

Site visit report

1 December 2022, Nakhon Sawan Province

BACKGROUND

Stop TB and AIDS through Reach-Recruit-Test-Treat-Prevent-Retain (RRTTPR) known as STAR2 has been implemented in 36 provinces across Thailand from 2021 to 2023 with financial support from the Global Fund (GF). Among these provinces, Nakhon Sawan has been identified as a priority for TB/HIV. A range of key TB/HIV activities supported by the GF includes Xpert testing for diagnosis of TB and the detection of rifampicin resistance, IGRAs (Interferon Gamma Release Assays) for screening contacts aged 5 years or more for TB infection, 1HP (Isoniazid and Rifapentine daily for 1 month) or 3HP (Isoniazid and Rifapentine weekly for 3 months or a total of 12 doses) for TB preventive treatment (TPT) among contacts at all ages, oral longer regimen and living support for patients with RR/MDR/XDR-TB.

Altogether, 90% of treatment coverage and 88% of treatment success rate for new pulmonary cases constitute the key performance indicators which health inspectors use to monitor provinces quarterly. Therefore, TB is a priority for high level officials.

OBJECTIVES

1. To provide technical support to health care teams at the subnational level on increasing access to TB diagnosis among high-risk groups and providing treatment and care to patients with TB disease or people with TB infection
2. To provide guidance on data and information relevant to TB and HIV program performance
3. To identify challenges and recommendations of grant implementation at the subnational level

METHOD

Two meetings were organized on 1 December 2022. The first meeting was held from 9.00 to 12.00 hours at the Office of Disease Prevention and Control (ODPC) 3, Nakhon Sawan. Twenty one local participants were from ODPC, Nakhon Sawan Provincial Health Office (PHO), and Sawanpracharak Provincial Hospital.

The second meeting was held from 14.00 to 16.30 hours at Takhli Hospital, a district hospital with a distance of 70 kilometers from the capital district. Ten local participants were from ODPC 3 Nakhon Sawan, Nakhon Sawan PHO, Takhli Hospital, and Nong Jikree Subdistrict Health Promotion Hospital. Names of participants are in Annex 1.

Discussion was held after PowerPoint presentations. Due to time constraints, visiting a TB clinic or patients' home was excluded from this field visit.

KEY FINDINGS

1. ODPC 3 Nakhon Sawan

1.1 Program management

ODPC 3 Nakhon Sawan is responsible for approximately 3 million population in 5 provinces: Kampangetch, Chainart, Nakhon Sawan, Phichit and Uthaitani. The project management team consists of two TB staff members, one full-time TB coordinator who is a nurse and a government officer to support TB activities in the 5 provinces and a full-time TB coordinator who is employed by the GF grant.

1.2 TB performance

Treatment coverage for new and relapse cases from 2020 to 2022 was below the 90% target (76.7, 67.6 and 67.3%, respectively). The number of new and relapse cases in 2022 was 2,964. The number of RR/MDR-TB cases (Rifampicin resistant-TB/Multidrug resistant-TB) totaled 28 in 2020, 32 in 2021 and 33 in 2022. Drug sensitive testing (DST) for new and relapse cases in 2022 was 64.1% (1,952/3,043). Low DST was due to workload at the laboratory unit in the hospital, and doctors did not order the Xpert testing. Treatment outcome for new pulmonary TB in 2021 was 85.4% compared with the target of 88.0%, and unsuccessful outcome was due to a high death rate of 8.3. IGRAs testing was performed for 1,329 patients aged 5 years or more with

19.6% positive results, but 45.2% (118/261) accepted the TB preventive treatment. Patients reported that they did not have symptoms, so they preferred following-up by CXR every year rather than taking TPT, and this resulted in a low uptake of TPT. In terms of patients aged 5 to 18 years, 158 cases were tested by IGRAs (Interferon Gamma Release Assays), and 22.8% had positive results in 2022. Among these, only 19.4% (7/36) started TPT.

