



LEARNS Toolkit

Implementation Guide for Local Chief Executives and Health Officials in the Philippines

 **NOVARTIS**



ACRONYMS

AIP	Annual Investment Plan
BHW	Barangay Health Worker
DOH	Department of Health
KMITS	Knowledge Management Information Technical Service
LEARNS	Leprosy Alert Response Network & Surveillance System
LGU	Local Government Unit
LCE	Local Chief Executive
LIPH	Local Investment Plan for Health
MB	Multi-bacillary
MDT	Multi-Drug Therapy
MHO	Municipal Health Office
NF	Novartis Foundation
NLCP	National Leprosy Control Program
PB	Paucibacillary
PDS	Philippine Dermatological Society
PHO	Provincial Health Office
RHU	Rural Health Unit
RO	Regional Office
SMS	Short Message Service
NDP	Nurse Deployment Program
LEARNS user	Any government health worker (MD, nurse, midwife or BHW)
WHO	World Health Organization
CLAP	Coalition of Leprosy Advocates of the Philippines

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I. INTRODUCTION

In 1998, the Philippines achieved the elimination target of a national leprosy prevalence rate of less than 1 in 10,000 population. However, pockets of cases are still being identified in some municipalities, and the Philippines remains the leading contributor of new leprosy cases in the Western Pacific Region. Given the current setting, the Department of Health (DOH) aims to sustain and revitalize the fight against leprosy, and prevent its re-emergence.

Leprosy, a neglected disease, is linked to poverty. One of the biggest challenges to leprosy control in the Philippines is limited access to healthcare, especially for the low-income and geographically isolated populations. Another barrier to leprosy control is the dwindling number of leprosy experts in the country. Early diagnosis and treatment with multi-drug therapy (MDT) remain the key elements in leprosy control and elimination. Evidence-based innovative strategies are vital in order to achieve zero transmission locally and globally.

In 2012, the DOH and Novartis Foundation signed a Memorandum of Understanding and formed the DOH-Novartis Task Force to help develop innovative approaches to leprosy control in line with the broader National Leprosy Control Program (NLCP). (Department of Health – Philippines, 2016)

A key initiative of the Task Force is the Leprosy Alert and Response Network System (LEARNS), the country's first mobile phone-based leprosy teleconsultation system. LEARNS was developed by local technology company Metahelix through the support of the DOH, Novartis Foundation and Philippine Council for Health Research and Development. **LEARNS is a mobile health (mHealth) tool that enables health care practitioners in remote areas to refer suspected leprosy patients**

to experts by sending a picture of the skin lesion and patient details through their mobile phone. LEARNS promotes early case finding and helps reduce delays in diagnosis and treatment. Using the LEARNS system, government health workers (physicians, nurses, midwives and BHWs) may send teleconsultations via either SMS or the LEARNS application. Aside from case finding, LEARNS also provides data for disease surveillance, reaction and treatment outcome monitoring, message broadcasting, patient education, and report generation.

LEARNS embodies a country-led response for the “last mile” of leprosy control. The Task Force is implementing LEARNS in the Philippines in partnership with key stakeholders from the public and private sectors, local government and academe, with valuable input from the World Health Organization and Coalition of Leprosy Advocates of the Philippines. **Through LEARNS, the Task Force aims to harness digital tools and institutionalize a leprosy referral and surveillance network among healthcare providers from the local and national government as well as the private sector.**

The DOH-NLCP is rolling out LEARNS nationwide in a phased and calibrated manner within the public health care system. **Results of an independent study (refer to Annexes) show that LEARNS is a good tool for screening suspected leprosy patients, with specificity greatly improved by the inclusion of a photo. The study also found that the average time for confirmation of initial diagnosis was significantly earlier in areas where LEARNS is being implemented versus those where the system has not yet been rolled out.**

There is no hardware, software or network cost for the use of LEARNS within the Philippine public health care system. SMS teleconsultations can be sent using any mobile phone, and the LEARNS application is compatible with any Android and IOS (Apple) smartphone. BHWs and government midwives, nurses and physicians may send teleconsultations through the LEARNS system. Suspected and confirmed cases of leprosy from the private sector may be referred to the nearest government health facility for further diagnosis and management and to obtain MDT when indicated. Patients referred through LEARNS are managed according to the current standards and existing guidelines within the public health care system and the government health service delivery network.

