Philippines Human Resource Information System Assessment Framework Report

HRH2030: Human Resources for Health in 2030

Cooperative Agreement No. AID-OAA-A-15-00046

Cover photo: Stakeholders discuss the results of the Human Resources Assessment by HRH2030. Key stakeholders such as program managers from the National Tuberculosis Program and the Family Planning Program discuss the way forward for strengthening HRIS to provide actionable information on the Philippine national health workforce. (Credit: E. Gallardo/HRH2030)

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Contents

Acronyms

BI	Bureau of Immigration
BWC	Bureau of Working Conditions
CHECKS	CHED's Electronic Collection & Knowledge System
CHED	Commission on Higher Education
CPD	Continuing Professional Development
CSC	Civil Service Commission
DBM	Department of Budget and Management
DIBAR	Database of Individuals Barred from Entering the Government Service
DOH	Department of Health
DOLE	Department of Labor and Employment
DQA	Data Quality Assessment
EB	Epidemiological Bureau
FOIS	Filipino Overseas Information System
FP	Family Planning
FPP	Family Planning Program
GSIS	Government Service Insurance System
HHRDB	Health Human Resource Development Bureau
HPDPB	Health Policy Development and Planning Bureau
HR	Human Resource(s)
HAF	Human Resource Information System Assessment Framework
HFSRB	Health Facilities and Services Regulatory Bureau
HRH	Human Resources for Health
HRH2030	Human Resources for Health in 2030
HRIS	Human Resource Information System
IDSHRH	Integrated Database System for Human Resources for Health
IST	In-Service Training
ITIS	Integrated Tuberculosis Information System
KMITS	Knowledge Management Information Technology Services
LCP	Lung Center of the Philippines
LDD	Learning and Development Division
LDNA	Learning and Development Needs Assessment
LERIS	Licensure Examination and Registration Information System
LGU	Local Government Unit
NCRO	National Reintegration Center for Overseas Filipino Workers
NDHRHIS	National Database of Human Resources for Health Information System
NGO	Non-Governmental Organization
NHDD	National Health Data Dictionary
NHWA	National Health Workforce Account
NTP	National Tuberculosis Program
NTRL	National Tuberculosis Reference Laboratory
PAD	Personnel Administration Division
PBSP	Philippine Business for Social Progress
PEPFAR	United States President's Emergency Plan for AIDS Relief
PIS	Personnel Information System
PMDT	Programmatic Management Drug Resistant Tuberculosis

POEA	Philippine Overseas Employment Agency
PRC	Philippine Regulatory Commission
PSIPOP	Personal Services Itemization and Plantilla of Personnel
PTIS	Personnel Transaction Information System
RHU	Rural Health Unit
TB	Tuberculosis
TESDA	Technical Education and Skills Development Authority
TWG	Technical Working Group
USAID	United States Agency for International Development
WHO	World Health Organization

Executive Summary

The Government of the Philippines desires a functional human resources information system (HRIS) that provides comprehensive health workforce information for effective planning and decision-making to improve equity, access, and quality of tuberculosis and family planning services. The availability, completeness, and accuracy of health worker data are essential for evidence-based decision-making and performing human resource functions such as workforce planning. The Human Resources for Health in 2030 (HRH2030) Project is helping to improve the capacity, functionality, and interoperability of the Philippines HRIS.

In June 2018, HRH2030 applied the PEPFAR Human Resource Information Systems Assessment Framework (HAF) tool to assess the maturity of HRIS functionality and capacity within the Philippines Department of Health (DOH) and the Human Resources for Health (HRH) Network. The HAF provides a structure to assess the developmental stage of the HRIS by measuring the functionality and capacity of the system, examining eight functionality areas and eight capacity areas. The assessment involved interviews with 26 key informants over a three-week period, learning about 22 different information systems that capture HRH data.

Based on the HAF assessment tool, HRIS capacity areas had reached an average developmental stage of 2.5. The strongest capacity areas were sustainable financing and human capacity, which were both at stage 5 due to significant local financing and staffing for the systems. Data capacity and use were the least advanced areas, having reached stage 1. The eight functional areas had reached an average level of 2.3, and all functions were at either level 2 or level 3. The functions that had reached level 3 were pre-service training, workforce exit/attrition, and health worker registry.

Assessment findings revealed multisectoral involvement in managing HRIS functionalities; however, HRH data standards, data ownership, data sharing, coordination, and governance structures (including policies) are not in place or require strengthening. The lack of policies and data standards have led to the development of multiple systems, difficulty in harmonizing data, and gaps in data quality. HRIS both within and outside the DOH are fragmented, and financial reporting drives the management of HRIS data. Although several mature HRIS have existed for years, their use and data quality are limited.

After the assessment, HRH2030 shared results with key stakeholders in the HRH Network and the DOH in August 2018. This report shares these results, along with details of each system.

Based on the assessment and feedback from the DOH, HRH2030 has generated a series of recommendations for strengthening the HRIS. For HRH data standards, the DOH should create a data dictionary, strengthen use of a unique identifier, and establish national standards for recording cadre or profession. To improve data quality, system managers should implement measures such as: build automated validation and data quality checks into software to flag potential data entry errors or duplication; develop protocols for checking data accuracy; and implement data quality assessments. Finally, to strengthen coordination, DOH should advocate for the formal appointment of an institution to serve as the custodian for HRH data, to aggregate, store, analyze, disseminate and otherwise manage the HRIS. These recommendations, taken together, can help the Philippines progress toward a unified, harmonized HRIS that can inform planning and decision-making with comprehensive health workforce data.

Background

The Human Resources for Health 2030 (HRH2030) Project aims to help low and middle-income countries plan for and develop the health workforce they need to improve health care delivery and health outcomes. In the Philippines, the goals of the HRH2030 Project are to strengthen the development, deployment, training, and management of the health workforce to improve equity, access, and quality of services in family planning, maternal and child health and tuberculosis. Planners and policy makers need access to high-quality data in order to facilitate the appropriate production, distribution and on-going training of health workers across professions, specialties and geographic areas. Thus, one of the objectives of the HRH2030 Project in the Philippines is to improve the capacity, functionality, and interoperability of the Human Resource Information System (HRIS). While several initiatives have already been undertaken by the Department of Health (DOH) and other government and academic institutions to advance the HRIS, high-quality data for use in HRH policy and decision making remains elusive: As of September 2018, 73% of health workers are not captured by the available HRIS (HHRDB, 2018).[1]

To this end, HRH2030 employed PEPFAR's HAF to assess the functionality and capacity of the Philippines HRIS. The HAF should provide results that are suitable to inform activities such as work planning, strategic planning and resource prioritization. It should also help stakeholders prioritize and understand the requirements for advancing the HRIS to higher levels. Since the HAF is a high-level assessment, it is not a tool suitable to determine specific solutions to improve the technology or infrastructure of the HRIS or any of its data sources.

While the HAF provides a structure to designate the stage of development for each of the 8 functionalities and capacities, it does not provide guidance on how to conduct the assessment or the data to be collected. Thus far, in each the three countries where it has employed the HAF, the HRH2030 Project has elected to use a small assessment team to conduct semi-structured interviews with key HRIS stakeholders. This has been followed by a workshop to disseminate the results and allow critical stakeholders to recommend priority investment areas and steps to improve the HRIS.

After obtaining the input and approval of the Health Human Resources Development Bureau (HHRDB) of the DOH, the HAF was implemented over approximately three weeks starting about June 1, 2018. DOH formally invited each stakeholder who was targeted for participation. A DOH workshop followed on August 1, 2018.

This report describes the methodology of the assessment, followed by the results - including the assigned stage - for each functional and capacity area. This is followed by a summary of the findings from the workshop and recommendations arising from this assessment. The annexes contain a list of the organizations that were interviewed, an overview of each of their systems, and the HAF scoring framework.

In the Philippines, the HRIS is composed of many individual (component) information systems. Some of the most critical component systems are managed by government agencies and non-governmental organizations outside the Department of Health. The establishment of the HRH Network[2] in 2005 has facilitated sharing of data and other collaborative efforts among its 19

[1] Out of 747,932 health workers in the Philippines, 543,495 health workers or 73% were not captured in the available HRIS as of September 2018.

[2] For additional information on the HRH Network, visit https://www.doh.gov.ph/Health-Program/human-resource-for-health-network.

government, nongovernmental and academic institutions. HHRDB serves as the secretariat and the HHRDB Director as the lead convener of the network. (See list of members in Annex G.)

Methodology

This assessment used the HRIS Assessment Framework. The HAF provides a structure to assess the developmental stage of a country's HRIS by measuring the functionality and capacity of the system. Eight functionality elements and eight capacity elements are assessed as shown in the following table.

Exhibit 1. HAF Areas Assessed

Domains of HRIS Functionality Assessed	Domains of HRIS Capacity Assessed
Pre-service education	Technology Infrastructure
Registration and licensure	Decentralization of Access
Staffing gaps and needs	Use of standards
Payroll information	Data quality
Personnel actions	Sustainable financing
In-service training	Human capacity
Workforce Exit/attrition	Interoperability
Health Worker Registry	Use of data

Each functionality of the HRIS is assigned a maturity level, ranging from 1-5. Each capacity of the HRIS is assigned a stage, also ranging from 1-5. The staging system provides brief information on the characteristics of the HRIS at each level/stage of development. However, the HAF does not include a questionnaire to use in conducting the assessment. In fact, there is no toolkit available to guide the implementation of the HAF, including the methods to collect data or disseminate results.

Therefore, in order to gather detailed and specific information about each component system within the HRIS, we decided that it was necessary to meet individually with system owners/custodians. We elected to do semi-structured interviews because this format would ensure all major areas of the assessment were covered (to the extent applicable for each system), while also giving respondents the opportunity to describe unique aspects of their system and explain pertinent information we likely would not have asked. Most of the questions were created based on the HAF's scoring framework. Additionally, we included a few topics that were beyond the scope of the HAF that would be useful in prioritizing HRH2030's work in the upcoming year. The main content of the additional questions was future enhancements to the information systems. The experience of administering the questionnaire during the first several interviews was used to refine it.

The assessment team comprised Chesa Garcia, HRIS Advisor, and Allison Connolly, Technical Advisor, who are staff on the HRH2030 Project. While Ms. Garcia conducted several interviews on her own, both staff participated in the majority. Each interviewer recorded her answers separately for every interview. The interviewers debriefed periodically, when they would discuss the answers provided about each system and resolve discrepancies in what they had heard/recorded. Occasionally, participants were contacted via email to clarify something they had said during the interview or to provide missing information. The interviews were not recorded.

After each interview's debriefing session, Ms. Garcia or Ms. Connolly entered the data into an Excel spreadsheet. These data will serve as the official record of the information collected

during the Philippines HAF implementation. Therefore, in a further effort to ensure the completeness and accuracy of the data, each person reviewed all of the text entered by the other interviewer.

HHRDB identified the entities to be interviewed within and outside of DOH. HRH2030 then asked HHRDB to prioritize each organization for inclusion in the assessment as high, medium or low; the assessment team set up its interview schedule according to this priority scheme. The unit of interview was the information system rather than the organization or DOH unit. Therefore, some external organizations or units within DOH that manage more than one HRIS component system participated in more than a single interview.

The assessment team requested each organization to make available for interview those staff who were most knowledgeable about the system. This usually included the individual who managed the program in which the information system was used, but it also sometimes included a range of people with other responsibilities such as data entrants, programmers, and senior managers. The organizations decided the number of people who would partake in the interview, which was usually one or two individuals. Interviews generally lasted about 90 minutes, and they took place at the participants' work sites.

Limitations

A limitation of the HAF assessment was that the information gathered about a system was obtained through a single interview. The information contributed by interviewees was not validated by reviewing the information system itself or by asking others to respond to the same questions (in order to compare the consistency of responses). It is possible that some interviewees provided incorrect or incomplete information.

Although the questionnaires contained numerous close-ended questions with categorical response choices, some answers given were complex and did not fit precisely into one of the categories. Therefore, statistical summaries were not possible when such answers were given. Alternatively, it may have been necessary to exclude one or more responses from the summary. The questionnaire did not undergo formal pilot testing. This was impractical due to the short time between HHRDB's scheduling of the assessment and its start. There were some questions that could have benefitted from better wording to improve the consistency in interpretation across interviewees. However, the open-ended questions and conversational style of the interviews helped mitigate these concerns.

