



National Health Data Repository Framework

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(As of 28 March 2022)

**Department of Health
and
Philippine Health Insurance Corporation**

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Document Revision Log

Release #	Date Updated	Added By
1.a	18 March 2022	Jovita V. Aragona
	<p>Updates:</p> <ol style="list-style-type: none"> 1. Updated the positions and office names of Ms. Esteban and Mr. Manuel of DOH; and name, position, office name of Mr. Galong. 2. Guiding Principles: <ul style="list-style-type: none"> - Added Data Privacy Principle - Updated "Data Security" to "Data Protection" 3. Outcomes and Benefits: <ul style="list-style-type: none"> - #3, Added "Health System Managers" & updated contents of outcomes 4. Benefits: <ul style="list-style-type: none"> - #1, Updated "Access to Services" to "Access to Health Services and Information" - #6, Updated "Operations Planning and Management" to "Health System Operations Planning and Management" - Added #9 "Performance Management and Accountability" and its benefits. 5. NHDC Security Standards, Risk and Compliance Division Added "<u>Note:</u> This will serve as the Data Protection Unit which will report to the overall Corporate Data Protection Officer of PhilHealth. The functions will be for updating and presentation to the Change Management Committee of PhilHealth." 6. Part 2: Action Plan <ul style="list-style-type: none"> - Updated the 1st paragraph - Added Two (2) Use Cases of the Initial Model, and Integrated Health Information System - Development and Implementation (Updated the 2nd paragraph) - Updating of the EMR-NHDR Model and Implementation <ul style="list-style-type: none"> o Added "Scaling Up the Mode" o Added "Note: Detailed activities and monitoring of accomplishments and status will be included in the Integrated Workplan 	

INTRODUCTION

The National Health Insurance Program administered by the Philippine Health Insurance Corporation (PhilHealth) was established in 1995 with the passage of Republic Act No. 7875 and was amended by Republic Act Nos. 9241 and 10606. The mandate of PhilHealth is to provide health insurance coverage to all Filipinos. PhilHealth achieved significant accomplishments and progress throughout the years with the implementation of continuing benefit packages and enhancements of existing ones which have contributed to the increasing trend in benefit availments, improved access through its service facilities, continued expansion of coverage to other segments of society, expansion of accreditation, and others to make health insurance more responsive to the health needs of the Filipino people.

Republic Act (RA) 11223 (An Act Instituting Universal Health Care (UHC) For All Filipinos, Prescribing Reforms in the Health Care System, and Appropriating Funds Therefor), also known as the "Universal Health Care Act" provides the legal basis for health reforms in the country. Health reforms are guided by the principles of whole-of-government, whole-of-society, and whole-of-system approach to ensure that health funds are spent judiciously, address the increasing demand for better health services, and increased accountability for results or outcomes.

All public and private, national and local health-related entities shall be required to submit health and health-related data to PhilHealth including, among others, administrative, public health, medical, pharmaceutical and health financing data.¹ All health service providers and insurers shall each maintain a health information system consisting of enterprise resource planning, human resource information, electronic health records, and an electronic prescription log consistent with DOH standards, which shall be electronically uploaded on a regular basis through interoperable systems.²

The Implementing Rules and Regulations of the UHC Act provided details on Sections 31 and 36. Section 31.1 defines health and health-related data collectively referring to a set of specific variables or parameters that relates to individual and population health and well-being, including but not limited to administrative, public health, medical, pharmaceutical and health financing data. Such data shall be submitted to PhilHealth by all health-related entities through a National Health Data Repository (NHDR), in compliance with guidelines that shall be jointly developed by the DOH and PhilHealth, in consultation with the Department of Information and Communication Technology (DICT) and the National Privacy Commission (NPC). Provided that the submission of data by health related entities shall be a requirement in the licensing and contracting arrangements.

The NHDR will address the critical challenge of collecting, integrating, and harmonizing existing health information systems and sources of data. It will change how the health care is delivered, as well as how the health systems will be managed and operated. The submission and processing of health and health-related data to the NHDR will be an integral component of the health care system to promote better performance in the health system, while ensuring data integrity/protection at all levels of implementation.

