HRH Data Standards across HRH Systems: Comparing conformance to data standards in preparation for interoperability

HRH2030: Human Resources for Health in 2030

Cover photo: Participants enter health worker data during training workshop sponsored by USAID's HRH2030/Philippines (Credit: A. Motus)

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Contents

Acronyms

DOH	Department of Health
FP	Family Planning
HHRDB	Health Human Resource Development Bureau
HRH	Human Resources for Health
ITIS	Integrated Tuberculosis Information System
KMITS	Knowledge Management and Information Technology Service
LDIMS	Learning and Development Information Management System
NDA	Non-Disclosure Agreement
PHIC	Philippine Health Insurance Corporation
PRC	Professional Regulation Commission
PTE	Post-Training Evaluation
PTR	Professional Tax Receipt
SRF	Service Request Form
TBA	Traditional Birth Attendant
TIMS	Training Information Management System
TIN	Taxpayer Identification Number

Executive Summary

This brief report summarizes the results of a data standards conformance assessment, conducted across four systems that collect data on human resources for health (HRH) in the Philippines, to prepare for interoperability between these systems.

Data Standards

Data standards are documented agreements on representation, format, definition, structuring, tagging, transmission, manipulation, use, and management of data. They are the rules by which data are described and recorded. In order for systems to share or exchange data, data standards must be uniformly implemented.

One of the objectives of the HRH2030 Philippines project is to facilitate interoperability and data sharing. Therefore, HRH2030 developed an HRH Minimum Registration Data List through a series of stakeholder consultations. Before introducing the HRH Minimum Data Sets to Knowledge Management and Information Technology Service (KMITS) for adoption in DOH information systems, HRH2030 assessed the data standards already used by targeted DOH information systems. These include the Family Planning (FP) Training Registry, iClinicSys, and Integrated Tuberculosis Information System (ITIS). The comparison also included the data standards used in the HRH2030 Training Information Management System (TIMS) as part of Learning Development and Information Management System (LDIMS), which is being built by HRH2030 on the MindanaoHealth software. Thus, HRH2030 compared conformance to data standards across four different systems.

Different information sources have been used to determine the data standards of these four information systems. HRH2030 reviewed the iClinicSys User's Manual and FP Training Registry screenshots. Additionally, the project submitted a non-disclosure agreement (NDA) and Service Request Form (SRF) to KMITS to obtain the detailed data standards for iClinicSys and FP Training Registry. For TIMS, a user's manual and the official site were used as references for the data standards. Sources for ITIS data standards included the systems' Personnel Directory and registration site.

Comparing Data Standards

The detailed results from the conformance assessment are provided in Exhibit 2. Results have been color coded for ease of interpretation.

Light blue fields represent data categories. Answer options within a category are represented by dark blue for HRH Data Standards and white for other systems. Gray boxes signify that the data is not collected in the respective system. Bold text signifies that the data standard in a given system matches the format of the HRH Minimum Registration Data List.

Identifying the differences and gaps in the data between systems will inform next steps for the adoption of HRH Minimum Data Sets.

Exhibit 1. Key for Comparison of System Conformance to Data Standards

(light blue)	Data Category Present	(dark blue)	Answer Option Present in Standards
(dark gray)	Data Category Missing from Standards	(white)	Answer Option Present in System
(gray)	Data Category Missing from System	(light gray)	Answer Option Missing
Bold Text	Data Format Matches Standard	Plain Text	Data Format Does Not Match Standard

Exhibit 2. Comparison of System Conformance to Data Standards

HRH Data Standards	ITIS Personnel Directory	ITIS User Registration Site	iClinicSys	FP Training Registry	TIMS
Profession	**Profession**	**Profession**		**Profession**	**Profession**
Physician	Doctor	Doctor	Physician/Doctor	Doctor	Doctor
Nurse	**Nurse**	**Nurse**	**Nurse**	**Nurse**	**Nurse**
Midwife			**Midwife**	**Midwife**	**Midwife**
Medical Technologist	Med Tech	Med Tech	**Medical Technologist**		
Dentist			**Dentist**		
Pharmacist	**Pharmacist**	**Pharmacist**	**Pharmacist**		
Nutritionist-Dietitian			Nutritionist		
Occupational Therapist					
Physical Therapist					
Radiologic (and X-Ray) Technologist					
			Sanitary Engineer		
			Sanitary Inspector		
			Hilot / TBA		