Within the Philippines HRIS, there are often several component information systems with a given functionality (e.g., three systems to capture workforce exit/attrition), with each system having a different level of maturity. The widely-varying maturity of the information systems having a given functionality presented challenges in assigning it an appropriate stage. This situation can be contrasted with a country which has a highly centralized HRIS, wherein one system (e.g., iHRIS) or a few systems encompass all eight functional areas. A related issue is that a decentralized HRIS, coupled with a large private health sector and a devolved public health structure in which service delivery clinics are largely outside the control of DOH, result in a proliferation of information systems. For instance, the number of personnel information systems to manage health worker employment in the Philippines is unknown. Cataloguing and assessing all of them was well beyond the scope of this assessment.

We contend that the challenges related to assessing the Philippines' decentralized HRIS and its large number of information systems are limitations of the Health Assessment Framework, not the assessment as it was conducted in the Philippines.

Although the National Tuberculosis Program (NTP) and the National Tuberculosis Reference Laboratory (NTRL) collect HRH data, they were not initially part of the HAF assessment. When HRH2030 was developing the initial list of organizations to interview for the HAF, the NTP was not identified as an organization with a health worker registry, but rather only a facilities registry. However, the NTP recently implemented a health worker list within its facilities registry. For the HAF, the Lung Center of the Philippines (LCP) was chosen as the primary data source to assess the NTP's training information. The LCP is a training arm of the NTP and focuses on Programmatic Management Drug Resistance Tuberculosis (PMDT). Thus, the LCP has a wider training scope than does NTRL. Although this report provides information on the NTP Facilities Directory and NTRL's Training List within the narrative, this information was gathered after the initial HAF data gathering session. This information was therefore not part of the statistics in the report.

Finally, two important systems in the HRIS, which are managed by the Professional Regulatory Commission (PRC) and PhilHealth, were not assessed. HRH2030 was unsuccessful in securing their participation despite multiple solicitations using several mechanisms. The reader will note that while the PRC and its data are referenced numerous times in the forthcoming sections, the information about its information system was gathered during a desk review, rather than through an interview.

Results Dissemination

The HAF assessment results were disseminated separately to the HRH Network and the DOH. While the sectoral HAF results were presented to the HRH Network, the organizational HAF results were presented to the DOH.

HRH2030 presented the HAF results to the HRH Network on July 31, 2018 during its quarterly meeting. The presentation focused on three of eight HAF functionalities: Pre-Service Education, Health Worker Registry, and Workforce Exit.

During a second presentation held on August 1, 2018, HRH2030 disseminated the HAF Results to DOH participants. The dissemination focused on the remaining five of eight HAF functional areas: Staffing Gaps and Needs, Payroll Information, Personnel Actions, In-Service Training, and Health Worker Registry. After presenting the HAF results, HRH2030 provided a brief overview of the National Health Workforce Accounts (NHWA).

Workshop

The presentation to DOH was followed by a half-day workshop with DOH HHRDB, Personnel Administrative Division (PAD), NTP, Family Planning Program (FPP), Knowledge Management Information Technology Service (KMITS), Epidemiological Bureau, Lung Center of the Philippines, and World Health Organization Western Pacific Region. The workshop participants were divided into three discussion groups, based on their involvement in the HRIS functional areas.

- Group 1: Health Worker Registry
- Group 2: In-Service Training
- Group 3: Staffing Gaps and Needs, Payroll Information, and Personnel Actions

Each group was assigned a facilitator and given guiding questions about the assigned HAF functionalities along with an action plan template. The questions focused on how to bolster collaboration among DOH bureaus to strengthen the HRIS within the DOH and the steps needed to enable interoperability among existing and future information systems. The HRH2030 facilitators steered the groups toward identifying low-hanging fruits or immediate actions that could strengthen HRIS. The groups presented their findings after an hour of discussion. Annex D provides a summary of the discussion, with additional details each group.

Results

Introduction

We have organized the results by the eight capacity areas (some are grouped together) and the eight functional areas assessed by the HAF. Where appropriate, we have also included information obtained from the questions that extended beyond the HAF (e.g., system enhancements, data reporting).

Number of Systems Assessed

This activity assessed 20 information systems. Nine interviews took place for information systems external to DOH and involved seven organizations. Within DOH, 11 interviews were held, including five for information systems within HHRDB and three in Personnel Administrative Services Division (PAD). As stated above, several external organizations or units within DOH were custodians of two or more HRIS that were identified as high or medium priority for inclusion in the HAF. Thus, these organizations/DOH units were involved in more than one interview, although the participating staff were not necessarily the same for each interview.

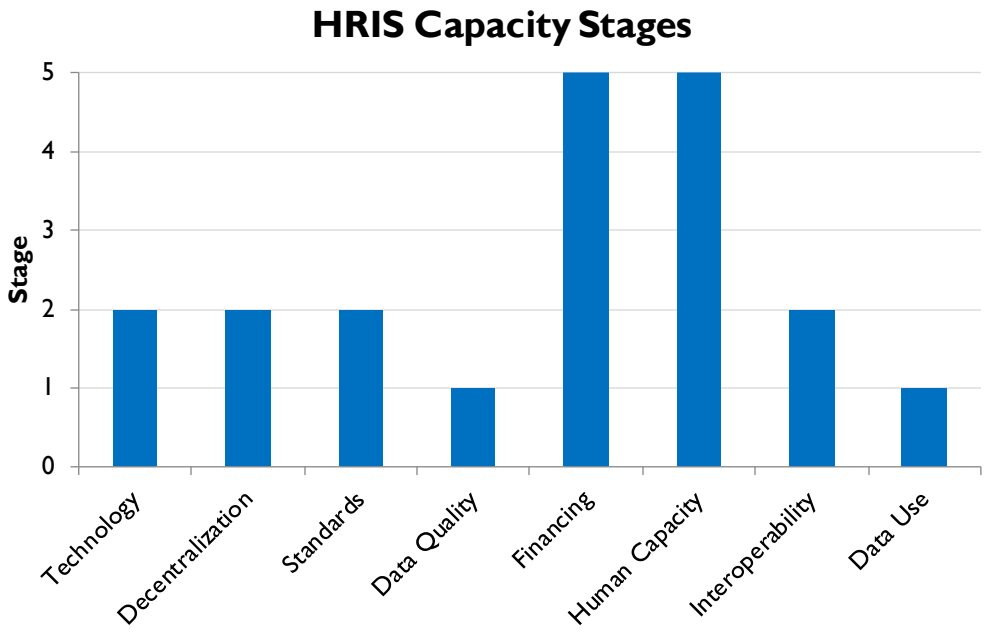
Total Number of Information Systems Assessed	Information Systems Managed by DOH	Information Systems Managed by External Organizations
20	11	9

Annex A lists each system assessed and the organization that manages it.

Results by Capacity Area

Per the HAF tool, the Philippines has an average capacity stage of 2.5. A summary of capacity strengths and weaknesses is provided in Exhibit 2, below. The Philippines shows strong maturity in terms of financing and human capacity. However, other capacity areas require strengthening, particularly data quality and data. See Annex F for a full definition of scoring for each functional area.

Exhibit 2. HRIS Capacity Stages Summary



Technology Infrastructure (Entry and Storage of Data in the Information Systems) (HAF Capacity Stage: 2)

The HAF assesses the maturity of the HRIS technology in regard to whether data is entered and stored on paper, spreadsheets, a non-web-based database, or a web-based database.

The assessment did not find a robust HRIS that comprised a complete cycle of collecting, consolidating and arranging data to produce meaningful information.

Almost half of the information systems used advanced databases exclusively to enter and store data. Some of these were web-based while others were available only within the network of the agency/organizational unit. (No system was based on Microsoft Access.) In addition, a quarter of systems used a combination of a database platform and Excel for data collection. This was usually because the database was not accessible to all who needed to submit data. Thus, data was sent via Excel, then each spreadsheet was merged into the database.

About a third of the systems did not store data in a database: five of these used Microsoft Excel, and one was an entirely paper-based system. As the table below shows, there was a similar distribution of the types of information systems used at DOH versus external organizations.

Exhibit 3. Summary of Data Storage in Assessed Systems

	DOH Information Systems	External Information Systems	Total
Advanced Database such as SQL (web-based and non-web-based)	4	5	9
Combination of Excel and Advanced database	3	2	5
Excel Spreadsheet Only	3	2	5
Paper Only	1	0	1

Health worker registry repositories are mostly web-based. Examples are the National Database of Human Resources for Health Information System (NDHRHIS), which mostly has health workers in Level 2 and 3 hospitals, and iClinicSys, which contains lists of certain health workers in the rural health units, barangay health stations, and other facilities providing primary care. In contrast, the Health Facilities and Services Regulatory Bureau (HFSRB), uses paper forms to manage the lists of health workers compiled during registration and license renewal for regulated private and public health facilities. (More information on these systems is found in the Result by Functional Area section below.)

Based on the HAF scoring framework, the technology infrastructure capacity area is at Stage 2. While certain component systems have reached Stage 4 or 5, and others are at Stage 1, two is the most applicable stage when considering all systems within the HRIS.

Decentralization of Access to Information Systems and Data Entry (HAF Capacity Stage: 2)

Respondents were asked about the practices of reporting data to the information system, accessing the system and updating it.

Decentralization of Access

The HAF does not provide a definition of decentralized "access" to information systems. We defined it as intended users having the ability to directly enter and look up data (if applicable) in a centralized database. If some users were unable to access the system directly due to local Internet connectivity issues, it was nevertheless considered a system with decentralized access. Excel-based systems (5) are not decentralized according to this definition.

Overall, the component systems of the HRIS have centralized access, with just a few of them offering access to the data reporters to enter and view data (if applicable). Systems generally did not offer a portal for a user to update or view his/her own data.

Of the 14 systems that used an advanced centralized database with Web or area network access, two were intended to be used entirely by the central office. Of the remaining 12, just five could be considered as having decentralized access. The other systems generally required users to send data on an Excel template, on paper or a combination of both. These mechanisms of reporting are less efficient and accurate because spreadsheets must be somehow merged into the main system while data on paper must be keyed in. A centralized system also does not allow

remote users to perform actions such as updating a record when new information becomes available or looking up a record to see if it exists in the system already.

Methods of Data Entry

Just over half (11 out of 20) of the information systems were only updated on an ad hoc basis. In these systems, an action (such as registration at a training) was a pre-condition for updating a record. The remaining systems were updated at an established interval, usually yearly. In these situations, a regular — usually required — activity (such as a facility licensure application or an annual membership renewal) triggers the update. A regular trigger is generally preferable because it increases the likelihood that the data in the system is up-to-date. There was virtually no difference between DOH and external systems regarding the proportion of systems that are updated ad hoc versus regularly.

With respect to method of entry, electronic reporting encompassed sending Excel spreadsheets to a central office and direct entry into the database either through a web-based or non-web-based platform.

For about a third of the systems (6 out of 20), users reported data entirely on paper. This scenario tended to be associated with systems where the data was initially reported by a single individual such as a member of the public (e.g., the Commission on Filipinos Overseas' Filipino Overseas Information System) or a job applicant (e.g., DOH eJobs). Apart from the one system that was entirely paper-based, these data were then hand-keyed into an Excel spreadsheet or a database. An additional four systems received data both on paper and electronically.

Exhibit 4. Method of Reporting Data to the Information System

	# of Information Systems
Electronically	10
On Paper	6
Electronically and on Paper	4

Based on the HAF scoring framework, the decentralization of access capacity area is assessed as being at Stage 2. While certain component systems are at higher stages, and others are at lower stages, 2 is the most applicable stage when considering all systems within the HRIS.

Data Quality, including Use of Standards in Data Entry

Standards (HAF Capacity Stage: 2)

The information systems in the Philippines HRIS had a notable lack of processes and practices to ensure data quality. This conclusion is based on the responses to questions about: 1) the existence of standardized formats for data entry; 2) processes to ensure quality of data entered; and 3) data quality assessments.

Use of preformatted fields such as calendars and drop-down lists may enhance data quality. To inquire about this practice, we asked whether fields were preformatted for five common

demographic variables. The results we can report are limited because half of the systems (10 out of 20) did not collect any of the five variables, while most of the others only collected one or two of them. Among the 10 systems that collected one or more of the variables, about half used preformatted fields in all instances, while the other half used them for none of the fields or only some. We also asked these 10 respondents if some or all the menus they were using were agreed upon with stakeholders or harmonized with international standards. Only DOH's iClinicSys, an electronic medical record, reported doing this. Most other respondents did not know the answer to this question.

Determining the stage for this capacity area was difficult. Stage 1 is defined as: "Information systems have few to no drop-down menus - data is largely recorded freehand," while Stage 2 is defined as: "Drop-down menus are used for data elements (such as location or cadre) to ensure data entry is consistent." Given the limited responses, we found it difficult to conclude that systems were *not* using drop-down menus. Based on the results of the assessment, the "use of standards in data entry" capacity area is deemed to be at Stage 2.