¹ §31, Republic Act 11223 "Universal Health Care Act"

² §36 Republic Act 11223 "Universal Health Care Act"

LEGAL BASES

The following are the legal basis for the establishment of the NHDR:

1. RA 11223 or "Universal Health Care Act" - Section 31 (Evidence-Informed Sectoral Policy and Planning for UHC)

"(a) All public and private, national and local health-related entities shall be required to submit health and health-related data to PhilHealth including, among others, administrative, public health, medical, pharmaceutical and health financing data: Provided, That PhilHealth shall furnish the DOH a copy of the health data: Provided, further, That these shall be used for the purpose of generating information to guide research and policy-making: Provided, finally, That the DOH shall strengthen its research capability by supporting health systems development and reform initiatives through policy and systems research, and shall support the growth of research consortia in line with the vision of the Philippine National Health Research System."

2. RA 11223 or "Universal Health Care Act" - Implementing Rules and Regulations - Section 31.1

"For the purpose of these Rules, health and health-related data collectively refer to a set of specific variables or parameters that relates to individual and population health and well-being, including, but not limited to, administrative, public health, medical, pharmaceutical and health financing data. Such data shall be submitted to PhilHealth by all health-related entities through a National Health Data Repository, in compliance with guidelines that shall be jointly developed by DOH and PhilHealth, in consultation with the Department of Information and Communications Technology (DICT) and the National Privacy Commission (NPC); Provided, That submission of data by health related entities shall be a requirement in the licensing and contracting arrangements; Provided, further, That health-related entities shall include, but not limited to, health care facilities, national and local government agencies involved in the provision of health services, and agencies involved in the collection of health data; Provided, finally, That PhilHealth shall provide the DOH access to the National Health Data Repository."

3. DOH and PhilHealth Joint Memorandum Circular No. 2021-0001 dated May 21, 2021: Implementing Guidelines of Section 31 of the Republic Act No. 11223, otherwise known as the "Universal Health Care (UHC) Act" on the Processing and Submission of Health and Health-related Data - Item V. General Guidelines, letter D

"The PhilHealth shall establish and maintain the NHDR for all health and health-related data submitted by health care providers, insurers, and health-related entities. It shall be considered as the overall Data Controller insofar as it controls the processing of health and health-related data through the NHDR. It shall assume full responsibility in complying with existing and applicable laws, rules, and other relevant issuances relating to the processing and submission of all health and health-related data through the NHDR, including data protection.

Appropriate operational guidelines shall be developed by PhilHealth in the establishment and maintenance of the NHDR, in coordination with DOH and other relevant agencies, subject to the approval of the NeHSC-TWG."

THIS DOCUMENT

This document is named as the “National Health Data Repository Framework” and organized into two (2) parts, namely:

Part 1	NHDR Framework	<ul style="list-style-type: none">- Defines the objectives of the framework, methodology, target environment, guiding principles on which a well-functioning NHDR needs to operate; what the NHDR is, vision, objectives, outcomes and benefits, health and health-related data, and data sources.- Defines the architectural components that make up the NHDR to achieve integration and interoperability of all data processing systems of the DOH and PhilHealth.- Defines the seven (7) building blocks to guide the establishment and maintenance of the NHDR.
Part 2	Action Plan	Defines the action points derived from the NHDR Framework that must be undertaken by the DOH and PhilHealth. It also includes a high-level strategy to implement the NHDR Framework.

INTENDED AUDIENCE

This document is intended for all public and private, national and local health care providers, insurers, and health-related entities involved in the provision of health services, and/or processing and submission of health and health-related data; all national, regional, local and branch offices under the DOH and PhilHealth; and all others concerned.

Health-Related Entities refer to academic and research institutions, civil society organizations, medical societies, health professional associations, non-government organizations, donor or funding agencies, development partners, local and international information and communications technologies (ICT) service providers, national and local government agencies, and other stakeholders involved in the provision of health services, and/or processing and submission of health and health-related data, and those identified by the DOH and PhilHealth.