HRH Data Standards	ITIS Personnel Directory	ITIS User Registration Site	iClinicSys	FP Training Registry	TIMS
			Barangay Health Worker		
Others	Others	Others	Other	Others	Others
PRC No.	PRC License No.	PRC License No.	PRC License Number		
			PTR Number		
			S2 License Number		
	Title/Rank	Title			
	Dr.	Dr.			
	Mr.	Mr.			
	Mrs.	Mrs.			
	Ms.	Ms.			
	Others	Others			
Surname	Last Name	Last Name	Last Name	Last Name	Last Name
First Name	First Name	First Name	First Name	First Name	First Name
Middle Name	Middle Name	Middle Name	Middle Name	Middle Name	Middle
Name Suffix (Inherited)	Post-Nominal Titles			Suffix (dropdown list)	
Date of Birth (mm/dd/yyyy)	Birth Date (mm/dd/yyyy)	Birthdate (mm/dd/yyyy)	Birthdate (mm/dd/yyyy)	Birth Date	
					Age
Sex		Sex	Sex	Sex	Gender
Maiden Name	Maiden Name	Maiden Name			
E-mail Address	Email Address	Email Address		E-mail address	Email
Contact Number (Mobile)	Contact Number	Mobile Number		Mobile Number / Landline	Contact No.
Contact Number (Work)					

HRH Data Standards	ITIS Personnel Directory	ITIS User Registration Site	iClinicSys	FP Training Registry	TIMS
	Landline	Landline Number			
Employment Status	**Employment Status**		**Employment Status**		
Permanent	**Permanent**		**Permanent**		
Contractual	**Contractual**		**Contractual**		
	Volunteer				
	Job Order				
	Private				
Position (text)	Designation (dropdown list)		Position (dropdown list)	Office Designation (text)	Designation (text)
	Depends on the station		Physician/Doctor		
			Nurse		
	Status		Active in Service?		Status
	Inactive		No		Inactive
	Active		Yes		Active
					Retired
					Resigned
					Deceased
DOH Facility Code					
	Station Type (dropdown list)				
Facility Address:	Default Station	Main Health Facility/Stations			
Region	**Region**	**Region**			**Region**
Province	**Province**	**Province**			**Province**
City/Municipality	**City/Municipality**	**City/Municipality**			Municipality

HRH Data Standards	ITIS Personnel Directory	ITIS User Registration Site	iClinicSys	FP Training Registry	TIMS
	Barangay				District
DOH Facility Name	Health Facility	Station/Facility		Affiliation	Health Facility Name
		Other Health Facility/Stations			
		Catchment Area			
				DOH Certified	
			PHIC Number		
			PHIC Accreditation Code		
				PhilHealth Tagged	
			TIN		

Results

The results of the conformance assessment, as displayed in Exhibit 2, reveal that only a few data fields matched across the various systems. Data that matched the HRH data standards format are as follows:

- Profession
  - Nurse
  - Dentist
  - Pharmacist
- Name
  - First Name
  - Middle Name
  - Maiden Name
- Sex
- Employment Status
  - Permanent
  - Contractual
- Facility Address
  - Region
  - Province
  - City/Municipality

The assessment also revealed that while some data have the same definition as the HRH data standards, the format in which the data are collected differs from the standards. These data include:

- Profession
    - Physician
    - Medical Technologist
    - Nutritionist-Dietitian
- PRC No.
- Surname
- Date of Birth
- E-mail Address

Finally, some of the data fields in the four information systems do not match any HRH data standard or category. These data include the following:

- Profession
    - Sanitary Engineer
    - Sanitary Inspector
    - Hilot / TBA
    - Barangay Health Worker
- PTR Number
- S2 License Number

This last list shows that sometimes the information systems contain more data than is defined by the standards. The HRH data standards lack the health workers' titles / ranks, while some of the information systems contain these. This situation is also true for data collected under the Employment Status (Volunteer, Job Order and Private), Landline, Status, and a Default Station (e.g., Barangay).

In contrast, sometimes the four information systems do not collect the data suggested by the standards. HRH data standards align with DOH data standards. An example is the DOH Facility Code, which appears in the HRH data standards but is not used by any of the four information systems uniquely identify health facilities.

Recommendations

Based on these findings, it seems clear that the four information systems do not provide all of the HRH data that are included in the standards. We recommend that KMITS undertake to align data definitions and formatting across these systems, to prepare for data exchange and eventual interoperability.

To carry forward this recommendation, HRH2030 can ask HHRDB to provide an amended Administrative Order, which can be drafted by the HRH2030 Policy team. HRH2030 will then arrange a joint meeting with HHRDB and KMITS to discuss the results of this Data Standards Conformance Report. Finally, KMITS can write a memo to the respective information system owners, to align data definitions and formatting.

Annex A. References

DOH-KMITS. "FP Training Registry Data Standards Document." (Received and accessed July 2019).

DOH-KMITS. "FP Training Registry Screenshots." (Received and accessed June 2019).

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ITIS Registration Site, "Department of Health Integrated Tuberculosis Information System version 1.4." https://itisdoh.pbsp.org.ph/. (Accessed June 2019).