Data Quality (HAF Capacity Stage: 1)

The assessment team explored the existence of basic data quality processes such as comparison of data entered against source data or use of logic checks. (A logic check is created to verify the consistency of data across two or more fields. For example, a logic check could alert a data entrant if an overseas migrant is assigned the profession of nurse, but the date of birth indicates that the person is less than 16 years old.) Over half the systems did not have any data quality processes in place. For those systems with a process, it was usually described as unstructured, such as random checking of data that was entered. However, four systems had more robust processes. One example is the information system used by HFSRB for the facility licensure process, which is currently entirely paper-based. Nevertheless, during the licensure process, an HFSRB staff member validates the list of healthcare workers submitted by the facility to ensure that each one is working at the facility.

We also inquired whether Data Quality Assessments (DQA) were carried out after briefly explaining what this activity typically entailed. In the context of the other information provided, it was unsurprising that just one system reported doing an activity that was akin to a DQA.

Based on these results, the data quality capacity area is assigned a Stage of 1. Most systems had only minimal processes in place, which were often ad hoc.

Data Use (HAF Capacity Stage: 1)

The data use capacity area assesses whether data is used to support HRH management functions, inform HRH policies, as well as plan and advocate for the health workforce. Our inquiry found that the use of data collected by the information systems was quite limited, likely fostered by the absence of factors to enable data use (such as data quality). This finding is based on questions related to:

- use of data to inform HRH management functions
- use of data to inform policies
- sharing of data
- the ability of systems to generate reports automatically
- the availability of data analysts
- analysis of data

As shown in the following table, most systems did not use data from their information system to inform HRH management functions such as retirement planning, vacancy analysis, turnover analysis, or training needs.

Use of Data to Inform HRH Management Functions

Exhibit 5. Information Systems Used to Inform Policies

	# of Information Systems
Yes	4
No	14
N/A or Unknown	2

When asked if data were used to inform policies, just three respondents were aware of such use. Others said data were not used for this purpose or that they did not know. It is important to qualify these findings by mentioning that a few of the information systems are new, making it less likely that program managers would have had the opportunity to use the data to inform policies. Furthermore, it is possible that some interviewees who indicated that the data were not used to inform policies were unaware of such usage in the past.

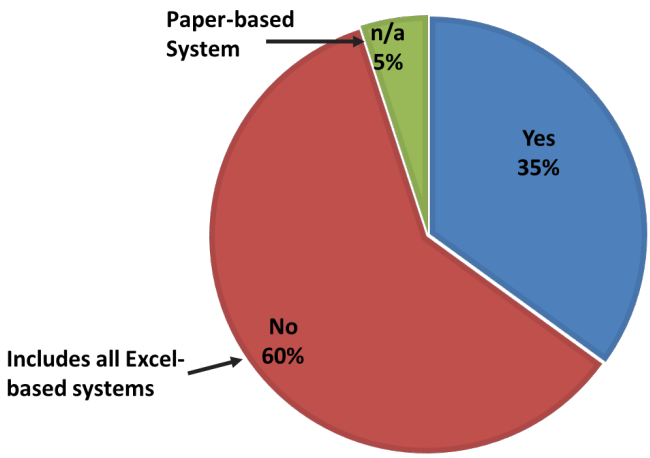
Just five of the systems shared raw data, usually deidentified, with other entities. Four of these five were organizations external to DOH. Researchers were mentioned as the most common entities with whom raw data was shared. Thirteen systems did not share data. Concerns about violation of the Data Privacy Act[3] were raised in the context of data sharing.

We also asked about the ability of the system to generate reports automatically because this facilitates data use.

[3] The Data Privacy Act of 2012 is available online at: https://www.privacy.gov.ph/data-privacy-act/

Ability of the Information Systems to Generate Reports Automatically

Exhibit 6. Information Systems' Ability to Automatically Generate Reports



It was noteworthy that six of the nine systems using an advanced database exclusively for storage did not have the ability to generate a report automatically, demonstrating an underutilization of the capabilities of such a platform. For those systems that could *not* generate a report automatically, respondents replied that data were either extracted or counted manually to create a report. Respondents for one quarter (5) of the systems indicated that no data were reported from their system, whether by extraction or an automated process.

Ultimately, most of the advanced databases relied on Excel in some way, even if data were entered and stored in the database. This was usually because the databases did not generate the needed reports. For example, the Commission on Higher Education's (CHED) online information system functions as a collection tool, but reporting and analysis modules are not yet available. Therefore, data is consolidated and reported using Excel. While CHED had staff available to create reports, most interviewees stated that they did not have staff for this purpose.

Finally, we inquired about use of the data for analysis. (It was usually necessary to explain the difference between this activity and using the system to create a report.) Just seven system owners (35%) indicated that their data was used for analysis. This may have been related to a lack of access to data analysts; only four system owners reported having a data analyst available, and their four systems were among the seven for which data were analyzed.

Since most systems did not use data to support basic HRH management functions, which is the benchmark for Stage 2, the data-use capacity area is assigned the previous stage (Stage 1).

Sustainable Financing (HAF Capacity Stage: 5)

The focus of this HAF capacity area is whether the HRIS system is funded by host-country institutions or external sources. Participants were asked about the financing for the ongoing use of their system, including maintenance, software upgrades, personnel and hardware. We did not ask questions about the financing for indirect HRIS costs (e.g., office space) since that would

have required detailed analysis from participating organizations, which was beyond the scope of the assessment.

Furthermore, we limited our questions to information systems using databases (14). The on-going costs to operate these systems can be significant. On the other hand, costs to use Excel were considered minimal. Therefore, Excel-based systems were excluded from the question about how on-going costs were covered.

The assessment found that HRIS component systems using databases have a high degree of financial sustainability, according to the information provided by interviewees. In fact, the on-going use of all 14 database systems was supported by local institutions. All DOH systems were financed by DOH, while each of the non-DOH systems were financed through the respective agency's own funds.

Twelve of the 20 information systems had planned enhancements (i.e., enhancing the existing database, or migrating from an Excel or paper-based system to a database platform). Nine of the 12 had their budget ready for the enhancement. All nine systems were to be financed by the DOH or through the outside agency's own funds.

Financing for Planned Enhancements

Exhibit 7. Do Systems with Planned Enhancements Have a Budget Available?

Number of Systems with Planned Enhancements	Budget Ready for Enhancement?			
	Yes – Locally Financed	Yes – Externally Financed	No	Unknown
12	9	0	2	1

Finally, interviewees were asked if their systems had *long-term* financing plans in place. Of the 14 systems using database platforms, 12 had long-term financing in place, one did not, and the answer was unknown for one system. Additionally, the database platform that will replace HFSRB's paper-based system also has a long-term financing plan.

Based on the HAF's findings regarding financial stability, this capacity area is assigned a stage of 5.

Human Capacity (HAF Capacity Stage: 5)

This capacity relates to the propensity of staff to be local versus expatriate and employed by local versus international organizations. Similar to the findings about financing, employment was dependent on local resources. In fact, for every system, respondents reported that the staff using and supporting their systems were local and employed by Filipino organizations. This included staff who were responsible for software development, bug fixing and system administration. It is important to qualify that some organization were large and/or had employees working in remote offices (such as at the regional and local levels), so it possible that respondents did not account for all staff - or could not do so accurately - in their responses. In fact, several respondents pointed this out when giving their response.

One area of concern was that several systems had just a few users, who often held deep institutional knowledge of the system. This left the program vulnerable in case of the departure of these employees, especially if there was inadequate system documentation.

Based on the HAF staging criteria, the area of human capacity is assigned a stage of 5.

Interoperability (HAF Capacity Stage: 2)

Interoperability refers to the ability to send data and receive data from other systems. Ideally, interoperability occurs in an automated manner, using internationally-recognized standards for data definition and data transmission. Alternatively, data from one system can be exported to an external software program (commonly Excel), delivered (often by email), then uploaded to the receiving system. This method is not automated and presents several challenges, among them are data security and the timeliness of the data available in the receiving system.

The assessment showed that in the HRIS component systems, interoperability is only accomplished through exporting and uploading Excel files. For example, all the systems that provide data to DOH's Integrated Database System for Human Resources for Health (IDSHRH) do so in Excel format; these systems include those managed by DOH, CHED, PRC, Philippine Overseas Employment Agency (POEA), Filipino Overseas Information System (FOIS), and Technical Education and Skills Development Authority (TESDA). For those organizations planning new or enhanced systems, most reported to be planning data exchange beyond what they were currently doing. For some systems, exporting and uploading data would continue as the exchange mechanism (e.g., Integrated DOH Licensing Information System), whereas other systems are planning an automatic exchange. For example, DOH envisions an automatic exchange of data with the external organizations that are contributing to the IDSHRH, as well as with the DOH bureaus that also collect health worker data. However, DOH has not formalized an HRIS conceptual or interoperability framework.

It is important to note that our questionnaire did not delve deeply into the complex topic of interoperability. For example, we asked about plans for interoperability. For those systems reporting a non-automated exchange, our questionnaire did not discern whether this was primarily because the system itself would be incapable of doing so, or if was because the system(s) it was exchanging data with could not do so automatically. Furthermore, some respondents were not certain about mechanisms of exchange in the future, while others noted that enhancements were subject to confirmation, often related to budget.

Based on the HAF, the interoperability capability, which is concerned with *current* exchange of data, the Philippines HRIS is at stage 2.

Results by Functional Area

Systems Assessed by Functional Area

As described earlier, the HAF assesses eight functional areas of an HRIS. The table below provides the number of systems assessed by functional area. Since several systems encompassed more than one functional area, the total number of systems in the table exceeds the 20 systems that were part of the assessment.

Exhibit 8. Summary of System Functionality

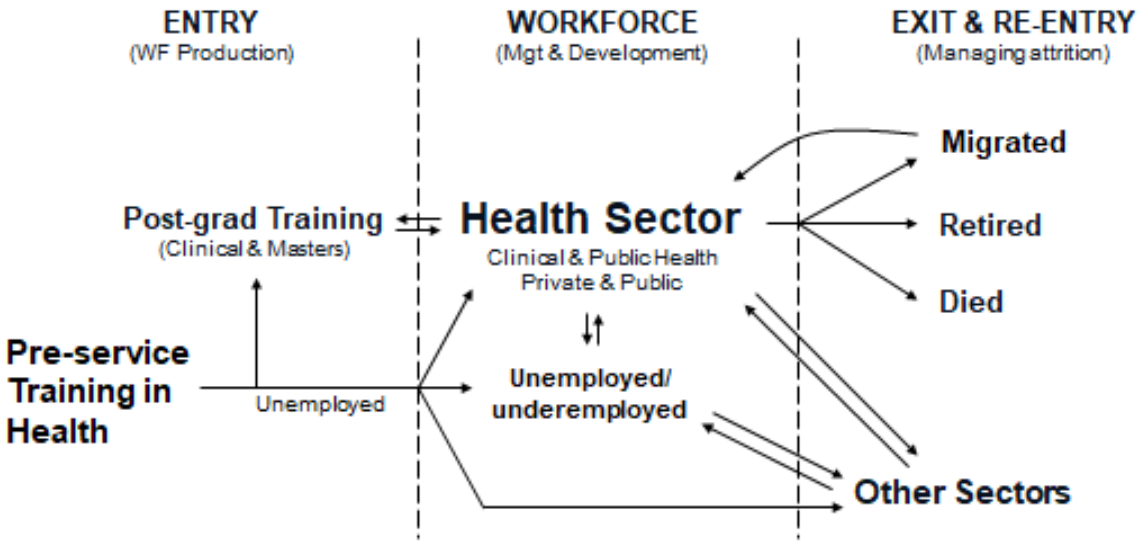
Functional Area	Number of Systems with this Function
Pre-Service Education	1
Registration and Licensure	0
Staffing Gaps and Needs	5
Payroll Information	4
Personnel Actions	1
In-service Training	5
Workforce Exit/Attrition	4
Health Workforce Registry	8

The purpose of the table is to provide an overview of the type of information systems assessed. It is important to note that the scope, detail and purpose of the systems having a given functionality varied widely. For example, HHRDB's Learning and Development Division Database is a DOH system categorized as having "in-service training" functionality. However, the database contains only aggregate information about training attendees. More information about individual systems is found later in the Results section.

WHO Working Lifespan Strategies Framework

The scope of HRH data encompasses the lifespan of the health worker from pre-service training, to employment as a health worker, to exit (and, perhaps, re-entry) through migration or retirement. Exhibit 9 provides the DOH-HHRDB operational framework based on the WHO's Working Lifespan Strategies Framework (WHO, 2006) as seen in the Philippines Human Resources for Health Master Plan 2014-2030 (HHRDB, 2013). The framework (Exhibit 9) delineates three key phases needed for a comprehensive assessment of HRH supply and requirements: entry (workforce production), workforce (management and development), and exit and re-entry (managing attrition).

