TB CARAVAN:
A MOBILE ACTIVE CASE-FINDING STRATEGY

A Step-by-Step Guide to the Application of the TB Caravan Strategy in Support of the Tuberculosis Control Program

DOH

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Contents

Abbreviations

AO	Administrative Order
CBO	Community-based Organization
CHO	City Health Office/r
CNR	Case notification rate
CxR	Chest X-ray
DOH	Department of Health
DOTS	Delivery of TB Services
DSSM	Direct Sputum Smear Microscopy
DSTB	Drug-susceptible Tuberculosis
GF	Global Fund
iDOTS	Integrated Delivery of TB Services
IEC	Information, Education, Communication
IPT	Isoniazid Preventive Therapy
LGU	Local Government Unit
MOP	Manual of Procedures
MTB/RIF	*Mycobacterium tuberculosis*/Rifampicin
NGO	Non-Government Organization
NTP	National Tuberculosis Control Program
PHO	Provincial Health Office/r
PLHIV	People Living with Human Immunodeficiency Virus
PPD	Purified Protein Derivative
RHU	Rural Health Unit
STC	Satellite Treatment Center
TC	Treatment Center
TST	Tuberculin Skin Test

Tools Index

About this Toolkit

This toolkit details the criteria for site selection, target clientele, required logistics, proposed procedures, data management and monitoring and evaluation for the TB Caravan strategy. The tools and templates in this toolkit were developed based on the collective experiences of the Department of Health National Tuberculosis Control Program and local government partners of the **IMPACT Project**.

For whom is this toolkit?

This toolkit is intended for health program managers at different levels (DOH RO, PHO/CHO and RHU) who will oversee planning, implementation and monitoring of systematic screening programs. Secondary users are development partners who will support such activities.

What does this toolkit contain?

This toolkit has two parts.

Part 1 provides the background and rationale for the TB Caravan strategy.

Part 2 describes the step-by-step process for preparing, conducting, monitoring and evaluating a TB Caravan.

Users of this toolkit may reproduce the tools and templates, including the PowerPoint presentations, provided in this package.

Introduction

The magnitude of the TB problem has placed the Philippines third among the 30 high-TB burden countries in incident TB cases per 100,000 population, and fifth among the top 30 countries with high multidrug-resistant TB (MDR-TB) burden in thousand incident cases (WHO Global TB Report 2017). TB continues to be the country's 8th leading cause of death (DOH, 2013) and 8th top cause of illness (DOH, 2014). The 2016 National Tuberculosis Prevalence Survey showed that the burden of TB remains high among Filipino adults and is higher than previously estimated. About 1 million Filipinos are expected to have the TB disease and may not even know it. Factors associated with high prevalence include weaknesses in health systems and poor health-seeking behavior. Poverty and malnutrition further fuel the spread of TB. While the national government and its development partners have made significant investments in the TB control program, TB remains a major public health challenge with serious economic consequences. TB morbidity and premature mortality result in economic losses valued at PhP8 billion ($171 million) annually (Peabody J. et al., 2005).

The institution of the Directly Observed Treatment, Short Course (DOTS) strategy in 1996 and its nationwide implementation in the public health sector starting 2002 have enabled the country to make significant progress in TB control. Program performance, however, remains variable across cities and municipalities. Moreover, while the TB control program continues to gain broader support and greater momentum, it needs to keep pace with the rate of infection.

The Innovations and Multisectoral Partnerships to Achieve Control of Tuberculosis (IMPACT), a five-year technical assistance (TA) project funded by the United States Agency for International Development (USAID), sought to respond to the abovementioned challenges. The Project provided TA to the Department of Health (DOH) National TB Control Program (NTP) and worked directly with 43 provinces and cities – in Luzon, Visayas, and Mindanao, including the Autonomous Region in Muslim Mindanao – with the greatest burden of TB disease and lowest performance in both case detection and cure rates. IMPACT engaged both public and private sectors at the national and local levels to detect and successfully treat TB cases.

