SIAPS Philippines End of Project Report

February 2018

USAID
FROM THE AMERICAN PEOPLE

SIAPS
Systems for Improved Access to Pharmaceuticals and Services

This report is made possible by the generous support of the American people through the US Agency for International Development (USAID), under the terms of cooperative agreement number AID-OAA-A-11-00021. The contents are the responsibility of Management Sciences for Health and do not necessarily reflect the views of USAID or the United States Government.

About SIAPS

The goal of the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program is to ensure the availability of quality pharmaceutical products and effective pharmaceutical services to achieve desired health outcomes. Toward this end, the SIAPS result areas include improving governance, building capacity for pharmaceutical management and services, addressing information needed for decision-making in the pharmaceutical sector, strengthening financing strategies and mechanisms to improve access to medicines, and increasing quality pharmaceutical services.

Recommended Citation

This report may be reproduced if credit is given to SIAPS. Please use the following citation.

Dizon JF II, Lagos A, Adorio-Arce L, Desano C, Linatoc I. 2018. *SIAPS Philippines End of Project Report.* Submitted to the US Agency for International Development by the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program. Arlington, VA: Management Sciences for Health.

Systems for Improved Access to Pharmaceuticals and Services
Pharmaceuticals and Health Technologies Group
Management Sciences for Health
4301 North Fairfax Drive, Suite 400
Arlington, VA 22203 USA
Telephone: 703.524.6575
Fax: 703.524.7898
E-mail: siaps@msh.org
Website: www.siapsprogram.org

CONTENTS

ACRONYMS

aDSM	active drug safety monitoring and management
BHMC	Barangay Health Management Council
CXR	chest X-ray
DOTS	directly observed treatment short course
DOH	Department of Health
DSM	drugs and supplies management
DSSM	direct sputum smearing microscopy
FDA	Food and Drug Administration
FHO	Family Health Office
JPR	joint program review
KMITS	knowledge management and information technology service
LGU	local government unit
LMD	Logistics Management Division
MDR-TB	multidrug-resistant TB
M&E	monitoring and evaluation
NCPR	National Center for Pulmonary Research
NGO	nongovernment organization
NTP	National TB Control Program
NTRL	National TB Reference Laboratory
PD	Pharmaceutical Division
PGMP	Practical Guide for the Management of Pharmaceuticals and Health Related Commodities
PMDT	programmatic management of drug-resistant TB
PV	pharmacovigilance
PViMS	Pharmacovigilance Monitoring System
QCHD	Quezon City Health Department
SCM	supply chain management
SIAPS	Systems for Improved Access to Pharmaceuticals and Services
SOP	standard operating procedure
TB	tuberculosis
USAID	US Agency for International Development
TOT	training of trainers
TWG	technical working group
WHO	World Health Organization
WMS	warehouse management services

BACKGROUND

The Philippines is currently one of the fastest growing economies in the Asia-Pacific region and globally across emerging markets. With a population of more than 100 million, its annual population growth rate, estimated at 2.12% in 2010,[1] remains one of the highest in Southeast Asia. However, as of 2016, approximately 25.2% of the population lived below the national poverty line.[2] The Philippines is challenged by high rates of maternal and neonatal mortality and a high incidence of tuberculosis (TB), which is a major public health problem in the Philippines that has kept the country among the 22 high TB-burden countries. According to the World Health Organization (WHO) Global TB Report 2017, estimated incidence rate of TB was 554/100,000 in 2016, with an estimated 30,000 MDR/RR-TB cases.[3] In the 2016 National Tuberculosis Prevalence Survey, 512 per 100,000 new cases of culture-positive TB and 286 per 100,000 smear-positive with culture-positive TB cases were reported.[4]

The National TB Control Program (NTP) is managed by a central team at the National Center for Disease Prevention and Control of the Department of Health (DOH). This team develops policies and plans and provides technical guidance to regional and provincial/city-level NTP management teams that are overseeing the implementation of the program at the municipal and barangay levels based on NTP policies and standards.

Under the NTP, TB control services are mainly provided through decentralized public primary health care facilities (also called Directly Observed Treatment, Short Course (DOTS) facilities) operated by local government units (LGUs). There are additional DOTS facilities within the NTP's network of service providers that either refer diagnosed TB patients for treatment or directly provide TB treatment services using the DOTS strategy. The NTP has also established public-public and public-private partnerships for TB control (consisting of both public non-NTP providers, such as public hospitals, public medical colleges, prisons/detention centers, and military facilities, and private DOT providers, include private physicians, private hospitals, private clinics, private workplaces, and nongovernmental organizations (NGOs)).

The TB treatment supply chain in the Philippines has undergone several major changes in recent decades, from the introduction and rollout of DOTS to health system reform and decentralization. The Philippines does not have a comprehensive national medicine policy document. It only has agencies involved ensuring treatment supplies, including the Formulary Executive Committee appointed by the Philippine DOH, which produces an effective essential medicines list called the Philippine National Formulary. Government units are expected to only procure medicines that are listed in the Philippine National Formulary in line with Philippine Government Executive Order 49/2003. The national medicines regulatory authority in the Philippines is the Food and Drug Administration (FDA). Following the promulgation of RA 9711/2009, the FDA is responsible for regulating foods, medicines, medical devices, cosmetics, and other products that may affect public health.

The NTP surveillance system is based on the standardized recording and reporting system used in all DOTS facilities under the NTP network of providers. Reports from rural health units, health centers, and other DOTS providers include data for laboratory, case finding, and case

holding activities. These are reported quarterly and annually to the provincial or city health offices on standardized paper forms. The provincial or city health offices then consolidate these paper-based reports and convert them into an electronic format (in tabular form using Microsoft Excel or Word). These are then forwarded to the respective regional health offices for consolidation and further analysis. The regional electronic reports are then forwarded to the central NTP team at the DOH.

The NTP in the Philippines faces multiple challenges in the areas of pharmaceutical management, case detection, treatment, and information utilization for decision making. These challenges, along with well-documented constraints in human resources and governance, put case detection and treatment outcomes at high risk, potentially contributing to further increases in MDR-TB and extremely drug-resistant TB cases.

In a comprehensive review conducted in 2016,[3] TB stakeholders identified the following key programmatic gaps:

- Missed TB cases due to poor health-seeking behavior of patients; geographical, financial, and information barriers to TB services; and a lack of engagement of private health care providers
- Inadequate access of poor and vulnerable populations to health facilities
- Limited implementation of programs for drug-resistant TB, TB/HIV, latent TB, and those at high risk for TB
- Weak health systems, especially in human resources, surveillance, and logistics management
- Varying levels of support from LGUs

SIAPS STRATEGY IN THE PHILIPPINES

The US Agency for International Development (USAID)-funded Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program in the Philippines began in 2012. Using a systems strengthening approach, SIAPS built the capacity of TB stakeholders at all levels—national, regional, provincial, city, and barangay (grassroots)—to help reduce the TB burden through increased access to quality and effective pharmaceutical and laboratory services. The program used a pharmaceutical systems strengthening approach that supported and integrated the core functions of a country's health system for greater health impact. The core functions of a health system, as defined by WHO, include health governance; human resources for health; health information; health financing; health service delivery; and medical products (supplies, vaccines, and technology).

In partnership with these agencies, SIAPS analyzed pharmaceutical systems to determine appropriate options for improvement. SIAPS then supported its partners in implementing reforms in all components of the pharmaceutical management system.

