test kit, besides functioning as a hang-out place for KP. Confirmatory testing with three tests is done at the DIC. However, consent, pre-test and post-test forms are not duly used.
9. HIV testing is also offered in the field at times, when the counsellor travels to the field and performs HIV tests at a location, convenient and preferred by the KP. Testing is only done by the counsellor. Test kits are not given to the PV as they are not trained in conducting the tests.
10. A financial incentive of US\$ 2 is provided to each KP who visits DIC and receives a HIV test. Those who receive the test in the field through the DIC counsellor are not provided incentive.
11. Separate reporting on syphilis testing of KP is not available. Since most of the test kits supplied to KP programme are HIV–syphilis dual test kits, the proportion reported to have been tested for HIV might have also received syphilis test.
12. Progress in HIV testing of KP during the current grant cycle is as below:
  - a) Testing of KP for hepatitis and TB were not rolled out.
  - b) Monthly orientation sessions are conducted to the peer educators in the field to discuss and guide them on field issues.
  - c) Condom dispensers have been set up at select hotspots and private houses and are regularly refilled with condoms.
  - d) A pilot project to introduce PrEP for MSM and FSW has been rolled out in January 2023 and is ongoing at Dili. A separate PrEP clinic was set up with a full-time coordinator, doctor, counsellor, outreach workers and peer volunteers. Laboratory screening and clinical assessment are coordinated through referral to national hospital. As of February 2023, KP were initiated on PrEP, most of them on event-based intake. Out of those initiated in January 2023, around 50% have revisited the clinic for refill.
  - e) A dedicated KP coordinator is positioned at each municipality to support, supervise and coordinate the implementation of KP programme in the municipality. KP association provides overall monitoring and supervision support to all the districts, along with UNFPA.

## Documentation and reporting

13. All the tests done by the counsellor along with the results are documented in a register/format in a day-wise manner. The documentation is good and complete, but does not allow one to check how many KP out of those reached were tested, who were tested and how many times, as it is a day-wise documentation.
14. Duplication in testing or six-monthly repeat testing, as is required to be done for all negative KP, cannot be ascertained from this easily, unless all the entries are electronically entered and deduplicated. However, this is not being done.
15. Each PV maintains a PE outreach activity register in which one page is allotted to each KP and the entire outreach services given to that KP every month, for 12 months in a year, are documented in the same page. This is a good format to see individual service delivery, useful for microplanning by the PE at the field.
16. The documentation of the last year shows that every KP is met every month and information and 24 condoms are provided to each KP at each contact. However, HIV testing column in PE activity register is mostly blank for many KP, while minimum expected is one test in six months. Documentation on HIV testing is scanty in the PE outreach activity registers. This could be because the information about a KP receiving a HIV test is not informed back to the PV who referred the client.
17. Individual-level data of service delivery to KP is entered into excel files at the DIC every month and shared with KP association at Dili. Data entry for some municipalities is done by the KP association only. Based on this data, quarterly reports are prepared and shared with UNFPA, which is the nodal agency for implementation of KP programme.
18. UIC with four letters from the name and date of birth has been introduced in May 2021 to strengthen individual tracking and deduplication. Efforts to deduplicate the outreach data are done monthly at municipality level and quarterly at national level.

## Gaps, issues and challenges

1. While over half of PLHIVs registered for treatment in the last one year have reported high-risk behaviours, the detection of positive cases from KP programme is very low. The reasons for the same need to be explored.
2. While STI screening is done routinely, there is no practice of routine medical check (RMC) recommended for KP. Medical doctor or nurse is not available at the DIC for provision of RMC, STI care and medical care.
3. There is no practice of risk profiling/risk assessment of KP, thereby limiting the prioritization of KP for various prevention services.
4. Condom distribution is uniform to all KP based on a project norm. There is no condom demand estimation and gap analysis, and customization of condom distribution based on their needs. There is no documentation of condom use, wastage, breakage and quality of condoms.
5. Significant scale up of outreach and basic service package provision has been achieved, but there is lack of clarity on outreach mechanisms, micro-planning to saturate hotspots, identify new hotspots and ensuring quality of outreach.

6. Resetting coverage to zero at the start of every year, lack of differentiation of KP registrations and service delivery by old and new, and non-use of standard case definitions are some other areas where gaps are noted in KP programming.
7. Classification of MSM and MSW is not found to be appropriately programmed, leading to misreporting and misinterpretation. Clubbing of MSW with FSW in reporting of service statistics also affects the interpretation of achievements.
8. Six monthly repeat HIV testing of negative KP is very low, less than 10%.
9. Gaps have also been noted in linkages to and adherence with ART of HIV positive KP. Out of 14 MSM detected positive in 2022, only 10 were linked to ART.
10. Issues related to coordination and sharing of information between UNFPA and NAP have been reported. UNFPA does not provide access to KP programme data to NAP, except sharing quarterly PUDR. NAP officers are not allowed to conduct supervisory visits to the KP intervention and review the programme implementation and documentation. It should also be mentioned here that UNFPA did not share any programme related information requested by the JERM for the purpose of review, even after repeated requests and representations.

While the above points highlight some of the key issues noted in KP prevention programming, the following section raises some questions and discusses in detail, some of the key issues with their effect on outcomes, along with suggestions to improve.

### **Discussion on key issues related to KP prevention programme**

#### **Why are HIV positive case detections in KP programme low, when around half of PLHIVs detected report to have engaged in high-risk behaviour (MSM/client of FSW/FSW)?**

While over half of PLHIVs registered for treatment in the last one to two years are reportedly from KP background, the programmatic detection of positive cases from KP intervention is very low, despite high coverage reported. The highest yield of HIV positive cases in the programme is from PITC, including referrals from TB clinics. Some of these could be late detections missed by KP interventions, presenting in hospitals/TB clinics. Very low repeat HIV testing rates among negative KP may be one of the reasons for missing to detect positive KP in KP intervention.

Other reasons could be that the PLHIVs detected through other channels are past MSM or past clients of FSW, and hence not being covered by current KP interventions. Or they could be belonging to a different socio-economic profile or geographic locations, that the current KP interventions are not reaching to. These are possible reasons or assumptions, that cannot be verified by evidence, as of now, available in the programme. Risk profiling is missing at both KP interventions as well as VCT/ART clinics where PLHIVs are registered, and this limits us to compare the profiles and understand where the programme is missing.

#### **Are the KP interventions reaching out adequately to the target groups? Are they saturating the hotspots already mapped and known? Are they identifying newer hotspots from time to time? What are the mechanisms followed by the peer educator (PE) to ensure quality outreach to the KP?**

The coverage reported is high and the PE activity reports show that every KP person is reached out every month. All the rows in the KP-wise sheets (one row per month) are filled up for every KP with HIV/STI-related information provided and 24 condoms distributed to each KP every month. In the absence of verifications and supervision on the practices in the field that are documented and reported, it is difficult to confirm that every KP is reached every month.

There is neither clear documentation of the micro-planning of PE daily visits, nor of specific hotspots and the timings, where and when they meet KP in the field. So, it is not clear if all the mapped hotspots and identified networks are covered and saturated or not. It is also not clear if any new hotspots have been identified and mapped. The documentation on the mechanisms to reach out to KP as reflected by gradually increasing coverage from January of every year is also not clear. As elaborated subsequently, the coverage is reset to zero in January of every year. In such case, how the outreach mechanisms are revised from December of previous year to January of next year is not clear. If for example, the PE have reached out to 100 hotspots or networks in December, in January next year, how do they plan to start the outreach again from zero, from which hotspot or which network, and on what basis, are not clear.

**Are the KP interventions reaching out to the new, unreached, hard-to-reach KP every year, who may be at greater risk?**

The data reported does not segregate old and new registrations between years. At the start of every year in January, the coverage is reset to zero, and all those who are reached in January are reported as new registrations, which is truly not the case. The data show that the registrations gradually increase from January to reach the target by December. However, it is unclear why the outreach to almost 70–80% of KP in December will suddenly come to zero in January. While the PE could reach out to 70–80% of KP in December, why are they not continued to be provided services in January, is not clear.

It also shows the underutilization of PE capacities for many months starting January, till they again reach high coverage. Further, it also limits the potential to understand the impact of outreach and BCC on the changing risk practices of KP, unless the risk practices of old KP who are continuously receiving services for the last many years are tracked and analysed. On the other hand, some old registered KP may drop-out of interventions also due to various reasons of migration, etc. that needs to be documented.

The practice of resetting coverage to zero every year is creating a situation of purposefully reducing the coverage of KP and limiting their access to prevention services in January, in spite of the programme capacity to reach out to them, purely for programmatic purposes of starting from zero. It is contrary to the approach of sustained community engagement and behaviour change, aimed at bringing out epidemic control outcomes. If coverage of 80% is achieved by the end of year, the coverage should be sustained next year and increased further by reaching out to new KP.

Thus, the current way of documentation and reporting limits our understanding of sustained coverage of old cases, expanded outreach to new cases and drop-out proportions and reasons. This approach needs to be changed to continue the coverage from previous year to next year, and document old and new registrations separately. Since UIC is documented for every KP and all the data are entered into excel every month, it can be analysed at individual level to see which KP received outreach contact, who were tested and repeat tested, who were covered in the previous years and since which year, who dropped out and who are the new KP enrolled, etc.

**Are we really testing all KP reached?**

The data reported for coverage of basic service package are same as the coverage of testing. Reportedly, this is because the BSP includes HIV testing also. In that case, there is no purpose in having two indicators whose value is going to be always the same. There is no indicator or data

reported on KP reached, which is expected to be even higher, as all KP reached are not likely to get tested for HIV.

If everyone reached is provided BSP including HIV testing, it means that every KP reached is tested for HIV. Since HIV testing is primarily done at the DIC (Facility-based testing) and only a small proportion of the KP get tested through outreach (Community-based testing), it is difficult to expect that every KP has actually visited the DIC and received an HIV test. The documentation at the DIC in HIV testing register is a day-wise listing of tests done with the UIC. However, to ascertain how many and which KPs have visited DIC and tested for HIV and reconciling it with PE activity sheets is difficult and time-taking. JERM could not carry out this detailed reconciliation exercise. On the other hand, review of PE activity reports does not indicate HIV testing done for all KP, though the quarterly reports indicate 100% testing of all KP reached. This could be because most of the KP get tested at DIC, which may or may not be in the knowledge of the PE.

Lastly, the reported repeat testing rate of KP is less than 10%. The programme does not maintain any due lists for KP who are due for first test and repeat test. There are no mechanisms to identify, monitor, notify and mobilize KP due for repeat test, and tracking the outcomes.

The HIV testing data can be reconciled with HIV test kit supply and consumption data. Further, since every KP who visits DIC for HIV test gets an incentive of US\$ 2, the HIV testing data can also be reconciled with the data on financial disbursement of incentives. Due to limited time, JERM could not carry out this exercise, but it strongly recommends NAP to carry out this reconciliation exercise to assess the true percentage of coverage of HIV testing among KP.

**Are we targeting the right KP – the higher risk KP – who are more likely to be at risk of getting HIV? Are the PLHIVs, who reported to be KP, from a different socio-economic-cultural background that do not prefer to come to KP interventions for services?**

The absence of risk profiling of KP either at the time of registration or subsequently limits the programme's ability to identify higher risk KP and prioritize them for prevention and testing services. Very basic demographic information is captured at the time of registration in PE activity sheet. No information on nature of sex work/MSM practices, number of partners, condom use, sites of solicitation and sex, etc. are captured that can help the programme identify and prioritize KP. As a result, all KP are provided 24 condoms each irrespective of their condom needs, partner volume and risk level. Risk profiling will enhance the ability of the KP programme to:

- Categorise KP into high, moderate and low priority KP
- Identify and prioritize higher risk KP for prevention services including STI screening
- Focus on higher risk KP for repeat testing for HIV every six months
- Detect more positive cases and increase the yield of detections among KP
- Have proper estimation of condom needs, demands and gaps
- Assess eligibility for PrEP and promote PrEP to the right population.

**Since MSM is the most important KP group with respect to HIV infections in the country, are we targeting the right MSM? Is the classification of MSM and MSW appropriate and contributing to better programming or leading to confusion, misreporting and missing of the right cases?**

Traditionally, in KP programmes world over, and epidemiologically, male sex workers are considered a sub-group of MSM who engage in selling sex to male partners in exchange of cash or kind. They share all the basic vulnerabilities of being an MSM, but with a heightened risk of acquiring HIV/STI

due to their engagement in commercial transactions. Their partner volume and number of sex acts are likely to be high, condom use low, being mostly receptive partners with less control and negotiation power with respect to sexual transactions.

Further, MSW is not a stable identity. Many MSM engage in commercial transactions for some period of time and may not do so at other times. This dynamicity is normal in other countries as well, and is also acknowledged by the community members involved in KP programme in Timor-Leste. Previous rounds of HSS and IBBS in Timor-Leste have shown 50–80% of MSM engage in selling or buying sex, over different time points, showing the changing patterns over time. HSS 2019 also notes that many MSM have not reported any other employment and selling sex could be the primary source of income in many cases. Hence, it is not a fixed category of KP, with clear distinction from MSM, but a sub-group of MSM with dynamic practices.

However, in the KP programme in Timor-Leste, it is noted that MSW is covered and reported separately from MSM, and they are often clubbed with FSW in reporting of indicators. Even the mapping and population size estimates of the previous rounds and current round present MSW as a separate group. Discussions with the programme managers did not give conclusive answer on the origin of separating MSW reporting from MSM in Timor-Leste. While the programme points at the MPSE reports as the basis, MPSE points towards programme requirements as the origin.

Whatever may be the basis and origin, the following inconsistencies in the current practices need to be noted and reviewed:

1. In the KP programme, classification of an MSM into MSM or MSW category is based on what they report at the time of registration or first contact, as reported by the KP programme managers. It is not based on any risk-related norm such as past history of sex work, duration of sex work, predominant practice of selling sex in the year or practice in the last 3–6 months. This is misleading as an MSM who is selling sex at the time of registration may refrain from it later. And other MSM who are not selling sex at the time of registration may resort to sex work later. Since fresh registrations are done every year, it is also likely that a person registered as MSM in the previous year could be registered as MSW the next year, and vice versa. This approach may lead to a gross misclassification of the target group into MSM and MSW, with the result that both the groups reported as MSM and MSW are likely to be mixed with those who sell sex and those who do not. Hence, the indicators reported for these groups may not be truly reflective of the specific groups.
2. The data of HIV case detections in the last few years show that around 10 HIV cases are detected every year among MSM and none among MSW. This is contrary to the understanding that MSW are at greater risk of acquiring HIV. It raises questions on appropriate labelling and classification of MSW and MSM. Risk profiling of the positive MSM cases is not available to ascertain if they had engaged in selling sex in the past.
3. Classifying MSM and MSW into separate groups may have some relevance if the prevention programming is different for both groups and is customized to their needs. However, it is noted that the prevention package and services, including condom distribution, is not different for the two groups. MSW are not prioritized over MSM for HIV testing and repeat testing. The coverage and gaps are similar in both groups. This shows that the classification is devoid of actual meaning and purpose in the field, but is only a reporting requirement.