SCOPE AND LIMITATIONS

1. This NHDR Framework covers the entire country as ALL public and private, national and local health-related entities shall be required to submit health and health-related data to PhilHealth, including, among others, administrative, public health, medical, pharmaceutical and health financing data.
2. The entire country covers the seventeen (17) administrative regions i.e. the National Capital Region, Cordillera Administrative Region, Region I (Ilocos Region), Region II (Cagayan Valley), Region III (Central Luzon), Region IV-A (CALABARZON), Region IV-B (MIMAROPA), Region V (Bicol Region), Region VI (Western Visayas), Region VII (Central Visayas), Region VIII (Eastern Visayas), Region IX (Zamboanga Peninsula),

Region X (Northern Mindanao), Region XI (Davao Region), Region XII (SOCCSKSARGEN), Caraga Region, and the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM).

3. The regions are composed of provinces, highly urbanized cities or other special areas, which are subdivided into cities, municipalities and barangays. The country has 81 provinces, 146 cities, 1,488 municipalities, and 42,046 barangays.³ Thirty-three of these are highly urbanized cities (HUC), five are independent component cities (ICC), and one hundred eight being component cities (CC).
4. This NHDR Framework is guided by the Universal Health Care (UHC) Act's principles and policies, general objectives, provisions, and approved DOH and PhilHealth issuances.
5. This NHDR Framework is a high level conceptual structure based on building blocks to guide the establishment and maintenance of the NHDR. Details shall be formulated in consultation or coordination with concerned business process units, health program managers, offices, and/or entities during the development of the functional and technical design specifications; and placed in a separate document like appropriate policy issuance, functional and technical design documents, standard operating procedures or workflows, joint memorandum, and other applicable forms. The details are as follows, among others:
 - a. Unified operational guidelines that conform to the data management and governance principles; specific procedures and quality standards in the processing of health and health-related data, including data access; and specific accountabilities of all those involved in the processing of health and health-related data, including those for data protection.
 - b. Guidelines in the receiving, evaluating, and managing data access requests for health and health-related data that DOH and PhilHealth control.
6. This NHDR Framework will be reviewed on a quarterly basis in its first year of release, and semi-annual thereafter. Any updated version will be released a month after the end of each quarter or semi-annual period.
7. This NHDR Framework does not purport to be all-inclusive or to contain all of the information that a bidder or an information technology service provider may consider material or desirable in making its decision to participate in the bidding. The DOH and PhilHealth may amend or replace any of the information contained in this document at any time, without giving any prior notice or providing any reason.

ACRONYMNS

DICT	Department of Information and Communications Technology
DOH	Department of Health
DOST	Department of Science and Technology

³ Regional and Provincial Summary - Number of Provinces, Cities, Municipalities and Barangays as of 30 September 2020 - Facts and Figures - DILG (As of September 30, 2020)

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EA	Enterprise Architecture
eClaims	Electronic Claims System
EMR	Electronic Medical Record
EU	European Union
HCI	Health Care Institution
HIE	Health Information Exchange
HIS	Hospital Information System
ICT	Information and Communications Technology
iHIS	Integrated Health Information System
IRR	Implementing Rules and Regulations
ISSP	Information System Strategic Plan
JAO	Joint Administrative Order
JMC	Joint Memorandum Circular
KPI	Key Performance Indicator
NeHSC	National eHealth Steering Committee
NeHTWG	National eHealth Technical Working Group
NeHP	National eHealth Program
NHDD	National Health Data Dictionary
NHDR	National Health Data Repository
NHDS-SWG	National Health Data Standards Sub-Working Group
NPC	National Privacy Commission
PCEO	President and Chief Executive Officer
PHIE	Philippine Health Information Exchange
PhilHealth	Philippine Health Insurance Corporation
PKI	Public Key Infrastructure
PSA	Philippine Statistics Authority
RA	Republic Act
RACI	Responsible, Accountable, Consulted, Informed
S&I	Standards and Interoperability
SCIV	Standards Conformance and Interoperability Validation
SHF	Special Health Fund
SOH	Secretary of Health
SOPs	Standard Operating Procedures
SSOT	Single Source of Truth
TWG	Technical Working Group
UHC	Universal Health Care
WHO	World Health Organization

PART 1: NHDR FRAMEWORK

This NHDR Framework is a conceptual structure or architecture based on building blocks to provide knowledge and understanding on what the NHDR is, and guide the establishment and maintenance of the NHDR. The objectives are as follows:

- Enable DOH and PhilHealth to implement a unified data architecture to ensure an integrated approach to processing, submission, data management, data sharing and exchange, data access, and governance of health and health related data.
- Serve as guide in the development of the functional and technical specifications of the NHDR.
- Define the roles and/or responsibilities of key agencies or offices involved in the establishment and maintenance of the NHDR.