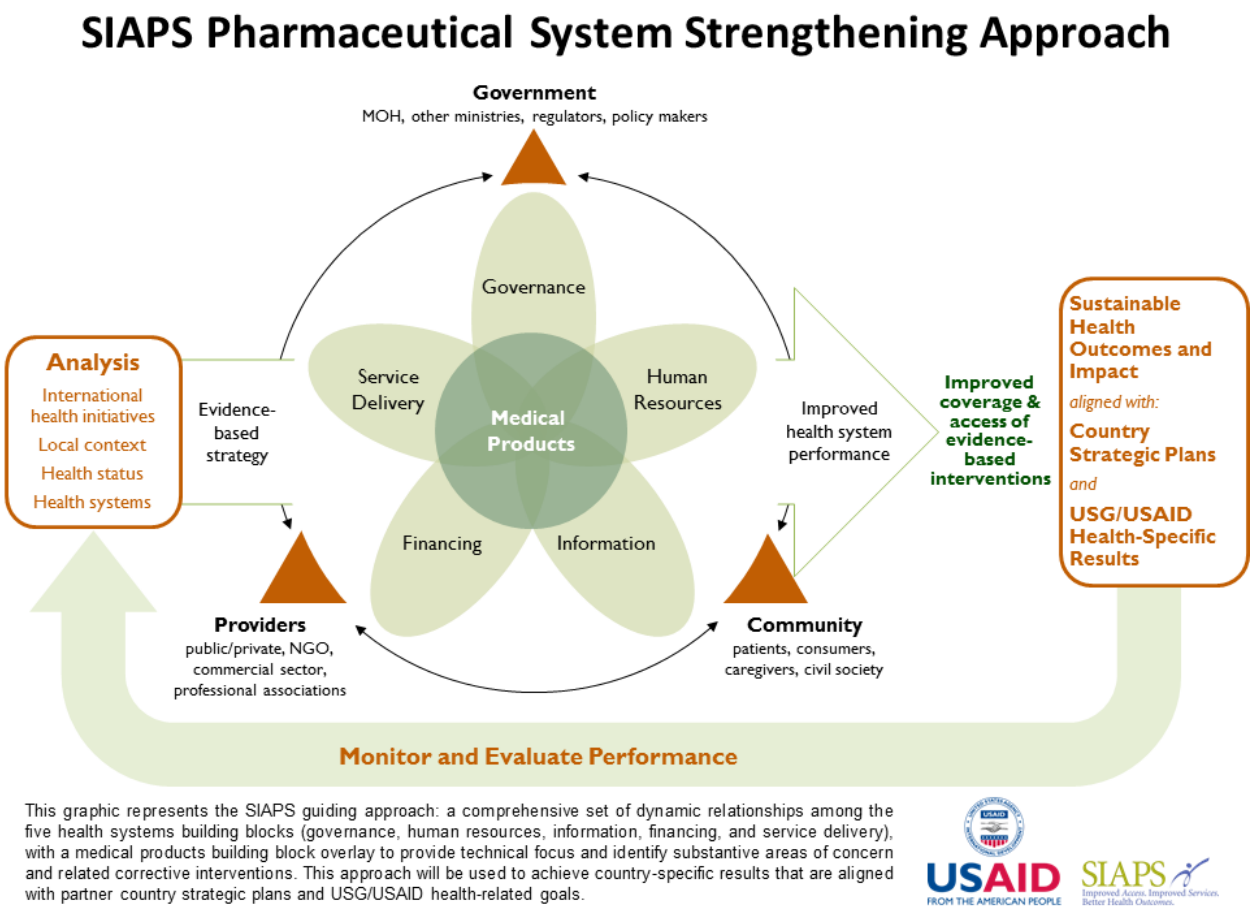


Figure 1. The SIAPS approach

Starting in 2012, SIAPS focused on improving access to quality and equitable family health services through the application of a system strengthening approach to medicines and laboratory diagnostic management. This strategic focus improved the capacity of key government agencies in:

- Leadership and governance of pharmaceutical and laboratory systems
- Transparent and evidence-based decision making
- Delivery of pharmaceutical management and laboratory services

To achieve its objectives, SIAPS provided technical support to the DOH and its agencies, including the NTP, FDA, Pharmaceutical Division (PD), Logistics Management Division (LMD), Central Office Bids and Awards Committee, Knowledge Management and Information Technology Service (KMITS), Family Health Office (FHO), National TB Reference Laboratory (NTRL), and local government units in Region 4A and Quezon City.

Table 1. Implementation Partners, Stakeholders, and Areas of Technical Assistance

Implementing Partner	Interventions	Years
NTP	Capacity building for laboratory leadership and governance	2012–2016
NTRL	Capacity building for laboratory leadership and governance Support for Xpert lab expansion and laboratory systems strengthening	2012–2017
NTRL, DOH Regions 7 and 9	Decentralization of laboratory training	2016–2017
NTRL, DOH Region 7	Enhancement of laboratory training courses	2016–2017
NTRL, DOH Region 7	Regional capacity building on training program management	2016–2017
DOH-FDA	Strengthen pharmacovigilance (PV) system Registration	2013–2018 2016
NTP, DOH-FDA	PV standard operating procedure (SOP)	2016–2017
DOH-PD	Supply chain management PV PViMS	2014–2017 2016–2017 2016–2017
DOH-LMD	Warehouse management systems	2017
DOH-FHO	Supply chain management	2016–2017
DOH-KMITS	PViMS installation and interoperability	2016–2017
Quezon City Health Department	Community-level health system strengthening (BHMC)	2012–2016
Lung Center of the Philippines	PV clinical management BDQ operational research data management	2016–2018 2017 2015–2018 2016

KEY INTERVENTIONS AND ACHIEVEMENTS

Laboratory Systems Strengthened

Table 2. Evidence of Success

Indicator	2014	2015	2016	2017
% of trainees successfully completing post-training action plan	100%	100%	100%	100%
# of persons trained in laboratory management systems	28	34	19	103
# of laboratory management guidelines, lists, and SOPs developed (or updated) and submitted for adoption		1	5	3
# of in-service health professional training curricula developed or reformed to address laboratory management topics			2	3

SIAPS worked with NTP management at the DOH national office and the NTRL (Research Institute of Tropical Medicine/DOH) to strengthen the leadership, management, and governance aspects of NTP laboratory services. SIAPS provided technical assistance to set the strategic direction of the laboratory services to help achieve the goals of the NTP. SIAPS provided technical assistance to the NTP to strengthen its capacity to lead and manage the laboratory network; this was in accordance with the NTP's request to USAID for technical assistance. The first phase of the strategy was to build capacity at the national level by supporting the NTP's and NTRL's capacity building efforts and by improving coordination with other stakeholders; the second phase was to work with the regional level. Simultaneous with national-level technical assistance were efforts to develop a model to strengthen community-level TB systems and services, including laboratories.

Table 3. Technical Products Developed on Laboratory Management

	Year	Document Title	Document Description
1	2017	Technical Advisory on Xpert Laboratory Systems	A briefing paper on the Xpert MTB/RIF assay implementation in the Philippines
2	2017	Enhanced DSSM Training Course for Implementers	The session guide presents the objectives and instructions to be used by trainers. Work instructions are included which the trainees can use as SOPs in their laboratories.
3	2017	Xpert MTB/RIF Training of Trainers Training Guide	Presents the training session guide and course content focused on the pre-analytical, analytical, and post-analytical stages of testing. The course also includes the clinical perspectives of Xpert testing. The materials include work instructions that workers can use in their laboratories as SOPs.
	2017	Xpert Understudy Training Course	This one-day course was developed to provide preservice training to newly assigned or hired Xpert operators. The course is accompanied by work instructions to enhance learning.