Guided by a harmonized blueprint of technical assistance and research initiatives, as well as the USAID TB Portfolio Results Framework, the Project worked with other USAID cooperating agencies and key partners involved in TB control. IMPACT measured the outcomes of project interventions against a set of national program indicators and targets identified in the enhanced Philippine Plan of Action to Control Tuberculosis (PhilPACT) 2010–2016. IMPACT was implemented from October 2012 to September 2017, with an extension period of seven months from October 2017 to April 2018.

The goal of IMPACT was to reduce TB prevalence by 30%, achieve 85% case detection rate for all forms of TB, and 90% cure rate for new smear-positive cases in all participating sites by 2017 relative to the 2010 baseline.

The Project aimed to achieve three objectives:

- strengthen demand for TB services through adoption of healthy behaviors within families;
- improve supply of TB services, including the availability and quality of public sector services and selective expansion of private sector providers; and
- remove policy and systems barriers to support supply of, and demand for TB services.

IMPACT complemented the health programs of USAID/Philippines and other development partners. Its activities are aligned with the principles of the United States Government Global Health Initiative and the Government of the Philippines' Universal Health Care agenda (*Kalusugan Pangkalahatan)*.

PART 1

Background – The TB Caravan Strategy

To increase TB case detection, active case finding is currently recommended by the Department of Health (DOH) National Tuberculosis Control Program Manual of Operations (NTP MOP, 2014). It is a screening strategy that involves going to the community to identify presumptive TB cases among vulnerable and high-risk groups who do not consult with the health facility. Vulnerable populations consist of individuals whose social circumstances make it difficult for them to access diagnostic and treatment services. High-risk groups, on the other hand, refers to close contacts of known TB cases, individuals with clinical conditions that put them at risk of contracting TB or living in congregate settings that promote easy disease transmission.

In conducting case finding, symptom screening for cough of any duration is commonly employed. Unfortunately, symptom screening has a sensitivity of only 40–74% (WHO, 2015). Many TB cases will remain undetected if one relies on just symptom screening alone. Using more sensitive screening tests, therefore, such as chest X-ray (CxR) has been recommended. Under the NTP, clear recommendations for the use of X-ray in screening are provided for household contacts (DOH-NTP MOP, 2014), PLHIV (DOH AO 2014-005) and inmates (DOH AO 2015-0032). However, the use of X-ray for screening other vulnerable/high-risk groups remains limited to pilot implementation and models.

Systematic screening is the process of applying rapid screening and diagnostic tests on individuals with the purpose of identifying presumptive TB and diagnosing TB cases. This is best done on individuals in high-risk groups or vulnerable groups. It can be integrated into routine health facility operations (e.g., screening for TB among patients consulting for other conditions such as diabetes, HIV, and smoking) or as a special activity wherein services are brought to the community as in a TB caravan.