2. Nakhon Sawan Provincial Health Office

2.1 Program management

Nakhon Sawan Provincial Health Office is responsible for approximately 1 million population in 15 districts. One TB staff member, a public health officer, is responsible for TB prevention and care within the province.

2.2 TB performance

Treatment coverage for new and relapse cases from 2020 to 2022 was below the 90% target (75.5, 74.9 and 65.8%, respectively). Treatment outcome for new pulmonary TB cases in 2021 was 84.9% compared with the target of 88.0%, and the death rate was 8.43%. Numbers of DST, RR/MDR-TB and TST cases in recent years were not presented.

Nakhon Sawan PHO received budget for provincial coordinating mechanisms (PCM) to coordinate relevant stakeholders concerning TB and HIV. Other partners included the Rainbow Sky Association of Thailand, local administrative organizations and regional NHSO.

3. Sawanpracharak Provincial Hospital

3.1 Program management

Sawanpracharak Provincial Hospital is located in the capital district, and the TB clinic has 11 health personnel: 3 chest specialists, 2 TB nurses, 4 public health officers and 2 administrative staff members. A TB clinic, an outpatient clinic, opens every day from 8.00 to 16.00 hours. Generally, 3 to 4 new TB cases are reported daily, and 30 existing patients with TB come to the clinic daily for their medical appointment. Fast track is available for patients with TB, and this includes CXR with available results in 30 minutes. Also, this hospital serves as a drug resistant-TB center approved by NHSO.

For inpatient units, all TB cases admitted in inpatient floors are met by TB nurses for discharge planning. Patients with TB residing outside the catchment area of the hospital are referred to district hospitals where patients live.

Sawanpracharak Provincial Hospital has a network with health care team in the community. Treatment and household contacts of the patients are shared with the Subdistrict Health promotion Hospital using a chat application.

3.2 TB performance

In 2021, 625 patients were notified to the national TB program, and of these, 506 cases were new and relapse. Treatment outcome for new and relapse patients in 2021 was 83.6% compared with the target of 88.0%, due to an 11.3% death rate and 4.2% loss to follow-up. Despite the high caseload, the TB clinic had to double-enter patient's information in both the electronic health records that of the hospital known as HosXP and the National TB Information Program (NTIP) for reimbursement from NHSO. For the low coverage Xpert testing, the hospital explained that some doctors in other departments did not order it, and the workload at the laboratory unit in the hospital.

In 2022, 12 patients with RR/MDR-TB were notified at the national level, and 2 cases comprised patients in the catchment area of the hospital while the remaining ones were from other districts across the province. Seven cases received a shorter regimen, while 5 cases received a longer regimen. However, 2 patients died because of their underlying diseases: HIV positive and chronic kidney disease stage 3. Currently, 10 cases are on treatment. The numbers of DST, RR/MDR-TB and TST in recent years were not presented.

Management of contact tracing and TPT is being developed. In 2022, all close and household contacts aged less than 5 years received TPT from the pediatric (children) outpatient clinic, but the numbers were not presented. Management of close and household contacts aged 5 years or more is being planned, and this means that no close, household contacts are screened for TB, and no close, household contacts receive TPT. The planning includes that names of the same house registration of the patient are searched in the HosXP database, so a list of contacts

can be created. However, it has not been concluded whether this work should be the responsibility of the chest department of the infectious diseases department.

4. Takhli District Hospital

4.1 Program management

Takhli District Hospital is responsible for 120,000 population within 10 subdistricts. This hospital has 120 beds with 17 doctors (9 full time staff and 8 interns) and 90 nurses. The TB clinic has 8 health personnel: 3 physicians, 1 TB nurses, 1 public health officer, 1 pharmacist and 2 administrative staff members. The TB clinic, an outpatient clinic, opens every Wednesday from 8.00 to 12.00 hours. The TB clinic takes appointments for a slot of 20 patients with TB weekly.