	Year	Document Title	Document Description
5	2017	SOP for the Maintenance of Xpert MTB/RIF Assay Machines	Adapted from various publications and manuals (The Global Laboratory Initiative and Cepheid) and customized for the Philippine setting, the SOP serves as a ready reference for laboratory workers operating GeneXpert machines, particularly at the periphery. It is also intended for NTP laboratory coordinators and supervisors as a guide for training, providing technical support, and assessing the performance of GeneXpert test procedures (quality assurance).
	2017	Laboratory Network Monitoring Guide	An easy-to-follow guide for NTP coordinators (physicians, nurses, and medical technologists) for monitoring the laboratory network's status and performance. It includes practical tips on data monitoring (activity preparation, data collection, data management, and reporting) and a list of useful indicators to guide data collection and analysis.
	2017	Guide to Laboratory Network Training Decentralization	The brief guide provides a general description of the framework, principles, objectives, and steps of the decentralization initiative. The document serves as a quick reference for NTP managers and policy makers who will lead or implement the decentralization process.
	2017	Report on the Regional Planning Workshop for the Expansion of Rapid TB Diagnostic Laboratories and Strengthening EQA Implementation	This report outlines the gaps and barriers to the expansion of rapid TB diagnostics based on the critical analysis of the provincial and local situation from regional and provincial coordinators' perspectives.
	2016	NTP Laboratory Network Assessment: Strategic Directions to Improve Access and Quality of TB Diagnostic services	This report describes the gaps in the NTP laboratory network and outlines the strategic directions for the NTP to improve access, quality, and sustainability of TB diagnostic services. A must read for NTP national and regional laboratory program and network managers, stakeholders, and partners.
	2016	Guide for the Establishment of Barangay Health Management Council	This document contains practical guidance for the establishment of BHMCs. The document also describes key processes to operationalize and sustain BHMCs.
11	2016	Enhanced TB Microscopy Training of Trainers	The training package presents the enriched standard curriculum for the competency-based TB microscopy training. The course includes updated basic topics, introduction of new topics, and competency rubrics for trainers' use.
	2015	Guide for Training on Laboratory Information Management and Utilization	This document describes a model for developing information management and utilization courses for laboratory network managers at various levels. This compilation includes session guides; exercises; and a case study on data management, information sharing, and use for decision making.
	2014	Standard Operating Procedures for Information Management in NTRL	This document describes the flow of information from the regional level to the NTRL; within NTRL technical units; NTRL management; and reported to NTP, RITM, and other stakeholders. It also describes the feedback process, data management, and archiving.

SIAPS Technical Assistance at the National Level

In 2012, SIAPS worked with the NTRL to revitalize the TB subnational Laboratory Working Group, which comprised representatives of the NTP, NTRL, WHO, SIAPS, and technical partners to improve coordination and collaboration among national-level stakeholders. The same

year, SIAPS worked with the NTRL and the lab working group to develop the NTP Laboratory Network Strategic Plan (2013–2016). The plan provided strategic direction to improve access, quality, effectiveness, and sustainability of NTP laboratory services and was approved in 2013. SIAPS was the technical lead for the laboratory component for the NTP Joint Program Reviews (JPRs) in 2013 and 2016. The JPRs analyzed the performance of the NTP, validated its achievements, and identified program gaps as well as the current and future challenges.

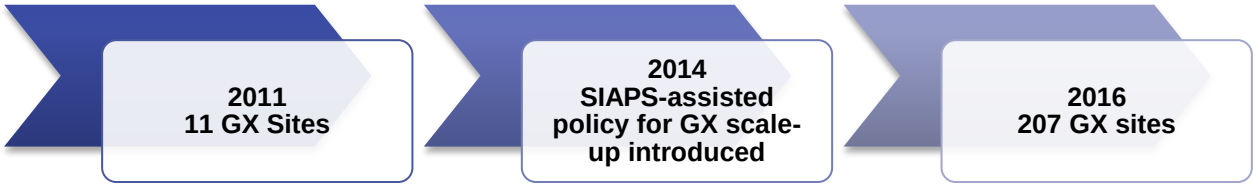


Figure 2. Key milestone in GX laboratory strengthening

Consistent with the Laboratory Network Strategic Plan, the NTP continued the lab expansion efforts, and SIAPS assisted in the scale-up of Xpert/MTB-RIF assay in the Philippines in 2013. SIAPS helped determine the selection of Xpert sites and machine allocation and developed an algorithm for Xpert use for smear-negative TB patients and selected high-risk patient groups. From 11 Xpert sites in 2011, 207 sites had been established by 2016. With the wider use of rapid TB diagnostics, SIAPS also helped the NTP update its 2012 Manual of Procedures, which was released in 2014. In late 2013, SIAPS helped create a national policy and guidelines for the scale-up and expanded use of Xpert in the TB program. The policy was approved for implementation in July 2014.

DOH NTRL managers' strategic direction workshop for rapid TB diagnostic laboratory (RTDL) expansion

SIAPS also introduced innovations in planning, monitoring, evaluation, and information management processes in 2014. These enhanced the NTRL's planning process by allowing planners to identify and analyze problems in the lab network, and plans will focus on addressing priority problems. SIAPS also provided technical leadership in the development and implementation of the NTRL's annual unit plans from 2014 to 2016. SIAPS provided technical assistance to develop SOPs for NTRL information management in 2014, which were adopted by the institution that year. To complement efforts to strengthen information management in the NTRL, SIAPS trained staff in laboratory information management and use in November 2014 and provided input for the development of the lab module of the Integrated TB Information System.

In 2015, SIAPS organized a monitoring and evaluation (M&E) coordinating group in the NTRL to strengthen its capacity to monitor and evaluate lab network performance; helped the NTRL develop an M&E plan and its indicators; and trained selected staff in lab network monitoring techniques. SIAPS developed a lab network monitoring guide for lab network managers at the national, regional, and provincial levels.

SIAPS Technical Assistance at the Regional Level

In October 2015, SIAPS assisted in the development of the NTP laboratory training decentralization strategy. SIAPS organized an ad hoc working group comprising NTRL staff, regional coordinators, and a private-sector trainer to develop activities for the decentralization strategy. The decentralization activities, which were related to training program enhancement, were adopted by the NTRL and included in the NTRL Training and Development Unit's annual work plan. As part of the decentralization activities, SIAPS worked with the NTRL to develop the enhanced training of trainers (TOT) courses for TB microscopy and Xpert trainings and supported the sessions in July 2016 and November 2017, respectively.

DOH laboratory managers TOT training on DSSM

The SIAPS-designed microscopy TOT course capacitated 12 microscopy trainers. SIAPS later supported the microscopy training course for 12 public- and private-sector workers. This served as the preceptorship for four new trainers who were then certified by the NTRL. In addition, the Xpert TOT capacitated the same trainers for the roll-out the Xpert trainings in regions throughout the country. Part of the enhancement in these trainings was the use of work instructions; these documents can be used as standard operating guides by the lab workers when they go to their workplaces.

SIAPS also helped national and regional lab network managers plan strategies to improve lab performance and expand of rapid diagnostic testing. SIAPS conducted an assessment of the NTP lab network's performance in 2016–2017 to inform future strategic direction, improve laboratory access and quality through laboratory system strengthening, and expand rapid diagnostic testing facilities. Using the lab network assessment findings, SIAPS helped regional NTP teams formulate strategies that focused on specific problems and needs in their regions.

SIAPS Technical Assistance at the Community Level

SIAPS collaborated with the Quezon City Health Department (QCHD) to strengthen its laboratory services in poor urban barangays. Strengthening diagnostic services at the primary care level involves a whole system approach that cuts across different technical areas and health programs to address varying health priorities and objectives. SIAPS and the QCHD organized and established the BHMC, which helped community political leaders and health managers identify and understand gaps in diagnostic and treatment services for TB and other health priorities. By capacitating community health managers, they were able to design and plan interventions that focused on specific problems based on the situational analysis. These interventions improved diagnostic services, case finding results, and TB case notifications.

These interventions included establishing remote smearing stations; using trained informal laboratory workers to perform selected lab procedures to address lab workforce shortages; increasing community-based financing for lab services; improving the follow-up system for smear-negative patients; addressing shortages of child TB testing supplies; and enhancing the effectiveness of the diagnostic referral system by improving coordination and collaboration among various service providers for TB microscopy, X-ray, Xpert labs, and TB diagnostic committees and among the communities' health leaders and managers.