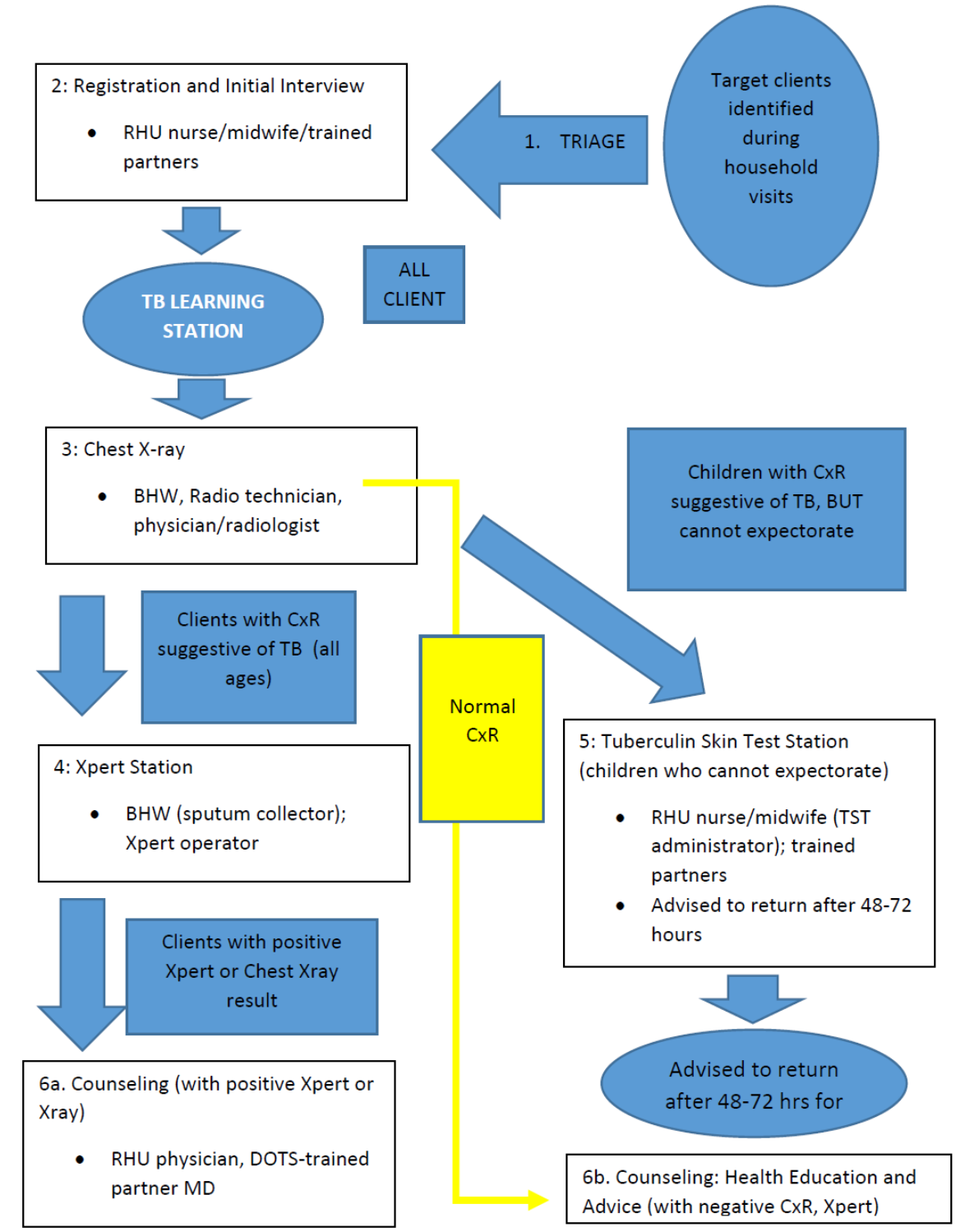
It is important to identify the screening and diagnostic tests that will be used and their sequence in the diagnostic algorithm. *Screening tests (*either symptoms, chest X-ray or both) are used to distinguish a person with high probability of having active TB from those unlikely to have TB. *Diagnostic tests (e.g.,* smear microscopy or Xpert MTB/RIF) are used to confirm which patients have active TB. They are applied to persons who test positive on the screening test.

The recommended algorithms for systematic screening are the following:

1) Using CxR screening on all clients (regardless of symptoms). Those found to have any CxR findings suggestive of TB will be tested with Xpert MTB/RIF (*Figure 1.).*
2) Using symptom screening (either cough of any duration or cough of two weeks) as first triage, followed by CxR for those with symptoms, and then, applying Xpert MTB/RIF if with any CxR findings suggestive of TB.

In resource-limited settings, other algorithms using a combination of symptoms and DSSM (instead of CxR and Xpert test) are also available. These are discussed in detail in the WHO Operational Guidelines for Systematic Screening (2015).

Figure 1. FLOWCHART FOR ACTUAL SCREENING (TB CARAVAN)



Based on the above algorithm, the following services should be provided during TB Caravans:

1) Symptom screening
2) Chest X-ray
3) Xpert MTB/RIF
4) Tuberculin skin test
5) Counseling (post-testing and/or pre-treatment)
6) Initiation of treatment
7) Referral to treatment center/satellite treatment center (TC/STC) or integrated DOTS units (iDOTS) for DRTB treatment
8) Isoniazid preventive therapy (IPT)

The TB Caravan strategy brings to communities mobile TB diagnostic and treatment services. This helps address potential barriers to patients' access to these services. Through the application of symptom screening and the use of chest X-ray, the caravan aims to detect missed TB cases from the community in vulnerable/high-risk populations or groups. It makes possible on-site same-day diagnosis, especially for adults and children who can cough out sputum. Treatment can then be initiated immediately in collaboration with the local DOTS facility.