LEARNS has attracted much interest in the local and global leprosy community. As such, next steps include the development of a toolkit to guide LEARNS expansion in other countries. **This toolkit is a manual for regional, provincial and municipal health officials, and policymakers in the Philippines to guide them in implementing LEARNS in their area.**



II. PLANNING AND PREPARATION

A. Roles and Responsibilities of Key Stakeholders

LEARNS adoption and implementation is coordinated and implemented by various organizations, each with specific roles and responsibilities:



1. DOH Central Office – provides the overall strategic roadmap and other technical support in LEARNs implementation

- Supports the NLCP to establish innovative approaches toward zero transmission
- Through the NLCP, identifies and organizes investment proposals needed to scale up LEARNs adoption and implementation, including program strategic plan, annual operational plan, work and financial plan, and Medium-Term Expenditure Plan
- Coordinates with the DOH-Knowledge Management Information Technical Service (KMITS) for IT-related support

- Through the Regional Offices, provides overall coordination and mobilization of resources for scaling-up and expansion
- Conducts overall monitoring and evaluation to facilitate continuous LEARNs improvement

2. DOH Regional Office (DOH-RO) – serves as the DOH arm at the sub-national level and is responsible for providing technical support to the LGUs (provinces, cities and municipalities). It works with the LGUs to manage and leverage resources in accordance with the DOH health agenda.

- Identifies potential site/s for LEARNs expansion and scaling up
- Through the Local Health Investment Plan (LIPH) mechanism, provides direct support to localities in adopting and implementing LEARNs, including training and other relevant technical support
- Coordinates with the NLCP for identification and mobilization of available resources for LGUs as indicated in the LIPH of the provinces and cities in the region
- Identifies and engages other partners in the region to support LEARNs implementation at the sub-national level
- Monitors and evaluates implementation to inform LEARNs improvement and provides reports to the DOH Central Office to the Leprosy Task Force through the NLCP

3. Local Government Units – formulate and implement local investment planning based on the DOH Local Health Investment Planning (LIPH) mechanism. (Department of Health - Philippines, 2015)

Provincial Health Office

- Identifies potential site/s within the province for LEARNs expansion and scaling up
- In collaboration with the municipalities and cities, formulates and issues policy supporting LEARNs implementation
- Mobilizes resources through the local health investment planning and budgeting mechanism at the provincial level
- Coordinates with the Leprosy Control Program Coordinator at the DOH-RO for identification and mobilization of available resources for LGUs
- In collaboration with the DOH-RO, provides municipalities and cities with technical support and training, among others, for LEARNs adoption

- Identifies and engages other partners in the province to support LEARNS adoption and implementation
- Monitors and evaluates implementation to facilitate LEARNS improvement at the local level and submits periodic reports to the DOH RO through the Regional Leprosy Control Program Coordinator

Municipality or City Health Office

- Adopts LEARNS as part of its strategy to eliminate leprosy through local policy development mechanism
- Mobilizes resources through the local health investment planning and budgeting mechanism
- Coordinates with the DOH-RO through the Provincial Health Office for orientation, training and other forms of technical support
- Identifies and engages other partners at the local level to support LEARNS adoption and implementation
- Monitors and evaluates implementation to facilitate LEARNS improvement and submits periodic reports to the Provincial Health Office through the Provincial Leprosy Control Program Coordinator

4. Leprosy Experts – are either members of the Philippine Dermatological Society (PDS) or physicians who are recognized leprosy experts.

- Provide technical advice to key stakeholders concerning LEARNS implementation, especially in confirming leprosy cases
- Collaborate with key stakeholders at the sub-national level or through their local chapters

B. Key Program and Monitoring Indicators

Close and regular monitoring of program indicators is critical in supervising and evaluating LEARNS. These data below must be gathered, documented, and reported regularly. The information must be segmented according to national, regional, provincial, municipal/city, and barangay levels.

Listed below are key indicators that the NLCP program manager, leprosy coordinators and other health managers utilize to monitor and evaluate program performance assessment as well as for planning:

1. Number of Teleconsults – refer to probable leprosy cases referred through LEARNS. Such cases may involve skin lesions or other symptoms that suggest nerve damage but with cardinal signs that are either absent or doubtful, i.e., skin lesion consistent with leprosy and

with definite sensory loss, with or without thickened nerves positive skin smears, or other diagnosis that cannot be totally ruled out, and thus require confirmatory test or further examination by a professional health worker or a specialist (World Health Organization, 2016).