Illustrative examples of results of the community interventions include:

Table 4. Increased Detection of Active TB among SNTB Suspects Due to Improved Access to CXR in 2014 in Payatas

Year:	2011	2012	2013	2014
Presumptive TB cases	925	1,179	1,283	1,389
smear + detected	103	127	146	121
Smear + put on treatment	101	124	129	108

In the past, most smear negative patients were not followed up, and few smear negative patients had access to chest X-ray (CXR) to complete the diagnostic process. Health workers in Old Balara estimate that only from 18% to 22% of patients with negative smears had CXRs; most smear negative PTB patients were diagnosed clinically without the benefit of CXRs. The interventions from 2015 onwards led to the strict follow up of patients with negative smears, and strengthened referrals to "free" or discounted CXRs, and support for the transport to diagnostic laboratories or X-ray clinics. This led to an increase in the proportion of patients with CXR from the estimated 22% in 2014, to a documented 54% in 2015. An added value derived from having access to CXR, was that 31 patients in 2015, and 35 patients in 2016 (8%, 9% respectively), from the cohort of smear negative Presumptive TB cases were diagnosed with other lung disease (not TB) and were spared of unnecessary TB treatment, and were directed to the appropriate treatment for their disease.

Table 5. Case Finding in Old Balara: Quality Diagnosis of Smear Negative PTB, 2011–2016

	2011		2012		2013		2014		2015		2016	
DSSM	345		393		555		443		457		468	
S+	63	18%	50	13%	67	12%	56	13%	60	13%	67	14%
SN	282	82%	343	87%	488	88%	387	87%	397	87%	401	86%
Ref for CXR									326	82%	335	84%
W/ CXR									210	53%	216	54%
Active SNTB	65	23%	64	19%	99	20%	146	38%	124	31%	110	27%
Other lung disease									31	8%	35	9%

Intensified case finding among children: TB screening in day care centers. With improved supplies for tuberculin skin testing brought about by the BHMC intervention, health workers were able to implement screening of children in community day care centers. This led to the detection of children with LTBI as well as those with active PTB, which allowed them to be treated appropriately.

Table 6. Case Finding in Two Community Day Care Centers, 2014

	Old Balara		Pansol	
2014	**no.**	**%**	**no.**	**%**
No. tested	433		180	
LTBI	9	2%	13	7%
Active PTB	5	1%	11	6%
EPTB	0		0	
Total cases	14		24	
Started on INH prev. treatment	9	100%	13	100%
Given short-course treatment	5	100%	11	100%

Community Health Systems Strengthened

Table 7. Evidence of Success

Indicator	2012	2013	2014	2015	2016
# of government-based structures that participated in and/or monitored TB prevention and control decision making and operations in the past year	2	3	6	12	17
# of people trained in leadership, management, and governance			40	64	23

SIAPS and the QCHD implemented the BHMC initiative to strengthen community health systems to support improvements in TB and other public health services. BHMCs work as teams to enhance health leadership, management, and governance and to strengthen the health system effectively, efficiently, and sustainably using community resources. BHMCs work on the premise that with increased capacities, LGUs and community health leaders would be better able to address pharmaceutical and other health system weaknesses in financing, health workforce, and information to improve delivery of TB and other services. SIAPS technical assistance activities for BHMC introduction and scale up included:

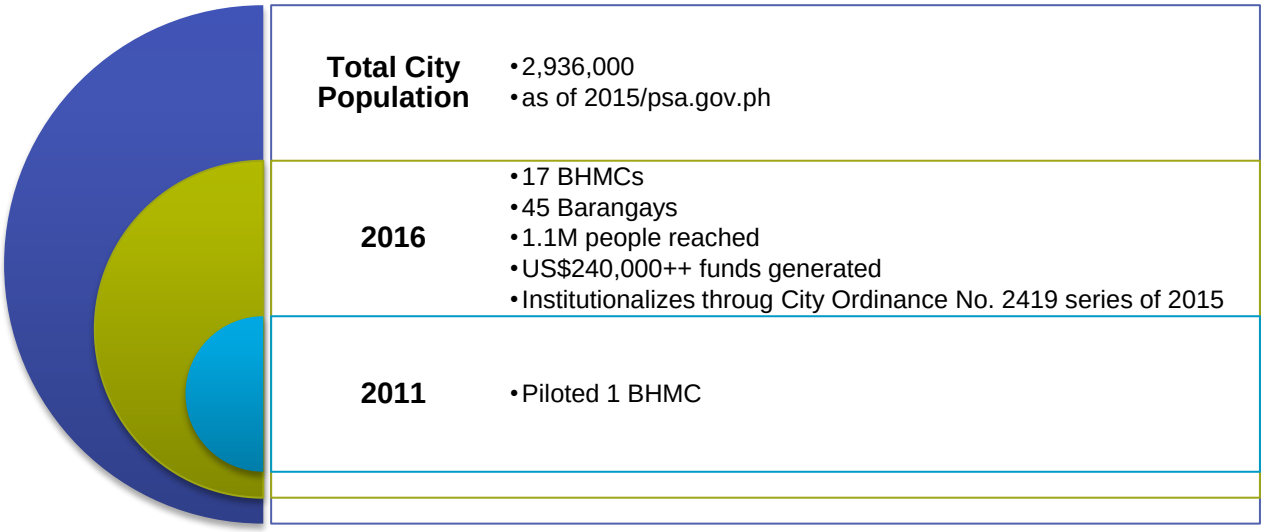


Figure 4. SIAPS technical assistance scale up, 2011–2016

Beginning in 2012, SIAPS worked to improve the capacity of BHMC members to enhance leadership, including conducting effective meetings; analyzing and using health data for decision making, planning, and setting strategic directions; coordinating and promoting stakeholder activities; mobilizing community resources; and monitoring and evaluating the implementation of community health plans developed by the BHMC.

SIAPS activities for this intervention included:

- **BHMC conceptualization and establishment.** SIAPS convened, funded, and supported meetings with health officers, barangay officials, and other stakeholders to discuss the

need for establishing the BHMC. In addition, SIAPS helped identify the purpose and objectives of the new structure; draft BHMC terms of reference, including roles and responsibilities of the chair and the Secretariat; made suggestions on membership; and advocated with local government health officials and community stakeholders to encourage them to join forces and implement the BHMC concept.

- **Piloting of BHMC**. SIAPS helped implement, monitor, and evaluate the first BHMC in January 2012 in Barangay Payatas, an urban-poor community of 120,000 people in Quezon City.

- **BHMC planning workshops and meeting facilitation.** SIAPS provided technical assistance to organize and facilitate planning workshops. SIAPS enhanced traditional health planning practices in the LGU by generating evidence for planning based on the health situation and root cause analyses, prioritization of problems, and development of action plans. This was mentioned by partners as SIAPS' most valuable contribution to the establishment and effective functioning of BHMCs. SIAPS designed and facilitated the workshops to encourage participatory and consensus-building processes where participants reviewed and analyzed the causes of identified problems, prioritized health challenges, and developed action plans with objectives and activities.