4. Clubbing MSW with FSW in reporting of key indicators such as testing coverage, positivity, etc. does not serve any meaningful interpretation of findings for either group, as they are very diverse groups in Timor-Leste context. While MSM/MSW report higher number of cases, FSW have been reporting zero or very low case detection over years. The partner dynamics, volumes, charges in commercial transactions are different between the two groups, and hence they are too heterogeneous to be combined into one group. The combined figures are indicative of neither group, and hence limit our interpretation and does not serve programmatic monitoring purposes.
5. Mapping and size estimation exercises of 2018 and 2023 have reported size of MSM around 6000 and MSW around 2600. Combining the two to derive total MSM, the MSW group accounts for around 25–30% of all MSM, which is inconsistent with the proportions reported in BSS, HSS, IBBS rounds in the past (50–80%). MPSE report notes that the distinguishing line of difference between the two categories was very thin.
6. MPSE also lists hotspots exclusive to MSW, which is not clear, as the MSM who buy sex also visit the same hotspots and hence, the number of MSM estimated at such a hotspot may not be restricted to MSW. If the numbers are restricted to MSW by the way MPSE collected the information, then these hotspots should also be included in the list of MSM hotspots as MSM also visit them. Majority (around 80%) are private houses with an average network size of 20–30 MSM. If private houses are the places of solicitation and sex, then they are bound to be visited by both MSM and MSW.
7. Further, it is not clear how MSM and MSW peer educators interact with MSM and MSW separately at these common hotspots, and provide services only to their respective groups; do they reject services to the other group members whom they come across at the same hotspots, or do they refer them to the respective group PE, etc. It is not clear how these inconsistencies affect the coverage figures reported for MSM and MSW.
8. The size estimates from MPSE are used as denominators in KP programming. MPSE 2020 defines MSW as high-risk MSM who sold sex in the last 12 months, while MPSE 2023 does not give any time reference (MSWs were those who sell/exchange sex for money or goods (Pusa/food/beer in the local context of Timor-Leste). However, the programme considers the identity reported at the time of registration as the basis of defining an MSW, without any risk or practice-related case definition. Since the numerator and denominator do not match exactly, the coverage indicators reported for MSW need to be interpreted with caution and may not be truly representative of the MSW sub-group.

In view of the above inconsistencies and **to ensure better KP programming for MSM and MSW**, the following revisions are suggested:

1. Do not consider MSW as a separate KP group, rather consider it as a prioritized sub-group of MSM.
2. Operationally, the PEs for MSM and MSW groups can be combined to serve the larger MSM group, with a focus on identifying and prioritizing MSW, through detailed risk profiling.
3. Set clear case definitions for MSM and MSW in KP programme. As much as possible, align it with the definitions used in MPSE.
4. Overall MSM reporting should include the service delivery to MSW also, within it. Individual reporting should be able to tag the MSM as MSW or non-MSW, so that a subset analysis of coverage indicators can be done for MSW sub-group and reported separately, wherever required, such as GF performance framework.

5. Do not club MSW reporting with FSW.
6. Use programmatic revalidation of MPSE estimates to update and clarify the proportion of MSW among MSM for target setting and indicator reporting. However, at the service delivery level for individual KP, quarterly risk assessment should be undertaken to identify and prioritize MSW, within MSM programme.
7. Based on risk assessment and profiling, MSW along with other higher risk sub-groups of MSM should be prioritized for STI screening, HIV testing and repeat testing, estimation of condom demand and adequate supply of condoms, PrEP initiation, etc. for greater prevention impact as well as to increase the yield of HIV case detection.

**Since many PLHIVs are reported to be KP, are we able to prevent new infections among KP effectively? Is our condom programming being effective and appropriately targeted?**

As noted above, condom programming is not based on estimation of condom needs and gaps, but is following a uniform norm of giving 24 condoms to each KP irrespective of their sexual practices and partner volumes, which are not documented. Some may need more and some less. It is reported that some KP who need more condoms are provided full box of condoms, it is based on judgement of PE or DIC, and not based on documented evidence. This may lead to a situation where those KP who need more condoms may not be getting them, while on the other hand, unused stock of condoms may be lying with KP whose needs are low. Excess condoms lying with community sometimes may lead to sharing with other partners and in their network, but may also give chance to wastage and misuse by reselling them. While no such instances could be documented, this possibility cannot be ruled out.

Unless there is enquiry and documentation by the peer educators on the condom use by specific KP in the last one week or one month, coupled with detailed documentation and verification of supply and distribution of condoms at the intervention level, it cannot be concluded that enhanced condom availability has led to enhanced condom use. Further, there is no documentation on reported cases of condom breakage, quality of condoms and preference or non-preference of specific brands of condoms being provided under the programme.

**While it should be acknowledged that for the first time in KP programming, PE outreach has been rolled out and strengthened during the current phase, and condom access to the communities has been increased significantly, it is equally important to acknowledge that if the scale up is not based on evidence of risk, prioritization and estimation of demand, the overall effectiveness of the KP programme may still remain low, in spite of the scaled up service delivery.**

**Discussion on key components of KP prevention programme**

As presented above, there is a great epidemiological and community need for KP prevention programming in Timor-Leste. Populations have been prioritized based on thorough review of evidence and potential impact of prevention and treatment among them. These interventions have a direct impact on the national goals for HIV programme—reducing new infections, AIDS-related deaths and stigma discrimination.

**Condom programming:** Condom usage is consistently low among KP over the last decade.

Cultural and religious factors also play an important role in low condom usage noted in KP as well as general population. Anecdotal information from KP members indicate that men do not like to use condom due to their personal preference to have skin to skin contact during sex. Access to condoms

is also limited. They are not available even at health facilities, including STI clinics. It is reported that condoms are given to women who want to use them as contraceptive, only if accompanied by her husband. The combination of all these socio-cultural, personnel and programmatic factors has led to the sustained low level of condom use in the country. Hence, condom and lubricant programming with a focus on promoting acceptance and preference as well as enhancing and ensuring access to good quality free condoms are critical to all HIV prevention efforts among KP, vulnerable and at-risk general population.

**PrEP:** While robust condom programming is likely to yield results over time, PrEP is a potential prevention tool in low condom-usage settings. Timor-Leste has launched the PrEP pilot project in Dili in 2021 with a target of reaching out to 200 MSM/FSW. While the pilot project is still in progress, initial experiences show a good response to and acceptance of PrEP among KP. However, there are concerns around proper eligibility assessment, screening and laboratory assessment at pre-initiation stage, follow-up and adherence to PrEP, management of side-effects, condom use before and after PrEP, etc. that need to be closely looked into. A well-structured PrEP programming will address the prevention gaps among KP and their partners. In view of the high HIV burden among MSM, PrEP may be prioritized for MSM group (including MSW), with gradual scale up to initiate 50% of the target population on PrEP over the next three years.

**Behaviour change and demand generation for HIV services:** Access to prevention products should be coupled with activities to provide information about their availability and access, communication to promote preference, uptake, and demand generation among the target population. BCC to KP through one-to-one/interpersonal communication channels by peer volunteers is important to promote awareness on HIV, STI transmission, risks, and services. Regular contact of KP and their partners by the peer volunteers in field and outreach settings has been identified as a core strategy to bring about behaviour change, risk perception, risk reduction and enhanced voluntary service uptake among KP. While peer volunteers and outreach workers from KP communities provide these outreach services to KP and their partners, PLHIV networks, community-based and FBOs can play a vital role in providing regular contact and outreach services to other vulnerable and at-risk groups in the general population. Hence, **IEC & IPC interventions** through peer-led outreach model should be prioritized under HIV prevention programming.

**STI services:** KP groups are at a heightened risk of STIs, including HIV and hepatitis, and have a substantial need for **sexual and reproductive health services**. Testing for chlamydia and gonorrhoea is not available in the programme.

A critical gap is in the treatment of STIs. Syphilis screening is available in the programme using point of care test kits, but confirmation with TPHA and treatment with injection benzathine penicillin are not available under the programme. Syndromic STI case management is offered at all CHCs, where symptomatic cases are treated with oral antibiotics. Treatment for hepatitis B is also not available under the programme. Partner notification is not consistent for all cases and at all centres, and documentation and reporting are weak. KP who are found positive for syphilis are referred to the nearest CHC for treatment. However, documentation of their treatment is not done or limited in the KP intervention.

In view of the higher rates of syphilis and hepatitis among various KP groups, it is important to scale up STI screening of KP, followed by referral for confirmation and appropriate treatment. These services should also include systematic risk profiling of KP for better prioritization, follow-up, repeat

screening and treatment completion. Partner notification, screening and management are essential components of comprehensive STI care, to minimize recurrence and morbidity.

**Linkages to treatment and follow-up of HIV positive KP:** Treatment adherence and retention on ART is an important gap identified for all PLHIVs on ART, including KP. Ensuring linking of HIV positive KP to treatment, rapid initiation of ART, treatment adherence and viral suppression also have potential prevention impact on HIV transmission to their partners. Hence, it is recommended that the KP programme should also ensure the linking, tracking and follow-up of HIV positive KP. Further, in view of the high TB burden in Timor-Leste, it is also recommended that all the KP programmes should undertake screening of KP for TB symptoms and ensure linkage to TB treatment from the nearest CHC.

**Community empowerment:** HIV prevention programme is a community-led, community-centred response which can be sustained only through strategic, systematic community empowerment initiatives. Implementation of KP programming through external NGOs or agencies can only create a momentum and set up a model, but cannot ensure sustainability. Capacity-building of community leaders and members in risk assessment, planning, management, and monitoring of prevention interventions will also contribute to regular refinements and customization of the service delivery to the community needs in different geographic and socio-economic settings. Promoting community collectivization through peer groups and community clubs will gradually lead to formation of CBOs, which can subsequently be formally registered as legal entities eligible and capable of implementing funded programmes. The potential of CBOs will extend its benefits and impact much beyond the HIV STI programme to strengthening community responses to stigma and discrimination, violence and socio-economic challenges faced by the community, in the long run.

**Capacity-building of outreach staff:** Outreach field staff in the KP programme and DIC staff should be regularly trained in operational guidelines, case definitions, micro-planning, hotspot saturation, risk profiling and prioritization of KP, etc. Refresher training should be provided once in six months to one year, coupled with sessions to collect and record the feedback from the PEs on the challenges they face in the field in implementing guidelines. Experience sharing sessions should be conducted among PE from different municipalities to facilitate cross-learning and sharing of innovations.

**Monitoring and supervision of KP programme:** Continuous monitoring, supportive supervision and handholding of outreach staff by the KP coordinator, KP association, UNFPA and NAP officers are very critical in building the morale of the outreach staff, as well as to clarify the doubts they may have, or correct the wrong practices in application of the operational guidelines in the field. There should be a systematic supervision plan involving the respective stakeholders of the KP interventions, so that every intervention is visited by a senior officer every quarter. The supervisory reports should also be shared formally with the field units as well as reported to NAP for compliance and review. Quarterly review meetings should be held at NAP level to ensure that KP programming is managed as per the operational guidelines.

**Use of MPSE estimates for KP programming:** The latest Mapping and Population Size Estimation (MPSE) of KP has shown a 20% increase in the size of KP, across all groups. The new numbers may be considered for recalculating the achievements and resetting the targets under the KP programme. Adjusted size estimates extrapolated to the national level may be taken as the denominators for KP programming, so that they include the targets for the scale up of KP programmes in the uncovered municipalities also. Further, the list of hotspots identified in the MPSE is a potential source of information for developing micro-plans and achieve hotspot saturation and must be used routinely

in KP programming. However, programmatic revalidation of KP size estimates and distribution should be carried out every six months using standard protocols and tools to update and revise the numbers at a local level from time to time, as per the local context.

### **Strategic recommendations**

1. Expand KP programme to all municipalities.
2. Develop operational guidelines, micro-planning tools, risk assessment and prioritization tools, condom gap analysis tools, etc.
3. Training and supportive supervision of KP outreach staff in targeted outreach, prevention and testing.
4. Experience sharing and cross-learning through virtual channels among field staff.
5. Six monthly STI and HIV testing of all negative KP.
6. KP intervention to ensure linkage to ART, treatment adherence and VL testing for positive KP.
7. Explore virtual outreach through social media channels and platforms to reach the unreached or hard-to-reach KP.
8. Introduce TB screening of all KP and referral, testing and treatment of TB positive cases.

### **Operational recommendations**

1. Implement risk profiling of KP at the time of registration, and updated every quarter/six months, for refined targeting and prioritization of KP sub-groups for prevention services.
  - a) Categorize KP into high, moderate and low priority KP
  - b) Identify and prioritize higher risk KP for prevention services including STI screening
  - c) Focus on higher risk KP for repeat testing for HIV every six months
  - d) Detect more positive cases and increase the yield of detections among KP
  - e) Have proper estimation of condom needs, demands and gaps
  - f) Assess eligibility for PrEP and promote PrEP to the right population.
2. Revise and strengthen operational guidelines and programming mechanisms, including the following:
  - a) Develop clear case definitions of KP to be reached, registered and provided services
  - b) Develop operational guidelines and tools for microplanning and hotspot saturation
  - c) Not to reset KP coverage to zero at the start of every year, but continue the coverage from previous year to next year. Track and continue the service delivery for KP already registered and reached, while identifying and adding new KP to the programme
  - d) Document old and new registrations separately with UIC
  - e) Report drop-outs, explore and document possible reasons
  - f) Set separate targets for sustained coverage of old cases and registering of new cases
  - g) Report all coverage indicators disaggregated by old and new registrations
  - h) Ensure clarity in reporting of KP reached, KP provided BSP and KP received HIV testing through clear operational definitions.
3. Strengthen HIV testing through the following:
  - a) Testing data and results to be regularly updated in PE activity sheets through information sharing between DIC and PE on testing of KP
  - b) Tracking of KP due for HIV testing and repeat testing, through preparation of due lists and defaulter lists

- c) Monthly reconciliation of HIV testing coverage data with HIV test kit consumption data and financial incentive disbursement data, by KP association, UNFPA and NAP.
- 4. Strengthen condom programming through the following:
  - a) Develop tools for estimation of condom needs, demand and gap based on risk profiling, and train field staff in the same
  - b) Carry out condom distribution to KP based on condom demand and gaps
  - c) Documentation of condom use, condom breakage, quality of condoms and preference or non-preference of specific brands of condoms
  - d) Pilot-test roll out of female condoms among FSW in two municipalities.
- 5. Recommendations related to MSM and MSW programming:
  - a) Do not consider MSW as a separate KP group, rather consider it as a prioritized sub-group of MSM
  - b) Operationally, the PEs for MSM and MSW groups can be combined to serve the larger MSM group, with a focus on identifying and prioritizing MSW, through detailed risk profiling
  - c) Set clear case definitions for MSM and MSW in KP programme. As much as possible, align it with the definitions used in MPSE
  - d) Overall MSM reporting should include the service delivery to MSW also within it. Individual reporting should be able to tag the MSM as MSW or non-MSW, so that a subset analysis of coverage indicators can be done for MSW sub-group
  - e) Do not club MSW reporting with FSW
  - f) Use programmatic revalidation of MPSE estimates to update and clarify the proportion of MSW among MSM for target setting and indicator reporting. However, at the service delivery level for individual KP, quarterly risk assessment should be undertaken to identify and prioritize MSW, within MSM programme
  - g) Based on risk assessment and profiling, MSW along with other higher risk sub-groups of MSM should be prioritized for STI screening, HIV testing and repeat testing, estimation of condom demand and adequate supply of condoms, PrEP initiation, etc. for greater prevention impact as well as to increase the yield of HIV case detection.
- 6. Position full-time doctor at KP DIC in Dili and nurse at other DICs, with KP-friendly timings of the clinics, provision of injection benzathine penicillin and other oral antibiotics, to strengthen provision of STI care, RMC, etc. as well as to promote HIV testing.
- 7. Rationalization of PE:KP ratios depending on KP size and topographic considerations.
- 8. Training of KP outreach staff in targeted outreach, prevention and testing based on updated guidelines
- 9. Strengthen field supervision and verification of field processes and documentation under KP programme through systematic supervision plan involving KP association, UNFPA and NAP.
- 10. Facilitate and promote experience sharing and cross-learning through virtual channels among field staff.
- 11. Training of community members and leaders in vulnerability mapping, risk assessment, planning, management, M&E of KP programmes.
- 12. Quarterly review of KP programme to be conducted by NAP with involvement of all the partners and KP coordinators to review the progress and adherence to the operational guidelines. Smooth flow of data and information between the implementing partners should be ensured for a comprehensive review and understanding.