Methodology

The following are the processes that were done to develop this NHDR Framework:

1. **Review of The Law:** Legal basis of the NHDR as to objectives, scope, models, guiding principles, rules and regulations, among others. A legal basis justifies the need to establish and maintain the NHDR.
2. **Review of the World Health Organization Global Strategy on Digital Health 2020-2025:** Resolutions adopted by the United Nations General Assembly and the World Health Assembly, related WHO global and regional reports, regional strategies, the two-part report of the ISO Technical Committee on Health Informatics on eHealth architecture, the resolution on ICD-11 and the WHO Family of international classifications and terminologies, the three-part National eHealth strategy toolkit, Member States' current digital health situation and status, actions, strategies, policies and investments, and recommendations of various United Nations panels on digital and innovation topics. (Source: <https://www.who.int/docs/default-source/documents/gS4dhdaa2a9f352b0445bafbc79ca799dce4d.pdf>)
3. **Review of the Philippines eHealth Strategic Framework & Plan:** How the eHealth vision will be achieved to guide national coordination and collaboration, and sets clear direction and guidance to the on-going and future eHealth activities in the country.
4. **Review of the DOH and PhilHealth's Enterprise Architecture:** Alignment of ICT strategy with the organizational performance strategy; provides the shared principles and models that guide investment, development and utilization of information system and technology infrastructure to serve the performance goals of the organizations related to value creation, customer experience, operational excellence, and future orientation of the enterprise.
5. **Review of the DOH and PhilHealth's Information System Strategic Plans (ISSPs):** Agencies' overall strategy for their ICT thrusts, strategies, programs, and projects for development.

6. **Review of Relevant ICT Models, Outputs, and Issuances:** Models or frameworks, systems or outputs from previous ICT engagements or projects, development and implementation of systems, and issuances that are vital to the development of the NHDR Framework.
7. **Development of the NHDR Framework:** Writing of the NHDR Framework based on its intended objectives, and using the inputs from Item #s 1 to 6.
8. **Review of the NHDR Framework:** Conduct of meetings to discuss the NHDR framework and/or specific topics related thereto to get inputs, reactions, comments, or recommendations from concerned stakeholders.
9. **Review & Updating of the NHDR Framework:** Appropriate updating of the NHDR Framework based on the evaluation of the inputs, reactions, comments, or recommendations from concerned stakeholders.

Target Environment

The end-state or environment that the NHDR intends to achieve is as follows:

1. There is a unified data management and governance in the processing of health and health-related data.
2. The NHDR is the single point of submission and authoritative repository of the country's health and health-related data in a central database system; and the single source of truth for health.
3. There is a national interoperable digital health ecosystem where health information systems are interoperable among each other, and can share or exchange health and health-related data. All health-related entities are complying with the national health data standards for interoperability.
4. The submission, processing, management, sharing and exchange, access, and governance of health and health-related data are integrated through the unified data architecture. There are no data processing systems that are implemented as a stand-alone system.
5. There is a unified report generation and analysis to support the national health programs towards improved health care service delivery; support to operational, tactical, and strategic planning; support to the monitoring and surveillance of diseases and health outcomes; promote research and development; and work towards achieving universal health coverage and the health-related sustainable development goals.
6. The citizenry can easily, immediately and safely access their health information, health care services, and information they need. There is an integrated, single and complete view of one's health information.
7. There is a shared responsibility between the DOH and PhilHealth, and requires multi-sectoral approach and integration with concerned sectors or entities like the DICT and NPC.