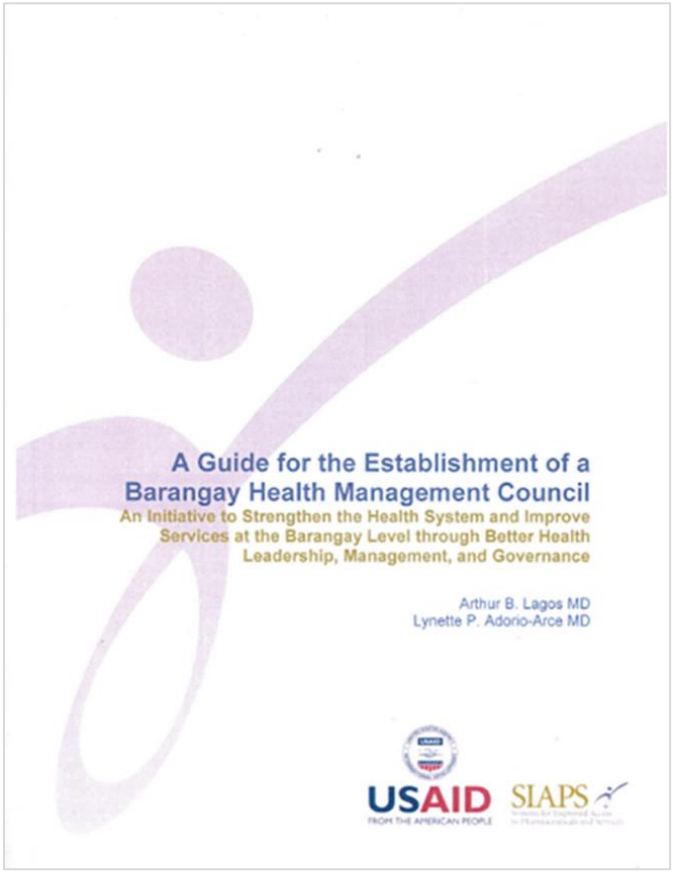


Figure 5. SIAPS-developed guide to establishing BHMCs

- **BHMC scale-up.** SIAPS organized workshops, field visits, and meetings to support the M&E activities of BHMCs. SIAPS organized workshops and meetings to support the establishment of new BHMCs. In addition to providing technical advice (e.g., how to address specific problems at meetings and foster coordination among stakeholders), SIAPS also provided mentoring and on-the-job technical assistance (e.g., guidance on how to conduct effective meetings) to strengthen the capacity and leadership and management skills of health center staff, BHMC members, and city district health staff to enable them to support BHMC scale up and operations. SIAPS also developed a guide for establishing BHMCs for use by district health officers, barangay officials, and interested stakeholders.

- **M&E activities.** To enable BHMCs to monitor progress and track results and to promote accountability among health and barangay officials and BHMC members, SIAPS developed a set of performance indicators and provided guidance and a one-day training workshop on how to generate, interpret, and use data to guide decision making and future courses of action. BHMCs highlighted the usefulness of SIAPS training on how to effectively present health data to barangay officials (e.g., using graphs and charts). SIAPS staff also assisted city district health officers from District 3 to develop monitoring plans and provided on-the-job mentoring during field monitoring visits. SIAPS has since received requests from the other five districts for similar support for their monitoring activities.

- **Institutionalizing and sustaining the BHMC.** In late 2013, SIAPS assisted the QC government to develop a city ordinance supporting the establishment of BHMCs throughout the city to institutionalize the initiative. The city ordinance was approved in July 2014 and amended in 2015 to address new development in the BHMC scale-up (Quezon City Ordinance No. 2419 series of 2015: "Establishing Guidelines for the Creation of a Barangay Health Management Council"). SIAPS also provided support for drafting the ordinance's implementing rules and regulations and advocated for the passage of Barangay resolutions to ensure financing of planned health activities and operations of the BHMC. At the city level, SIAPS organized the September 2015 Quezon City Barangay Health Summit to increase the awareness of local officials, partners, and stakeholders about the BHMC initiative and to highlight the results obtained by the BHMCs.

  In 2016, SIAPS organized meetings and workshops to help define the roles of district health offices and the Barangay Operations Center in the BHMC scale-up and operations; assisted the district health offices develop their plans for BHMC expansion, and provided technical oversight.

- SIAPS assisted the QCHD in the scale-up of BHMCs in other barangays throughout the city between 2013 and 2016, resulting in the establishment of 17 BHMCs covering 45 barangays (32% of the total) and reaching 1.3 million people (34% of the total city population) in 2016. Illustrative examples of the results of the BHMC initiative include:

Increased Financial Resources for Health

- Barangay officials are more engaged in the planning process of BHMC activities, which has sparked their interest and motivation to address the priority health needs of the community, especially the poor and most vulnerable.

- Additional funding from the barangay was used to mobilize community health volunteers to support the implementation of community-based DOTS.

- Community resources were mobilized to finance CXRs for poor patients and transport of specimens and/or patients to testing laboratories and clinics.

Table 8. Funding Mobilized by the BHMC

Location	Amount (USD)	Source of Funds	Purpose of Allocation
Old Balara	171,630	Congressional funds	Health center construction
	10,710	City councilor's fund	Medical supplies and medicines procurement
Commonwealth	57,834	Barangay LGU funds	BHMC activities
Libis	57,834	Congressional funds	Health station improvements
	16,065	Barangay Health and Sanitation fund	Health and sanitation activities
	2,570	Rotary Club, Libis	Feeding activities and medicine procurement
	*32	Barangay LGU funds	Monthly BHMC meetings
Payatas	16,065	Barangay LGU funds	BHMC activities
	2,313	Barangay LGU funds	Salary for community health workers (TB smearers)
Pansol	*445	Barangay LGU funds	Allowance for community health workers

*monthly allocation

Improved Health Worker Availability and Deployment

- Increased funding and better collaboration among health officers, barangay officials, and other stakeholders enabled BHMCs to recruit additional staff; redeploy existing workers; and mobilize additional resources from the community, such as community health workers and private practitioners, to fill workforce gaps and improve service delivery.

    1) Pansol BHMC:

        a) In 2013, barangay funds were used to hire two community health workers at the health center, and four nutrition scholars were assigned to the health center to support TB case detection and diagnosis, patient follow-up, and health education activities.

        b) In 2014, 12 additional community volunteers were recruited by the barangay.

    2) Payatas BHMC:

a) In 2012, barangay funds were used to pay the honoraria of eight newly recruited TB treatment partners.

b) In 2013, three barangay-paid smearers (trained informal lab workers) were recruited to manage the newly established Rapid Sputum Smearing Testing Centers.

3) Old Balara BHMC:

a) In 2014, barangay funds were used to revitalize a TB task force made up of community TB workers who had been trained in health education, advocacy, patient referrals, and TB treatment supervision and follow-up. These participants were re-trained and oriented on the new community interventions.

4) Libis BHMC:

a) As a result of the collaboration between the BHMC and Quirino Memorial Hospital, a public training institution, a physician, nutritionist, and dentist from the hospital now provide services to the barangay.

Involvement of New Partners

- Previous uninterested groups from the private sector and academia are now delivering health services and providing financial and other types of support to the community.

  - In Payatas, partner NGOs (Payatas Orione, Gawad Kalinga, PAOFI, Committee of German Doctors for Developing Countries, Center for Community Transformation, RIT-JATA); academe (Ateneo); and business (UNILAB) collaborated to improve health services.

  - A memorandum of agreement between Ermin Garcia BHMC and a private clinic enabled patients from the barangay health center to obtain CXRs at discounted prices.

  - Eurotel, a local hotel chain, provided posters to a barangay health center to support an education campaign.

  - In E. Rodriguez barangay, a botika (pharmacy) owner now refers suspected TB cases initially diagnosed by private physicians to the health center for case management instead of selling them TB medicines. Two private printing presses print leaflets and posters for the health center's education campaign free of charge.

  - The Old Balara BHMC trained grade school teachers on information dissemination for TB, which has enabled them to identify presumptive TB cases among students and refer them to the barangay health center.

  - In Libis, a rotary club contributed financial resources and other goods to support Libis BMHC activities.

Increased Coverage

- As of June 2016, 17 BHMCs had been established in the six districts of Quezon City (11 single and 6 cluster BHMCs). BHMCs cover 45 barangays, reaching 32% of the city's 142 barangays.

- A total of 1,078,139 people have been reached by the BHMCs, which is 39% of Quezon City's population of 2,761,720.

- The availability of essential medicines, diagnostics, and medical equipment has increased. Some BHMCs have procured medicines to address shortages and essential medical equipment to improve outreach services. For example, in Payatas, international NGO German Doctors and local NGO Payatas Orione Foundation provided TB medicines and supplies, ensuring that these products were continuously available at health centers in the barangay.