Takhli District Hospital has a network with Subdistrict Health Promotion Hospitals. All patients with TB are visited by a health care team in the community once weekly during the first 2 months and every month during the remaining 4 months. Google sheet is used to inform Subdistrict Health Promotion Hospitals when a patient with TB is in their catchment area.

The doctor responsible for the TB clinic developed a check list form for initiation of TB treatment to remind all doctors. This form includes CXR result, Sputum AFB (1 spot and 1 collected sputum), DST, anti-HIV, FBS, baseline blood test (creatinine and liver function test), anti-TB drug regimen and drug dose calculation. This one-page form results in 100% of DST for retreatment cases. Sputum samples are sent to ODPC 3 to perform Xpert testing and DST.

3.2 TB performance

In 2022, 93 new and relapse patients were reported, and 95.7% (89) were known HIV status. Totally, 11.2% (10/89) were HIV positive, and 100% received ARV during TB treatment. In 2022, DST among retreatment cases was 100% (11/11), and DST among new cases was 90.4% (75/83).

Treatment outcome for new patients with pulmonary TB in 2021 was 81.8% compared with the target of 88.0%; the death rate was 10.8%, and loss to follow-up was 6.8%. Some patients were drug users and did not want to continue the medication.

IGRAs testing began 29 November 2022, and 19 close and household contacts aged 5 years or more were tested by IGRAs. The results are expected in the next two weeks. However, doctors have not been trained for TPT yet.

CHALLENGES AND RECOMMENDATIONS

1. ODPC 3 Nakhon Sawan

1.1 Active TB case finding

One key challenge is that ODPC 3 did not reach the 90% target of treatment coverage. Although mass chest x-ray screening in clinical risk groups and risk populations was widely implemented, it did not yield more TB cases. In 2023, ODPC 3 received funding from the Promotion and Prevention Area based (PPA), National Health Security Office (NHSO) 2 million THB (54,000 USD) to conduct mass chest x-ray screening among people aged 60 to 64 years.

The recommendation is to conduct a retrospective study to assess the yield of TB cases across clinical risk groups and risk populations. Clinical risk groups include HIV, diabetes with uncontrolled blood sugar, patients receiving immunosuppression drugs, patients with COPD or smoking, silicosis, chronic renal disease, malnutrition, drug users or alcohol-use disorder, and previous patients with TB. Also, the risk population includes close and household contacts, older people with underlying disease or bed-ridden, prisoners, migrants and homeless people. While results of active TB case finding, i.e., the number of CXR screenings, the number of abnormal CXR eligible for sputum examination, and the number of TB cases were not presented; they might be available at ODPC 3 or the Nakhon Sawan PHO.

Characteristics of patients with TB, notified to the national system, should be assessed for disease severity when smear grade for acid-fast bacilli (AFB) falls to 3+, 2+ or 1+, or when CXR result shows cavitation or not. Severe TB could indicate the ineffectiveness of active case finding.

Adherence to national recommendations should be assessed. The nature of clinical risk groups such as diabetes with uncontrolled blood sugar or chronic renal disease, drug users or alcohol use disorder is not feasible to perform in a community mass screening.

1.2 High TB death rate

High TB deaths continue to constitute a major challenge in provinces within ODPC 3. The target of the death rate among patients with TB is less than 8%, but ODPC 3 reported 8.3% in 2021. Health inspectors are concerned with TB deaths, so provinces are attempting different interventions. At Phichit Provincial Hospital, the death rates decreased from 20.0% in 2020 to 3.9% in 2021, and this could provide a promising model for other provinces. This model used risk scores of TB deaths, and the scores including body mass index were self-developed by a chest specialist, and patients with a certain risk score were eligible for hospital admission.

The recommendation is to conduct an operational research study to validate the model and risk scores, and to assess feasibility before scaling up to other hospitals. ODPC 3 may request technical assistance from universities or other research organizations in conducting future research studies.