Exhibit 9. DOH-HHRDB Operational Framework of the WHO Workforce Lifespan Strategies



Conceptual Framework based on the Working Lifespan Strategies Framework (WHO)

Each of the three stages of the lifespan include two or more of the HAF functional areas. Exhibit 10 shows for each stage of the lifespan the corresponding HAF functional areas and the systems we assessed that contained those functionalities.

Exhibit 10. HAF Functional Areas and Systems Associated with Lifespan Stages

Lifespan Stage	HAF Functional Areas	Relevant component systems within the Philippines HRIS assessed during the HAF*
Entry	Preservice Education Registration and Licensure	CHED's Electronic Collection & Knowledge System (CHECKS), PRC
Workforce	Staffing gaps and needs Payroll information Personnel actions In-service training Health Registry	eJobs, PAD, Personnel Information System, LDD, LDNA, Payroll Information System, Family Training Master list, MindWorks Information System, Philippine Business for Social Progress Careers, Personnel Clearance System, PMDT Training Participants List, Philippine Nurses Association Membership List
Exit and re-entry	Staff gaps and needs Workforce Exit/Attrition	eRegistration, FOIS, Personnel Clearance System, Personnel Information System

*Annex A contains a list of acronyms for these information systems, along with the organization that manages each.

The Integrated Database System for Human Resources for Health (IDSHRH), established in 2017, is one of two information systems administered by the HHRDB at the DOH. It is intended to capture the annual HRH data for all stages of the health worker lifespan, as depicted in Exhibit 10 above. Thus, it contains (aggregated) data on the health workforce from education/production to employment and exit. In 2016, six members of the HRH Network signed a data sharing agreement to contribute data to the IDSHRH. The six members were the only organizations that were ready to share data based on a 2013 assessment (Domingo, 2013). However, only five of these organizations currently send data to HHRDB for upload to the

system through Excel: CHED, PRC, DOH, POEA, and Commission on Filipinos Overseas (CFO).

CHED contributes the number of enrollees and graduates in each higher education institution by gender and geography based on data collected through CHECKS. PRC sends data on examinees by passing status and gender. Through NDHRHIS, DOH provides data regarding health workers employed mostly in large hospitals. POEA contributes Filipino workers approved for overseas employment. Finally, CFO sends the number of health workers who have received a permanent residency visa to another country or a J-1 Visa to the U.S., based on data collected in FOIS.

Graphical representation of data is publicly available on the IDSHRH website.[4] As of September 2018, the data available was from 2016.

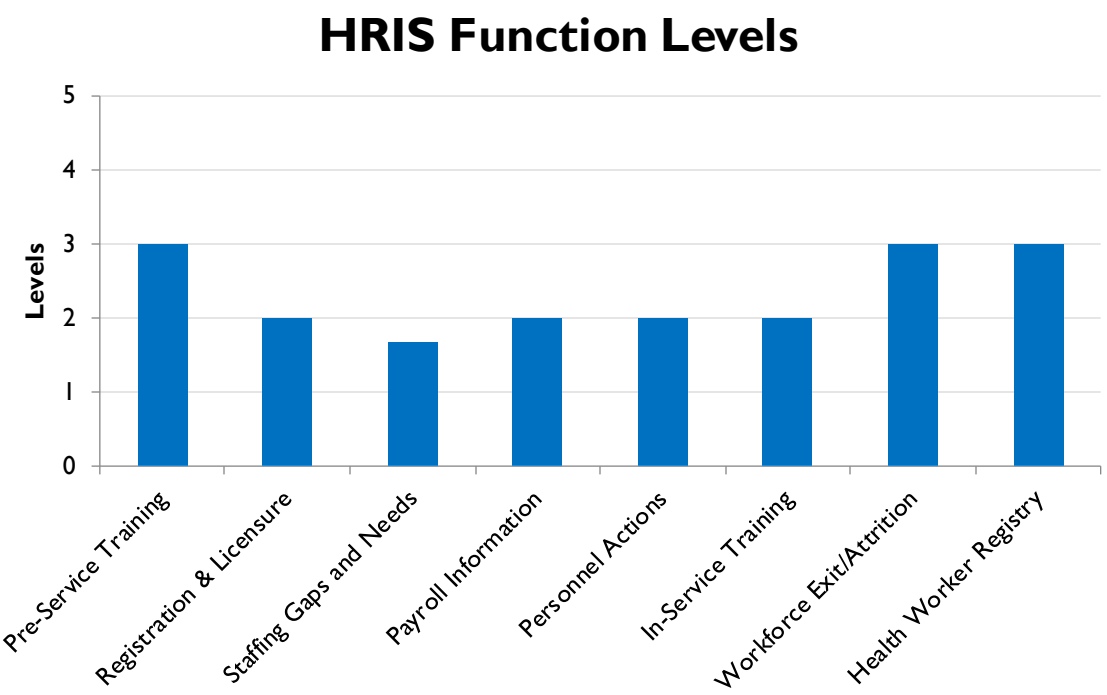
The following sections provide an overview of the assessment's findings for each of the eight functional areas of the HAF. A note about staging of functional areas: The staging of the functional areas is a bit more complex than for the capacity areas. Briefly, the HAF assesses whether the function is available (based on a definition provided) and used; the data which is collected and its disaggregation and use; and the type of information system(s) (i.e., paper-based, spreadsheet, on-line database) in use. Please see Annex F for a full description of the HAF scoring.

[4] To view additional information, visit the IDSHRH website: http://www.idshrh.com.

Summary HAF Functional Area Levels

The Philippines has an average HAF function level of 2.3 as per the tool. The HRIS functions mostly exist in basic form, primarily for data collection, but not for consolidating, producing reports or analysis. Most HRH data exist in spreadsheets, and basic disaggregation can be performed by cadre, sex, and geographic work location, but data is not standardized across the HRIS. The level for each functional area has been given within the respective sections below.

Exhibit 11. HRIS Function Levels Summary



Pre-service Education (HAF Function Level: 3)

This HAF functional area assesses whether student intake, current enrollees and graduations from medical, nursing, public health schools and other health training institutions are aggregated and analyzed. As with all other functional areas, it also assesses the use of data and type of information system(s) used, as described in the previous paragraph.

The Commission on Higher Education (CHED) is the national institution designated to oversee tertiary and graduate education. Part of CHED's mandate is to provide statistical data on the approximately 4,800 tertiary and graduate institutions it covers including medical, nursing, public health schools, and other health training institutions. CHED collects annual data on current enrollees and graduates in the previous year. As of June 2018, all the covered educational institutions are required to submit data online via CHECKS data collection module. CHECKS has a HAF functionality level of three (3).

CHED reported that over 90% of institutions submit data through CHECKS, while the remaining submit via email or paper using a standardized template. The institutions submit their respective aggregated data. As of the writing of this report, the reporting and analytics modules of CHECKS are pending development. The CHED central office collates and cleans the collected

data and presents the data in a meaningful way via its public website. In addition to the publicly available data, CHED also provides any authorized individual or institution additional data access, limited to the data that CHED collects.

Registration and Licensure (HAF Function Level: 2)

This functional area encompasses the registration of health workers by a regulatory organization, in addition to the tracking of the license's status and renewal.

The Professional Regulatory Commission is the only government agency that regulates the licensing of professionals in the country. PRC regulates and registers health workers such as doctors, nurses, medical technologist and midwives. All health workers that are licensed to practice have passed the examination given by the PRC. Licenses are renewed every three years. Health workers must complete CPD credits to professionally renew their license to practice.

HRH2030 was unable to secure an interview with PRC to learn about its HRIS; however, the assessment team conducted a desk review on publicly available information to determine the HAF function level for this area. Although the PRC was not formally interviewed for the HAF, through the desk review, HRH2030 learned that in 2018 the PRC launched the Licensure Examination and Registration Information System (LERIS), an online information system that provides services on licensure examination applications, initial registration for new licensees, license renewals, and license verification. LERIS collects relevant personal and educational information on the health worker such as gender, home address and whether the health worker is a practicing professional. The LERIS also collects the specifics about where the health worker practices, including both the municipality and country, as well as whether the health worker practices within the Philippines or abroad. Since the PRC is a regulatory agency, the usage of LERIS is expected to be high. Based on the desk review of LERIS, the HAF functional level is 2.

Staffing Gaps and Needs

This functional area contains several aspects within the HAF:

- Tracking and reporting of vacancies
- Tracking of number of employees needed to fill facility staffing norms established and used for planning
- Tracking of employment status of health workers (active [contractual, permanent, intern], unemployed, suspended, retired, etc.)

A single HRIS that can provide a holistic sectoral view of all the above is in place for government plantilla positions but not for health workers that occupy contractual positions, or who work in the development or private sector. Plantilla positions are permanent positions — including those for health workers — with line items in the Philippines Department of Budget and Management (DBM).

(3a) Vacancies (HAF Function Level:3)

The HAF examines the tracking and reporting of unfilled, established positions. The Philippines government has a system in place to track established positions funded by the government, but not those in the private sector and NGOs. For this vacancy tracking capacity, the HAF function is at level 3 given the context of the existing established positions as itemized by the DBM.

The Philippines DBM tracks the established HRH positions in the public sector. In the Philippines, "plantilla" is the term for established government positions. Each plantilla position corresponds to a salary grade level. Every month, all government agencies report in the DBM's Personal Services Itemization and Plantilla of Personnel (PSIPOP). The PSIPOP is a web-based application that tracks whether a plantilla position is occupied or not. During the HAF Assessment, the DOH central office was only interviewed on the PSIPOP usage; further information is needed as to whether health workers funded by Local Government Unit (LGU) or local funds are reported to PSIPOP.

Aside from the PSIPOP, the list of all job vacancies submitted by government offices — including the DOH — are posted in the online Civil Service Commission (CSC) career website. The website is widely used by all government offices pursuant to the CSC Resolution No. 1700653 – 2017 the Omnibus Rules on Appointment and Other HR Actions.[5] However, the CSC does not track the processing of applications or filling of the positions because the respective hiring agencies handle these tasks. The DOH through the Personnel Administration Division (PAD) submits job vacancy information in an Excel template through email to the CSC. The PAD is a detached bureau of the DOH-HHRDB that manages vacancies within the DOH central office. The DOH-PAD also administers eJobs for Health, an online job recruitment and application system that lists job vacancies submitted by the different DOH central bureaus.[6] DOH regional offices and hospitals may opt to use a separate instance of eJobs or any similar platform. The unfilled positions in the DOH are manually tracked by PAD outside eJobs because the system does not automatically generate reports.

(3b) Facility Staffing Needs (HAF Function Level: 0)

The HAF staffing needs function evaluates the number of employees needed to fill facility staffing norms established and used for planning.

The number of employees needed to meet facility staffing norms are established only for the DOH regulated facilities, such as government hospitals (DBM, 2013), but not for the other facilities — including the rural health units. The staffing norms are used for regulation but not for planning needs. Although the data collection is routinely and uniformly conducted, paper-based systems are used.

For staffing needs in the rural health units, DOH uses WHO suggested ratios of health worker-to-population (e.g., 1 midwife per 5000 population) as one of the factors in determining where health workers should be deployed. These ratios are not incorporated into any information system. Thus, this HAF function does not exist.

(3c) Health Worker Employment Status (HAF Function Level: 2)

This function looks at whether the employment status of health workers (e.g., active – contract/permanent, intern, unemployed, suspended, retired, etc.) is tracked and reported.

Due to the devolution of public health care in the Philippines, information on employment status of health workers is managed in a decentralized manner by the respective hiring organizations, with a few important exceptions.

[5] The Civil Service Commission's Job Opportunities List is available online at: http://csc.gov.ph/career/
[6] The DOH eJobs for Health portal can be accessed at: http://www.ejobs.doh.gov.ph/ejobs/

One is that the employment status of health workers occupying the plantilla (i.e., permanent) positions in the government are tracked and reported to the CSC and DBM through the Personnel Service Itemization and Plantilla of Positions (PSIPOP) every month. In addition, DOH maintains an Excel file with a list of health workers who are funded and hired through the deployment program to work in areas with an HRH shortage. HHRDB consolidates the data annually, although the DOH regional offices furnish the information monthly. The PRC, through LERIS, collects employment status data on whether health professionals are practicing their profession or not, and whether they are employed or self-employed, locally or abroad. Finally, there is a nationwide database that contains data about people who are barred from government service: Database of Individuals Barred from Entering the Government Service (DIBAR). DIBAR is an electronic database of individuals, including health workers, who have been perpetually barred from re-entering the government service (Ronquillo, 2007).