## 11.2 General population prevention

At-risk general population, including people in prison settings and uniformed personnel (UP) are prioritized as vulnerable population, vulnerable to acquire HIV/STI due to their exposure to risk, either due to their own behaviour or their spouses'. At-risk general population refer to those general men and women who have multiple casual heterosexual partners. These sub-population groups are not associated with a specific identity or belong to a community. They are dispersed in the mainstream society and are not reachable through targeted intervention approach or peer-led models. The interventions to prevent HIV/STI among them and their partners need to take the approach of general population prevention through facility-based services and IEC channels.

The general population prevention interventions include sexual and reproductive health services, condom promotion in general population, blood donor screening for HIV/STI, multimedia interventions to promote awareness of HIV/STI, risk perception and demand generation for HIV/STI services, and specific interventions to address the risks of prison population and UP.

Prevention services to general population should be delivered through strengthened facility-based interventions to promote condoms and screening, referral and treatment of STIs, including partner management, supported by IEC campaigns for general population through mass media, multimedia and social media channels. Besides condom promotion, IEC and STI management as primary prevention strategies for general population, they should be closely linked to HIV testing and treatment programmes through strong referral, patient tracking and follow-up mechanisms.

### Status and progress

1. There are no major active interventions currently in place focusing on general population prevention, except general HIV and syphilis screening services at health centres. Status, progress and gaps in HIV and syphilis screening services are discussed in subsequent sections.
2. Currently, condom distribution is limited to KP through the KP programme. There is no active condom promotion among general population.
3. Blood donor screening for five transfusion transmissible infections is done for all donors at the National Blood Bank at Dili.
4. Prison interventions have been rolled out through one of the programme partners, Bairo Pite clinic in Dili.
5. NAP coordinates with the departments of police and military to promote HIV/STI prevention and testing services to the UP.

### Gaps, issues and challenges

1. Higher number of HIV reactive cases are being found among ANC clinic attendees and blood donors screened for HIV over the last few years, at the National Hospital and National Blood Bank,
2. Condom and lubricant programming for general population is not a prioritized intervention. Condom availability for general population is limited at health facilities. Even STI clinic attendees are not routinely provided with condoms. It is also reported that women who want condoms for contraceptive use are not provided condoms unless the husband also accompanies them to the clinic.
3. There are no specific mass media or multimedia IEC campaigns aimed at promoting awareness and demand generation for HIV/STI services among general population. It is the responsibility of

another government agency INCSIDA to ensure dissemination of correct HIV/STI information to the public.

4. The proportion of voluntary testing out of total HIV testing is noted to be very low at around 5%, reflecting low levels of risk perception and awareness of HIV testing services among the general population.
5. There are gaps in referral, tracking and linking of screened reactive cases from blood bank with confirmatory testing at national lab and treatment at national hospital.
6. Pre-donation screening and risk assessment of the donors is done, but does not include detailed probing of sexual partners and high-risk behaviours.
7. Increasing number of HIV cases are noted among STI and TB patients over the last few years.
8. Younger age of STI, TB and HIV cases detected every year reflect greater vulnerabilities among the youth in the country. Reported deaths among young PLHIVs within short time period after detection reflect low awareness among the youth about HIV/STI prevention and treatment services.
9. Various survey and surveillance studies have reported higher sexual risks, multiple casual partners and low condom use in general population.
10. The details of the services offered through interventions for prison inmates and UP are not available.

## Discussion

The section on "prioritizing populations" summarizes the epidemiological need for prevention programming among general population. To reiterate, around one-fifth of the HIV infections registered in the last two years are among low-risk general population. Increasing number of HIV cases are being detected over years among antenatal clinic attendees and blood donors, indicating potential spread of infection among general population. Higher levels of sexual activity with multiple sexual partners have been reported in various surveys and studies over the last many years in Timor-Leste.

**Condom promotion:** Condom usage in Timor-Leste is consistently low among general population over the last decade.

Cultural and religious factors also play an important role in low condom usage noted in KP as well as general population. Anecdotal information from KP members indicate that men do not like to use condom due to their personal preference to have skin to skin contact during sex. Access to condoms is also limited. They are not available even at health facilities including STI clinics. It is reported that condoms are given to women who want to use them as contraceptive, only if accompanied by her husband. The combination of all these socio-cultural, personal and programmatic factors has led to the sustained low level of condom use in the country. Hence **condom and lubricant programming** with a focus on promoting acceptance and preference as well as enhancing and ensuring access to good quality free condoms is critical to all HIV prevention efforts among KP, vulnerable and at-risk general population.

**General population IEC:** Access to prevention products should be coupled with activities to provide information about their availability and access, communication to promote preference, uptake, and demand generation among the target population. PLHIV networks, CBOs and FBOs can play a vital role in providing regular contact and outreach services to other vulnerable and at-risk groups in the general population. However, **IEC interventions** through mass media and multimedia channels should be prioritized under HIV prevention programming for general population. Social media is a

potential platform to reach out to the youth and adults. While the responsibility of promoting awareness on HIV/STI is the responsibility of another government agency INCISDA, the NAP should carry out advocacy activities and provide the necessary support to develop the IEC material and digital media content.

**Blood donor screening:** National blood bank at Dili is the only central agency for collection, processing and distribution of blood units to the entire health system in the country. Screening of blood donors at the national blood bank in Dili shows that the donors screened positive for HIV, syphilis and hepatitis are increasing over years. However, there are gaps in referral, tracking and linking of screened reactive cases from blood bank with confirmatory testing at national lab and treatment at National Hospital. Pre-donation screening and risk assessment of the donors is done, but does not include detailed probing of sexual partners and high-risk behaviours. This needs to be strengthened. National blood bank reported repeat donations whose profiles are not clearly known. In order to prevent HIV transmission due to professional donors, it is important to promote voluntary blood donations by healthy youth and adults to ensure that adequate volumes of infection-free blood units are available to meet the requirements of health system in the whole country.

**Interventions for UP:** Over the last 20 years, UP in Timor-Leste are found to be at greater risk of acquiring HIV and STIs. HIV Sentinel Surveillance 2019 was conducted among UP, including police and military personnel in Dili, Bobonaro, Oecusse and Covalima. The surveillance showed 0.7% HIV positivity and 7% syphilis positivity among them. Dili showed 9.3% syphilis positivity, while other three districts had 1.4% HIV positivity among the UP. Around 7.5% of males and 5.1% of females were found to positive for syphilis.

Previous surveys also show heightened risk of HIV and STI among UP. Dili STI survey of 2004 showed 8% positivity for syphilis among male UP, with 54% bought sex from FSW in the previous 12 months and only 33% condom use during last commercial sex. BSS 2008 also showed that 35% of male UP reported having a casual female partner and 25% reported to have had sex with FSW in the previous 12 months. IBBS 2011 showed that 34% of male UP visited sex worker, and 14% were positive for syphilis.

The data highlight the need for HIV/STI prevention and testing programmes for UP. NAP should work closely with the military and police departments to promote awareness of HIV/STI, condom access, HIV/STI screening, referrals and linkages for treatment, among the UP.

### **Strategic recommendations**

1. Carry out active condom promotion in general population for triple benefits liaising with religious and community leaders.
2. Enhance access to condoms among general population through condom outlets and vending machines at public places. Condom vending machines have been installed under the KP programme at selected hotspots to promote uptake of condoms. Similar strategy extended to public places such as hospitals, public toilets, transport points, public entertainment complexes, shopping malls, etc. will promote the uptake of condoms by the general public.
3. IEC through mass media, multimedia, and social media channels targeting general population and youth to promote awareness of STI/HIV services, risk perception, voluntary testing, STI screening, condom uptake and use.
4. Demand generation activities for condoms, lubricants, voluntary HIV testing services.
5. Promotion of voluntary blood donations among healthy youth and adults.
6. Extend KP hotline services to promote HIV testing in general population.

## **Operational recommendations**

1. Ensure availability of free condoms at all health facilities including ANC clinics, TB clinics and STI clinics for patients and general population.
2. Risk profiling, counselling and referral for HIV/STI screening among hospital OPD/IPD/emergency/TB clinic patients with STI symptoms or with multiple sexual partners.
3. Screening of all voluntary blood donors for HIV/STI/hepatitis B&C/malaria.
4. Linking of screened reactive cases from blood bank with VCT for confirmation testing and linkage to treatment.
5. Pre-donation screening and risk assessment of the donors to identify those with multiple sexual partners and other risk behaviours.
6. Advocate and collaborate with prison authorities to promote HIV/STI awareness, counselling and IEC, access to condoms, and HIV/STI screening for prison inmates.
7. Advocate and collaborate with military and police departments to promote HIV/STI awareness, counselling and IEC, access to condoms, and HIV/STI screening for UP.
8. Provide support in preparation and promotion of IEC material on HIV/STI, and services for prevention and treatment.

## **11.3 Management of STIs**

### **Status and progress**

1. STI screening is currently offered to all ANC clinic attendees and STI patients at all CHCs.
2. Syphilis testing of ANC clinic attendees has been scaled up to all CHCs in all the municipalities
3. Syndromic management of other STIs is done through clinical examination by doctors and provision of oral antibiotics. Cases are documented in separate registers.

### **Gaps, issues and challenges**

1. High syphilis positivity rates have been noted consistently over the last two decades among various population groups including ANC and STI clinic attendees, creating an endemic scenario. This could be due to high sexual activity, low condom use, limited screening and treatment of syphilis in the country. It is reported that many people depend on traditional healers for STI management.
2. There are large coverage gaps in syphilis screening among ANC and STI patients. All STI patients – syndromic or lab diagnoses – are not being tested for HIV. Documentation is not clear to track this.
3. CHCs frequently report kit shortage for syphilis testing.
4. Testing by TPHA for detection of active syphilis is not done. Since basic syphilis tests only detect antibodies which tend to stay for lifetime in a person infected once, it does not indicate active syphilis. This could also be the reason for sustained high levels of syphilis positivity recorded. Confirmation with TPHA will give a better understanding of the active syphilis and will reflect the prevalence levels and trends of syphilis in a given population.
5. Syndromic case management is done at all CHC with oral antibiotics, but reporting of STI cases identified and treated has several gaps.
6. Syphilis treatment with injection benzathine penicillin is not available under the programme. Hence, syphilis positive cases are treated with oral antibiotics, which are not effective.
7. Critical gaps have been noted in the follow-up of syphilis positive pregnant women, exposed babies and reporting of congenital syphilis cases. Even cases of syphilis positive pregnant women

do not get treatment. Cases of congenital syphilis among babies is likely, though not documented as they are never tracked.

8. Testing for gonorrhoea and chlamydia is not available under the programme.
9. Very low partner notification, screening and treatment have been noted and recorded.
10. Treatment of hepatitis B/C is also not available under the programme. Appropriate referral mechanisms to obtain treatment from general health system are also not defined and implemented.

### Strategic recommendations

1. Provision of injection benz penicillin for syphilis treatment at all CHC and RH.
2. Introduce point-of-care testing for gonorrhoea and chlamydia or using GeneXpert machines at all CHCs. Among the young, where chlamydia is a good marker of unprotected sexual activity, POCT can be introduced at CHC level or GeneXpert machines can be used for CT/NG diagnosis in syndromic diagnosis cases.
3. Roll out hepatitis B treatment at all CHCs.
4. Develop guidelines and roll out strong partner notification, screening and treatment protocols.

### Discussion

Vulnerable population groups are at a heightened risk of STIs, including HIV and hepatitis, and have a substantial need for **sexual and reproductive health services**. The data collected during JERM from national hospital showed very high levels of syphilis (6%) and hepatitis (5%) positivity among pregnant women tested at the hospital in 2022.

However, there are gaps in the coverage of different population groups for syphilis testing. Only around 65% of STI clinic attendees and 29% of ANC registrations were tested for syphilis during 2022. Only 16% of ANC registrations were tested for hepatitis in 2022. Testing for chlamydia and gonorrhoea is not available in the programme.

Another critical gap is in the treatment of STIs. Syphilis screening is available in the programme using point of care test kits, but confirmation with TPHA and treatment with injection benzathine penicillin are not available under the programme. Syndromic STI case management is offered at all CHCs, where symptomatic cases are treated with oral antibiotics. Treatment for hepatitis B is also not available under the programme. Partner notification is not consistent for all cases and at all centres, and documentation and reporting are weak.

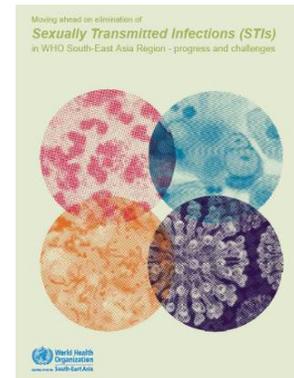
In view of the higher rates of syphilis and hepatitis among various groups, it is important to scale up STI screening of STI and ANC clinic attendees, followed by referral for confirmation and appropriate treatment. These services will also include systematic risk assessment of the clients to identify moderate to high-risk individuals, for better prioritization, follow-up, repeat screening and treatment completion. Partner notification, screening and management are essential components of comprehensive STI care to minimize recurrence and morbidity.

### Strategic recommendations

1. Focus on achieving 100% testing of all pregnant women and STI patients for syphilis and hepatitis B through reinforced guidelines, training of health care providers and supply of adequate test kits.



2. Ensure provision of injection benzathine penicillin for syphilis treatment at all CHC and RH.
3. Introduce point-of-care testing for gonorrhoea and chlamydia or using GeneXpert machines at all CHCs. Among the young, where chlamydia is a good marker of unprotected sexual activity, POCT can be introduced at CHC level or GeneXpert machines can be used for CT/NG diagnosis in syndromic diagnosis cases.
4. Roll out hepatitis B treatment at regional hospitals and promote referrals and tracking of positive cases from all CHCs.



### Operational recommendations

1. Strengthen documentation and reporting of STI testing, results and treatment from all CHCs.
2. Improve the forecasting of needs, timely procurement and supply of syphilis and hepatitis test kits to all regional hospitals and CHCs.
3. Develop guidelines and roll out strong partner notification, screening and treatment protocols for STI and hepatitis.

### 11.4 EMTCT of HIV, hepatitis and syphilis

One of the most important components of HIV prevention is the triple elimination of vertical transmission of HIV, syphilis and hepatitis B. It is a national as well as global commitment to prevent new-born children from acquiring any of the three infections from mother, through a bouquet of services ranging from prevention, testing and early detection, treatment of pregnant women to prophylaxis and early infant diagnosis for exposed babies.

EMTCT and EID services should be delivered through facility-based service delivery and outreach efforts by staff of ANC clinic/VCT centre/CHC, backed by structured capacity-building and awareness generation activities for health care providers and strong documentation and reporting guidelines and tools. All these ground-level activities should be catalyzed by the enhanced focus and close review of progress and outcomes from the NAP.