- Lab services were strengthened and remote smearing stations (RSS) were established to reach patients living in remote areas improve accessibility to health services and treatment. In Payatas, the detection of smear-positive cases increased by 17% between 2011 and 2014.

- TB case findings increased and improved turnaround times for TB diagnosis and treatment initiation.

    - In Payatas, German Doctors provides CXR services to patients from the barangay health center, and its TB diagnostic committee assists in diagnosing smear-negative cases. As a result, the turnaround time for diagnosis of smear-negative cases decreased from one month to three days, and case finding increased.

- There was better coordination among NGOs, health centers, and community volunteers and partners; improved sharing of diagnostic and treatment services; increased provision of laboratory diagnostic services (smearing stations) in remote areas; and increased identification of TB suspects by 50% between 2011 and 2014.

- In Old Balara, supplies of the purified protein derivative for tuberculin skin test (TST) kits were supplemented by the Rotary Club, while the BHMC bought pediatric TB medicines through its funds, which allowed for the prompt treatment of diagnosed children.

Pharmacovigilance System Strengthened

Table 9. Evidence of Success

Indicator	2015	2016	2017
% of trainees successfully completing post-training action plan	100%	100%	100%
# of persons trained in PV management systems	23	7	110
# of PV management guidelines, lists, and SOPs developed or updated and submitted for adoption	1	1	4
% of SIAPS-assisted sites that have implemented PV or medicines safety activities		100%	100%
# of HFs that have implemented electronic or mobile technology systems to document and report on specific component(s) of the pharmaceutical system			10

SIAPS provided technical assistance to strengthen the PV system in the Philippines. This initiative will lead to improvements in medicine safety, particularly with the introduction of new TB drugs and the use of new treatment regimens that utilize new drug combinations in the TB control program. In 2013, SIAPS conducted a comparative analysis of PV systems in five Asian countries, including the Philippines, and assessed the Philippines PV system and its performance on the safety of medicinal products. Beginning in 2015, SIAPS supported the NTP and Lung Center of the Philippines - National Center for Pulmonary Research (LCP-NCPR) in strengthening the PV of the nine-month treatment regimen and bedaquiline operational research. Led by SIAPS, a PV team was organized and steps undertaken to establish PV protocols for the operational research. SOPs for active PV in the introduction of new TB drugs and novel TB regimens were created by the PV team. Beginning in 2015, SIAPS built the capacity of stakeholders on PV who were involved in the introduction of bedaquiline and shorter TB regimens through trainings and supportive supervision.

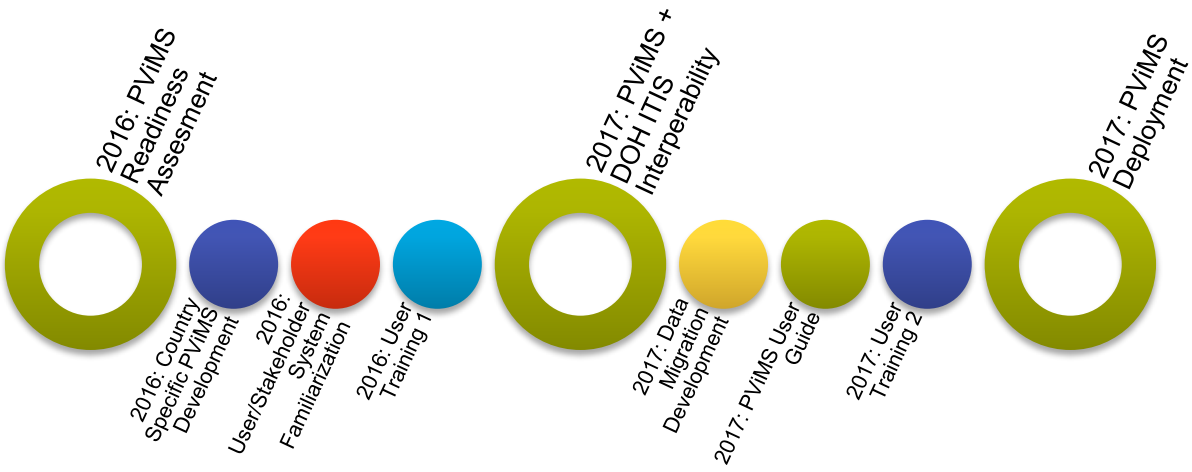
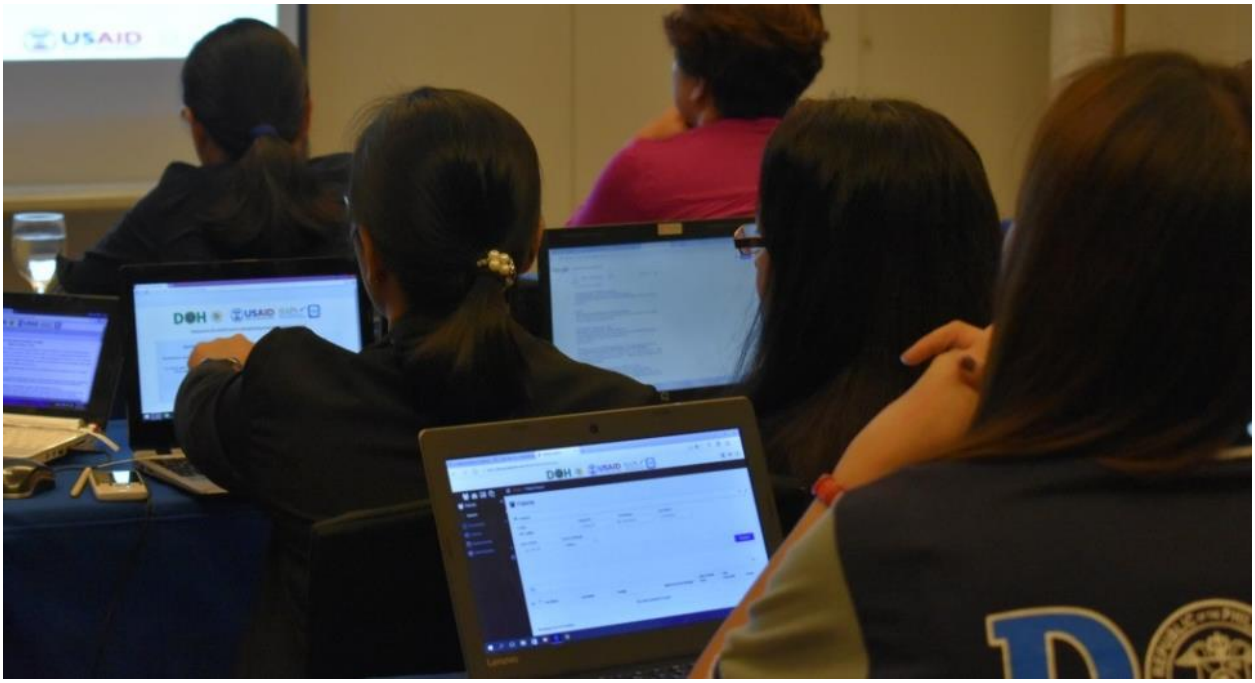


Figure 6. Key milestones in PViMS: From development to deployment

In 2016, SIAPS began developing the Pharmacovigilance Monitoring System (PViMS), a web-based tool that supports the implementation of active surveillance by streamlining the collection and analysis of PV data. The DOH-PD adopted PViMS in 2017 and is using it as the operational research database of the LCP-NCPR and active drug safety monitoring and management (aDSM) database of the NTP. The implementation of PViMS standardized the data recording and reporting of the LCP-NCPR and NTP, making data analyzable. Data elements in PViMS were harmonized with national regulatory requirements and those recommended by the WHO aDSM framework for active safety monitoring of TB patients and new TB medicines.