Many government health care workers are hired through job orders (i.e., contractually), both at the central level and especially at DOH subnational offices, where devolution has occurred. However, no system exists to track these workers. In addition, entities in the private sector and non-governmental organizations have their own mechanisms for tracking the status of their employees.

Payroll Information (HAF Function Level: 2)

Briefly, this functional area refers to whether information on the wages of health workers and the funding source for the position is tracked and reported.

Salaries of health workers with plantilla positions are standardized per national policy. For this assessment, HRH2030 evaluated the DOH Payroll Information System, which is available only at the DOH central office. The DOH Payroll Information System is a computerized system that contains wage information of all DOH central office employees, but only those paid from government funds. The PAD also maintains a separate Excel sheet to track all DOH employees, including their salary levels. The DOH will soon replace the current payroll information system with a more comprehensive platform that contains other HRIS functionalities such as personnel information and daily attendance. The new DOH Payroll Information System will allow information to be extracted and submitted to other government offices such as the Commission on Audit.

The wage information for all other health workers — those who are *not* paid with government funds — are stored in their respective organizations' HRIS. Due to the devolved setup, the DOH central offices does not have information on the wages of all health workers delivering public health program in the Philippines. There is no HRIS that routinely captures or collates information on the all the wages of health workers, including those that are in the private sector and NGOs. The salaries of health workers in the private sector were last captured in 2014 by Philippine Statistics Authority.

Personnel Actions (HAF Function Level: 2)

This functional area assesses whether management actions such as performances evaluations, promotions, disciplinary actions and leave are documented and reported.

Due to the devolution of public health services in the Philippines, the tracking of personnel management actions is done by organization. However, all health workers occupying a plantilla position must abide by CSC rules and regulations.

The HAF function level of two (2) considers personnel actions managed in the DOH central office system, which contained this functionality. DOH Central Office manages its personnel service records through the Personnel Information System (PIS), a non-web-based database administered by PAD. This system records updates to employees' records regarding positions, disciplinary actions, terminations, and salary adjustments. It also contains the career service records of employees, although it does not contain performance evaluations. Performance evaluations are administered through Excel. The results are then filed manually by printing the evaluation forms in Excel. Nor does the PIS manage annual and sick leave for employees, which are instead processed using paper-based forms. Every month, PAD submits the number of doctors and nurses working at DOH to the Health Policy Development and Planning Bureau (HPDPB).

It is not mandatory for the DOH regional offices or the DOH retained hospitals to use the PIS, but some regional offices and hospitals have adopted it. The DOH is in the process of transitioning from PIS to Personnel Transaction Information System (PTIS). In addition to the functionality contained in the PIS, the PTIS will also include payroll and attendance records modules.

In-Service Training

The HAF investigated two categories for the In-Service Training functional area. First, whether the government is planning, tracking, managing and regulating in-service training programs. Second, whether regulatory boards/councils and health worker professional associations track and apply CPD credits from in-service training towards re-licensure.

The assessment evaluated all in-service trainings and found that most training information is managed through Excel and reports are appropriately disaggregated. However, disaggregation of cadre is focused on doctors, nurses and those who occupy positions above salary grade level 14, while the disaggregation of geography occurs at the facility level.

Government is planning, tracking, managing, and regulating In-Service Training Programs (HAF Function Level: 2)

The HAF tool was applied to the DOH's In-Service Trainings focused on the HHRDB, NTP and FPP. The DOH trains public health workers to improve their competencies and technical expertise, health programs, and systems. Each program — HHRDB, NTP, and FPP — manages its in-service training data separately and using basic forms — usually in Excel.

Within the NTP, different institutions are providing different trainings. For example, the National Tuberculosis Reference Laboratory conducts trainings on tuberculosis laboratories; the Lung Center of the Philippines provides trainings on Programmatic Management of Drug Resistant Tuberculosis; regional offices rely on NTP Coordinators to conduct trainings on drug-susceptible tuberculosis; and development partners such as the Global Fund and USAID implementing agencies offer other tuberculosis-related trainings. The institutions providing the tuberculosis training manage the in-service data separately, through Excel, and mostly for the purpose of recording attendance and logistics. The in-service training data are then submitted to the respective agencies that fund the training. The NTP is in the early stages of creating its own training registry, starting from building its health worker data in the NTP Directory. As communicated, the NTP envisions having the training information of the tuberculosis health workers in the NTP Directory.

The FPP, in partnership with KMITS, is also developing its own training registry called the Family Planning Training Registry. While waiting for the FP Training Registry to be ready, the FPP central office receives Excel spreadsheets from the eighteen regions quarterly; however, the format and structure of the spreadsheet varies by region.

The maturity of the HRIS in-service training functionality has not yet reached the level of having a single platform that tracks all the trainings delivered by DOH to individual health workers at all levels of the health system. However, staff at the DOH central and regional offices are monitored to ensure they complete required training courses. These staff take the Learning and Development Needs Assessment (LDNA) every three years or upon the recommendation of their supervisor. At the central level, the Learning and Development Division (LDD) regulates the trainings needed to improve DOH staff's LDNA results. To do this, the LDD uses a combination of a stand-alone computerized system and several Excel spreadsheets. At the regional level, the Regional Training Specialists regulate the trainings of regional office staff against the LDNA results, using spreadsheets for record keeping. Because of the devolution, the DOH central and regional offices have no jurisdiction to regulate health worker trainings at the peripheral levels using a needs-based approach like the LDNA.

Regulatory Boards/Councils and Health professional associations track and apply continuing professional development (CPD) credits from in-service training towards re-licensure (HAF Function Level: 2)

In 2016, the Philippines passed the CPD Act of 2016, legislation mandating and strengthening the CPD program for all regulated professionals, including health workers. The legislation requires health professions to obtain CPD credits to renew their professional licenses. The Philippine Nursing Association (PNA), an accredited professional nursing organization, is an authorized CPD training provider. The PNA submits a list of the CPD accredited courses and the corresponding course participants to PRC every month through email in an Excel spreadsheet. Since the PRC did not participate in the HAF assessment, we do not know whether or how it tracks and applies CPD credits towards re-licensure or maintains a master list to validate the CPD credits.

Health workers who provide public health services receive training from DOH, funding organizations, and LGUs to strengthen their leadership, technical expertise, and service delivery, to name a few. The DOH is an accredited CPD provider; however, not all trainings have accompanying CPD credits because each training must first obtain authorization from PRC. Within the DOH, there is no single repository of an in-service training registry with CPD credits. Moreover, no DOH bureau that has the mandate to track and monitor the CPD credits of all the health workers employed within the DOH. The NTRL also delivers trainings with accompanying CPD credits. The NTRL maintains a master list in an Excel spreadsheet of the training participants disaggregated by facility but does not track individual health workers' CPDs.

Workforce Exit/Attrition (HAF Function Level: 3)

The functionality addresses whether the HRIS tracks and reports exits from the health workforce by type of attrition. Examples include retirement, voluntary discharge — including out-migration — involuntary discharge, disability, and death. The HAF assessment examined the IDSHRH information system, where information on workforce exit is collected from different sources, and the HAF function level was 3.

Several Philippine government agencies are involved in tracking the exit and re-entry of health workers in the country. These agencies include POEA, CFO, National Reintegration Center for Overseas Filipino Workers (NCRO) and Bureau of Immigration, which are all part of the HRH Network. POEA and CFO are the agencies that oversee Filipinos who leave the country for both temporary employment and permanent migration. The NCRO provides a mechanism for overseas Filipino workers to reintegrate into Philippine society, promotes their local employment, and taps their skills for national development (NCRO, 2017). The Bureau of Immigration maintains a repository of all immigration records of all foreigners in the country, with information pertaining to entry, temporary sojourn, admission, residence and departure.

The Philippines is one of the top producers of health workers in the world, and the level of the workforce out-migration is very high (Philippines Statistical Authority, 2018). People who permanently emigrate to another country, as well as those who receive temporary visas through the US J-1 Visa program, are processed through the CFO. Those who leave temporarily for employment are processed through POEA. However, CFO and POEA only track health workers up to the point when visas are issued to leave the country, whether permanently or temporarily. Only the Bureau of Immigration monitors whether health workers processed by CFO and POEA have exited or re-entered the country. Based on the HAF assessment interview, the Bureau of Immigration does not routinely report which health workers given visas by CFO and POEA have re-entered the country.

CFO stores the records of those who apply for exit visas after being granted a permanent visa to another country (or a US J-1 visa) through the FOIS, a web-based information system. Applicants who leave the country permanently submit their information on paper forms, which are entered into FOIS, while those who are applying for a J-1 visa submit electronic applications. The CFO records applicants' occupation at the time of application for the exit visa. For health workers, the PRC License number is not included.

In May 2018, POEA implemented eRegistration, a web-based online platform open to all Filipino applicants aspiring for overseas employment.[7] The system's purpose is to provide a mechanism where Filipinos may view overseas job openings and apply to recruitment agencies. The system contains information on approved applicants ready for employment. The recruitment agencies receive applications and complete the recruitment process through the information system. At the time of the HAF assessment, reports could not be automatically generated in the system.

Not all health workers exit the workforce through migration. For other exit routes, the government has a system to track retirement, involuntary discharge, disability and death for health workers occupying a plantilla position through the CSC and Government Service Insurance System (GSIS). The CSC processes retirement, death, and involuntary discharge for all health workers occupying plantilla positions in the government. As mentioned in the Personnel Actions section of this report, the CSC uses DIBAR to track involuntary discharge. The GSIS is notified when a government employee (including health workers) can claim retirement, death, and disability benefits, but specific information is not tracked by occupation/cadre. The CSC and GSIS do not track the voluntary discharge, involuntary discharge, disability, or death of contractual or project-based health workers.

[7] POEA's eServices system is available online but requires user credentials to login: https://eservices.poea.gov.ph/Home

Health Worker Registry (HAF Functional Level: 3)

For this functionality, the HAF assesses whether the HRIS consolidates a minimum data set of health worker information from several systems to create a national representation of the health workforce. The HAF functional level was determined to be at level 3. The HAF assessment focused on the NDHRHIS, which can generate HRH statistics including disaggregation by sex, gender, age group, facility type, and subnational levels.

Several different DOH bureaus have information system that collect health worker data, such as those listed in Exhibit 12. Following is a summary of several of the most important of these systems. The in-service training databases and master lists were included in this table because they also collect HRH data.

Despite the substantial volume of HRH data being collected in these systems, no central repository exists to integrate HRH data from these myriad systems. Rather, data is spread across different HRIS containing health worker records. This fragmented structure limits the country's ability to create a national representation of the health workforce.

Exhibit 12. Department of Health Information System with HRH Registry Data

Name	Organization or DOH Bureau	Type of Registry	Technology	Remarks
iClinicSys	Epidemiological Bureau	Health Worker	Online Database	Mostly used by Rural Health Units
NDHRHIS	HHRDB – PSD	Health Worker	Online Database	Contains health workforce data from public and private facilities
Personnel Information System	HHRDB – PAD	Health Worker	Database (stand-alone desktop application)	Registry of health workers at the central level
Personnel Data Sheet	HHRDB – PAD	Health Worker	Paper-based	Government employee information sheet
Deployment Program	HHRDB – CDMD	Health Worker	Spreadsheet	Deployment master list
Training Database (multiple Excel files)	HHRDB – LDD	Health Worker and (In-Service) Training	Spreadsheet	Training data at central level (list) and regional level (aggregates)
List of Personnel	HFSRB	Health Worker	Paper-based	Part of regulatory Requirement
NTP Directory	NTP	Health Worker	Online Database	Health facilities and health workers providing TB services
Training Database (multiple Excel files)	FPP	Training	Spreadsheet	
List of Personnel Trained	Lung Center of the Philippines	Training	Spreadsheet	Participant list is created for every training
Trainings Master List	NTRL	Training	Spreadsheet	

The National Database of Human Resources for Health Information System (NDHRHIS) is the only HRIS that is intended to exclusively collect individual-level health worker registry data, or information from hospitals and other health facilities, both public and private. A web-based system that was created in 2009 to collect HRH data from hospitals and rural health units; NDHRHIS is the second of the two HRIS systems managed by DOH-HHRDB. (The other is the IDSHRH.) It contains the health workforce data of 11 cadres in each region, including four USAID priority cadres: doctors, nurses, midwives and medical technologists. The main purpose of the NDHRHIS is to maintain data on health workers per cadre for use in HRH planning and management, policy development and research. The NDHRHIS records must be updated annually. Private and public facilities encode the list of personnel at the facility. The NDHRHIS system administrator then verifies the information using the birth date and PRC number provided on the PRC website. Despite the need to verify thousands of health workers, verification must be done manually.