NTP Personnel Directory, "Department of Health Integrated Tuberculosis Information System version 1.4." https://itisdoh.pbsp.org.ph/ntp_directory.php#page=NTP_Directory. (Accessed June 2019).

TIMS User Guide version 3 (2018). "Training Information Management System." pp.18-20 (Accessed June 2019).

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Annex B. Family Planning Training Registry System Data Standards

Exhibit 2. FP Training Registry Data Standards

Institutions	Trainer	Trainee
- Region - Province - City / Municipality - Barangay - Number and Street Name - Name of Institution - Institution's Category - Trainings Offered	- Name of Training/s - Last Name - First Name - Middle Name - Suffix - Sex - Birth Date - Profession: Doctor, Midwife, Nurse, Others - Office Designation - Email - Mobile Number / Landline - Affiliation	- DOH Certified - PhilHealth Tagged - Last Name - First Name - Middle Name - Suffix - Sex - Birth Date - Profession: Doctor, Midwife, Nurse, Others - Office Designation - E-Mail Address - Mobile Number / Landline - Affiliation - Name of Institution - Date of Training - Venue of Training - Funding Source - Certificate/S Issued - With PTE - Remarks - Schedule of PTE - Trainer's Name

Annex C. iClinicSys Data Standards

Personnel Status

Exhibit 3. iClinicSys Personnel Status

#	Column Name	Description	Data Type	Width	PK	Auto	Accepts Null	Coding Scheme	Foreign Key
				ref_personnel_status					
1	personnel_status_code		varchar	10	PK		NO		
2	personnel_status_desc	Personnel Status Description	varchar	250			NO		

personnel_status_code	personnel_status_desc
C	Contractual
P	Permanent

Attendant Code

Exhibit 4. iClinicSys Attendant Description / List of Professions

#	Column Name	Description	Data Type	Width	PK	Auto	Accepts Null	Coding Scheme	Foreign Key
				ref_attendant					
1	attendant_code	Attendant Code	int	2	PK		NO		

#	Column Name	Description	Data Type	Width	PK	Auto	Accepts Null	Coding Scheme	Foreign Key
2	attendant_desc	Attendant Description	varchar	50			NO		
3	attendant_code_hie		varchar	3			NO		

attendant_code	attendant_desc
1	Physician/Doctor
2	Dentist
3	Nurse
4	Midwife
5	Medical Technologist
6	Sanitary Engineer
7	Sanitary Inspector
8	Nutritionist
10	hilot/TBA
11	Barangay Health Worker
12	Other

attendant_code	attendant_desc
13	Pharmacist

Personnel Table

Exhibit 5. iClinicSys Personnel Data Information

#	Column Name	Description	Data Type	Width	PK	Auto	Accepts Null	Coding Scheme	Foreign Key
tbl_personnel									
1	id		int	50	PK	Yes	NO		
2	personnel_temp_id		varchar	50	MUL		YES		
3	personnel_perm_id		varchar	50			YES		
4	fhudcode		varchar	19	MUL		NO		
5	pat_image	Personnel Image	varchar	250			YES		
6	attendant_code	Position	int	2	MUL		NO		
7	personnel_license_no	PRC License Number	varchar	150			YES		
8	personnel_ptr_no	PTR Number	varchar	10			YES		
9	s2Lic_number	S2 License Number	varchar	30			YES		
10	personnel_philhealth	PHIC Number	varchar	50			YES		

#	Column Name	Description	Data Type	Width	PK	Auto	Accepts Null	Coding Scheme	Foreign Key
11	phic_accreditation_no	PHIC Accreditation code	varchar	50			YES		
12	personnel_TIN	TIN	varchar	50			YES		
13	personnel_lname	Last Name	varchar	50			NO		
14	personnel_fname	First Name	varchar	50			NO		
15	personnel_mname	Middle Name	varchar	50			NO		
16	sex_code	Sex	char	1			NO		
17	personnel_birthdate	Birthdate	date	date			NO		
18	personnel_status_code	Employment Status	char	10			NO		
19	personnel_active	Active in Service?	char	1			NO		
20	bgycode	Catchment Area	varchar	255			YES		
21	current_user_login	Current User?	char	1			NO		
22	system_global_id		varchar	100			YES		
23	date_entered		date	date			NO		
24	time_entered		time	time			NO		
25	date_updated		date	date			NO		

#	Column Name	Description	Data Type	Width	PK	Auto	Accepts Null	Coding Scheme	Foreign Key
26	time_updated		time	time			NO		
27	uploaded		char	1			NO		
28	date_uploaded		date	date			YES		
29	PHIEsubmitted_date		date	date			YES		
30	validated		varchar	1			NO		
31	PHIESYNC		char	1			YES		
32	userid		int	10			NO		