Systematic screening is one of the key activities in the Philippine Strategic TB Elimination Plan Phase 1 (2017–2022) under the strategy "Value clients and patients through provision of integrated expanded patient-centered services." Under this strategy, 80% of priority high-risk population groups are targeted to be screened for TB.

This paper describes the criteria for site selection, target clientele, required logistics, proposed procedures, data management, and monitoring and evaluation for this strategy.

PART 2
Conducting the TB Caravan

A. Preparations

The Rural Health Unit (RHU) is expected to lead all activities with the support of the Provincial Health Office (PHO) and DOH Regional Office in conducting the TB Caravan (*see Tool 1. Checklist for Conducting a TB Caravan)*.

Step 1. Site Selection and Planning

Task Objective

To finalize the plan for the TB caravan, including selection of site/s and target populations, protocols to be followed, tasking among stakeholders, setting timelines, planning for human resources, logistical requirements, and data management

Suggested Tools

- Checklist for conducting a TB caravan *(Tool 1)*
- Estimation and planning tool *(Tool 2)*
- Flowchart for screening *(Tool 3)*
- Sample scope for work for on-site X-ray Reader *(Tool 4)*

Process

Site selection and planning should be conducted 2–3 months before the actual screening.

1. The RHU proposes to the PHO the site for the TB caravan.
   To determine which geographic sites (city or municipality) will be provided services, the following criteria are proposed:
   - ☐ Adequate supply of anti-TB drugs and laboratory commodities available
   - ☐ Large number of estimated missed cases (based on past year's case notification)
   - ☐ Large population of vulnerable/high-risk groups (even with high CNR)
   - ☐ Commitment of the local government unit (LGU)/RHU
   - ☐ With an engaged community partner (non-governmental organizations/community-based organizations)
   - ☐ Demonstrated good case-holding practices based on good treatment success rates

2. The RHU proposes to the PHO the target group for screening based on mapping of high-risk/vulnerable groups.
   The LGU shall conduct a preliminary local mapping of these groups prior to proposing a TB Caravan. Possible data sources to map the abovementioned groups are: LGU Development Planning Office, Department of Social Welfare and Development (DSWD) for residential care facilities, Bureau of Jail Management and Penology (BJMP) for jails; Department of Labor and Employment (DOLE) for

workplaces, Department of Environment and Natural Resources (DENR) and Mines and Geosciences Bureau (MGB) for mining communities, National Center for Indigenous Peoples (NCIP) for indigenous groups, Department of Education (DepEd) for undernourished children, and RHUs for household contacts and malnourished children. Following are the eligible clients who should be listed, visited and advised by the RHU staff and community volunteers as part of the preparations:

- Urban poor communities
- Congregate settings (jails and prisons, Treatment rehabilitation centers, residential care facilities, mental health institutions)
- Indigenous peoples
- Mining communities
- Malnourished/undernourished children
- Household contacts (all ages)
- Communities in remote areas with limited access to health services are also considered vulnerable groups (e.g., those living in geographically isolated and disadvantaged areas or GIDAs). Hence, they may also be targeted sites for reasons of improving equity in health. (In this case, it is recommended to provide not just TB services; this should be integrated with other health services.)

3. PHO/CHO proposes the site/s and target groups to DOH-RO.

4. DOH-RO, PHO and RHU meet to commit to conduct the activity.

5. DOH RO, PHO, and RHU meet with the DOTS facility, community leaders including barangay leaders and community partners (NGO/CBO) to secure commitment to conduct activity.

6. Finalization of target clientele, logistics and sites (for screening, for diagnosis, for treatment)

To estimate quantities required, an Estimation and Planning tool (Tool 2) in Excel format is provided in this toolkit.

Here are the logistical requirements.