### Status and progress

1. The country has committed to triple EMTCT of HIV, syphilis and hepatitis. Revised and updated guidelines have been developed.
2. Institutional ANC care is around 60–70% at HPs and CHC. SNF and mother support groups (MSG) provide health services at household level.
3. ANC HIV testing is around 70% of those who visit CHC. Positivity rate is very low.
4. Documentation in VCCT/PITC Register. Trimester of testing is not documented.
5. HIV testing with three-test protocol has been promoted as a part of antenatal screening of all pregnant women across the country.
6. Expansion of HIV testing to all CHCs has led to scale up of testing of pregnant women for HIV over the last three years
7. % of ANC registration reflects 66% of testing of pregnant women.
8. District-wise break up of ANC testing data show that:
  - a) HIV positive pregnant women detected over time has been consistent around 15–20 cases detected every year.

- b) Out of 22 HIV positive pregnant women detected last year, 20 were initiated on ART (91%).
  - c) Pregnancy and delivery outcomes of positive pregnant women is not known and documented systematically. Even if known, it is limited to the knowledge of the ANC/EMTCT nurse and is not documented and reported.
  - d) DNA PCR testing facility for exposed babies is made available at the national lab.
9. Consistent cases of HIV+ve babies over years:
- a) Twelve exposed babies have been tested in 2022 and two were confirmed positive
  - b) Syphilis testing among pregnant women is much lower than HIV testing. Only around 30% of pregnant women were tested for syphilis

### **Gaps, issues and challenges**

1. Around 5–10 children are being detected HIV positive every year consistently over the last few years; almost all of them tracked to mother to child transmission. This shows that there are critical gaps in EMTCT spectrum of prevention activities, starting from testing of pregnant women till exposed baby follow-up.
2. Large gaps exist in the testing of pregnant women for HIV, syphilis and hepatitis B leading to transmission of HIV to their new-born child. HIV positives are being detected among children aged less than five years every year indicating that we could not prevent transmission in the past. There are cases where baby is found HIV positive first, followed by mother, in some cases father and elder siblings, detected positive.
3. Trimester in which HIV positive pregnant women were detected is not reported. It is not known how many are tested in the first trimester. Hence, early detection of HIV positive cases and early initiation of ART among pregnant women is not confirmed.
4. Known positives are documented in the pregnant women register at the EMTCT clinic at National Hospital. However, there is no reporting of known cases separately.
5. Positive pregnant women tracking is weak and leaky. Linking to ART is not documented at the testing site.
6. Timing of initiation of ART, repeat ANC visits, adherence on ART, VL testing and results, delivery information, etc. are not available at one place, very difficult to track, and not reported as well. For example, only one pregnant woman was found HIV positive last year, but her VL is not done. Information on ART adherence, delivery, outcomes and baby follow-up is not available.
7. Pregnancy outcomes of HIV positive pregnant women are not actively tracked and documented. Information is known only if the mother visits the centre again for any follow-up, and this information is limited to the knowledge of the clinic staff, but not documented systematically and reported.
8. Similar gaps extend to documentation and reporting of breast-feeding practices among HIV positive pregnant women after childbirth.
9. Overall awareness of health staff on EMTCT and EID guidelines is limited. They are not trained and oriented adequately on the seriousness of the EMTCT services, critical monitoring points, and necessary actions to be taken at each point. While doctors and clinic staff have personal knowledge about a pregnant woman being found positive, there is no action taken.
10. Spouse/partner testing for HIV is not done in all cases, and there is no documentation of spousal testing and results. Again, information, even if known is limited to the personal knowledge of the clinic staff.

11. Only 30% of pregnant women are tested for syphilis against 66% tested for HIV. Frequent shortage of syphilis test kits is reported from many centres leading to missed opportunities to test the pregnant women.
12. Hepatitis testing is irregular due to frequent shortage of test kits.
13. Spouse/partner notification, screening and treatment for syphilis and hepatitis are also not consistent, often missed.
14. EMTCT tracking from delivery to baby testing at 18 months, its documentation and reporting, are almost absent. They have formats, but they are not using them and reporting.
15. Exposed babies' list (cumulative around 15 from 2018) and list of babies who are tested at 18 months (around 6 from 2018) are found only at Maloa ART centre, managed by Maluk Timor, and not found at other ART centres.
16. Frequent shortage of DNA PCR test kits has been reported at the national lab, due to which DNA PCR testing of exposed babies is missed at instances when the baby is brought to the hospital.
17. DNA PCR testing facilities are not available at regional hospitals. There are no defined mechanisms or guidelines for transport of blood samples of exposed babies from CHCs/RHs to the national lab.
18. There is no clear adherence to the recommended timelines of testing exposed babies as per EID protocols. They are tested whenever the mother brings the baby to the health facility for any follow-up or health problems the baby faces.
19. There are no active outreach efforts to trace and mobilize the delivered mothers to bring the exposed baby to the hospital for screening at the stipulated timings. If there is no visit from the mother, then those babies are not tested for HIV.
20. Syphilis and hepatitis positive cases are referred to regional hospitals from CHC for treatment. However, there is no tracking of whether they received treatment or not.
21. There is no availability of injection benzathine penicillin for treating syphilis under the programme, even at the national hospital. National and regional hospitals treat syphilis cases with oral antibiotics, which are not effective in treating it.
22. Hepatitis B treatment is also not available under the programme.
23. At the programme level, there is no adequate push and focus on the EMTCT component, leading to laxity in implementation, documentation and reporting of critical indicators.

## Discussion

**Heightened need for strong EMTCT programme:** As presented in the section "Prioritizing Populations", there is a great epidemiological and community need for general population prevention programming in Timor-Leste. A sizeable proportion of HIV infections occur in low-risk populations who are sexually active. With zero to very low HIV positivity among FSW, most of these female HIV cases are likely to be spouses or casual partners of MSM or clients of FSW. Programme data show detection of HIV positive cases among children below five years age consistently over the last 5–8 years.

Thus, the above evidence shows a high potential for young women getting infected with HIV in their childbearing age, and therefore the chance of transmitting it to their babies. This underlines the need to focus on and strengthen the entire spectrum of EMTCT interventions. These include measures to prevent HIV infections among young women, test them at scale, detect cases early in pregnancy, initiate positive cases on treatment, ensure good treatment adherence, track their pregnancy outcomes, provide prophylaxis to the exposed babies after birth, and follow-up exposed babies for early infant diagnosis up to 18 months of age to confirm the HIV status. If baby is confirmed HIV

positive at 18 months of age or earlier through DNA PCR testing, they need to be linked to paediatric ART. They also include post-natal care and counselling to the positive mother on breastfeeding practices and family planning.

HIV positivity among ANC attendees is a good proxy marker of general population epidemic. Programme data of testing among ANC attendees show a HIV positivity of 0.1% at national level, while HIV sentinel surveillance 2019 has shown 0.3% HIV prevalence. It is considered as 10-fold increase in HIV positivity compared to ANC HIV prevalence of 0.03% recorded in HSS 2013. This is consistent with the increasing number of cases of HIV positive pregnant women detected over the last decade.

JERM noted very high levels of HIV, syphilis and hepatitis among pregnant women tested at National Hospital in 2022 and 2023. The higher levels in national hospital may be explained by the practice of referring positive pregnant women identified at CHCs or regional hospitals to the national hospital for better care.

The above evidence shows that HIV epidemic among general population is heterogeneous in its distribution, with a few pockets showing higher positivity than the rest. This calls for smarter geo-prioritization for scale up of testing facilities, saturation of pregnant women testing, and bridging the programmatic gap areas.

Taking one step back, the scenario of maternal and child health care in Timor-Leste also acts as a critical background enabler or barrier in enhancing EMTCT interventions.

### **Summary of ANC and ID practices from DHS**

Large gaps in institutional care

Thus, the evidence shows that unless EMTCT interventions are positioned alongside the general health system strengthening measures to promote uptake of institutional care by pregnant women across the country, it is difficult to reach the goal of triple EMTCT.

**Testing and treatment of pregnant women:** As noted above, a significant proportion of pregnant women access antenatal services at HPs and only visit CHC on referral due to any specific reason. Non-availability of HHS (HIV, hepatitis, syphilis) screening at HPs is leading to several missed opportunities to test pregnant women. As per the NSP 2023, the programme aims to scale up HHS screening to all HPs in the country. Till the time necessary commodities are supplied, reporting mechanisms set up and staff are trained, it is recommended to operationalize sample collection at HPs and transportation to the CHC for HHS testing. Applying geo-prioritization based on caseloads at HPs and trained staff availability, some HPs may continue to provide sample collection and transportation services only.

Several gaps in EMTCT and EID programming are due to lack of adequate awareness among the hospital/CHC staff about the guidelines and lack of proper documentation and reporting tools. This programme should focus on systematically training all the health staff of national hospital, national lab, all regional hospitals, CHCs and HPs on EMTCT guidelines, documentation formats and reporting tools. Frequent shortage of test kits has been reported from multiple sites as the reason for not testing pregnant women for HHS. The programme should strengthen the procurement and supply chain management of HHS test kits to ensure uninterrupted supply at all CHCs. This is a critical intervention towards the success of scaled up testing programme.

Further, programme should address another critical gap noted in linking the positive pregnant women with treatment, documenting and reporting the same. The purpose of an entire scaled up testing programme is lost if the positive cases that are detected are not treated immediately with the correct drug regimen. In this case, treatment of mother is the prevention for the baby getting infected. Hence, it is very important to offer appropriate treatment of syphilis at all CHCs and for hepatitis and HIV at the regional hospitals and ART centres. In case of referral to a higher centre for treatment, CHCs should mandatorily track the referral, verify if they have visited the higher centre and received treatment, and report to the programme accordingly. Continuous follow-up of every positive case to ensure initiation and retention on treatment is the responsibility of the CHC or the testing site where the case is detected, as the individual is more likely to be residing in its vicinity.

**Prevention of HIV/STI among pregnant women:** In view of the number of HIV positive cases being detected consistently every year among pregnant women as well as children, prevention of HIV among pregnant and breastfeeding women should be prioritized as a key intervention. This includes awareness generation and counselling of pregnant women during the antenatal visits on safe sex, condom use, partner engagement and negotiation, etc. Risk assessment of pregnant woman and her spouse related to sexual partners, migration, international travel, occupational exposure, blood transfusions, tattooing, etc. should be done, to enable clinic staff prioritize pregnant women for reinforced prevention counselling, essential screening of self and partner, and engagement of partner in pregnancy care and delivery.

Prevention, screening and treatment of STIs among pregnant women and their spouses/partners is an important strategy for general population prevention. Training of doctors and nurses working in the obstetrics and gynaecology clinics and ANCs of all hospitals in HIV prevention counselling, risk assessment, EMTCT and EID guidelines are essential to ensure HIV prevention among pregnant women. Post-natal follow-up of pregnant women to counsel them on ensuring safe sex practices to prevent HIV infection is also important, especially during the breastfeeding period.

**Prophylaxis to exposed babies:** Prophylaxis to exposed new-born babies is an important part of the EMTCT programme. Gaps have been identified in provision of nevirapine prophylaxis to HIV-exposed babies at some centres. Since the number of children needing NVP syrup is very low, NAP is facing challenges in procurement of such small quantities. There are also challenges in their distribution as the requirement at different centres is not known. Currently, NVP syrup bottles are available in the programme, but all centres do not have information about their availability. Hence, it is recommended to keep a central stock of NVP syrup at NAP or national hospital, and then issue the required number of bottles to different centres based on their notification of visit of an exposed baby. Mechanisms should be put in place to document the requests from different centres and details of issue to positive pregnant women. Children born to hepatitis positive mothers may be referred for hepatitis B vaccination and followed-up for early detection of signs and symptoms to ensure timely treatment.

**Follow-up of exposed babies:** Critical gaps have been noted in the follow-up of exposed babies and EID. The pregnancy outcomes of several positive pregnant women are not known. Protocol for testing of exposed babies is not followed. There is no active outreach efforts to trace and mobilize positive pregnant women who delivered, and to get their babies tested for HIV at the right time following the guidelines. Babies are tested only if the mothers bring them to the hospital for any follow-up. Some of the babies who visit the health setting also do not get the DNA PCR test due to shortage of test kits at national lab. Documentation is available to some extent at the national hospital, but limited at peripheral centres and regional hospitals. Awareness of doctors, nurses and

ANC clinic staff on EID guidelines is limited. Equally challenging is the timely diagnosis of congenital syphilis among exposed babies. Knowledge of health care providers, documentation, reporting of diagnosis of congenital syphilis is grossly limited. All these gaps warrant a focused intervention on strengthening EID and follow-up of HIV-exposed babies till the age of 18 months. Babies found positive should be linked to treatment programme for rapid ART initiation.

**Post-natal follow-up and retention support to HIV positive pregnant women and babies:** HIV positive pregnant women and exposed babies need continuous follow-up through home visits, adherence counselling and retention support, both for the mother and baby. Treatment retention and adherence among pregnant women is essential to achieve viral suppression by the time of delivery so that HIV transmission to the baby is curtailed to a significant extent. Treatment retention and adherence in post-natal period is also critical to minimize HIV transmission to the new-born baby through breastfeeding. Engagement of spouse and caregiver in treatment follow-up of mother and baby is also very important. This may be strengthened through engagement of SNF, community health volunteers, and MSGs in providing homecare, follow-up counselling and mobilization for timely visit to the HIV clinics.

### **Strategic recommendations**

1. Expansion of integrated triple testing services for pregnant women to HPs through sample collection and transport.
2. Expansion of HIV screening to all HPs with confirmation support from CHCs.
3. Strengthen linkages to rapid initiation of HIV, STI and hepatitis treatments.
4. Revamp documentation and tracking of HIV positive mothers and exposed babies for a robust tracking of deliveries, pregnancy outcomes and exposed baby follow-up.
5. Strengthen EID and follow-up HIV testing for exposed infants.
6. Focus on spouse/partner screening, risk assessment and management for all pregnant women, and essentially for HIV positive women.

### **Operational recommendations**

1. Training of all health care staff in EMTCT and EID for triple elimination.
2. Ensure supply of HIV/syphilis/hepatitis test kits at all CHCs and HPs.
3. Ensure adequate supply of DNA PCR test kits at national lab and RHs.
4. Ensure availability of NVP syrup at all CHCs. Ensure procurement and availability of NVP syrup at a central location (NAP/National Hospital) and notification-based issue to other centres, as and when required.
5. Promote referrals for hepatitis B vaccination of new-born babies.
6. Explore, evaluate and report symptoms and signs of congenital syphilis in exposed babies.
7. Follow-up, home care and retention support through SNF and MSG for HIV positive mothers and exposed babies.

## Chapter 12

### HIV testing and case detection

HIV testing is the critical linking step between prevention and treatment programmes. It enables early detection and early initiation of treatment for positive cases, while providing an opportunity to counsel, reinforce and link to prevention services for negative cases. VCT has been one of the oldest strategies under HIV programming, which includes the concepts of opt-in, opt-out, consent, pre-and post-test counselling, screening with single test and confirmation with three-test protocol, status disclosure, partner notification and screening. However, VCT is dependent on the levels of self-risk perception among the at-risk and general population, along with awareness of services and delivery points.