SIAPS-developed PViMS roll out and training

SIAPS supported the LCP-NCPR in cleaning, migration to PViMS, coding to medDRA, and analysis of initial data of the operational research. The implementation of PViMS supported the WHO requirement of applying aDSM in bedaquiline and shorter treatment regimen roll-out. aDSM is needed to characterize the safety profile of these new lifesaving regimens. SIAPS and its partners developed the PViMS user guide and trained 63 staff central level, regional NTP, PD, FDA, and facility staff on PViMS and PV/aDSM standardize data reporting in September 2017. During the workshop, regional coordinators from the FDA, PD, and NTP in nine regions worked collaboratively in planning programmatic implementation of standardized aDSM data recording and reporting in their respective regions. PViMS is currently operational in ten facilities in nine regions in the Philippines. As of December 2017, 32 serious adverse events had been reported through PViMS.

Governance

Philippines Pharmacovigilance Assessment, 2013

The objectives of this study were to:

- Assess and analyze system performance for PV and post-market surveillance
- Identify successful and replicable experiences to further enhance medicine safety and quality systems
- Map out how donor agencies and local/regional/global health efforts are contributing to PV

- Recommend options for enhancing PV and post-market surveillance system capacity and performance

Standard Operating Procedures for Active Pharmacovigilance Surveillance: Drug Safety Monitoring for New Medicines and Novel Regimens of the National TB Program in the Philippines, 2015

With its partners, SIAPS drafted this SOP in March 2015, finalized it in July 2015, and updated it in August 2016. It has been used for the nine-month treatment regimen and bedaquiline operational research.

Draft Preliminary Active PV SOPs

In October 2017, SIAPS organized and facilitated a workshop to draft PV SOPs in support of aDSM, including identifying serious adverse events and adverse events of special interest, recording and reporting AEs, causality assessment and providing feedback to reporters and the programs, data analysis, and development of safety bulletins and risk minimization plans. Twenty participants from the FDA, NTP, LCP, PD, treatment centers and satellite treatment centers (TC/STC) TB treatment facilities, and regional PD staff attended. Participants came up with preliminary drafts of four SOPs: recording and reporting AEs, completing AEs, causality assessment and risk, and analysis and feedback. SIAPS and its partners endorsed the drafts to the DOH-PD for circulation and finalization. A clearly delineated flow of data and information for the aDSM program was finally agreed upon by the NTP, PD, and FDA during the workshop.

SIAPS Supported the NTP in Updating the aDSM Roadmap

The purpose of the aDSM roadmap is to guide the ongoing and planned PV/aDSM activities in support of the introduction and scale up implementation of new drugs and shortened treatment regimen targets through 2019.

Table 10. Pharmacovigilance Technical Products

Year	Document Title
2017	Active PV SOP
2017	PViMS User Guide
2016	Standard Operating Procedures for Active Pharmacovigilance Surveillance: Drug Safety Monitoring for New Medicines and Novel Regimens of the National TB Program in the Philippines
2016	PViMS Readiness Assessment Report
2015	Implementing Active PV and Cohort Event Monitoring for MDR Regimen in the Philippines
2013	Safety of Medicinal Products in the Philippines: Assessment of the Pharmacovigilance System and its Performance

Pharmaceutical Supply Chain Management Systems Strengthened

Table 11. Evidence of Success

Indicator	2012	2013	2014	2015	2016	2017
# of pharmaceutical working group established	1	0	3	1		
# of persons trained in pharmaceutical supply chain management systems			79	87	38	52
% of trainees successfully completing post-training action plan			100%	100%	100%	100%
# of pharmaceutical management national strategic plan, guidelines, lists, and SOPs developed or updated and submitted for adoption				2	4	5

SIAPS worked closely with the DOH and its offices, including DOH health programs (Family Planning Program, National Tuberculosis Program), LMD, PD, KMITS, and Procurement Service, to strengthen the DOH Pharmaceutical Supply Chain Management (SCM) System. The technical assistance aimed to address systemic gaps in the supply chain by laying the foundation for effective supply chain capacity building and performance. The goal was to ensure the continuous availability of quality medicines and diagnostic supplies to help ensure the uninterrupted delivery of services. In the process, SIAPS worked with other offices, such as the NTRL, Programmatic Management of Drug-resistant TB (PMDT)/Project Management Office, FDA, Population Commission, regional and city health offices, and international partners, to make progress in key areas of the health system, including:

- Strengthening governance in the pharmaceutical supply chain
- Strengthening pharmaceutical supply chain information management
- Strengthening human resources in pharmaceutical supply chain
- Enhancing service delivery

STRENGTHENING GOVERNANCE IN THE PHARMACEUTICAL SUPPLY CHAIN

SIAPS-supported DOH SCM strategic road map consultation

SIAPS supported the DOH in creating an effective supply chain, which is essential for the DOH to ensure access to safe, effective, quality, and economical medicines and services. A strong governance framework is key to building an effective and sustainable supply chain. The DOH created the SCM Technical Working Group (TWG) to strengthen its supply chain. However, there are still challenges, such as a lack of clarity in roles, responsibilities, and accountability in supply chain; weak coordination among all supply chain stakeholders and functions; and a structure that is not aligned with current functions.

SIAPS supported the DOH in formulating the strategic direction and setting the roadmap for a strong SCM plan through 2022. On January 25, 2018, the DOH gathered more than 30 key managers and staff to discuss the strategic roadmap. Part of this strategy is for DOH to focus on strengthening quality assurance and the effective and safe use of medicines and to identify a DOH governance unit that will focus on improving demand and supply planning and warehouse and distribution efficiency.

SIAPS strengthened pharmaceutical governance by working with the DOH and all in-country stakeholders involved in managing the supply chain by:

- Developing terms of reference for a supply chain governance framework in the Philippines
- Establishing and institutionalizing a Drugs and Supplies Management (DSM) sub-TWG at the central and Region 4A levels to improve coordination among stakeholders
- Developing the Philippines tuberculosis supply chain options analysis
- Providing technical assistance to study the economic cost of nonadherence to TB medicines resulting from stock-outs and loss to follow-up in the Philippines

STRENGTHENING PHARMACEUTICAL SUPPLY CHAIN INFORMATION MANAGEMENT

Critical to managing the DOH supply chain is end-to-end visibility in the country's supply system. Data collection, consolidation, and analysis at various points of the supply chain are crucial to obtaining the necessary business intelligence to optimize DOH processes. SIAPS supported the DOH in strengthening its current information management systems by:

- Conducting a warehouse management system assessment for the Philippines DOH
- Establishing and institutionalizing the use of QuanTB as the electronic quantification and forecasting tool for the NTP's second-line drugs
- Developing an M&E guideline and tool for drug supply management at the facility and warehouse levels

STRENGTHENING HUMAN RESOURCES IN THE PHARMACEUTICAL SUPPLY CHAIN

DOH warehouse managers attending warehouse management services (WMS) training in South Africa

Adequate human resources is a critical pillar in the effective and efficient management of the DOH supply chain. Assessments have concluded that there is a lack of human resources and human resource capacity within DOH SCM. SIAPS supported the DOH in strengthening its human resources in pharmaceutical SCM by:

- Conducting capacity building activities such as:
    - Training DOH warehouse supervisors on warehouse and distribution operations
    - Training the NTP DSM Unit on monitoring and supportive supervision for PMDT drug supply management
    - Training and providing supportive supervision to the NTP DSM Unit on the use of QuanTB
    - Training the NTP DSM Unit and DSM sub-TWG on procurement planning and ordering for first- and second-line drugs for TB treatment

  - Introducing and testing of *Practical Guide for the Management of Pharmaceuticals and Health Related Commodities* (PGMP) at the regional and facility levels
  - Training of trainers on PGMP at the regional level (Regions 4A and 8)
  - Development of PGMP one-day learning modules
  - Training of PMDT facilities on the introduction of bedaquiline and other TB drugs