- ✓ Human Resources
  - ☐ Team leader (Physician)
  - ☐ Physician/Radiologist for on-site X-ray reading
  - ☐ Radiologic technician
  - ☐ Administrator of tuberculin skin test (TST Nurse)
  - ☐ Sputum collectors
  - ☐ Xpert operator
  - ☐ Support staff (specific number to be determined during operational planning)
    - ☐ Triage and registration of clients
    - ☐ Registration in presumptive TB master list
    - ☐ Staff for TB learning activities
    - ☐ Utility worker
    - ☐ Crowd control and security

- ✓ Equipment
  - ☐ Digital X-ray machine (with generator)
  - ☐ Xpert MTB/RIF machine
  - ☐ Refrigerator or cold storage (for PPD)
  - ☐ Weighing scale
  - ☐ Equipment for learning activities (TV or LCD projector, laptop, sound system)

- ✓ Supplies (Laboratory supplies and TB drugs are expected to be provided by the NTP with support of Global Fund (GF)
  - ☐ Sputum cups
  - ☐ Sputum storage box (with reusable ice packs)
  - ☐ Xpert cartridges
  - ☐ PPD
  - ☐ Tuberculin syringes
  - ☐ TB drugs (Category 1 – adult and child, IPT kits)
  - ☐ Disposal containers for waste segregation (garbage bags, sharps container)
  - ☐ Other supplies: cotton, alcohol, gloves, masks, disinfectants

- ✓ Records and IEC materials
  - ☐ Patient number cards
  - ☐ Laboratory request form
  - ☐ Presumptive TB master list
  - ☐ Laboratory register
  - ☐ TB register
  - ☐ Treatment cards
  - ☐ NTP referral form
  - ☐ IEC materials and needed equipment (pamphlets, flyers, posters, videos, video player, sound system)

7. DOH RO coordinates with DOH-NTP and GF for support in conducting the TB caravan, for example, use of the GF mobile laboratory, augmentation of NTP supplies, on-site physician for X-ray reading (*see Tool 4 - Sample Scope for Work for On-site X-ray Reader*).

8. Operational planning with all identified local stakeholders to agree on the diagnostic algorithm to be used, schedules and tasks (s*ee Tool 3 - Flowchart for Screening).*

9. Preparation and mobilization of required logistics

Step 2. Social Preparation and Mobilization

Task Objective

To engage stakeholders, prepare them to assume their roles and perform tasks according to protocols as planned

Suggested Tools

- Sample Activity Design for Orientation of Community Volunteers for TB Caravan *(Tool 5)*
- Sample Protocol for Household Visits (in Filipino language) *(Tool 6)*
- Sample PowerPoint Presentation Slides *(Tool 7)*
- Household Screening Form *(Tool 8)*
- Community Volunteers' Roles and Responsibilities in the TB Learning Activities *(Tool 9)*

Process

1. Orientation for RHU staff and community volunteers (including IEC package orientation). *See Sample Activity Design for the Orientation (Tool 5), and Sample Protocol for Household Visits (Tool 6), and Sample PowerPoint Presentation Slides (Tool 7)* to be used during the orientation.
2. Secure assistance of religious groups/church, barangay councils or other organizations (e.g., DepEd, Office of Senior Citizens Affairs) to help disseminate information about the activity. This could include community announcements.
3. Distribution of flyers about the upcoming TB caravan to target population.
4. House-to-house visits by community volunteers to invite eligible clients. *See Household Screening Form (Tool 8).* All eligible target clients are given an "invitation" to avail of free services on the scheduled dates of actual screening.
5. Consider that people, especially men, may be at their workplace during household visits and actual screening days. Special visits or schedules during weekends may be necessary.

Step 3. Site Inspection and Preparation for Mobile Laboratory and Actual Screening

Task Objective

To ensure that the site where the TB caravan will be conducted meets the prescribed requirements and is all set for the activity

Process

1. Inspect the site to ensure that it meets the prescribed requirements:
    - ☐ Adequate covered area for the stations and for waiting (e.g., covered court, tents)
    - ☐ Electric supply for chest X-ray, Xpert machine and IEC equipment
    - ☐ Running water
    - ☐ Secure storage area for commodities (drugs, laboratory supplies, etc.)
    - ☐ Well-ventilated area with privacy for sputum collection
    - ☐ Tables and chairs for the stations and waiting area
2. Set up the different stations with all the required logistics per station as planned.