To promote case detections, as HIV programmes evolved as did the challenges they faced, the facility-based testing (FBT) programmes have taken up outreach activities among targeted sub-populations such as KP, youth, prisons, UP, factory workers, migrants, etc. for HIV screening. Some programmes have introduced mobile testing facilities using mobile vans or ambulances or mobile health clinics. Provider-initiated counselling testing (PICT) has been a game changer in the last 2 decades that enabled significant scale up of HIV testing, though the yield was relatively low. PICT among ANC, STI and TB patients and mandatory screening of blood donors contributed to increased case detection. HIV screening sites were scaled up to peripheral health centres and locations closer home to enhance access to general population, while confirmation services were limited to certain higher centres with proper laboratory facilities and availability of trained technicians.

Newer strategies of community-based testing, community-led testing, and point-of-care testing have evolved, especially for KP, to promote access to those who do not prefer to come to government health facilities for reasons of inappropriate timings, stigma and fear of identification. To promote testing of KP and pregnant women for both HIV and syphilis, dual test kits were introduced in many programmes. All these strategies contributed to significant scale up of testing programmes, increased case detection and significant achievement against the first 95% global target. However, the last-mile strategies to reach the target and fill the gaps in case detection evolved over the last few years, which include index testing and HIV self-testing. These bouquet of testing approaches and modalities have come to be known as differentiated HIV testing services, customized to reach to specific target groups.

Lastly, in view of LFU of HIV positive cases detected in the programme even before treatment initiation, all the testing programmes extended their scope to include linkages to treatment. Mechanisms for coordination, cross-referral, referral tracking, documentation and reporting have been strengthened over time to ensure that the testing programmes truly contribute to treatment as well as prevention outcomes.

#### 12.1 Status and progress

##### Implementation progress

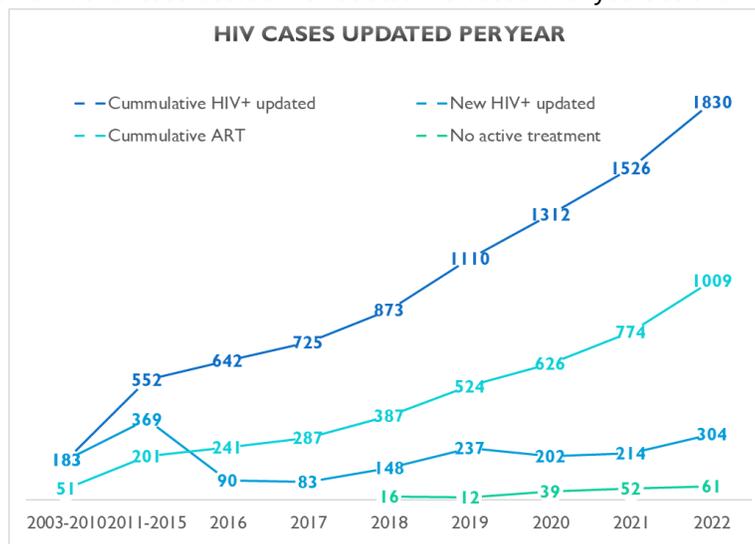
1. HIV testing services in Timor-Leste have been started from 2003 in the National Hospital and a few regional hospitals. Over the last three years, HIV testing has been scaled up to all CHCs.

2. The national programme has adopted the three-test confirmatory protocol for HIV, which is currently available at CHCs, five RHs, the national hospital and Bairo Pite Clinic in Dili.
3. HIV testing is also available in the private sector, though most of the cases screened reactive in the private sector are sent to the national lab for confirmation.
4. Outside the public health facilities, HIV testing for the KP has been introduced at the DICs in six municipalities, where KP interventions are operational. KP testing also has an element of community-based testing where the DIC counsellor visits the field outreach points and conducts HIV tests among the KP.
5. Guidelines have been issued for HIV testing of all ANC, STI and TB patients at all health centres. Consent form, pre-test assessment and post-test counselling forms have been developed and rolled out across the country.
6. VCT centres have been set up at the national hospital and RHs with a dedicated counsellor to provide HIV testing and linkage services. At CHCs, one of the staff nurses is designated to coordinate the HIV and syphilis testing among ANC, STI, and TB patients.
7. All the clients tested for HIV are given a UIC based on the first four letters of their name.
8. All the CHCs and RHs maintain a VCT register where individual details of the clients who have been tested are documented in duplicate. While one copy containing the name is retained at the centre, the other copy, devoid of name, is sent to the NAP.
9. The monthly sharing of individual-level data on tested clients to the national programme, with UIC, is noted by JERM as one of the best practices in Timor-Leste, not found in many other countries.
10. This data is made electronic at the national level, which enables the programme to identify duplicates in testing and patterns of repeat testing among PLHIVs. It also enables the programme to analyse the profiles of the clients getting tested and found positive, contributing to the epidemiological understanding of HIV.
11. The number of cases tested and reported are also summarized and reported to NAP on monthly basis through the HIV coordinators.

### Scale up and patterns of HIV testing

#### Scale up of HV case detections and yield analysis

1. The number of case detections has also increased over years as show in figure below:



2. The proportion of HIV positive cases detected through VCT has increased over years.
3. PITC has been giving the highest yield of positive cases every year. A large portion of them is from the national hospital and the national lab in Dili. It is likely that cases referred from TB clinics are also included in this.

### **12.2 Gaps, issues and challenges**

1. In spite of the significant scale up of HIV testing across the country, coverage gaps still exist in HIV testing of pregnant women, STI and TB patients. Around 66% of ANC clinic attendees, and 91% of TB patients are tested for HIV in 2022.
2. These coverage gaps get accentuated when you look at the decentralized disaggregated picture at the municipality level.
3. While around one-third of pregnant women access antenatal services from the HPs, HIV screening facilities or sample collection and transportation services for HIV testing are not available at the HPs.
4. While PICT accounts for the majority of HIV case detections, primarily reported from the National Hospital, the details of the medical or surgical departments or TB clinics or emergency wards or paediatric wards that have referred these cases are not reported. These information are partially available in the HIV register at VCT centre of National Hospital. However, the documentation is not consistent for all cases and is dependent on the availability of the senior nurse at the centre.
5. While national blood bank is detecting a good number of HIV reactive cases every year and referring them to the VCT centre in the National Hospital and the national lab for confirmation, the confirmatory test results reporting does not show any positives among blood donors. This indicates issues in documentation and recording of the source of referral at the national lab. Probably many of these cases are included under PICT, adding to the yield under that category.
6. The source of referral of the sample for confirmation is not documented properly at the national lab. The information is sometimes available in the referral slips received at the national lab and are documented into the testing formats. However, this practice is not consistent and complete. Further when the client data are entered into LIS during sample processing, the source of sample is not entered, and hence there is no electronic recording or reporting of the source of samples received for confirmation testing at the national lab. This is a serious limitation in the data management that restricts the understanding of testing patterns and yield of positive cases from different screening sites and sources within the National Hospital as well as from other private clinics and CHCs in Dili.
7. Very low rates of spouse/partner testing of VCT clients, ANC attendees and STI patients have been noted. There is no reporting of spouse testing as a separate indicator. Even in the VCT registers, documentation as spouse of another client is not uniform. The information is mostly limited to the knowledge of the VCT staff. The same issues exist for spousal testing of HIV positive cases also.
8. Frequent shortage of test kits has been reported at different centres. Test kit storage and temperature control related issues have been noted at some CHCs.
9. Quality assurance protocols and practices (EQAS, repeat testing, internal QC, panel testing, etc.) for HIV testing centres at RHs and CHCs are lacking. In view of the scaled up HIV testing programme, it is very important to have a continuous assessment of quality of testing at the peripheral testing centres to identify and address false reporting.

10. The practice of using consent form, pre- and post-test assessment forms is not uniform and consistent across all HV testing centres, including some of the large centres in Dili.
11. While issue of UC to every client tested for HIV at all the HV testing centres and sharing of individual-level data with the national programme are noted as best practices, the information collected, documented and reported at the individual level is highly limited to only age and sex and doesn't capture the risk profile or any other vulnerability related information that can help in better analysis of the testing data for epidemiological as well as programmatic purposes.
12. There is no documentation and reporting of probable modes of transmission of HV positive cases.
13. With respect to FBT of KP at the DICs in six municipalities where KP interventions are functional, the key challenge is to assess the proportion of reached population who are tested for HIV and to link it with outreach data at an individual level. Further, the six monthly repeat testing among the KP who were found negative is very low.
14. While CBT through the DIC counsellor is offered occasionally to the KP, the data on the number of clients tested through CBT and found positive are not documented separately, but included within the overall testing data. Hence, the contribution of CBT cannot be assessed properly.
15. There are serious linkage losses between various screening sites and confirmation sites leading to potential gaps in reaching the first 95 target. The documentation and reporting of HV screening and linkages to confirmation followed by the results of confirmation tests is not aligned for individual-level tracking. There is no emphasis on bridging these gaps from the programme and the pathways of linkages, referrals, tracking and reporting are not clearly laid out.

### 12.3 Discussion

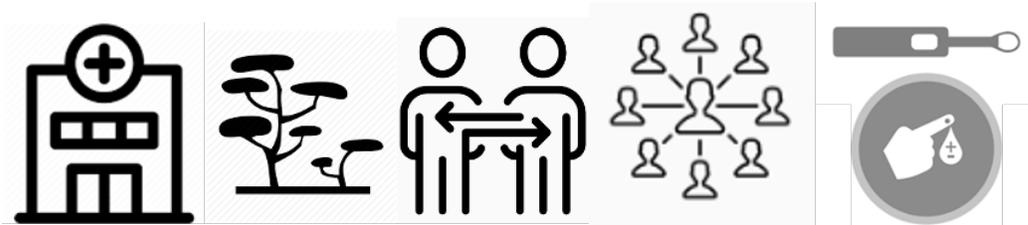
The section on prioritizing populations highlights the population groups that need to be reached with prevention and testing programmes due to the high likelihood of HIV infections occurring among them. While KP can be reached through active outreach, general population testing is largely dependent on FBT services coupled with IEC activities to promote perception awareness of testing services among them.

**FBT of KP:** As noted above, around half of the recent infections are occurring among KP primarily MSM. Thus, it is imperative to scale up HIV testing of KP, including six monthly repeat testing of negative cases. It is also important to promote testing of spouses and partners of KP for early detection and early initiation on treatment for the positive cases. As we know, treatment retention and viral suppression provide strong prevention impact in limiting transmission of HIV to their partners, especially in the context of Timor-Leste where the condom-use rates are very low and PrEP is only at its pilot stage.

In alignment with scale up of KP programme to other municipalities, FBT for HIV may also be scaled up at DICs, set up for KP prevention services. Dual test kits for HIV and syphilis may be procured and supplied to all KP interventions to ensure that every KP is tested for both HIV and syphilis, maximizing the outcome of every contact opportunity. The financial incentive scheme to encourage KP to visit the DIC for HIV and syphilis testing may be continued, and awareness about the scheme be promoted among the KP networks. It is recommended to position full-time doctors at high load DICs in Dili and nurses at all other DICs to strengthen STI prevention among KP. It is expected that increased visits to DIC for STI care will also translate into enhanced testing coverage of KP for HIV and syphilis.

Index testing strategy may be designed and implemented in the KP programme to reach out to the partners, contacts and family members of positive KP with adequate care and adherence to the principles of disclosure, consent, intimate partner violence, etc. Focused IEC activities may be taken up through the outreach mode to promote awareness about HIV testing services and enhance their uptake by KP and their partners.

The figure below describes various testing approaches like facility-based testing, provider assisted referral index testing, self-testing, etc. that needs to be adopted in Timor to reach the unreached.



Documentation of HIV testing of KP should be strengthened to ensure individual-level tracking as well as more accurate assessment of testing coverage. Focus should be given to repeat testing every six months of negative KP and testing of their spouses and partners. Tracking of HIV positive KP, linking them to treatment, and promoting treatment adherence and retention should also be prioritized under the KP programme.

**CBT for KP:** The need to scale up CBT emerges from the same rationale as presented for strengthening FBT for KP. In view of the low yield of HIV positive cases from the KP programme contrasted with the large proportion of PLHIVs reporting high-risk behaviour, JERM raised a concern whether the KP testing is targeting the right KP who are at higher risk of acquiring HIV or not, and what are the areas where the programme is likely to miss detecting HIV positive cases among them. In the current KP programming, CBT is restricted to the visits made by the DIC counsellor to the field where he or she conducts HIV testing for the KP, mobilized by the peer educators at a suitable location comfortable to the KP and ensuring confidentiality.

In order to increase the coverage of CBT among KP and enhance case detection, the peer educators, peer leaders and outreach coordinators may also be trained in conducting point-of-care HIV and syphilis tests in the field setting. This is likely to significantly improve the HIV testing coverage among KP, possibly leading to improved case detection. The scaled up CBT may be based on risk profiling and prioritization of KP within the outreach areas to enhance the yield of case detection—targeting the right subgroup at higher risk of acquiring HIV.

**FBT for general population:** FBT at health centres across the country is the primary strategy to promote access to testing services among general population. While the epidemiological data highlight the fact that around one-third of HIV infections are occurring among the mainstream general population, scale up of HIV testing services closer home, providing the services in stigma-free environment and promoting the awareness about such services in the general population is the key strategy under the programme. The coverage gaps reported in the testing of pregnant women, STI clinic attendees and TB patients pose serious barriers in achieving the target of first 95.

The linkage losses between the screening and confirmation sites are the potential missed opportunities for HIV prevention and treatment among general population, besides being indicative of programmatic inefficiencies and wastage of resources employed in screening when the screen reactive cases are not linked to confirmation. Stigma and discrimination towards key and vulnerable

population at the health care settings is a potential barrier for uptake of HIV testing services by the communities affecting not only the achievement of programmatic targets, but also the social and health status of the vulnerable communities.

Hence, the programme should focus on strengthening facility-based HIV testing services for general population and other vulnerable groups through evidence-based scale up of services to the HP level, applying geo-prioritization. The health care providers at VCT centres, CHCs and RHs may be sensitized through periodic orientation programmes to reduce stigma and discrimination in all health care settings. The travel incentive for taking HIV test, which is currently being provided to KP, may also be extended to ANC and STI clinic attendees to enhance testing coverage among them. Training and sensitization of private doctors and traditional healers on early case detection and notification of STI/ HIV/hepatitis/TB cases may also be taken up.

Detailed demographic and risk profiling of all the clients tested for HIV during the pre- and post-test counselling sessions should be strengthened to enhance the understanding of testing patterns in various population groups, that will in turn contribute to strategic planning of HIV testing services. Documentation of risk behaviours among all clients and possible mode of transmission among HIV positive cases will also contribute significantly to robust epidemiological understanding of the factors leading to HIV infections and thereby help in planning and prioritizing the prevention and treatment programmes.

**HIV self-testing:** In order to bridge the coverage gaps for HIV testing among KP and general population and to enhance access to HIV testing services for those who do not prefer to come to testing facilities for various reasons of distance, travel costs, stigma and discrimination or fear of identity, a pilot project on HIV self-testing among MSM and FSW has been rolled out in 2022 in Dili. The initial results show a good response from the KP communities in accepting and utilizing the HIV self-testing approach to get themselves tested in a fully confidential manner. It has also been noted in the pilot project that the KP members who take HIV self-test are also willing to share their test results with outreach workers thereby enabling the programme to link them with the required prevention or treatment services based on their HIV status. Based on the encouraging results of the HIV self-testing pilot project being conducted in Dili, the programme may plan to scale up and roll out HIV self-testing for MSM, primarily in Dili where nearly 80% of the KP have been mapped.