2. Cases found/ confirmed among Teleconsults – refer to new cases found through LEARNS and diagnosed as having clinical disease (i.e., presence of cardinal signs of leprosy) and/or through skin smear test (World Health Organization, 2016). Confirmed cases can still be further categorized as:

- a. Proportion of multibacillary (MB) cases among new cases
- b. Proportion of paucibacillary (PB) cases among new cases
- c. Proportion of pediatric cases (age less than 15 years) among new cases
- d. Proportion of grade 2 disability cases among new cases

3. Number of cases notified/ registered among confirmed cases – refers to confirmed cases that are included and recorded in the registry maintained by the health providers.

4. Number of cases initiated treatment among notified or registered cases –refer to notified cases that have started MDT.

5. Treatment completion/cure rate of cases – refers to proportion of MB cases that have completed MDT within 18 months (for MB cases) or within 9 months (for PB cases) from treatment start date among those registered for MDT in a year (World Health Organization, 2016).

6. Number of provinces/regions/municipalities implementing LEARNS – refers to the number of Regions and/or LGUs that have adopted and operationalized LEARNS, and whose implementation have led to the identification, confirmation, and treatment of leprosy cases.

7. Number of health providers trained – refers to health workers that have been trained in the use of LEARNS, whether doctors, nurses, midwives, or community health workers such as BHWs.

C. General Resource Requirements

Setting up and implementing LEARNS requires minimal investment, as most resources are already available or provided for in most local health offices (refer to Table 1 below).

Table 1. Resource Requirements for LEARNS Implementation

Resource requirements	Description	Source
Personnel	1. Health officer/ physician and/ or staff	Local Health Office
	2. Frontline health workers or the Barangay Health Workers (BHW)	
	3. Designated Leprosy expert to assist in confirmation of cases	
Operating expenditure	Load for SMS and data	DOH-NLCP
Hardware / software	1. Mobile phone unit (Android or IOS/Apple)	1. Local Health Office
	2. Learns application available from the DOH through KMITS	2. DOH KMITS through DOH-RO
Training	LEARNS orientation and training	DOH-RO and/or Leprosy Task Force
IT support	User requirements related to using the LEARNS applications, including software-related trouble shooting, updating and maintenance	DOH KMITS through DOH-RO

D. Governance

Utilizing the existing local governance mechanism is critical in ensuring political commitment and adequate resources for sustained LEARNS implementation. Local legislation is often necessary to institutionalize an undertaking that involves the use of public resources and that is designed to benefit and/or protect marginalized groups in a community.

In Iloilo Province in Region VI where LEARNS was piloted in 2014, provincial policies and office orders were formulated to support LEARNS implementation, demonstrating strong LGU ownership (refer to Annex xx). Local legislation also facilitated sustained DOH-RO support.

The Iloilo experience can be used as a model to develop policies for LEARNS in other localities such as:

1. Region-Province-Municipality/City partnership supporting LEARNS implementation, including specifying duties and responsibilities of key stakeholders

2. Local legislation to formally adopt LEARNS as a surveillance and case finding tool

3. Integration of LEARNS strategy in the local Annual Investment Plan (AIP) and Local Health Investment Plan submitted to the Regional Office.

Based on the success of the LEARNS Iloilo pilot, the DOH-Novartis Task Force recommends that each LGU (province/city/municipality/barangay) formulates official policies to support local LEARNS adoption as a leprosy control strategy.



III. IMPLEMENTATION

A. Procedure

LEARNS implementation ideally should be integrated with *Kilatis Kutis*, the DOH nationwide skin screening campaign for early leprosy detection and treatment.

Depending on the NLCP's assessment and those of the corresponding regional, provincial and municipal health offices, passive, active or semi-active (e.g. together with a *Kilatis Kutis* campaign) case detection strategies may be utilized. Health workers who have been trained using the standard DOH module on leprosy may be deployed for case finding.

Upon identifying a possible or probable leprosy case (via recognition of any of the symptoms and/or cardinal signs of leprosy), the health worker should send patient information (i.e., do LEARNS teleconsultation) via either SMS or the LEARNS application, depending on the mobile phone and communications infrastructure available in their locality. Including a photograph (or photographs) in the teleconsultation greatly enhances the accuracy of diagnosis. Thus, using the LEARNS application whenever possible is highly recommended.

As in all types of health care work, health workers who use LEARNS must adhere to local and national regulations on patient privacy and confidentiality.