1.3 IGRAs testing

The testing laboratory for IGRAs in Bangkok becomes a challenge. Fresh blood samples from close and household contacts aged 5 years or more were collected by the laboratory vender at the hospital, and then forwarded to the Division of TB in Bangkok. Blood samples must be processed within 24 hours after collecting. While results are available in 24 hours, the hospital has to wait on the results for 2 weeks. Due to the logistic issues, the laboratory vender would come to hospital when at least 10 blood samples were available. This means that close and household contacts do not have blood tests on the same day of the medical appointment, but outpatients have to make an extra visit to the hospital when the number of close and household contacts or clinical risk groups including HIV positive individuals reach 10 cases.

The recommendation is to ensure that patients do not have barriers for an extra visit for blood samples. A simple diagram to describe criteria for blood sample collections (at least 10 samples) and access to test results may be essential to create more understandings among health care staff.

1.4 TB preventive treatment (TPT)

No training for doctors and health care team members and no drugs for 1HP or 3HP in 2022 are challenges for ODPC 3. However, doctors at provincial hospitals will be trained in the forthcoming month.

The recommendation is to invite doctors at district hospitals and health care team members to attend the same forthcoming training. Online or virtual training should be used, so TPT could be scaled-up.

2. Nakhon Sawan PHO

Active TB case finding

Treatment coverage below the 90% target was a key challenge for Nakhon Sawan PHO. In 2022, with financial support from NHSO, mass chest x-ray screening was widely implemented, but it did not yield more TB cases.

The recommendation is to review a current algorithm of active case finding used by Nakhon Sawan PHO if it is consistent with the National recommendation. A retrospective study might be helpful to assess the yield of TB cases across clinical risk groups and risk populations because Nakhon Sawan PHO has individual data of those participants in the active TB case finding.

3. Sawanpracharak Provincial Hospital

3.1 Nation TB Information Program (NTIP)

A hospital with more than 600 patients with TB yearly finds it challenging to spend time on data entry, and TB clinic requests when the same variables between the NTIP and hospital database can be exported.

The recommendation is for the TB Division, PR-DDC and CCM to address this concerning issue at the national level.

3.2 Xpert testing

Workload at laboratory unit in the hospital and internal communication among physicians are major challenge. Totally, 3 laboratory staff members are responsible for molecular tests including SAR-CoV-2. This result showed low coverage of Xpert testing, but TB clinic

forwarded sputum samples to ODPC 3 helped the hospital perform the Xpert testing. Chest physicians plan to discuss with other doctors to improve the coverage of Xpert testing for all patients with TB.

The recommendation is to review data to identify factors affecting the low coverage of Xpert-testing. The proportion of sputum samples which doctors ordered and had no results available would indicate the workload in the laboratory unit, while the proportion of sputum samples of patients from specific departments did not have an order that would indicate the internal management. This finding would guide future solutions. TB clinic can request technical support from higher levels including ODPC or university to help conduct the review.

3.3 TB preventive treatment (TPT)

Although contact tracing and TPT at Sawanpracharak Provincial Hospital is at the planning stage, this hospital can learn common challenges from other hospitals. For example, close and household contacts may not be screened for TB, or close and household contacts with positive screening result may refuse the TPT.

The recommendation is to perform a pilot study because little is known about implementing TPT at any level in Thailand. Sawanpracharak Provincial Hospital has an opportunity to share frontline experience. Again, technical support from higher levels should be provided to the hospital so that the hospital could implement the pilot study based on sound methods.

A training on TPT counseling, which allows patients to discuss their concerning issues, is needed. When healthcare team is prepared, they could provide care based on patients' needs.

3.4 Treatment adherence for drug susceptible-TB and drug resistant-TB patients

Treatment adherence is a challenge for this hospital located in a capital district. Majority of patients with TB is from low socio-economic status, so they have difficulties to handle adverse drug reaction including fatigue, joint pain, and dizziness which make them stop working and result in loss of their daily income. TB clinic is attempting different approaches, but there is no conclusion which one yields better results. For example, TB clinic staff provides counselling

for the patients and shares the personal chat application. Living support from the GF is provided to patients with drug resistant-TB.