Guiding Principles

The guiding principles are means to achieve the target environment in terms of harmonizing the decision-making process; creating policies, procedures, and standards; and supporting resolution of contradictory nature. The guiding principles⁴ are as follows:

1	Primacy of Principles	The only way to provide a consistent and measurable level of quality information to decision-makers is if all organizations abide by the principles.
2	People-oriented to Maximize Benefit	People-oriented focuses on meeting the needs of the citizenry like ease of access to accurate, complete, reliable, and timely health data or information, products and services; and right to choose the path for accessing the NHDR. Decisions are from an enterprise-wide perspective to maximize benefit to the citizenry, and have greater long-term value than made from any particular organizational perspective.
3	Information Management is Everybody's Business	All concerned organizations participate in information management decisions to accomplish the objectives of the NHDR.
4	Compliance with Law	All concerned organizations or entities must be mindful to comply with laws, regulations, policies, procedures, guidelines, and other protocols, i.e. data submission and processing, data security, data access, others.
5	Service Orientation	The architecture must be based on a design of services comprising the health sector to deliver enterprise agility and "boundaryless information flow" ⁵
6	IT Responsibility	The IT Office is responsible for owning and implementing the IT processes and infrastructure that enable the NHDR to meet user-defined requirements for functionality, service levels, cost, and delivery timing.
7	Data is an Asset	Data is a valuable resource and the foundation of decision-making; and must be carefully managed to ensure where it is, can rely upon its accuracy, and can obtain it when and where needed.

⁴ The Open Group Architecture Framework, as updated to govern the NHDR

⁵ A shorthand representation of "access to integrated information to support business process improvements" represents a desired state of an enterprise's infrastructure and is specific to the business needs of the organization.

<https://www.opengroup.org/about-us/vision/bif#:~:text=What%20is%20Boundaryless%20Information%20Flow,business%20needs%20of%20the%20organization.>

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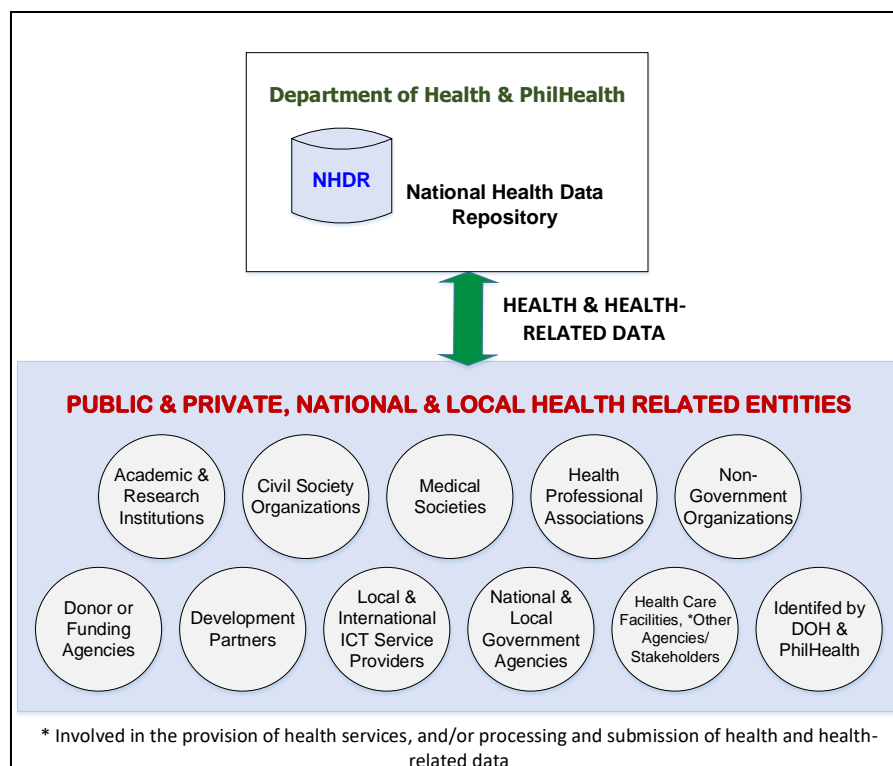
8	National Health Data Standards and Interoperability	Data is defined consistently, and definitions are understandable and available to all users. The systems conform to defined national health data standards that promote interoperability for data, applications, and technology.
9	Data Privacy Principle	The processing of personal data shall be allowed, subject to compliance with the requirements of the Data Privacy Act of 2012 and other laws allowing disclosure of information to the public, and adherence to the principles of transparency, legitimate purpose, and proportionality.
10	Data Protection	<p>Adopts the principles set out under the Data Privacy Act of 2012 and the National Cybersecurity Plan of ensuring a good balance between free flow of information and privacy rights of individuals, and acknowledges the need to implement data protection measures on the processing of health information as the health sector moves from paper-based systems to “paper-lite” eHealth services and applications.</p> <p>It adheres to the duty of maintaining privacy, confidentiality, and security of the health information and health records of every Filipino as provided by relevant laws, issuances and guidelines, Rules of Court, and the Code of Ethics adopted by the different healthcare providers. Ultimately, the aim is a trusted eHealth environment where data protection is an integral principle for delivering optimum benefits.</p>
11	Data is Accessible and Shared	Data is securely accessible and shared for users to efficiently and effectively perform their duties. There is one source of accurate and timely managed data for decision making.
12	Flexibility, Scalability, and Elasticity	Services and applications are flexible to adapt to changes based on needs or requirements, scalable to accommodate increased loads, and elastic to fit the resources needed to cope with the loads.