B. Actual Screening at TB Caravan

There will be six stations for the actual TB Caravan. The task objectives and logistical requirements for each one are as follows:

Station 1 – Triage

Task Objective

To triage all caravan clients to ensure that only those eligible are referred to the next station for symptom screening while those who are not are eligible are invited to the "enter-educate" session

Required Human Resources

- Trained *barangay* (village) heath workers (BHWs)
- Barangay *tanod* to help in crowd control

Suggested Tool

- Household Screening Form *(Tool 8)*

Process

1. Compile all Household Screening Forms submitted by community volunteers.
2. Triage clients who arrive, as follows:
   a. For clients who come with "invitations," cross-check if there is a "YES" response under the column "REFERRED?" opposite their names in the Household Screening Form. Once confirmed, refer them to the next station for symptom screening.
   b. For clients who come or walk in with no invitation, screen them for possible eligibility for the services (e.g., presumptive TB or household contacts); If eligible, refer them to the next station for assessment and symptom screening. Those found to have no evident indication for screening may be invited to join the "enter-educate" session.
3. Review if all those indicated in the Household Screening Forms as "REFERRED" have reported for screening.
4. Inform the RHU staff about the "REFERRED" clients who did not report for screening, so they can do a follow-up.

Station 2 – Registration and Symptom Screening

Task Objective

To screen clients for TB symptoms and history of exposure and, if indicated, register in presumptive TB master list

Required Human Resource

- RHU nurse or midwife

Suggested Tools

- NTP Presumptive TB Master List
- Standard Screening Form *(Tool 10)*

Process

1. Perform symptom screening (and history of exposure for children)
2. Register clients in presumptive TB masterlist, if applicable
3. Refer *all clients* to Chest X-ray Station

Station 3 – Chest X-ray Station

Task Objective

To ensure that all eligible clients undergo chest X-ray and are advised on the next steps based on preliminary X-ray findings

Required Human Resources

- Trained BHW
- Radiology technician
- Physician/Radiologist
- Clerk

Suggested Tool

- Recording Form for Chest X-ray Preliminary Reading *(Tool 11)*

Other Required Resources

- Chest X-ray machine (digital)

Process

1. Provide chest X-ray request form as needed
2. Take chest X-rays as requested
3. Perform preliminary reading of chest X-rays
4. Refer clients with suggestive findings to Xpert station
5. Refer clients with negative chest X-ray result to counseling station

Station 4 – Xpert MTB/RIF Station

Task Objective

To ensure that sputum specimens for Xpert testing are properly collected and processed, or packaged for storage or transport to Xpert site as needed

Required Human Resources

- Sputum collector
- Xpert operator

Suggested Tools

- NTP Laboratory Request Form

- NTP Laboratory Register

Other Required Resources

- Xpert machine
- Xpert cartridges
- Sputum collection area
- Sputum cups
- Sputum transport box
- Waste disposal container

Process

1. Supervise the sputum collection.
2. Accomplish the Laboratory Request Form.
3. Register in NTP Laboratory Register.
4. Perform the Xpert MTB/RIF test.
5. Package sputum for storage and transport (if Xpert site is not on-site).

Station 5 – Tuberculin Skin Testing (TST) Station

Task Objective

To ensure that TST is administered to eligible children, and advice regarding schedule and venue of follow-up is understood by their caregivers

Required Human Resource

- TST administrator (trained nurse or midwife)

Suggested Tool

- TST Result Form *(Use LGU form for TST)*

Other Required Resources

- Purified protein derivative (PPD)
- Tuberculin syringes
- Alcohol
- Cotton
- Waste disposal container

Process

1. Perform tuberculin skin testing on all referred children (i.e., less than 15 years old) who have chest X-ray findings suggestive of TB BUT cannot expectorate and cannot submit sputum for Xpert MTB/RIF.
2. Advise clients to come back either at the screening station or at the RHU after 2–3 days for the TST reading.