The recommendation is to conduct a retrospective study to identify factors influencing treatment adherence. When the TB clinic knows the relevant factors, the team has evidence to guide their interventions in the right direction. At this stage, technical support is needed to the hospital team.

4. Takhli District Hospital

4.1 TB preventive treatment (TPT)

TB preventive treatment involves several challenges. First, doctors are not trained, and they lack confidence that TPT can prevent TB disease. Another challenge is that individual data of close and household contacts were collected, but they were not summarized, so this would result in unknown gaps in terms of how many were screened for TB and how many were diagnosed with TB.

The first recommendation is to invite doctors at district hospitals and health care team to attend the same forthcoming training hosted by ODPC 3. Online or virtual training should be used, so TPT could be effectively implemented in the district. The second recommendation is to conduct a retrospective descriptive study to assess the outcome of contact tracing. Technical support from higher levels or universities should be provided to the hospital.

4.2 Treatment adherence for patients with drug susceptible TB

Treatment adherence is a major challenge for this hospital because 43% of patients with TB are in the working age (25 to 54 years), and some are drug users. High percentages of relapse cases (10.8%, 10/93) in 2022, and loss to follow-up cases (6.8%) in 2021 were proxy indicators of low level of treatment adherence. This means that visiting patients at home by village health volunteers (VHV) or health care teams at subdistrict level once weekly during the first two months and once monthly during the remaining four months is insufficient.

The recommendation is to strengthen counseling for patients with TB to increase treatment adherence. Then nurses and allied health care teams would prioritize which patients need close supervision, and which home visit options patients prefer. TB stigma still exists, so

some patients may not want to share their TB disease to others. For example, when a patient works at a street food restaurant, customers may not want to buy food from this restaurant.

Also, training health care teams at subdistrict level and VHVs is highly recommended. Currently, VHVs or health care team members visit patients at home with random practice. Training should focus on how to conduct a home visit. A checklist form should be pilot tested and used to ensure that all key issues are assessed. Urine test for rifampicin, adverse drug reaction assessment, pill counts and drug storage should be included in the checklist. Awareness of confidentiality is important, and health care teams should be trained because patients should feel confident that their illness is not shared unless they agree.

CONCLUSION

TB is a priority at provinces within ODPC 3, and health inspectors monitor 90% treatment coverage and 88% treatment success rate among new pulmonary TB cases quarterly. ODPC 3, the provincial health office and hospitals have received funding from Ministry of Public Health, the NHSO, and the GF to implement TB interventions. Good teamwork is in place at all settings. Human resources are insufficient at provincial hospital to implement TB interventions because high workloads occur at Sawanpracharak Provincial Hospital. Drugs (3HP and 1HP) are unavailable at ODPC 3. Further, Xpert testing is mainly performed by ODPC3 while IGRAs is performed by the Division of TB in Bangkok. Health information systems between TB database and hospital database are unconnected to each other.

Key findings show that treatment coverage was below the 90% target in 2022 because of deviation in the target group for active case finding at the subnational level when compared with the national recommendation, and the treatment success rate was below the 88% target due to the high death rate. TPT by 3HP and 1HP has not started in this province due to a lack of training for doctors in 2022. However, it has been observed that healthcare teams have positive attitudes toward their TB work because they are endeavoring to implement new interventions on their own.

There are key recommendations. One major strength of all settings which were visited is that individual data of patients or close and household contacts or screened individuals for active TB case finding are available. Therefore, providing technical support from higher levels or universities is highly recommended to help these settings use their individual data to develop evidence using sound methods. Another recommendation includes training for healthcare teams to perform advance work including counseling and home visits.

The field visit report was written by

Sirin Jittimane, PhD

A TB consultant to the Oversight Committee, Country Coordinating Mechanism (CCM)