Definition

The National Health Data Repository is the single point-of-submission and authoritative repository of the country’s health and health-related data, and the *Single Source of Truth (SSOT) for Health*⁶ as the basis of health policy and standards, decision-making, health

⁶ Single source of truth refers to the practice of structuring data so that every data point is stored only once; any change in the data at source will be automatically updated in integrated systems.

program planning and implementation, health systems strengthening, and performance monitoring and evaluation.



Vision

“Enable access to health care services, health information, and securely share and exchange information in support to a safer, quality health care, more equitable and responsive health system for all Filipino people by transforming the way information is used to plan, manage, deliver, and monitor health services.”

The NHDR will be at the core of a “responsive health system” to:

- Improve the quality and safety of the health system through empowerment of health consumers to better manage their health records; availability of information like single view of the patients’ information at the point of care, decision support tools, and knowledge-based information.
- Securely share and exchange information without repeating effort and time in providing the same information to different healthcare providers; use of services or applications to speed up processes like ordering system and results reporting; reduced time and cost of health consumers undergoing unnecessary or duplicated diagnostic tests; improved diagnosis and treatment activities; and efficient and effective disease monitoring and response.
- Support a more equitable health system through presence of information about the availability, location, expertise and services of healthcare providers. This will provide health consumers with ready information for reference purpose and healthcare providers for referral process.

Objectives

The general objective of the NHDR is to establish and implement an integrated approach to the submission, processing, data management, data sharing and exchange, data access, and governance of health and health-related data for evidence-informed sectoral policy and planning for UHC.

Detailed objectives are as follows:

1. Address the recurring issues and problems on poor quality and untimely generation and reporting of health and health-related data.⁷
2. Ensure that quality health and health-related data and reports are readily available and made accessible to every stakeholder in the right way, and processed in a lawful, ethical, secure, consistent and efficient manner at all levels of health care utilization.⁸
3. Promote better performance in the health system, while ensuring data protection at all levels of data processing at all times.⁹
4. Enable continuous systematic collection, analysis, interpretation, and timely dissemination of accurate, sensitive, and timely epidemiologic surveillance data for planning, implementation, and evaluation of public health programs.¹⁰
5. Enable real-time collection, consolidation, and analysis of data on the use of the Special Health Fund.¹¹
6. Enable collection, submission, and publication of price data of health services, which include among others, laboratory fees, cost of procedures, cost of amenities, professional fees, other health services provided by hospitals and other health care providers, health goods such as drugs and medicines, health and medical devices, and laboratory and medical supplies.¹²

⁷ DOH and PhilHealth JMC No. 2021-0001, dated May 21, 2021 Implementing Guidelines of Section 31 of the Republic Act No. 11223, otherwise known as the “Universal Health Care (UHC) Act” on the Processing and Submission of Health and Health-related Data - Rationale