B. LEARNS Teleconsultation Via SMS (Refer to Annex: LEARNS SMS teleconsultation pocket guide)

The health worker should carefully follow the steps listed below to compose

A proper and complete SMS for LEARNS teleconsultation has eight components in the exact order listed below:

1. "LN" (default initial keyword)
2. Health Facility Code
3. Initials of the patient's first and last names (maximum of two letters/characters)
4. Patient's date of birth in MM/DD/YYYY format (do not substitute "/" with "-")
5. Patient's gender (M or F)
6. Patient's mobile phone number in the format 09XXXXXXXXX (If the patient does not have a mobile phone, key in any family member's or the health worker's mobile phone number.)
7. Patient's symptoms. Possible symptoms and their abbreviations:
 - AN – anesthesia or numbness
 - X – positive for exposure to a leprosy patient
 - LL – positive lid lag
 - DEF – deformity
8. Duration of symptoms in the format (for example) "6M" for 6 months or "2Y" for 2 years.

For example, patient Pedro Cruz, born on January 31, 1953, visited the Jolo Rural Health Unit for consultation. He has been experiencing anesthesia for the last 6 months, and is positive for exposure. The correct SMS for LEARNS teleconsultation for this hypothetical patient is: LN 2360 PC 01/31/1953 M 09179999999 AN X 6M

After composing the complete and correct LEARNS teleconsultation SMS, the health worker can now send it to:

- Globe subscribers, send to 21581799
- Smart subscribers, send to 29290581799

Once the message is sent, the sender/health worker should receive a confirmatory reply from the LEARNS system: 639565124272 is referring patient PC 64/M with ID 5643 with the following information AN X 6M

If the health worker does not receive a reply within the next few minutes, it may mean the access numbers are down. They should try again after a few minutes or hours.

The patient will also receive a message from the LEARNS system regarding the need to consult a trained physician to confirm the diagnosis. The patient and health worker will both receive a consultation reminder message for face-to-face diagnosis after 7 days, and again after 14 days.

C. Teleconsultation Via the LEARNS Application (refer to Annex: Guide for using the LEARNS application)

The LEARNS application may be installed on any Android or IOS (Apple) smartphone. Health workers can use the LEARNS application to send photos of skin lesions together with patient details to the designated access code. The LEARNS system receives the data and sends the picture and patient information to the leprosy specialist. The leprosy specialist can reply to the message through their cellphone or the LEARNS website.

1. Install the LEARNS application.
2. Register:
 - Enter a valid mobile phone number to which confirmation SMS messages will be sent.
 - Tap LOGIN.
3. Enter new patient registration
 - Tap RECORD.
 - In the relevant fields, enter patient details: Health Facility Code, First Name, Last Name, Sex, Date of Birth, Symptoms, Photos
4. Add photos
 - Tap ADD PHOTOS to add a photo of the patient's skin lesion
 - Tap OK to add the photo.
 - Tap RETRY to retake the photo.
 - Tap ADD PHOTO to add a total of 3 pictures of the lesion(s).
 - Tap SAVE to save the patient data.
 - A validation screen of the patient data will appear.

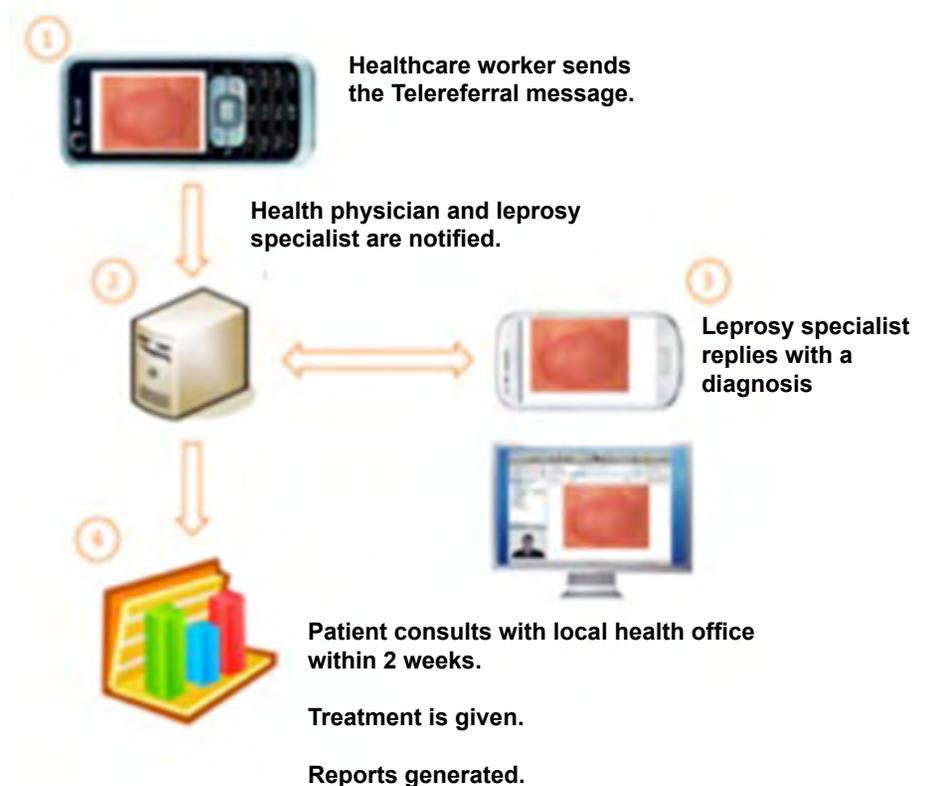
- Tap EDIT to edit the data or tap SUBMIT to submit the data.
- Success! The new patient data has now been saved. Tap OKAY.