Further, in view of a significant proportion of HIV infections occurring among general population, primarily among those with multiple heterosexual partners, JERM also recommends extending HIV self-testing for at-risk population in selected geo-prioritized areas based on the vulnerability and case reporting. The self-test kits could be placed at the community level health volunteers or health workers working at the HP level from where at-risk individuals who want to get themselves tested in a confidential manner can access the HIV self-test kits and receive the test. This strategy of rolling out HIV self-testing for at-risk general population may be explored in the next grant cycle. In all cases,

assisted self-testing is encouraged with proper counselling, and consent for sharing of test results may be emphasized and implemented.

**Index testing programme:** Evidence shows that the number of sexual partners is high among MSM, clients of sex workers and those having casual heterosexual partners. Dual and triple risks have also been noted, demonstrating sizeable overlaps of sexual partners and heightened risk of transmitting HIV from one group to the other. The JERM quick exercise of risk profiling the recently diagnosed HIV cases also showed that around one-fifth of them are low-risk males and females who have acquired the infection most likely through spousal transmission. All this evidence points towards a greater need for testing the exposed partners, contacts and family members of PLHIVs for early detection and early initiation on treatment. Index testing strategies have been potential game changers giving high yield of positive case detection and contributing to bridging the gaps in achieving the first 95 target.

Hence, NAP may prioritize to roll out index testing programme for all HIV positives detected in the KP programme as well as general population through FBT. Index testing approach may first be initiated with all the known HIV positives who are registered for ART under the programme. All the newly detected cases may also be added to the index case due list and may be approached subsequently. Guidelines and tools may be developed for enrolling positive cases as index cases, taking their consent, contact elicitation and documentation of preferred mode of contacting their partners. Intimate partner violence with each of the reported partner should be assessed before contacting any of those partners. The partners will then be approached and offered HIV testing along with counselling on prevention and treatment, and they will be tested with due consent. Cases that are found positive from the contact testing should be linked to treatment and enrolled as an index case for further exploration of their sexual networks.

**Focus on linkages, tracking and follow-up between screening, confirmation and ART initiation:** Essential last component of all testing programmes is linkage of positive cases with treatment, at the earliest, and minimizing the linkage losses. The productivity of HIV testing programme can be considered to be high only when all the positive cases get linked to treatment. The national-level data show nearly 35% linkage losses between HIV case detections and initiation on treatment. On one hand these linkage losses decrease the effectiveness of testing programmes, while on the other hand add additional burden to the programme to carry out efforts for tracking and mobilizing them for treatment. A positive case, which is not confirmed to be initiated on treatment, might be a potential source of HIV transmission to his or her partners and contacts. They may also be subject to psychological trauma as well as self-stigma both of which pose serious challenges to the health and well-being of the infected person and his or her family.

Further, it has been noted that many HIV cases are detected among TB patients who present to the TB clinic and a proportion of them die within six months of detection indicating that they have been detected at a very late stage or at advanced HIV disease stage. In such cases, linkage losses are even more serious as they are more likely to lose their lives if not initiated on appropriate treatment and care at the earliest possibility. Rapid initiation of treatment among HIV positive cases within 15 days of detection is critical to ensure the desired outcomes of preventing mortality and improving quality of life.

Thus, strengthening linkages, tracking and follow-up of HIV reactive cases for confirmation, and confirmed positive cases for rapid ART initiation is specific high-priority intervention. It involves revamping documentation and reporting tools that enable individual-level tracking. It includes

generation of due lists, defaulter lists and sharing of information between screening, confirmation and treatment sites. Reconciliation meetings should be done at every ART centre with all the confirmation sites, and at every confirmation site with all its screening and referral centres, every month, to review the due lists, defaulter lists, referral updates, etc. PLHIVs who are LFU after confirmation should be followed up in the community with the support of KP outreach, PLHIV networks, CBOs and FBOs. Mechanisms and efforts to trace, contact, counsel and mobilize them for the next step, and the outcome of such efforts, should be documented and reported.

#### **12.4 Strategic recommendations**

1. Provision of HIV/syphilis testing for KP at DIC at municipality level in all districts.
2. Scale up of VCT services at all CHCs and HPs, TB clinics, ANC clinics, STI clinics, etc. focusing on:
  - a) 100% HIV, syphilis and Hep B screening of pregnant women in first trimester through screening at HPs and CBS; tracking of pregnant women (PW) who missed first trimester testing
  - b) 100% HIV testing of STI patients and their partners
  - c) 100% HIV testing of all presumptive TB cases.
3. Strengthening sample collection and transportation of blood samples from HPs to CHCs for testing or confirmation, till confirmatory testing is available at the HPs.
4. Enhance focus on spouse/partner notification, screening and management in all testing programmes.
5. Roll out index testing programme for partners, contacts and family members of all positive cases, including KP. Start with reaching out and testing all the spouses, partners and children of all known HIV cases currently in care; continuing with new cases identified.
6. Introduce community-based assisted screening of KP for HIV/syphilis through counsellor and PE outreach.
7. Pilot community-based screening of at-risk population with the support of SNF/MSG in select sub-districts and municipalities based on geo-prioritization.
8. Scale up HIV self-testing for KP programmes in Dili and general population in select geographies based on geo-prioritization.
9. Focus on linkages, tracking and follow-up of HIV reactive cases for confirmation, and confirmed positive cases for rapid ART initiation.
10. Provide travel incentive to ANC clinic attendees and STI patients for taking HIV test in select geographies (currently provided to KP).

#### **12.5 Operational recommendations**

1. Procurement of point-of-care dual test kits for HIV and syphilis to maximize the contact opportunity.
2. IEC activities to promote risk perception, awareness and uptake of services (demand creation).
3. Strengthen documentation of background characteristics and risk profiling of all clients who are tested for HIV along with detailed documentation of risk behaviours, possible mode of transmission and partner details of those who are found positive.
4. Define clear referral and linkage pathways connecting various screening, confirmation and treatment sites to be laid out, with suitable administrative instructions, reinforced from time to time.

5. Strengthen documentation for referrals, linkages and tracking of confirmation results between screening sites and the confirmatory testing sites to prevent linkage losses between screening and confirmation, especially at the national hospital, national blood bank and the national lab.
6. Provision of HIV testing services in public health settings free from stigma and discrimination and ensuring confidentiality and privacy to promote utilization of testing services by the key and at-risk population.
7. Training and sensitization of private doctors and traditional healers on early case detection and notification of STI/HIV/hepatitis/TB cases.

## Chapter 13

### Treatment, care and support

Treatment, care and support are the most critical components of HIV programming with significant direct impact on disease outcomes, mortality, and quality of life at individual level, and prevention of HIV transmission at the community level. They include a wide range of interventions providing comprehensive services for the people infected and affected by HIV. Services delivered through community-based models will yield significant results in terms of health care outcomes as well as community mobilization and empowerment.

The treatment cascade shown below summarizes the progress made in strengthening treatment, care and support services to PLHIV in Timor-Leste and the gaps that continue to exist.

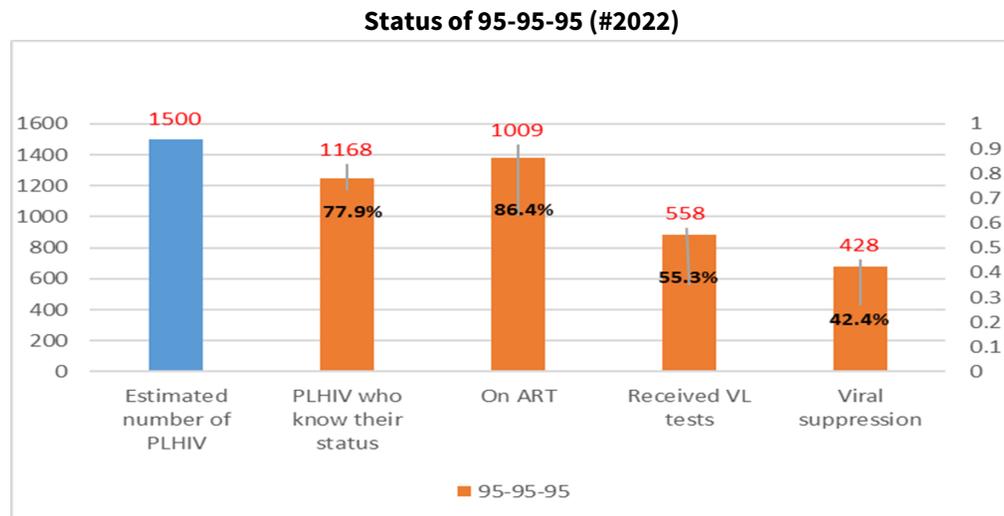
#### 13.1 ART provision for adults and children

##### Status and progress

1. ART services have been initiated under the NAP in Timor-Leste
2. Currently, eight ART centres are functional at National Hospital, Bairo Pite Clinic, Maloa Clinic (managed by Maluk Timor) in Dili and five regional hospitals. The three centres in Dili manage 80% of all PLHIVs registered on ART.
3. By the end of December 2022, 1009 PLHIVs were receiving ART. Number of PLHIVs on ART at the end of year over the last three years is as below:
4. Out of them, 97% were adults and 3% were children.
5. CD4 testing facility is available only at the National Lab.
6. All the new ART initiations are on dolutegravir. It is worth appreciating the fact the NAP is proactively implementing the international guidelines in improving the quality of treatment and care.
7. While facility-based uptake of ART through monthly visits by PLHIV is the mainstay of ARV dispensation, at times when the PLHIV is not able to visit, ARV drugs are provided at their homes through the PLHIV network volunteers or municipal HIV coordinator. These mechanisms were widely used during the Covid-19 pandemic, and are continued at a smaller scale for needy cases even now.
8. No major stock outs of ARV drugs have been reported and adequate stocks are currently available under the programme.
9. At the time of initiation of ART, a separate case file is opened for each PLHIV, which documents detailed clinical notes written by the doctor, basic demographic and risk-related information, laboratory investigations, treatment regimen and details about coinfections such as TB, syphilis and hepatitis. Case files are updated on every visit of PLHIVs to the ART centre.
10. A good practice noted at the ART centres is that they do not issue a new UIC or new PID number. However, the VCT number issued by the place of diagnosis is carried forward and used to refer to the PLHIV during his/her entire course of treatment. Since all VCTs share individual-level data of clients tested for HIV every month with the VCT number and UIC, this allows the programme to analyse the linkage losses between detection and ART initiation.
11. An excel database of PLHIVs on ART is shared from all ART centres every month to the NAP, with basic information.

## Gaps, issues and challenges

1. The first gap is in linking of HIV positive cases with ART and rapid ART initiations as show in figure below.



2. Progress in transition to dolutegravir-based regimens and multimonth dispensing is slow.
3. CD4 testing is not being done regularly for all PLHV at the time of ART initiation. Stock out of CD4 test kits has been reported from the national lab. Lack of this information limits the assessment of stage at which the programme is detecting HIV cases and linking to treatment.
4. Formal mechanisms for interfacility coordination and communication, and transfer-in and transfer-out protocols are not clearly laid out, and are not strictly adhered to.
5. Provision of ART through community volunteers is a good practice for cases which cannot visit the centre, but there are gaps in documentation of such ARV drug distribution. The number of patients provided ART through community-based model and the quantum of drugs distributed are not documented.
6. The formats of the case files maintained for each PLHIV are not uniform across all ART centres. At least, three different formats have been noted at National Hospital, Bairo Pite Clinic and Maloa Clinic. Hence, the information captured is not uniform.
7. At the three large ART centres in Dili, it is noted that doctors regularly attend to the patients and maintain the clinical notes and case files updated. However, the same practice is not found to be consistent at the regional hospitals. On the other hand, it has been reported at a few places that doctors are not very willing to see PLHIVs and hence, only the ART counsellor maintains the treatment and documentation. There are no dedicated physicians who are responsible for patient care at the ART clinics in some of these peripheral centres. The number of PLHIVs receiving ART at the peripheral centres is low and this could be one of the important reasons for it.
8. Knowledge and capacities of doctors and staff at ART centres on advanced HIV disease management need to be strengthened. The WHO package of interventions depicted in figure below needs to implemented urgently to reduce AIDS related deaths.

## WHO Package of care for advanced HIV disease

-  **Screen for severe opportunistic infections:** screen people for symptoms of TB and for cryptococcal meningitis using **CrAg LFA**
-  **Give preventative therapy:** TB preventative therapy, co-trimoxazole to prevent severe bacterial infections and PCP, and fluconazole to prevent the development of cryptococcal meningitis (if **CrAg** positive without meningitis)
-  **Test those with symptoms of severe infections (or who are seriously ill) with the appropriate tests such as sputum MTB/RIF and Urine LAM for TB**
-  **Start ART as soon as possible**
-  **Give tailored counselling to people with advanced HIV disease to support their care**

9. The documentation of OIs among PLHIVs is limited to the case files in respective centres. There is no structured reporting of the same.

### Discussion

As noted above, 80% of PLHIVs on ART are receiving treatment from the three large ART centres in Dili. There is a high preference to take treatment from Dili, rather than from an ART centre located closer home. This could be due to the issues of identification and stigma at the peripheral centres, better availability of doctors and the trust in the quality of care in Dili. However, everyone may not have the financial resources to travel to Dili every month, which may affect their treatment adherence. Hence, it is important to strengthen decentralized provision of ART at regional hospitals and select CHCs in municipalities, which have relatively higher case load.

The centres in Dili also report that many cases, which are initiated on ART at peripheral centre, come to Dili and restart their treatment. In some cases where the information about earlier centre of initiation is known, efforts are made to inform them through phone. In some cases, this information flow is not consistent. As a result, the person may be counted as a dropout in the earlier ART centre, while he is receiving treatment from another centre. Several cases are also transferred between the three large ART centres within Dili. While the documentation of the transfer is mostly maintained, the clinical history and other details are not fully transferred. Formal mechanisms for interfacility coordination and communication, and transfer-in and transfer-out protocols should be clearly laid out and strictly adhered to. Municipal HIV coordinators and regional supervisors should play an important role in this interfacility coordination and documentation through monthly reconciliation meetings.

The programme should strengthen the quality of care at the peripheral ART centres so that stable cases with good treatment adherence and retention receiving ART from the three large ART centres in Dili can be shifted to the peripheral centres for subsequent follow-up and uptake of medicines. Multimonth dispensing is being promoted for stable patients to minimize the financial burden of visiting the ART clinic every month. This needs to be monitored and encouraged for stable patients. The communities of KP, PLHIV networks, CBOs and FBOs should be actively engaged in strengthening of decentralized ART provision through regular training and clearly laid out accountability and

reporting requirements. Forecasting of ARV needs, procurement and supply chain management of ARV drugs should be strengthened to prevent any stock-out situation.

Many HIV case detections are from the TB clinic when cases present with symptoms of TB. Mortality among HIV–TB coinfecting cases is also high. Presentation with TB could be a reflection of advanced HIV disease (AHD), and hence needs to be addressed immediately. In view of high TB incidence in the country, management of AHD needs to be strengthened. All the doctors and ART clinic staff should be trained in the AHD package as per WHO guidelines. Diagnosis and treatment of OIs is an important component of AHD management. These should be strengthened and availability of drugs for OIs should be made available at all ART centres.

### **Strategic recommendations**

1. Strengthen decentralized provision of ART and quality of care at regional hospitals and CHCs based on geo-prioritization, using appropriate models of service delivery—Facility-based, multimonth dispensing, dispensing through community volunteers, etc.
2. Active engagement of communities of KP, PLHIV networks, volunteers of CBOs and FBOs with training and clearly laid out accountability and reporting requirements.
3. Strengthen mechanisms to ensure rapid ART initiation within 15 days. Consider designing financial incentives to PLHIVs for rapid ART initiation.