- Developing:
  - A warehouse training guide for the Philippines DOH
  - SOPs on demand and supply planning
  - Practical guides on the management of pharmaceuticals and other health-related commodities, the management of laboratory supplies, and the quantification of TB medicines
  - Job aids on waste management and proper disposal of sharps, infectious waste, and pharmaceutical waste

ENHANCING SERVICE DELIVERY

SIAPS supported the DOH to enhance service delivery functions and ensure the availability of medicines and services through:

- Technical assistance and support in the inclusion of new TB medicines (MDR drugs and new pediatric formulations) in the Philippine National Formulary

- Technical assistance and support in the development of key DOH health program document, such as JPR 2013, DSM component of PhilPACT, DSM component of PMDT Guidelines, DSM component of the PMDT administrative order, DSM component of the PMDT Implementing Guidelines, Policy on TB Disaster, and NTP Manual of Procedures 2013

Table 12. Supply Chain Management Technical Products

Year	Document Title	Document Description
2017	Strengthening the Supply Chain Governance Framework for Pharmaceuticals and Health Products in the Philippines	Outlines the terms of reference that describe the specific roles and responsibilities of the SCMD and other units involved in SCM
2017	Development of Standard Operating Procedures to Strengthen Demand and Supply Planning of DOH Philippines	Describes the agreements on data collection, validation, and consolidation for consumption-based quantification SOPs and guidelines
2017	Strengthening the Department of Health's Warehouse Management System in the Philippines	Presents the assessment results and recommendation following the WMSA, including space, equipment, tools, processes, and key requirements for implementation of WMS technology
2017	Department of Health Training Guide on Warehousing and Distribution of Family Planning, Anti-TB and other Health Commodities in the Philippines	Supporting material in the training and development of staff involved in warehouse and distribution operations based on updated SOPs of LMD
2017	Situation Analysis: Regulatory Data Management System of Philippines FDA	An assessment of the current status of the regulatory management system of the national drug authority of the Philippines
2016	Strengthening Pharmaceutical Management in Region4A	Documents the experiences of strengthening drug supply management practices
2016	Implementing QuanTB to Improve Forecasting, Supply Planning and Early Warning System for TB Medicines: Philippines Report	Country report on the experience of using QuanTB for the NTP of the Philippines
2016	Practical Guide for the Management of Pharmaceuticals and Health-related Commodities	Guidelines on managing pharmaceuticals and health-related commodities for the DOH in the context of the Philippines
2016	Practical Guide for the Quantification of Anti-TB Medicines: Guidelines for Quantification and Supply Planning for Procurement	Guidelines on performing quantification and supply planning for DOH Philippines
2016	Economic Cost of Nonadherence to TB Medicines Resulting from Stock-outs and	Assessment of the burden of the economic cost due nonadherence of TB patients in the Philippines

Year	Document Title	Document Description
	Loss to Follow-up in the Philippines	
2016	Job aids on waste management and proper disposal of expired and damaged TB medicines and supplies	Quick visual aids as a guide for facilities in disposing pharmaceutical waste
2015	Philippine Tuberculosis Supply Chain Options Analysis	Assessment of multiple options available in improving the DOH SCM
2015	Practical Guide for Management of Laboratory Supplies	Guidelines on managing laboratory supplies and other related commodities for DOH in the context of the Philippines

LESSONS LEARNED

SIAPS' technical assistance to the DOH and its agencies and LGUs generated insights during the process:

- The political commitment and leadership of authorities at the national, local, and community levels is critical because it influences the health systems in terms of resources and services.

- A team approach to health leadership and governance is more effective and sustainable than relying on individuals to assume leadership roles, and the participation of key stakeholders is critical.

- Interventions must be based on a comprehensive analysis of the situation and an assessment of the system's capacity to support the effective implementation of the health programs. The evidence provided by the analysis allows for focused interventions that can be implemented with confidence.

- Interventions, whether at the national, subnational, or community level, must utilize technologies and approaches that are appropriate, relatively simple, acceptable, affordable, and sustainable using local resources. The interventions must be effective, focused on addressing the identified priority challenges of the community, and able to be implemented efficiently.

- When implementing community-level initiatives (i.e., BHMC), it is important to get the commitment, support, and cooperation of the key decision makers in health services, field health workers, and the community (e.g., LGU health authorities, barangay leaders) prior to the implementation of any activity. Shared priorities and objectives ensure community ownership of the initiatives.

- Capacity building interventions must first address the institutional and then the individual factors that are responsible for gaps in program performance. Capacity building initiatives must be guided by evidence (e.g., assessments) that identify the areas that require an intervention. Strategies and activities must be focused on addressing the priority challenges and problems.

- The role of technical advisors in capacity building interventions must be to facilitate the process so that those receiving the technical assistance will be able to implement the initiatives themselves. This approach enhances the recipients' ownership of the intervention and their commitment to success. In the end, they can say that "we did it ourselves".

- A concerted and coordinated effort is needed to develop and sustain a system for data collection, harmonize tools and reporting systems, and give consistent and responsive feedback to facilities/sites.

- The effective use of information for program management and decision making requires a robust information system that ensures the timely collection and analysis of data, sharing of information, and action taking. The development of data management systems and tools must be complemented by the enhancement of skills in data management and information use for decision making. All elements of the information system must be strengthened to ensure the full and effective utilization of data management tools.

- Pharmaceutical management activities should be performed by qualified staff who are provided with continuous staff development. Investment in human resources is critical.

- In national institutions such as the NTRL, the strong political will and cooperation of the organization's leaders is needed to ensure that interventions are implemented as planned. In addition, by showing the results of the intervention, including limitations, risks, and potential, we will be able to get the program managers' cooperation and support.

- The technical assistance providers must monitor the implementation of the intervention to track its progress and evaluate the results of the intervention to demonstrate to donors and stakeholders the success and value of the technical assistance.

FUTURE OF PHARMACEUTICAL SYSTEMS STRENGTHENING

SIAPS' extensive work in the Philippines on national health systems from the central to the community level has resulted in many approaches for strengthening and measuring elements of pharmaceutical systems.

SIAPS helped the DOH:

- Develop and enact practical, enforceable policies that were consistent with national laws and international standards and best practices

- Develop sufficient regulatory and human resource capacity so that skilled health care workers, managers, and leaders are better equipped to effectively implement activities related to health systems strengthening

- Introduced and applied appropriate technologies that improved the quality and availability of information to help managers and decision makers develop sound policies and monitor supplies and services

USAID and MSH Officials (right) turn over the SIAPS-developed SCM toolkit to the DOH (left)

Significant work is still needed to expand the focus of available tools to ascertain which approaches result in a stronger, more resilient health system in the country. SIAPS determined that all components—pharmaceutical products and related services; policy, laws, and governance; regulatory systems; innovation, research and development, manufacturing, and trade; financing; human resources; and information—are critical for measuring health systems strengthening. SIAPS provided a practical starting point for an effective approach in health systems strengthening on a local and national scale.

BIBLIOGRAPHY

1. Population and Annual Growth Rates for the Philippines and Its Regions, Provinces, and Highly Urbanized Cities Based on 1990, 2000, and 2010 Censuses. Available at: https://psa.gov.ph/sites/default/files/attachments/hsd/pressrelease/Population%20and%20Annual%20Growth%20Rates%20for%20The%20Philippines%20and%20Its%20Regions%2C%20Provinces%2C%20and%20Highly%20Urbanized%20Cities%20Based%20on%201990%2C%202000%2C%20and%202010%20Censuses.pdf

2. Poverty in the Philippines. Asian Development Bank. 2018. Available at: https://www.adb.org/countries/philippines/poverty

3. WHO Global TB Report 2017. Available at: http://www.who.int/tb/publications/global_report/gtbr2017_main_text.pdf

4. NTPS | National TB Prevalence Survey 2016. Available at: http://www.philcat.org/PDFFiles/2.NTPSPhilCAT_17Aug2017_Dr.%20Lansang.pdf