5. Sync data

- Patient data which have not been synced are marked with a grey bullet.
- If there is Internet connectivity, the app will sync the data automatically.
- To upload patient data manually, tap SYNC.
- Once syncing is completed, the patient record will be marked with an orange bullet.

D. LEARNS Workflow

Patient consults health worker.



E. LEARNS Training Requirements

LEARNS must be integrated into the service delivery network of the public health care system at all levels of health care. For each area of implementation, the regional, provincial and municipal leprosy coordinators must be actively engaged in the process of scale-up and rollout. The commitment and support of their respective DOH regional directors and local chief executives must likewise be obtained.

Because LEARNS is designed primarily for the peripheral units of the public health care system, it is important to identify public health nurses, rural health midwives and BHWs who can be trained in the use of LEARNS. These frontline health workers should be encouraged and empowered to participate in the intake process and throughout implementation, monitoring and assessment/evaluation.

LEARNS training is initiated by the DOH Regional Offices and coordinated with the Task Force. LEARNS user training must always be done as part of the DOH module/orientation on leprosy, to ensure that health workers know the cardinal signs of leprosy and are trained in leprosy case-finding, as appropriate for their level of health care.

Training also provides users with a background on LEARNS, the reporting process via SMS or the LEARNS application, and utilizing the approved presentation materials from the DOH-NLCP and the DOH-NF Leprosy Task Force.

For standardization, the initial training is being facilitated by the DOH-NF Leprosy Task Force or by a designated trainer. For sustainability, Training of Trainers sessions will be conducted among regional and LGU providers in order to maintain a pool of qualified trainers in each LEARNS implementation area. Designated trainers can then facilitate subsequent trainings to ensure better reach in the community. All health care providers who are part of LEARNS system should be trained on applicable policies and procedures.

F. Documentation

Data on the LEARNS key program indicators must be gathered, documented, and reported regularly. The information must be segmented according to national, regional, provincial, municipal/city, and barangay levels. Please refer to Annex for the LEARNS monitoring and evaluation tool. This tool should be submitted to the Provincial and Regional leprosy coordinators and to the DOH-NLCP on a monthly, quarterly and annual basis.

G. Troubleshooting and Technical Support

Common mistakes in composing the SMS teleconsultation message should be avoided, as improperly formatted text messages will not be recognized by the LEARNS system. These include:

1. Additional spaces in between keywords
2. No spaces between keywords
3. Incorrect order of keywords
4. Substitution, e.g., substituting the letter O with the number 0; substituting the letter i with the number 1
5. Additional text, such as “Gud am,” “Hello,” etc.;
6. Missing keywords, especially health facility code. You MUST know your health facility code.

For questions about technical support, please contact:

Contact Person: Program Manager, National Leprosy Control Program
Contact No: 6517800 Loc 2354 / 2352 / 2350
Email Address: nlcp.doh@gmail.com

The DOH-NLCP and the Regional Leprosy Coordinators will provide the health facility codes necessary for the transmittal of LEARNS message into the system. These codes are specific per city/municipality and provided to the users during the training and orientation. The codes are already built into the LEARNS application database.