As of August 2018, the NDHRHIS contained 133,921 health workers. The data for these health workers, which came from Level 1, Level 2 and Level 3 Hospitals, represented 75% of the data in NDHRHIS, even though the majority of health workers are located at smaller facilities. This shows that the NDHRHIS has limited coverage of health workers providing services in other types of facilities such as those at the primary care level. A future enhancement of the NDHRHIS will allow individual health workers to self-register.

At the primary care level, the rural health units mostly use iClinicSys, an electronic medical record system developed by DOH. It is available for free in online and offline platforms. The mandatory electronic reimbursement from PhilHealth (from the National Health Insurance Program) has augmented the use of iClinicSys and other electronic medical records in recent years. However, PhilHealth only accredits physicians, dentists, midwives, and nurses to seek financial reimbursements, and this accreditation is optional. Since accreditation is optional, the health worker data in iClinicSys may not be complete for every health facility. Nevertheless, the iClinicSys collects the PRC identification number, profession and employment status of those health workers registered in its system.

The National Tuberculosis Program (NTP) has recently developed the NTP Facility Directory,[8] a web-based information system that contains all the facilities that provide TB services. The NTP Facility Directory recently started rolling out a feature to specify the list of personnel per facility.

The HFSRB regulates 19 types of private and public health facilities, and issues license-to-operate permits. (Many small facilities such as rural health facilities, nursing homes, and outpatient clinics are non-regulated facilities and are therefore not in HFSRB's purview.) HFSRB requires the health facilities to submit a list of personnel as part of the licensing process to determine if the facility has the required number and complement of personnel based on its facility classification. The HFSRB routinely receives this information from regulated facilities during licensure and re-licensure applications. During inspection, the licensing officer validates the list of personnel submitted by the facility. After the license is issued, the validated list of personnel is filed with HFSRB. Currently, this system is entirely paper-based, although HFSRB is planning to transition to a web-based information system to be known as Integrated DOH

[8] The NTP Facility Directory is available online at http://www.ntp.doh.gov.ph/facility_directory.php. The facility list is hidden by default but can be searched. Not all facilities currently exist in the registry.

Licensing Information System. HFSRB and the HHRDB have initiated discussions on how to share data through export from HFSRB's new system to the NDHRHIS.

DOH maintains an Excel file with a list of health workers who are funded and hired through the deployment program to work in areas with an HRH shortage. HHRDB consolidates the data on a yearly basis although the DOH Regional Offices furnish the information monthly and deployed workers are currently offered 6-month contracts.

Registry data from outside DOH include those available from the Philippine Nurses Association (PNA), a professional member organization. Data is collected through a member portal as well as through email from PNA chapters. The organization consolidates their health worker information internally though Excel. The PNA does not contribute data to NDHRHIS nor IDSHRHIS.

Philippine Business for Social Progress (PBSP), a Global Fund recipient for tuberculosis activities, also maintains its own HRIS called MindWorks, which stores records for health workers deployed in Global Fund-supported facilities that provide tuberculosis services. MindWorks is an online information system created and managed by PBSP to manage all its employees.

The Bureau of Working Conditions (BWC) at the Department of Labor and Employment (DOLE) mandates that all non-government employment sites submit data about the presence of occupational health employees, which worksites above a minimum size are required to have. These data are submitted annually on the Annual Medical Record report. The DOLE-BWC receives the Annual Medical Record in paper form, which is entered using Google Sheets. The limitation of this data is that DOLE-BWC only collects the name and designation of the health worker, not the PRC number.

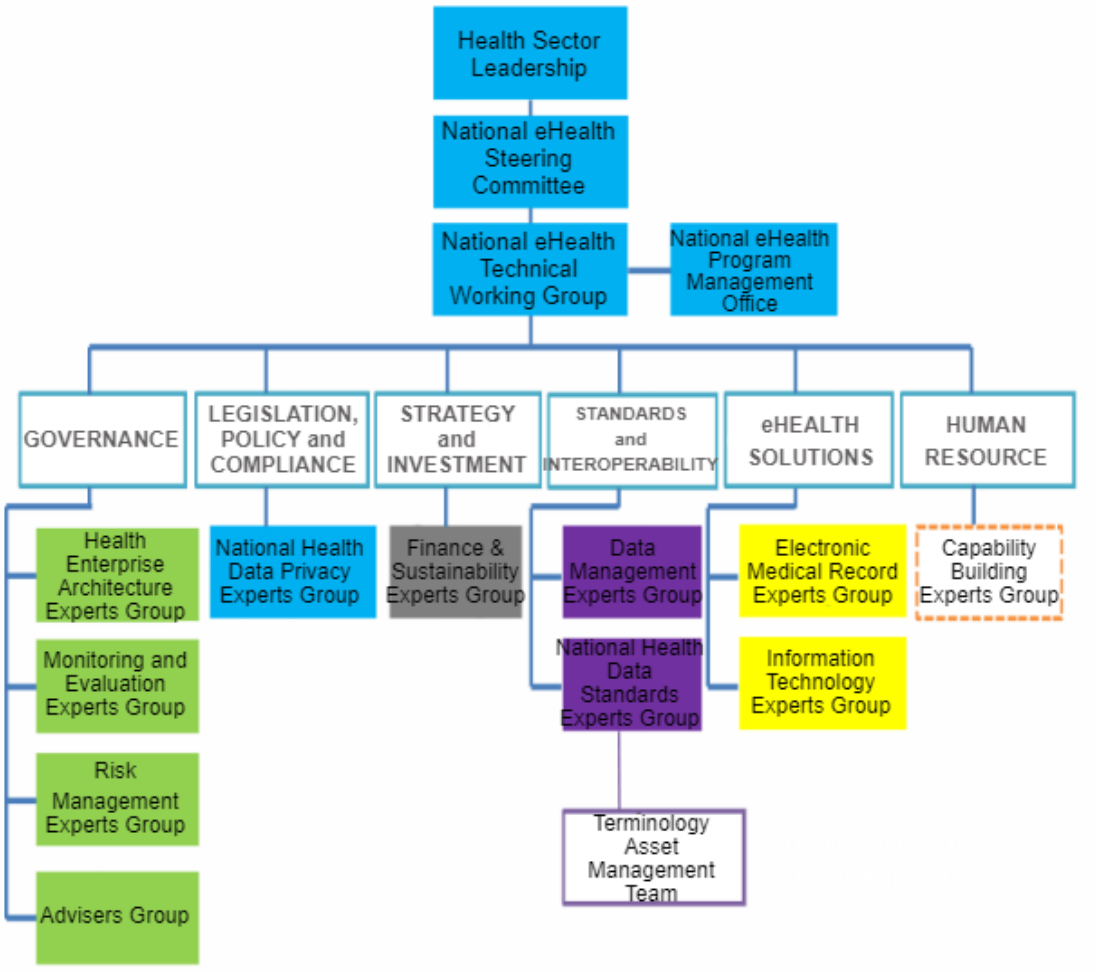
Additional HRIS Domains

The HAF focused more on the capacities and functionalities of the HRIS, and not on determining the existence of a supportive environment in which to operationalize the HRIS. Although not part of the HAF, governance and data sharing comprise two HRIS domains that are critical for successful HRIS implementation in the Philippines.

Governance

In 2017, the DOH, Department of Science and Technology, and Department of Information and Communications Technology signed a Joint Memorandum Order on the reconstitution of the National eHealth Technical Working Group (TWG), which will spearhead the establishment and operationalization of the National eHealth System. The National eHealth TWG comprises six components: Governance, Legislation, Policy and Compliance, Strategy and Investment, Standards and Interoperability, eHealth Solutions, and Human Resource. Each component has an internal experts group, as illustrated in Exhibit 13.

Exhibit 13. National eHealth Technical Working Group Organization Structure



The National eHealth TWG is chaired by the DOH-KMITS director and includes the director of the HHRDB as a member. However, the HHRDB is not identified as a member of the National Health Data Standards Expert Group,[9] which may limit its ability to contribute and its authority to decide on the HRH data definitions and standards. The mission of the HHRDB is being at the forefront of HRH management and development, engaged with stakeholders, for a responsive and equitable health workforce. Therefore, it is important for the HHRDB to play a role in articulating a strategy, guidelines, and policies to address HRH data gaps and harmonize HRIS.

None of the HRH Network core members, except DOH, are officially part of the eHealth TWG. This includes CHED, PRC, TESDA, POEA, NCRO, and CFO. Since these entities belong to another government institution, it would be difficult for them to institutionalize their participation in the eHealth TWG. However, their input on HRH data standards and integration would be valuable. No multisectoral technical working group exists within the HRH Network, apart from several technical committees, which are more focused on health workforce policies and concerns than on the informatics component of HRH data standardization and harmonization: Technical Working Committee on Entry, Technical Working Committee on Workforce, and Technical Working Committee on Exit.

Since 2013, the Standards and Interoperability component of the eHealth TWG has developed and institutionalized several standards to guide the interoperability development process. In 2013, the DOH issued Administrative Order 2013-0025 National Implementation of Health Data Standardization and Interoperability. This administrative order was updated in 2015 (in Administrative Order 2015-0037) to provide a more robust governance and management structure, formal change management protocols, and an expanded feedback mechanism on new or updated data standards. The eHealth TWG complemented the administrative order by creating the National eHealth Information Interoperability Standards Catalogue, the National eHealth Information Interoperability Standards Change Management Protocol, and National Health Data Dictionary (NHDD).

The Standards and Interoperability Catalogue designates the PRC Registry of Health Professionals as the national identification number for health care providers. The limitation of this designation is a unique PRC number is not given to each registered health professional across all cadres. Rather, PRC numbers are unique only within a cadre. For example, a licensed doctor can have the PRC number 0012345, and a licensed nurse can also have the PRC number 0012345, because these two professionals represent two different cadres. Therefore, the PRC number cannot be used as a unique identifier on its own; however, it could be used as a unique identifier if combined with the cadre of the health worker.

The NHDD is the national standard reference on terminologies, definitions, and information standards of relevance to the health services sector. All approved standard terminologies, definitions, metadata, and code sets for use across the entire health sector are to be lodged, added and/or updated, and made available through the NHDD. The latest version of the NHDD is 3.0; however, only version 2.0 of the dictionary is publicly available. An additional challenge is that the HHRDB believes that the definition of health workers in NHDD 2.0 is not aligned to the Philippines context because the definition was derived from Australian Institute of Health

[9] A complete list of the National Health Data Standards Experts Group members and their institutional affiliations can be viewed at http://ehealth.doh.gov.ph/index.php/transparency/organizational-structure#openModal50. Members for the eHealth TWG and other expert working groups are available on the same website: http://ehealth.doh.gov.ph/index.php/transparency/organizational-structure

and Welfare. There is also a need to enhance the NHDD to be more specific in defining health workers' data standards such as their profession or activity level.

Within the DOH or the HRH Network, no policy exists that supports and defines a single agency or bureau that has the mandate to be the custodian of HRH data, such that other offices submit HRH data to it. A custodian is critical to facilitate the aggregation of HRH data, which would enable meaningful analysis and reports useful for evidence-based decision making and policy formulation. Although the eHealth TWG's interoperability and standards states the NDHRHIS as the National Health Worker Registry, it does not function as such because there is a dearth of institutional policy support and implementation.

Data Sharing

Within the HRH Network, six core group members (DOLE, POEA, TESDA, CFO, DOH, and NCRO) signed a data sharing agreement in 2016 to support the implementation of IDSHRH. The data sharing agreement specifies the data that need to be shared with DOH but does not provides supporting guidelines on the format and definitions of data.

There are no formal HRIS data sharing agreements or guideline document to facilitate HRIS data sharing within bureaus of DOH. With the fragmentation of HRIS, HRH data comes from multiple sources within a devolved health system, integration will take many years. Data sharing agreements within DOH will facilitate data analysis and use in the near-term, while working towards an integrated HRIS. All data sharing agreements will need to follow the terms of the Data Privacy Act of 2012; however, this act should not prevent institutions from sharing data, but rather inform methods and processes for data sharing that mitigate the risk of a data breach. For example, institutions can share anonymized or aggregated data rather than personal health information, which could lead to the identification of individuals.

Recommendations

Conducting the HRIS Assessment Framework has provided the HRH2030 Project an excellent opportunity to learn about its component systems and to understand the strengths and weakness of the capacities and functionalities of the HRIS in its totality. Based on our findings, we offer the following recommendations for consideration by DOH, the HRH Network and relevant stakeholders outside the network.