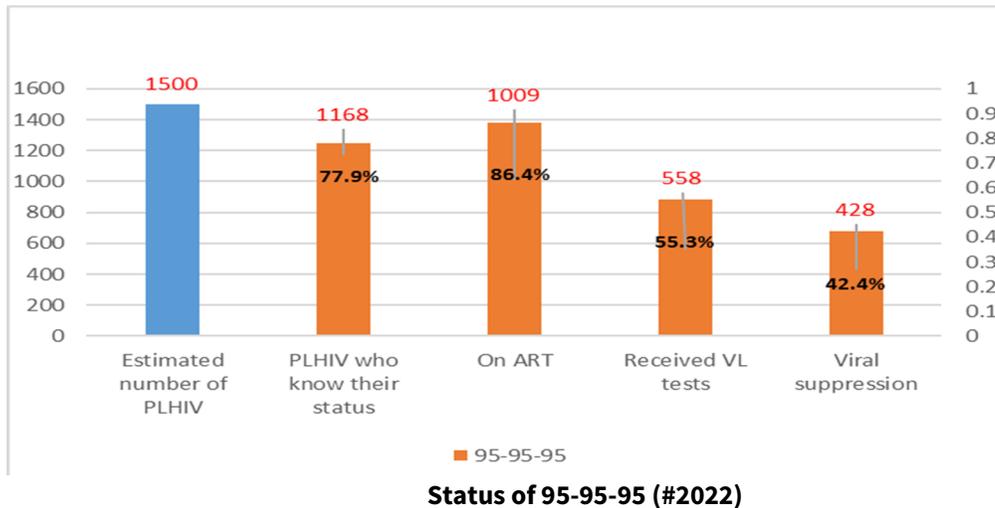
### **Operational recommendations**

1. Strengthen forecasting of needs and procurement of ARV drugs.
2. Develop guidelines for and operationalize transfer-in and transfer-out protocols between ART centres in the country, through interfacility coordination tools and monthly reconciliation meetings (virtual).
3. Promote collective and cross-learning among doctors of the three large ART centres of Dili and with ART centre doctors of peripheral centres to ensure uniform update and implementation of guidelines, through virtual platforms.
4. Repeated periodic sensitization of doctors in peripheral ART centres to reduce stigma and discrimination towards PLHIVs.
5. Intensified support and training of ART staff to ensure adherence to the AHD package.
6. Diagnosis and treatment of OIs.
7. Ensure availability of drugs to treat OIs at all ART centres.

## **13.2 Monitoring treatment adherence, retention, viral suppression and drug resistance**

### **Gaps, issues and challenges**

1. Retention on ART is high, and it is noted even in the peripheral ART centres that almost every PLHIV visit the centre once a month to collect medicines. However, formal assessment of 12-month or 24-month retention rates is lacking.
2. There is no formal assessment, documentation and reporting of treatment adherence rates. However, the adherence to treatment appears to be a major challenge as reflected by the high VL failure rates of over 20%. Among those who showed treatment failure, the VL quantum is extremely high indicating very poor treatment adherence. ART clinic staff also expressed the challenge in counselling and convincing PLHIVs for treatment adherence.
3. On 95-95-95, there are significant gaps in the cascade as shown in figure below.



4. The most critical gap identified in ART programming is lack of any action taken on the cases of high VLs. It is noted that many PLHIVs who showed high VLs six months to one year back are still continuing on the same regimen even after six months. In some cases, even the repeat VL has shown to be very high, but no concrete action has been taken.
5. There is no clear information on the number of PLHIVs on second- or third-line ART. There is no clear concept of alternate first-, second- and third-line ART among the ART clinic doctors. There are no clear guidelines on assessment of VL failure cases and alternate regimens to be provided.
6. In some select centres in Dili, reinforced adherence counselling is provided to high VL cases and VL is repeated after three months. There are cases where VLs have decreased after such intervention. However, these practices are not uniform and not being implemented in most of the centres.
7. There are no specific activities carried out for HIV drug resistance, monitoring and reporting.

### Discussion

Low treatment adherence as reflected by high VL failure rates is the most critical challenge faced by the treatment programme. High focus and strong measures should be planned to address this critical gap. The activities should include social context assessment for every new positive case through network volunteers to identify risk factors associated with poor adherence, and provision of reinforced preparedness counselling, readiness assessment and adherence counselling to PLHIVs along with sensitisation, counselling and involvement of caregiver. The ART clinic staff and community volunteers should be trained in all these aspects of adherence management.

VL monitoring is a critical intervention to assess the treatment outcomes and report against the third 95 target. Achieving sustained viral suppression is an important programme outcome that will in turn contribute to improved quality of life, reduced chance of mortality, and prevention of HIV transmission to partners. Ensuring a high coverage of VL testing through scaled up facilities, maintaining due list of PLHIVs eligible for VL testing, mobilizing and following-up for sample collection and testing, and annual repeat testing should be strengthened.

Guidelines and training should be provided to all doctors and ART counsellors to ensure that all reports of high VL are immediately notified to the programme, and immediate action is initiated in providing reinforced adherence counselling to the PLHIVs and the caregiver. In all such cases, VL testing should be repeated after three months to monitor the progress. In cases of repeat failure,

detailed clinical evaluation for change regimen will be instituted. A central clinical evaluation committee of doctors and ART physicians may be constituted to evaluate all cases of treatment failure and to take a decision on switching to alternative first- or second-line regimens.

In view of the high levels of VL failures reported in the programme, it is important to understand the reasons and address them. While treatment adherence is the first factor to be explored and acted upon, HIV drug resistance is another key factor to monitor. The programme should develop a national plan for HIV DR monitoring, set up monitoring and reporting of early warning indicators and develop design and protocol for HIV DR surveillance, in collaboration with accredited international laboratories in Australia or India.

### **Strategic recommendations**

1. Constitution of clinical evaluation committee of doctors and ART physicians for detailed evaluation and clinical decision in all cases of treatment failure.
2. Development of a five-year national HIV drug resistance (HIVDR) plan.

### **Operational recommendations**

1. Social context assessment for every new positive case by network volunteers to identify risk factors associated with poor adherence.
2. Provide reinforced preparedness counselling, readiness assessment and adherence counselling to PLHIVs along with sensitization, counselling and involvement of caregiver.
3. Ensure VL tests for all PLHIVs, six months after ART initiation, and annually thereafter.
4. Immediate action on VL failure cases—adherence counselling, repeat testing, switch of regimen.
5. Scale up of VL testing to select CHCs with high caseloads, integrating with GeneXpert machines.
6. Ensure availability of test cartridges at all VL testing centres at all times.
7. Monitoring and reporting of early warning indicators.
8. Design protocol and guidelines for survey/surveillance of HIVDR among adults and children on ART, adults on PrEP, pre-treatment HIVDR in ART-naïve adults and infants <18 months.

## **13.3 Linkages, tracking and follow-up of HIV cases for rapid ART initiation, treatment adherence, retention, VL testing and viral suppression**

### **Status and progress**

One of the best practices noted by JERM is the calendar-based monitoring of PLHIVs due lists for ART uptake, being implemented at the Maloa ART centre managed by Maluk Timor. The walls of the documentation room are pasted with wall charts containing monthly calendars for the ongoing year. The PID numbers of the PLHIVs whose visit is due on a particular date are mentioned in that block of the calendar. If the patient visits, the number is stricken off highlighting the other numbers which are missed or dropout. This is found to be an effective mechanism for individual-level follow-up of PLHIVs to ensure treatment adherence.

### **Gaps, issues and challenges**

1. Documentation and reporting at ART centres is not aligned to track individual cases. There are separate registers maintained as a master register, ART dispensation register, VL testing register, etc., which capture real-time service delivery data on a day-to-day basis. However, they do not allow easy analysis of which patient has missed treatment or VL testing. Case files may have all

information of a patient in one place, but it is practically impossible to go through each file to assess the treatment status of the patient.

2. Except at the Maloa ART centre in Dili, there is no mechanism to identify the PLHIVs who are due to visit the clinic on a particular day or during a week, and there is no documentation of defaulters. It is reported that the ART clinic counsellor or nurse identifies the defaulters, calls them up and shares the information with PLHIV networks for follow-up and tracking. However, there is no documentation of defaulter-tracing efforts and of those who have been linked back by the PHIV networks.
3. Similar to the lack of due lists and defaulter lists for ART uptake, there is no tracking of PLHIVs who are due for VL testing and those who missed to get a VL test at stipulated time intervals. ART clinic staff are aware of the national guidelines of testing PLHIVs on ART for VL six months after initiation and annually after that. However, the implementation is not aligned with the guidelines even at the large centres in Dili. Even at Maloa ART centre, the calendar-based monitoring is not extended for monitoring of VL testing dues and defaulters.
4. The coordination between ART clinics and the PLHIV networks, CBOs and FBOs who are providing care and support and dropout tracking services is not reported to be very smooth and encouraging. ART clinics are not very comfortable about the response of the community networks. In some cases, it is reported that the community networks divert the PLHIVs from one centre to another for reasons not clearly explained. This observation has been reported primarily in Dili among the three large ART centres.

## Discussion

Tracking and follow-up of PLHIVs receiving treatment is a critical intervention to ensure treatment adherence, retention, timely VL testing and viral suppression. There are several factors and challenges that affect the treatment adherence and retention of HIV, which include psychosocial, family and community factors as well. Although the dropout rate based on cumulative ART registrations is relatively lower at 6% by the end of 2022, it is important to keep this level low and reduce it to the minimum possible.

A series of coordinated activities may be institutionalized to ensure a robust PLHIV tracking and follow-up system. It will include revamping PLHIV data management system with individual tracking tools such as due lists, defaulter lists, failure lists, etc., real-time sharing of defaulter lists between ART centres and PLHIV networks in a structured manner along with documentation and reporting of outcomes of tracking efforts, regular reconciliation meetings at ART centres with testing sites and community networks to plug the missing links, etc. The staff of VCTs, testing sites, KP DICs, ART centres, PLHIV networks, CBOs and FBOs should be trained in linkages, tracking and follow-up mechanisms. Municipal HIV coordinators and regional supervisors should be trained in monitoring and supervision of these activities. NAP should give a strong push to improve the quality of reporting and strengthen the overall patient tracking activities.

There is an urgent need to focus on whole HIV care continuum for desired outcomes.



### Strategic recommendations

1. Revamp PLHIV data management system (registers and reports) with individual tracking tools (ART linkages, drop-out tracking, VL testing due list, repeat test due list, failure list, etc.).
2. Design and implement structured engagement of PLHIV networks, CBOs and FBOs in linkages and tracking through formal sharing of information and monthly reporting of tracking efforts and outcomes by the partners to NAP.
3. Engage KP programme to link, track and follow-up positive KP for treatment adherence and VL testing.

### Operational recommendations

1. Strengthen linkages with all screening and testing sites (ANC, STI, TB, VCT, Blood Bank, KPI, etc.) to minimize pre-ART losses of positive cases.
2. Conduct outreach and home visits by PLHIV network/CBO/FBO volunteers for rapid ART initiation, follow-up, drop-out tracking, VL testing and repeat testing
3. Organize regular periodic reconciliation meetings at ART centres with testing sites and community networks, with documentation and reporting of referral updates and tracking outcomes.
4. Training of staff of VCT, testing sites, CHC, KP DICs, ART centres, PLHIV networks and CBO/FBOs in linkage, tracking, follow-up and reconciliation, assessment of treatment adherence, reinforced preparedness counselling, readiness assessment and adherence counselling to PLHIV.
5. Training of municipal HIV coordinators, regional supervisors, national M&E officers and national programme managers in monitoring and supervision of tracking, linkage and follow-up activities.
6. Monthly national summary of linkages and gaps across the spectrum of prevention to viral suppression prepared at NAP and submitted to appropriate authorities/published on website.

## 13.4 Care and support services

### Status and progress

One CBO, Estrella Plus, which is a network of PLHIVs and a FBO Caritas have been involved in the programme during the current grant as sub-recipients to provide care and support services to PLHIVs. They work closely with the ART centres and support community-based drug dispensing as well as drop-out tracking.

## **Gaps, issues and challenges**

The data show that the contribution of sub-recipients in drop-out tracking is limited. There are no formal data sharing mechanisms between ART centres and community partners on dropouts. The information sharing is not regular, and through phone or WhatsApp communication. The efforts and outcomes of tracking by community volunteers are not formally documented and reported to the ART centres and to the NAP.

The coordination between ART clinics and the PLHIV networks, CBOs and FBOs which are providing care and support and drop-out tracking services is not reported to be very smooth and encouraging. ART clinics are not very comfortable about the response of the community networks. In some cases, it is reported that the community networks divert the PLHIVs from one centre to another for reasons not clearly explained. This observation has been reported primarily in Dili, among the three large ART centres.

## **Discussion**

Care and support services to the PLHIVs and their families through community volunteers, CBOs and FBOs are an important intervention, contributing to enabling environment where PLHIVs can lead an empowered life, free from stigma, discrimination, violence and other social factors that hinder their quality of life. These interventions include provision of short-stay facilities for PLHIVs when they come to visit ART centres, psychosocial, nutritional and legal support, linkage to government entitlements and schemes, referral support for management of coinfections and comorbidities, support to adolescents, orphan and vulnerable children as well as community strengthening activities.

Although social support packages for PLHIVs and affected families are not part of the NAP, strong advocacy efforts should be taken up by the programme along with the community networks, CBOs and FBOs to mobilize social support incentives, primarily towards nutrition and travel support for PLHIVs. The community networks should also be mobilized to identify and support treatment adherence and retention of adolescents and children living with HIV with a specific focus on orphan and vulnerable children.

## **Strategic recommendations**

Advocate for social support package for PLHIVs for nutrition and travel to ART centres.

## **Operational recommendations**

1. Community support to adolescents and children living with HIV.
2. Activities for orphan and vulnerable children.
3. Provision of care and support services to PLHIVs and their families by PLHIV networks, CBOs and FBOs.
4. Provision of short-stay facilities when PLHIVs come to visit ART centres.
5. Psychosocial counselling and support to PLHIVs and caregivers.
6. Nutrition counselling and support to malnourished PLHIVs.
7. Referral support for management of coinfections and comorbidities.
8. Social and legal support to prevent, report and redress incidents of stigma, discrimination and violence faced by PLHIVs and their families in the community, health care, education and employment.
9. Support to legal and policy entitlements offered by the government for PLHIVs.

10. Community strengthening activities such as community support groups of PLHIVs, community champions, trainings to PLHIVs in communication, advocacy, management, monitoring, etc.

## Chapter 14

### Communities, stigma and discrimination

As part of the HIV/TB programmes review mission, the consultant travelled to Manufahi, Covalima and Dili to interact with KP prevention programme staff members, PLHIV members, staff at various partner organisations and facilities.

**Discussions with HIV prevention programme staff:** It is observed that the staff members implementing the HIV prevention programme are drawn from the KP community. This initiative of recruiting the KP members as staff will help build connections with the KP community and help build trust among them and encourage their uptake of services proffered by the programme.

Albeit there are areas of improvizations, which would pave way for further advancement in the areas of programme delivery. The current outreach activity in both Dili and Covalima needs to be scientific using data on risks and vulnerabilities of the community. Implementation of "**Microplanning tools**" for enhancing outreach and service delivery is imperative.