Station 6 – Counselling Station

Task Objective

To ensure that the patient understands the diagnosis (if results are available) and the next steps to take towards final diagnosis, treatment and monitoring

Required Human Resources

- Physician
- Nurse

Suggested Tools

- NTP Treatment Card
- NTP TB Register
- NTP Referral Form

Other Required Resources

- Category 1 kits
- Izoniazid preventive therapy (IPT) kits

Process

1. Review records of symptom screening and diagnostic tests done.
2. Inform clients of results, if available, and explain diagnosis.
3. To initiate treatment, accomplish an NTP Treatment Card, and register patients in the DSTB Register, as necessary.
4. Refer patients to a TC/STC/iDOTS, if necessary.
5. Advise clients with negative chest X-ray findings on TB symptoms and the need for follow-up if symptoms develop.
6. Advise clients who submitted sputum for Xpert testing awaiting results about the date and venue of follow-up to retrieve results.

C. TB Learning Activities in the TB Caravan

Through a variety of methods, target clients and their families who are reached by the TB Caravan will learn basic and practical facts about TB.

During household visits, pamphlets and flyers on TB in general and about the TB Caravan in particular may be distributed in the community. Posters on TB may be placed at strategic areas.

During the TB Caravan, TB information and education sessions will start on the first day of the actual screening and throughout the duration of the caravan. A separate station should be designated for learning activities and should be open to all interested parties.

Task Objective

To inform and educate members of the target community on TB, cough etiquette, HIV and other related topics, and to motivate target clients (both those who have not been previously visited and those who were visited but did not come for consult) to present themselves for screening at the TB caravan

Suggested Tool

- Facilitating Learning about Tuberculosis in TB Caravans: Resource Requirements, Set-up and Mechanics *(Tool 12)*

Process

1. IEC materials on cough manners will be handed out at Station 1 (Triage) where eligible clients identified for screening are received.
2. Clients referred for chest X-ray and who are waiting for their turn will be directed to wait at the TB Learning Station. This station will be located near Station 3 (Chest X-ray Station)
3. At the TB Learning Station, clients will –
   (a) view a 10–15 minutes-long video loop on TB, and
   (b) participate in an interactive quiz and play for 10–15 minutes (duration will depend on the number of people in the station); each player will answer five questions from the interactive quiz sets. For every correct answer, the player will win a prize.

D. Data Management

Data will be collected, organized and analyzed to inform decision in moving the strategy forward. Hence, a standard data collection form is recommended to capture all pertinent information on patients. These variables will be encoded in an Excel-based data matrix. Data analysis and discussion with stakeholders is recommended after the actual screening.

Suggested Tool

- Data Encoding Template *(Tool 13)*

E. Monitoring and Evaluation

The following are suggested indicators to monitor the strategy:

1. Proportion of population screened with X-ray
2. Proportion of population identified as presumptive TB:
   i. By symptoms
   ii. By X-ray
   iii. By symptoms and X-ray
3. Proportion of various risk groups among total screened
4. Proportion of presumptive TB diagnosed as bacteriologically confirmed TB
   i. Among those with symptoms only
   ii. Among those with X-ray only

iii. Among those with both symptoms and X-ray

5. Proportion of presumptive TB diagnosed as clinically diagnosed TB
    i. Among those with symptoms only
    ii. Among those with X-ray only
    iii. Among those with both symptoms and X-ray, which can be further disaggregated into what symptom or combination of symptoms they have
6. Number needed to screen (NNS) to detect one bacteriologically confirmed TB case
    i. Among total population screened
    ii. Among the various risk groups (household contacts, children, diabetics, urban poor, etc.)
7. Number needed to screen to detect one clinically diagnosed TB case
    i. Among total population screened
    ii. Among the various risk groups (household contacts, children, diabetics, urban poor, etc.)

Useful Resources

Department of Health. 2015. Administrative Order 2015-0032 Revised Technical Guidelines for Implementing DOTS Strategies in Jails and Prisons
Department of Health. 2014. Administrative Order 2014-005 Revised Policies and Guidelines in the Collaborative Approach of TB and HIV Prevention and Control

Department of Health. 2014. National Tuberculosis Prevention and Control Program Manual of Procedures. 13th edition. Retrieved from http://www.doh.gov.ph/sites/default/files/publications/MOP_Final_a.pdf

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