Data Standards

Currently, there is no HRIS dataset; documented standards for the HRH data presently being collected are lacking. Therefore, we recommend that, specifically for HRH data, the DOH should:

- Define the data that it expects organizations to collect and submit for aggregation
- Create a data dictionary that defines the standard vocabulary to be used, as well as the data types and valid values (as appropriate)
- Reiterate the PRC number as the unique identifier for the health worker registry, in conjunction with the health worker cadre, and strengthen the collection of this number
- Establish national standards for recording the cadre or profession of health workers (i.e., International Standard Classification of Occupations)

Since the HRIS consists of a broad range of functional areas (health worker registry, payroll, etc.), establishing the full dataset and associated standards will be a lengthy process. We recommend a collaborative process among stakeholder organizations and DOH senior leadership to discern the highest-priority functional areas and define the minimum HRH data sets. Nonetheless, the immediate need to enhance the quality and completeness of the health worker registry is already recognized. Therefore, establishing the dataset and the standards for the health worker registry should be the first consideration, using a consultative process spearheaded by DOH.

Data standardization will facilitate sharing data, whether through upload or an automated exchange. In conjunction with data standardization, DOH should also establish data exchange standards. Standardization of both data and data exchange should be consistent with the DOH's enterprise architecture.[10]

Data Quality

The organizations managing the component systems of the HRIS should implement data quality improvement measures, based on internationally-recognized practices and procedures. These include:

- Using functionality built into software (whether an information system or an Excel spreadsheet) to flag potential data entry errors. Examples include maximizing the use of drop-down lists for answer choices based on pre-defined national standards such as those in the National Health Facility Registry and Philippine Standard Geographic Code; creating valid ranges for alphanumerical values; and establishing data types such as date and text. The data standards and the data dictionary described above will be incorporated as references for this process.

[10] The first version of the DOH enterprise architecture was developed in 2011. A fully copy of the text can be retrieved from http://ehealth.doh.gov.ph/index.php/poilicies/signed/74-hea.

- Recording PRC number with the accompanying cadre or profession of the health worker. Since the PRC number is only unique within cadres, not across all professionals, the cadre must also be identified in order for the PRC number to serve as a truly unique identifier.
- Using simple algorithms during data aggregation and reporting to identify potential errors such as duplication.
- Developing and implementing protocols for standardized approaches to check the accuracy of entered data. One example is having someone who did not enter the data validate a random selection of records (or portions of records) against the source data.
- Using data quality assessments, which employ a protocol to check source data against the data entered over a specified period, compute variances, explore reasons for variation, and develop any necessary data quality improvement plans.
- Including automated functionality to support deduplication in new or enhanced systems such as using the combination of PRC number and cadre to determine the uniqueness of records. The same heath worker may be reported across multiple systems; manual deduplication processes are prone to error and often too time consuming to be practical. This feature is especially important for systems with a large number of records and those that aggregate data from other systems.

Data Use

Improving the quality and completeness of data are critical antecedents to expanding data use. The quality of the data must improve in order for decision-makers to trust its use in decision-making. Nevertheless, fostering data use is often a long-term process, so taking initial steps such as these would be beneficial:

- At DOH, the analysis of data within individual HRIS systems should be expanded. Two possibilities for doing so are:
  - Basic analysis (meaning that which does not require in-depth skills or statistical software) could be done by existing staff in many cases. Some interviewees reported that there was no analysis of data from their system - even simple summarization, which could identify where there are gaps in completeness and quality.
  - System managers should explore available personnel resources within the department for data analysis. It may be possible to partially support the salary of an existing analyst in another bureau. Two or more programs could also pool resources to hire a staff person.
- Once the policy priorities are identified, the managers of HRIS component systems will have a clearer picture of the data that should be analyzed. Marshaling the needed resources to accomplish this may be easier after that occurs.

HRIS Leadership

Although HHRDB manages the existing health worker registry (NDHRHIS) and the system that consolidates HRH data submitted by other agencies (IDSHRH), there is no formal mandate for this or any other bureau to be the custodian of the HRIS. Therefore, we recommend that DOH:

- Identify and formalize through policy the bureau within DOH which will aggregate, store, analyze, disseminate and otherwise manage the HRIS.
- Advocate for the creation of national policies and/or legislation that establishes an institution as the custodian of HRH data, with the responsibilities noted immediately above. This action will be needed to enforce the collection and sharing of certain data such as the PRC number. Considering the Data Privacy Act, the policy should also clarify the type of data which DOH is authorized to collect.

- Articulate its HRH policy and planning priorities through the DOH leadership. This will provide a foundation and direction for prioritizing efforts and may facilitate the dedication of resources that will be required within and outside DOH to improve the HRIS.

Conclusion

Conducting the Health Assessment Framework was a beneficial exercise appropriate to the early phase of the HRH2030 Project as well as the maturity of the Philippines HRIS. Results will inform project activities for the upcoming years and help prioritize activities and resources within DOH to enhance the HRIS. Nevertheless, there are some important limitations in implementing the HAF in a country such as the Philippines with a very decentralized HRIS (i.e., consisting of many component systems), a devolved health care delivery structure in the public sector, and a private sector that provides a significant proportion of the country's health services. Due to these circumstances, there is, for example, a proliferation of information systems for processing payroll and personnel actions. Although the total number is unknown; through the HAF, we assessed just a few of them. This presents challenges in drawing conclusions about the robustness of these HRIS functionalities, as well as assigning them a score. On the other hand, for functionalities that are largely under the purview of the government and have just a few systems to support their work (examples include pre-service education and registration/licensure), the HAF stands as a more robust assessment mechanism.

HAF findings showed that governmental organizations other than DOH and nongovernmental organizations play a significant role in managing HRIS functionalities. It is significant that some of the crucial HRIS data is collected by organizations that have a mandate far beyond HRH or even health information (e.g., CHED, PRC, and CFO). Furthermore, the HRIS functionality/data that is available may be almost incidental to the intended purpose of the system (e.g., eRegistration managed by POEA). Therefore, system managers must consider any request for changes to these systems in the context of a much broader purpose or scope of data than that for HRH.

These circumstances, in conjunction with the lack of data standards, data sharing and a coordination and governance structure have led to significant fragmentation of the Philippines HRIS. Without data standards and a governance structure, it is difficult to mandate that certain data must be collected and shared. For instance, only 25% of information systems have data by cadre for all the recognized health worker cadres, while 25% do not have it available for any cadre. Furthermore, just a few systems collect the PRC number, which is the most appropriate unique identifier to use in conjunction with cadre in the health worker registry. During the HAF workshop with DOH, stakeholders prioritized recommendations to (1) define standards in HRH data dictionary to facilitate data sharing across the fragmented systems, and (2) determine which bureau will have the authority to aggregate, store, analyze, disseminate and use all HRH data collected by the DOH to achieve equitable distribution and access of health workers.

Despite these limitations, we found several important enabling factors for the development of a robust HRIS. Significantly, the financing of the component systems was reported to be from local rather than donor funds, and systems were managed locally. Additionally, the HRH Network is a well-established mechanism to advocate for and collaborate on HRH-related issues. Its existence facilitates discussion and feedback from a wide range of stakeholders, as well as dissemination of information and training on policies, standards, etc.

Many of the systems assessed in the HAF are being enhanced or replaced by more sophisticated systems. This is accompanied by revisions to the data collection process. These changes could benefit the HRIS provided that data and interoperability standards and associated policies are articulated in a timely way. DOH is implementing two of the new online information systems: the Integrated DOH Licensing Information System being developed by the Health Facilities and Services Regulatory Bureau to support facility registration and licensing; and the Personnel Transaction Information System being rolled out by the Personnel Administration Services Division to support personnel management and payroll. Due to the large scope of these systems, their implementation could be transformative for the HRIS, especially the health worker registry. It is critical that DOH is poised to take advantage of these and other opportunities to improve the HRIS.

Annex A. Assessed Systems

The following table contains the information systems within DOH which were included in the HAF, as well as the organizational unit that manages each system.

Exhibit 14. DOH Systems and Unit

DOH System Assessed	Organizational Unit
Learning and Development Division Database	HHRDB - Learning & Development Division
Learning and Development Division Needs Assessment Results Database	HHRDB - Learning & Development Division
National Database of Human Resources for Health Information System (NDHRHIS)	HHRDB - Planning and Standards Division
Integrated Database System for Human Resources for Health Information System (IDSHRH)	HHRDB - Planning and Standards Division
Master List of Deployed Health Workers	HHRDB - Career Development Division
eJobs	Administrative Services - Personnel Division
Personnel Information System (PIS)	Administrative Services - Personnel Division
Payroll Information System	Administrative Services - Personnel Division
Unnamed	Health Facilities and Services Regulatory Bureau
Integrated Clinic Information System (iClinicSys)	Epidemiological Bureau
Family Planning Training List	Family Health Office
National Tuberculosis Program Facilities Directory	National Tuberculosis Program
NTRL's Training Registry	National Tuberculosis Reference Laboratory

The table below contains the nine information systems external to DOH which were included in the HAF, as well as the organization which manages each.

Exhibit 15. Non-DOH Systems and Organization

External Systems Assessed	Organization
PMDT Training Participants List	Lung Center of the Philippines
Annual Medical Record	Department of Labor and Employment. Bureau of Working Conditions
Filipinos Overseas Information System	Commission on Filipinos Overseas
Unnamed	Philippines Nurses Association, Inc.
CHED's Electronic Collection and Knowledge System	Commission on Higher Education
MindWorks Information System	Philippine Business for Social Progress (PBSP)
PBSP Careers	Philippine Business for Social Progress (PBSP)
Personnel Clearance System	Philippine Business for Social Progress (PBSP)
eServices System	Philippine Overseas Employment Agency

Annex B. Key Informants

Exhibit 16. Key Informants for the HAF Assessment

Name	Position	Organization
Maria Yzlette Lising	Administrative Officer	HHRDB
Ma Patricia Mallari	HR Management Officer	HHRDB
Mark Rusco	Information Systems Analyst	HHRDB
Marco Vacero	Medical Officer	DOLE
Aiza Dilidili	Statistician	CHED
Gregorio Atienza	Information Technology Officer	CHED
Jazer Vasquez	HR Management Officer	HHRDB
Reggie Naga	Information Systems Analyst	KMITS
Marietta Solante	PMDT Specialist	LCP
Dennis Mata	Senior HR Officer	PBSP
Ramon Fernandez	HR Officer	PBSP
Grace T Fernando	HR Management Officer	HHRDB
Janice Payusan	HR Management Officer	HHRDB
Jefferson Pauli	HR Management Officer	HHRDB
Baby Lyn Saquilo	Administrative Officer	HHRDB
Shirley De Guzman	Administrative Officer	HHRDB
Esperanza Carating	Chief Admin Officer	HHRDB
Jizel Herrera	Administrative Officer	HHRDB
Mildred Selorio	Administrative Officer	HHRDB
Marian Santos	Executive Director	PNA

Name	Position	Organization
Maria Regina Angela G. Galias	Administrative Officer	CFO
Marita del Rosario	Administrative Officer	CFO
Felicitas Mariano	Supervising Records Management Analyst	HFSRB
Teresa Salgado	Administrative Officer	HFSRB
Romeo Catbagan Jr	Technical Officer	FP
Allan Samaniego	IT Officer	POEA

Annex C. HAF Workshop Participants

Exhibit 17. HAF Workshop Participants

Name	Position	Office
Anna Marie Celina Garfin	Program Manager	NTP
Donna Mae Gaviola	Monitoring and Evaluation Officer	NTP
Michelle Tarubal	Technical Officer	NTP
Diego Danila	Program Manager	FP
Romeo Cabagan Jr	Technical Officer	FP
Indrajit Hazarika	Technical Officer	WHO Western Pacific Region
Russel Santos	Information Systems Analyst	KMITS
Christine Co	PSD Division Head	HHRDB
Pretchell Tolentino	LDD Division Head	HHRDB
Ruth Politico	PSD Deputy Director	HHRDB
Maria Yzlette Lising	Administrative Officer	HHRDB
Grace Fernando	HR Management Officer	HHRDB
Mark Rusco	Information Systems Analyst	HHRDB
Serafin Reyes	Administrative Officer	HHRDB
Annalyne Dadiz	Technical Officer	Office of Technical Services Cluster
Marissa Ortega	Administrative Officer	EB
Charmaigne Ann Rabago	Medical Officer	HFSRB
Marietta Solante	PMDT Specialist	LCP
Mary Joy Margaha	Training Specialist	LCP
Silverila Cavero	Administrative Officer	PAD

Name	Position	Office
Eduardo Joaquin Jr	Administrative Officer	PAD
Jizel Herrera	Administrative Officer	PAD

Annex D. HAF Workshop Group Discussions

Workshop Summary

During the workshop, the participants encountered limitations in completing the action plan template because no HRH data custodian currently exists within the DOH. Consequently, participants identified the need to select and formally authorize a bureau or office within DOH to be the custodian of HRH data or Continuing Professional Development (CPD) data. The HRH data custodian would lead HRIS strengthening efforts within the DOH. The HRH data custodian would also make use of the data, analyzing and transforming it into meaningful information for dissemination, workforce planning, policy formulation and evidence-based decision making.