The microplanning tools will also help the programme in ensuring PE:KP ratio. Especially in Covalima, which is more of a rural municipality unlike Dili, it was observed that in certain sub-districts the **PE:KP ratio is skewed**. In some places, it was 1PE for 13 KPs, while in other location it was 1PE to 131 KPs. At the same time, efforts of the KP programme staff to ensure that some PEs designated for TGs were also catering to the MSMs in their areas.

The current method adopted by the programme for distribution of condoms and lubes is rudimentary. All KPs irrespective of their age, category, risk or number of clients and sex acts receive the same 24 condoms and 15 sachets of lubes throughout the year. This issue needs to be immediately addressed. It needs to be understood that each KP has different requirement for condoms and lubes, and hence equitable distribution needs to be implemented. The programme should also consider if such method is leading to any wastage of these products. "**Condom Gap Analysis study**" will help the gaps in demand and distribution of condoms/lubes.

Discussions with the KP programme staff revealed interesting facets of increasing use of social media tools among the community members, especially in Dili. It is learnt that many community members feel safe to use online platforms, therefore diluting the traditional outreach methods. Especially the new and younger community members feel safe to be anonymous for fear of disclosure, internalized stigma or any other such reason. Hence, it is recommended that KP programme may initiate a **pilot study to understand the number of KPs exclusively operating through virtual space**, their understanding of HIV risk, their health seeking behaviours, operational hours, and their willingness to associate with KP programme. Many countries are actively seeking to provide services to KPs operating in virtual space and many innovative methods have evolved. The learnings from the pilot initiative will provide insights for further necessary steps to engage the new and younger KPs and expand the programme in that direction.

In Dili, the STI services are offered by Maluk Timor Clinic and is situated at some distance from the DIC/KP Office. It is suggested that both the STI clinic and DIC should be co-located at same venue.

The DIC offers safe space environment and if coordinated well for clinic-based efforts the reach of the KPs will enhance encouraging many KPs not suspecting any symptoms may also get themselves checked for STIs. The current pilot initiatives of HIVST and PrEP has set up clinic with medical doctor and nurse, which is located in DIC. The current footfall is limited to KPs part of the pilot initiatives, and hence the same doctor and nurse can be trained to provide STI services at this clinic too.

The discussion on data management and using the data analysis for strengthening the programme may be improved considerably. Currently, each municipality collates the data from the field and shares them with central office at Dili. As the programme is already community-led, these members need to be oriented on using the data too. Frequent meetings with implementing partner and HIV coordinator at NAP, along with representatives from the KP offices staff is highly recommended as it provides a window to all members to review the data.

Lastly, the TB case detection among KPs is low. While the services rendered to KP-PLHIVs is high with proper counselling, follow-up and accompanied referral to ART centres, the efforts on TB messaging and linking those KPs who are TB positive needs to be improvised.

#### Discussions with DHS staff at Manufahi

The DHS officials have informed the team that efforts are being made to eliminate TB in Manufahi by 2024. The active case finding (ACF) is also implemented in almost all villages in Manufahi municipality. These efforts have yielded 22 PLHIVs since 2014. It was observed that of the 22 PLHIVs, 12 of them have expired and the rest are continuing on treatment.

The team also met the counsellor at the VCT in CHC, Manufahi. The counsellor informed the team that most of the patients are women. The team enquired about STI and HIV cases among the patients seeking counselling. Since most of the female patients are referred by ANC doctors (it is mandatory for all ANC cases to be screened for STI and HIV), the counsellor informed that STI cases are on the rise. While in the last few months she has not detected any HIV case at her counselling centre.

The condom boxes were available at the counselling centre, and she agreed to give "few" condoms to all women with STIs. The counselling session include discussions on the importance of using a condom to protect their partners from getting infected. The counsellor informed that the women are hesitant to ask or discuss about condoms.

#### Visit to partner organizations – CARITAS, Estrella Plus and UNFPA

CARITAS is implementing PLHIV programme in five municipalities with two DICs being operational in Dili and Baucau. Discussions with the senior management staff indicated that there is need for capacity-building of all staff members on the needs and issues of PLHIVs. There is urgent need to improve monitoring and data collection tools. Frequent review meetings by NAP with all key partners is imperative to strengthen the programme by identifying gaps and addressing them.

Estrella Plus is also implementing PLHIV programme in five municipalities albeit with focus on advocacy and capacity-building trainings to PLHIVs. It manages the peer support groups to enable PLHIVs for ART adherence, and access timely local support as required. It is one of the key organizations in Timor-Leste to build knowledge and awareness, and address issues pertaining to stigma and discrimination of PLHIVs.

Further, the discussions also indicated that there could be potential duplication of efforts in certain areas by both CARITAS and Estrella+ as the two organizations are working in similar geographies.

UNFPA is the implementing partner for HIV prevention programme working with KP association in Timor-Leste. The findings from the discussions with KP association staff in Dili and Covalima were shared. It was suggested that the hotspot mapping and size estimation data is a one-time exercise, and it is imperative to corroborate the same with outreach data periodically.

Discussions were held to introduce innovative tools and processes to connect the KP community members of Dili with other municipalities. One particular communication tool of introducing newsletter managed and developed by community members will help them share the successes and also the challenges among the KP staff members.

Lastly, the team also discussed the need for special studies to be conducted to understand the number of KPs operating in virtual space. Discussions with KP staff at Dili indicated that KPs are increasingly using web-based applications like Facebook, and other online websites for solicitation.

## Recommendations

- The KP programme currently does not have any guidelines for implementation. Therefore, it is recommended that operational guidelines for implementation of KP programme will help in providing strategic direction with clear roles and responsibilities for all stakeholders.
- Strengthening the M&E component of the programme is essential. The development of key definitions, and capacity-building on data management will help in improving the programme.
- Currently, the KP programme is implemented in six municipalities only. It is imperative that it is expanded to other nonintervention municipalities.
- Capacity-building for all staff on outreach, communication, and data analytics is essential.
- Efforts should also be made to ensure that all staff members are trained on basics of TB programme (counselling, identifying TB suspects among KPs) and linkages of TB positives (especially KP-PLHIVs) with treatment centres.
- It is recommended that the KP programme adopts the microplanning tools and understand the risk and vulnerability assessments and effective delivery of services to all KPs.
- There is urgent need to appropriately place the staff after proper HR planning, especially in hard-to-reach areas where the KP population is dispersed. The peer volunteer to KP ratio is skewed, and it needs to be revised.
- The distribution of condoms and lubes to all KPs in equal numbers is inappropriate and needs to be corrected.
- Quarterly review meetings led by NAP with all partner organizations will help in improving the programme deliverables, and also address immediate challenges in HIV prevention efforts.
- Special studies, case studies and success stories' documentation is imperative. The programme should consider innovations in areas of communication and community mobilization.

- The anecdotal information suggests that KPs are also using virtual space and mobile applications for cruising and seeking information. This needs to be further probed to enhance health and communications service provision to KPs operating in the virtual space.

## Annexures

**Annex 1.** List of the experts involved in JERM & Epi Review.

<b>Sl. No</b>	<b>Name</b>	<b>Position and expertise</b>
1	Dr Rewari Bharat Bhushan	Regional advisor for HIV&HSS
2	Dr Srinath Satyanarayana	TB Epidemiologist
3	Dr Yujwal Raj Pinnamaneni	HIV Epidemiologist
4	Dr Karin Haar	Medical Officer (Epidemiologist) for SEARO
5	Dr Aye Thida	Technical Officer (MDR-TB, TPT & Research) for SEARO
6	Dr Rajat Shuvra Adhikary	NPO (HIV/ Hepatitis Prevention & Surveillance), WCO India
7	Dr Shepherd Mufudzi Machejera	Specialist, Public Health and M&E from The Global Fund
8	Dr Aashna Metha	Health Financing Specialist
9	Mr. Ngale Esuka Elive	Specialist, Health Product Management at the Global Fund
10	Ms. Paran Sarimita Winarni	TB community lead
11	Mr. Philip Neil Kumar Yarlagadda	HIV community lead
12	Ms. Shital Thakkar	Representative from Dure Technology - Digital TB Vulnerability Assessment
13	Mr. Shaithilya Abdare Narasimha	Representative from Molbio Diagnostic
14	Mr. Manoj Kumar Nandkishor	WHO consultant for NSP

**Annex 2.** Detailed date-wise schedule of the Epi Review and JERM



**AGENDA OF JOINT TB-HIV EXTERNAL REVIEW MISSION & SCHEDULE FOR FIELD VISITS**

**WEEK 1: 27 March – 31 March 2023**

Date	Agenda Items	Responsible	Time	Venue
End of TB-HIV Epi-Review				
26-03-2023	<b>Arrival of the Experts on TB and HIV Epi-Review</b>			
27-03-2023	Introductory Meeting with WR with TB and HIV Epidemiologists, and representatives from the Global Fund	Dr Debashish - WHO	9.15 AM – 9.45 AM	WHO
	Introductory Meeting with <b>NTP &amp; NAP Managers, National Director and HoD, CDC.</b> <ul style="list-style-type: none"> <li>Review of current TB/HIV program progress, gaps, and priorities</li> <li>Discussion on focus areas, objectives and expected outcomes from the TB/HIV External Program Review and Epi Review</li> </ul>	All	10:30 AM – 12:30 PM	Lahane
	<b>Lunch</b>		13.00 PM – 2:00 PM	
	Epi Review <ul style="list-style-type: none"> <li>Dr. Srinath</li> <li>Dr. Yujwal</li> <li>Dr. Karin</li> <li>Mr. Philip</li> </ul>			TBA
	Visit to National Reference Lab <ul style="list-style-type: none"> <li>Mr. Ngale</li> <li>Mr. Shaitylia</li> <li>Sr. Costa</li> <li>Sra. Maria</li> <li>Sr. Oscar</li> <li>Sr. Simao HIV/SIDA</li> </ul>		2:15 PM – 3:15PM	TBA
	Visit to SAMES and/or meeting with Department of Pharmacy/Medicines <ul style="list-style-type: none"> <li>Dr. Sherpherd</li> <li>Sr. Noe</li> <li>Sr. Antonio da Cruz</li> <li>Sr. Felisberto</li> <li>Sr. Bernadino</li> </ul>		3:30PM – 4:30 PM	TBA
	Health Financing and Health Information Meeting with Sr. Marcelo / Sr. Miguel/ Sr Narciso <ul style="list-style-type: none"> <li>Dr. Aashna</li> <li>Ms. Shital</li> </ul>			TBA
<b>TB and HIV Epi-Review cum FIELD VISITS</b>				
28-03-2023	Review of the TB and HIV programme data	M & E Officers of NTP and NAP	9.00 AM – 5.30 PM	Lahane
	<b>Lunch</b>		13.00 PM – 2:00 PM	
	Visit to National Reference Lab <ul style="list-style-type: none"> <li>Mr. Ngale</li> <li>Mr. Shaitylia</li> <li>Sr. Costa</li> </ul>		2:15 PM – 3:15PM	TBA

**AGENDA OF JOINT TB-HIV EXTERNAL REVIEW MISSION &  
SCHEDULE FOR FIELD VISITS**

	<ul style="list-style-type: none"> <li>Sra. Maria</li> <li>Sr. Oscar</li> <li>Sr. Simao HIV/SIDA</li> </ul>																							
	Visit to SAMES and/or meeting with Department of Pharmacy/Medicines <ul style="list-style-type: none"> <li>Dr. Sherpherd</li> <li>Sr. Noe</li> <li>Sr. Antonio da Cruz</li> <li>Sr. Felisberto</li> <li>Sr. Bernadino</li> </ul>		3:30PM – 4:30 PM	TBA																				
29 & 30-2023 (Two Days)	Field visits to Baucau, Covalima, Ermera and Manufahi Teams)  (Refer to Annex 1. / “Field Visit Schedule & Team” doc.)	Review teams	9.00 AM – 5.30 PM	Review Teams to target visiting 6 Health Facilities (2 CHC, 1 hospital, 2 Health Posts, and 1 private clinic, wherever possible)																				
31/ 03/2023	Meeting with the SR Partners – UNFPA- KP, E+, BPC, Maluku Timor, HAMNUSA, Klibur Domin, CRS	NTP and NAP, along with M & E Officers of NTP and NAP	Whole Day by respective team members (TBD)	At the SR sites with respective teams																				
	<table border="1"> <thead> <tr> <th></th> <th>HIV</th> <th>TB</th> <th>TB</th> </tr> </thead> <tbody> <tr> <td>09:00-11:00</td> <td>UNFPA</td> <td>HAMNUSA</td> <td></td> </tr> <tr> <td>11:30-12:30</td> <td>ESTRELA PLUS</td> <td>BPC</td> <td></td> </tr> <tr> <td>14:00-15:00</td> <td>BPC</td> <td>KLIBUR DOMIN</td> <td>MENZIES</td> </tr> <tr> <td>15:30-16:15</td> <td>CARITAS</td> <td>CRS</td> <td></td> </tr> </tbody> </table>		HIV	TB	TB	09:00-11:00	UNFPA	HAMNUSA		11:30-12:30	ESTRELA PLUS	BPC		14:00-15:00	BPC	KLIBUR DOMIN	MENZIES	15:30-16:15	CARITAS	CRS				
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16:30-17:30	Meeting with Hon’ble Health Minister, WR, DGHS, Director Disease Control, HoD – Communicable Diseases, DGF Grant Administrator, NTP and NAP Manager on initial findings from the Epi-Review	Sr Noe and Dr Josefina	4.30 PM – 5.30 PM	MoH, Caicoli																				



**AGENDA OF JOINT TB-HIV EXTERNAL REVIEW MISSION &  
SCHEDULE FOR FIELD VISITS**

**WEEK 2: 03 April - 7 April 2023**

Date	Agenda Items	Responsible	Time	Venue
End of TB-HIV Epi-Review				
02-04-2023	<b>Arrival of All the TB-HIV Experts</b>			
03-04-2023	Field Visit Findings Meeting with NTP, NAP, CDC and DGF Teams	NTP and NAP Managers and their Teams	9.00 AM – 11.00 AM	Lahane
	Meeting with WR with all the TB-HIV External Experts and brief update on the findings of the TB-HIV Epi Review	Dr Debashish	11.30 AM – 12.30 PM	WHO
	Lunch		12.30 PM – 1.30 PM	
03-04-2023	Introductory Meeting with CCM Chair and Vice-Chair and Executive Council	CCM Executive Secretary	2.30 PM – 3 PM	
03-04-2023	Review of the TB and HIV programme data by the Thematic Experts as per the Joint TB-HIV External Review Mission Concept Note <b>plus drafting of key findings and recommendations</b>	NTP and NAP (Mana Josefina, Maun Basilio, Maun Silvester)	3.30 PM – 5.30 PM	Lahane
04-04-2023	Field visits of the teams as per their thematic areas – <b>Dili Municipality</b> <ul style="list-style-type: none"> <li>• <b>TB – Comoro + Becora</b></li> <li>• <b>HIV – HNGV + Maloa</b></li> </ul>	NTP and NAP (Mana Josefina, Maun Basilio, Maun Silvester)	9.00 AM – 5.30 PM	
05/04/2023	Report writing/ presentation on preparation for Joint TB-HIV External Review Mission	NTP and NAP, along with All Experts	8 AM – 12 PM	WHO
05 / 04/ 2023	Country Consultation and De-briefing Workshop	All stakeholders, MoH - Finance, SAMES, CCM HMIS, SRs, USAID, KOICA, Menzies, Partnership and Pharmacy related to RSSH	9.00 AM – 6 PM	TBD



**Joint TB-HIV External Review Mission 2023**

**Timor-Leste**