H. Training and Monitoring Support

In the initial phases of LEARNS implementation, training and monitoring support will be provided by Metahelix and the DOH-NF Leprosy Task Force. This task will eventually be handed over to the DOH Knowledge Management and Information Technology Service (KMITS).



IV. SYSTEM EVALUATION AND ENHANCEMENT

A. System and process evaluation

LEARNS evaluation and enhancement can be done in two ways:

1. in a controlled setting that is appropriate for scientific evaluation; and
2. through documentation and careful evaluation of the actual, on-the-ground experience

All decisions with regard to LEARNS and its scaling, evaluation and enhancement are made in close coordination and consultation with the DOH and other key stakeholders at all levels of health care.

B. IT Monitoring, Evaluation, and Enhancement

In the long term, system analysis evaluation and enhancement as well as technical support will be centralized in and provided by the DOH KMITS.

C. Sustainability

LEARNS was developed to address a previously identified need for a leprosy teleconsultation and telereferral system, particularly for remote and geographically isolated areas. Through close consultation and coordination with the DOH, and other key stakeholders from the public and private sectors, LEARNS was designed to be implemented within the public health care system in line with the broader DOH-NLCP roadmap.

LEARNS has been adopted by the DOH-NLCP as an innovative tool for leprosy case finding and surveillance. It is currently being rolled out together with other digital tools such as the Integrated Leprosy Information System (ILIS) and other leprosy eLearning modules, and guided by the newly revised NLCP Manual of Procedures.

Through the support of the DOH, and the Leprosy Task Force, the LEARNS system is being scaled throughout the country in a phased and calibrated manner. It is now being implemented in 17 provinces and 5 regions, with over 6,000 health providers already trained nationwide.

Human resources required for LEARNS implementation include public health providers, such as MHOs, nurses, midwives and BHWs. User training and system monitoring are conducted and supported by the DOH-NLCP and the respective regional offices of the DOH. LEARNS teleconsultation SMS are free of charge. Within a defined time frame, system administration and maintenance will be turned over to the DOH-KMITS.

CONCLUSIONS

LEARNS utilizes innovative mobile health (mHealth) technology that is firmly anchored on the four pillars of leprosy control and disease transmission interruption: early detection and treatment, contact tracing and preventative treatment, strengthening of surveillance systems, and development of reliable diagnostic tools for faster and earlier diagnosis.

LEARNS empowers frontline health providers in remote and geographically isolated areas to refer suspected leprosy patients to experts by sending a picture of the skin lesion and patient details through their mobile phone. Aside from case finding, LEARNS also provides data for disease surveillance, reaction and treatment outcome reporting, message broadcasting, patient education, and report generation.

The DOH-Novartis Leprosy Task Force serves as a model for collaboration and public-private partnerships to promote innovation and stakeholder engagement, as well as meaningful participation of persons affected by leprosy. It is a successful example of how a collaboration across private and public sectors can work to keep a neglected disease on the public health agenda. The LEARNS system can be expanded to aid in teleconsultation for other diseases that require images for their diagnosis. The Task Force can also be replicated in other regions as well as other areas of public health.

ANNEXES

1. DOH Health Policy Brief on LEARNS
2. User's guide for LEARNS SMS teleconsultation
3. User's guide for LEARNS application
4. LEARNS data and monitoring tool

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AUTHORS AND CONTRIBUTORS

Department of Health

Dr. Mario Baquilod,
Director IV, Disease Prevention and Control Bureau

Dr. Leda Hernandez,
Chief, Infectious Disease Office, Department of Health

Dr. Ernesto Villalon III,
Program Manager, DOH National Leprosy Control Program

Dr. Francesca Gajete,
Former Program Manager, DOH National Leprosy Control Program

Metahelix

Dr. Ayedee Ace Domingo,
Managing Director

Novartis

Dr. Ann Aerts,
Head, Novartis Foundation

Dr. Fareed Mirza,
Head of Research, Novartis Foundation

Ms. Zaahira Gani,
Project Manager, Novartis Foundation

Dr. Bernardino Aldaba,
Leprosy Task Force Consultant

Ms. Stella Osorio,
Leprosy Task Force Consultant

Dr. Malaya Santos,
Leprosy Task Force Consultant

Dr. Roderick Poblete,
former Leprosy Task Force Consultant

Ms. Christine Fajardo,
Country Corporate Responsibility Head, Novartis Healthcare Philippines

Mr. Niel Brian Aguas,
Public Affairs Manager, Novartis Healthcare Philippines