Group 1: Health Worker Registry

This group comprised representatives from the HHRDB, HFSRB, NTP and Epidemiological Bureau. The group stressed the importance of setting standard definitions to facilitate HRH data sharing between DOH information systems. The respective DOH offices should adhere to these data standards and guidelines once finalized. The group identified the non-regulated facilities as the most difficult facilities from which to collect health worker data, except for the rural health units, which are captured in the Epidemiological Bureau's iClinicSys. The group agreed that the next step is for the same group to meet again to discuss definitions and guidelines that will facilitate the harmonization of the multiple information systems, for inclusion in the National Health Data Dictionary.

Group 2: In-Service Training Registry

The In-Service Training group discussed how to have better training information data. The group also discussed how DOH bureaus with different training needs could collaborate to implement an integrated in-service training information system. The group agreed on the benefits of implementing an integrated training information system with individual level data for DOH health workers at all levels. They believed that an integrated platform could address issues such as duplication of individuals' training. However, the group stated that before an integrated formation system could be implemented, there needs to be a policy defining training data standards and institutionalizing system ownership. The group also noted that implementation efforts must follow the guidelines identified by the National Privacy Commission to comply with the Data Privacy Act.

The group discussed which data should be included in a standard training registry using the WHO's minimum data set for health workforce registry as a guide.[11] The group — which included the NTP Program Manager and FPP Program Manager — recommended which minimum data are needed for a health worker registry (see details in Annex C: Discussion on Minimum Data Set for Health Worker Registry). The discussion focused heavily on which unique identifier to use for health workers.

[11] The dataset can be accessed at http://www.who.int/hrh/statistics/minimun_data_set/en/

Group 3: Staffing Gaps and Needs, Personnel Actions, and Payroll Information

The discussion of this group revolved around personnel transactions in the DOH central office. To bolster collaboration among different bureaus, the group recommended making the HRH data request official through the DOH Documentation Tracking system and elevating HRH data sharing concerns to a higher authority. The group also recommend regular updates to HRH data standards, with which all DOH bureaus or offices should comply.

Annex E. Minimum Data Set for Health Worker Registry Discussion Recommendations

Exhibit 18. Minimum Data Set for Health Worker Registry

Variables	Decision	Remarks
Identification Number	Include	This should be a number that does not change for everyone (one suggestion is TIN, PhilHealth)
Date of Issue	Include	Anchored on TIN or PhilHealth's date of issuance
Date of Expiration	Exclude	This variable will not affect the training data
Place of Issue	Include	Anchored on TIN or PhilHealth
Full Name	Include	
First Name	Include	
Last Name	Include	
Middle Name	Include	
Maiden Name	Include	
Other name 1	Exclude	This might be applicable in Chinese nationals where they have alternative names; in our culture, we only have one single name hence this can be excluded
Other name 2	Exclude	This might be applicable in Chinese nationals where they have alternative names; in our culture, we only have one single name hence this can be excluded
Birth History		
Date of Birth	Include	
Sex at Birth	Include	We suggest to only use the term SEX; instead of SEX AT BIRTH. Even if one changes their sex later in life, this information has no bearing in training data whatsoever.
Place of Birth (country, town)	Include	
Father's name:	Include	
Mother's name	Include	
Photograph	Include	

Variables	Decision	Remarks
Citizenship, Country of Residence and Address	Exclude	What is more important is the address of the health facility where the health worker is deployed. Getting the personal address has no bearing to the training data.
Citizenship at Birth	Exclude	Has no bearing to training data. We do not see any need for this.
Citizenship at Present	Exclude	Same as above.
Country of Residence	Exclude	Same as above.
Ability in spoken and written language	Exclude	Same as above.
Address		
Physical Address	Exclude	The group needs a definition for this. However, the group assessed that since this is a personal-level data, then no need for this.
Country	Exclude	Same as above.
Town	Exclude	Same as above.
Street Address	Exclude	Same as above.
Contact Information		
Telephone number	Include	
Email adds	Include	
Emergency contact name	Include	Add CONTACT NUMBER and not just the name. This is important; if there will be any accidents during the training, the trainers can contact someone related to the trainee.
Professional License and Certification		
Education	Include	Indicate COLLEGE education. Add another box for HIGHEST educational attainment so additional information can be included if there are many degrees/educational attainments.
License	Include	The license number here should be the one you are practicing, in case you have many licenses (nurse, doctor etc).
Certification Name	Include	There should be numerous boxes for additional information in case there are numerous certifications (PRC, TESDA, etc)
Issuing Institution	Include	
Date of Issue	Include	

Variables	Decision	Remarks
Date of Expiration	Include	
Photograph of License	Exclude	
Employment Information		
Employment Status	Include	
Employment Title	Include	
Occupational category	Include	
Employment Address	Include	
Facility/Employment Name	Include	
Facility Type	Include	
Full address	Include	
Data Submission Institution	Include	
Country of Education	Include	

Annex F. HAF Scoring

Instructions: Indicate the level of HRIS capacities for the assessed system in one of five stages. A capacity level of '0' indicates the function does not exist at all. The stage of maturity of an HRIS capacity must be **fully** accomplished. For example, if stages one and two are fully accomplished, but stage three is only partially accomplished, the function should be counted as stage two.

Exhibit 19. HAF Scoring – Capacity Areas

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Technology Infrastructure	A combination of paper forms and spreadsheets are used for health workforce information systems	Health worker data is entered onto spreadsheets for easier analysis and use	Health worker data is entered into a simple database (such as Access)	Data is entered into an advanced database (such as SQL)	Data is entered into a web-based advanced database accessible at all levels
Decentralization	System only exists in one site (such as a single office or school) in one institution	System is accessed in more than one site or institution	System is accessed in 50% of relevant sites and institutions	System is accessed in 90% of relevant sites and institutions	System is routinely accessed at all relevant sites and institutions
Use of Standards	Information systems have few to no drop-down menus - data is largely recorded freehand	Drop-down menus are used for data elements (such as location or cadre) to ensure data entry is consistent	Choices in drop-down menus are based on standards agreed upon by stakeholders	At least one health workforce data element is harmonized with international standards (i.e., ISCO classifications supported by ILO)	All possible data elements are aligned with appropriate national and international standards
Data Quality	No or minimal data quality processes are in place.	Periodic data quality checks conducted but not documented	DQA processes documented, but inconsistently applied	DQA processes documented and consistently applied based on an established protocol	Commitment to quality evident in consistently documented quality reviews based on a national protocol
Sustainable Financing	Little or no direct financing by host country institutions	Sustainable plan in place for joint financing	HRIS activities are jointly funded by host country institutions and external sources	Local institutions are the primary funder	Key HRH stakeholders have a long-term plan including sustainable HRIS financing

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Human Capacity	Most staffing and support for the system comes from expatriates and external TA	Data collection and entry routinely performed by trained local staff	Most staffing and support comes from local staff employed by local staff employed by international organizations	Bugs fixed, and development support provided by local development team	New functionality routinely provided by local developers. System is supported entirely by local staff employed by local organizations
Interoperability	Data exchange between systems is being planned, but is not yet functional	Data imported or exported routinely with at least one other system (examples, management and regulatory, or between HRIS and HMIS)	Interoperability is automated, routine and consistent between at least two national information systems	Health workforce information policy and architecture defining component systems (e.g., management, regulatory and training systems) & information exchanged	Interoperability with all appropriate systems is routine and consistent, guided by a larger national e/mHealth architecture
Data use	HRIS is used solely to look up individual records	HRIS is used to support basic management functions such as retirement planning and vacancy analysis	Data from the HRIS is routinely reviewed by an intersectoral stakeholder leadership group (e.g., national health workforce observatory)	HRIS data is used to inform HRH policies such as training and deployment of special cadres based on disease burden and distribution	HRIS is routinely used to inform more sophisticated HRH functions such as health workforce planning and advocacy & routinely consulted to inform key management and policy decisions

Exhibit 20. HAF Scoring – Level Criteria

	Criteria
Level 1	This HRIS function is not in place or not uniformly used. Paper-based systems are sometimes used instead of electronic systems. Data collection and management are ad hoc.
Level 2	This HRIS function exists in basic form and is used or is being piloted. Limited use of computerized systems. Relevant data is collected and disaggregated by cadre, sex, geography.
Level 3	This HRIS function is well-established and used widely. Function is fully supported using electronic systems (spreadsheets and databases). Data elements collected meet national requirements and reports are appropriately disaggregated.
Level 4	This HRIS function is comprehensive, utility is high, and it influences the respective HRH process performance in a measurable way. This HRIS function is fully computerized and web-based applications used to ensure wide access. Data collection in HRIS is systematic and reflects compliance with national requirements and advanced queries are used to summarize and analyze HRH data.
Level 5	This HRIS function is a professional best practice through high utility, influences HRH processes and is aligned with global standards and guidelines. The HRIS function is fully computerized, web-based and implements WHO's Minimum Data Set for HRH and other international standards (ISCO, HL7, etc.). Data collected are compliant with national HRH data needs and continually improving through the use of advanced queries.

Exhibit 21. HAF Scoring – HRIS Functions

Function	Definition
Function 1: Pre-service Education	
Function 1	Health worker student intake, pipeline and graduations from medical, nursing, public health schools and other health training institutions is aggregated and analyzed.
Function 2: Registration and Licensure	
Function 2a	Regulated health workers (such as doctors, nurses, midwives - the cadres will vary by country) are registered by a regulatory organization.
Function 2b	Regulatory organizations information is maintained on regulated health worker license status and renewal.
Function 3: Staffing Gaps and Needs	
Function 3a	Vacancies (unfilled established positions) are tracked and reported.
Function 3b	Staffing needs: number of employees needed to fill facility staffing norms established and used for planning
Function 3c	Employment status of health workers is tracked and reported (e.g., Active – contract/permanent, Intern, Unemployed, Suspended, Retired, etc.)
Function 4: Payroll Information	

Function	Definition
Function 4	Information on wages of health workers is tracked and reported, including salary source information: (e.g. host government, donor, national insurance scheme, etc.)
Function 5: Personnel Actions	
Function 5	Personnel management actions are documented and reported (e.g., performance evaluations, promotions, disciplinary actions, leave management (includes all types of leave: annual leave, sick leave, unpaid leave), and transfers)
Function 6: In-service Training	
Function 6a	Government is planning, tracking, managing and regulating in-service training programs
Function 6b	Regulatory Boards/Councils and HW professional associations track and apply continuing professional development (CPD) credits from in-service training towards re-licensure.
Function 7: Workforce Exit/Attrition	
Function 7	Exits from the health workforce are tracked and reported by type: retirement, voluntary discharge (including out-migration), involuntary discharge, disability, and death
Function 8: Health Worker Registry	
Function 8	Consolidates a minimum data set of health worker information from several systems to create a national representation of the health workforce. Serves as a canonical source of health worker information for other eHealth and mHealth applications.

Annex G. Member Organizations of the HRH Network

- Member Government Agencies
  - Department of Health (DOH) as the lead agency of the HRH Network Phils.
  - Department of the Interior and Local Government (DILG)
  - Department of Labor and Employment (DOLE)
  - National Economic and Development Authority (NEDA)
  - National Reintegration Center for Overseas Filipino Workers (NRCO)
  - Philippine Overseas Employment Administration (POEA)
  - Overseas Workers Welfare Administration (OWWA)
  - Commission on Filipinos Overseas (CFO)
  - Technical Education and Skills Development Authority (TESDA)
  - Commission on Higher Education (CHED)
  - Professional Regulation Commission (PRC)
  - Bureau of Immigration (BI)
  - Civil Service Commission (CSC)
  - Department of Budget and Management (DBM)

- Member Professional Organizations
  - Association of Deans of Philippine Colleges of Nursing (ADPCN)
  - Association of Philippine Medical Colleges (APMC)
  - Philippine Nurses Association (PNA)

- Member Academic Institution
  - University of the Philippines, Manila (UP-Manila)

- Member Non-Government Labor Organization
  - Public Services Labor Independent Confederation (PSLINK)

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