⁸ DOH and PhilHealth JMC No. 2021-0001, dated May 21, 2021 Implementing Guidelines of Section 31 of the Republic Act No. 11223, otherwise known as the “Universal Health Care (UHC) Act” on the Processing and Submission of Health and Health-related Data - Rationale

⁹ DOH and PhilHealth JMC No. 2021-0001, dated May 21, 2021 Implementing Guidelines of Section 31 of the Republic Act No. 11223, otherwise known as the “Universal Health Care (UHC) Act” on the Processing and Submission of Health and Health-related Data - General Guidelines A

¹⁰ Reference: §17.3.b. IRR of RA 11223

¹¹ Reference: §20.6. IRR of RA 11223

¹² Reference: §28.18.a. and 28.18.b. IRR of RA 11223

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7. Enable submission of health and health-related data by health maintenance organizations, life and non-life Private Health Insurers in aid of developing policies, standards, and plans.¹³
 8. Enable regular data sharing on health promotion programs, projects, and activities for the Department of Education and Department of Health, in accordance with relevant provisions of RA 10173 (Data Privacy Act), and other relevant laws and policies.¹⁴
 9. Ensure that all Filipinos are guaranteed equitable access to quality and affordable health care goods and services.¹⁵

Outcomes and Benefits

The following are the target outcomes (changes or results) from using the NHDR:

Stakeholders	Outcomes
1 Clients/Patients	<ul style="list-style-type: none">- Enable clients or patients to access knowledge and services that support early detection and treatment of preventable communicable and non-communicable diseases.- Improved care coordination by ensuring that their health information can be easily exchanged between their health care providers.- Improved access to knowledge resources and support for better management of their chronic conditions, and their adherence to treatment and medication regimes.
2 Health Care Providers	<ul style="list-style-type: none">- Improved ability of health care providers to access health information at the point of care.- Improved ability of health care providers to exchange patient information with other health care providers.- Enable health care providers to monitor and track their patients more effectively.- Enable health care providers to access clinical knowledge, evidence and expertise to support skills development and the delivery of health care within their local communities.
3 Health System Managers, Health Care Managers and Administrators	<ul style="list-style-type: none">- Support national, regional, and local health agencies, policy and decision makers, health system and resource managers, public and private health entities to predict and plan for the spread of infectious diseases.

¹³ Reference: §28.23.b. IRR of RA 11223

¹⁴ Reference: §30.9. IRR of RA 11223

¹⁵ Reference: §3.1.b. IRR of RA 11223

	<ul style="list-style-type: none"> - Enable health authorities to monitor and respond to outbreaks and other emergencies more effectively and to meet reporting obligations. - Support the education, training and development of the country's health human resource. - Provide reliable and quality data to inform and monitor the results of clinical, policy, investment and administrative decisions. - Provide access to quality data sources that inform service and health human resource planning and management. - Enable effective management of the supply, distribution and availability of vaccines and essential medicines.
4 Health and Medical Researchers	<ul style="list-style-type: none"> - Provide researchers with greater access to evidence-based information to support clinical decision making and treatment design and assessment. - Improved access to the medical literature, knowledge networks and resources.
5 National and Local Government	<ul style="list-style-type: none"> - Improved health action plans, and determination of issues and challenges. - Make informed decisions. - Enhanced analysis of disease patterns and trends. - Deliver more reliable, responsive, and timely health reporting.
6 Health-related Entities	<ul style="list-style-type: none"> - Provide health content as a commodity. - Facilitate research and development. - Enable broad and cost effective marketing of health products and services.

Benefits

The following are the expected benefits (improvements) resulting from the outcomes:

Benefit Areas	Benefits
1 Access to Health Services and Information	Ability for patients to locate health care providers that offer the services they require.
2 Efficiency Gains in Health Service Delivery	Enhanced health human resource productivity due to greater efficiencies in obtaining patient information, record keeping, administration and referrals.
3 Quality and Safety of Care	<ul style="list-style-type: none"> - Reduced instances of medically avoidable adverse events. - Improved ability to monitor compliance to medications and other treatment regimes.

4 Health Monitoring and Reporting	<ul style="list-style-type: none"> - Improved ability to support surveillance and management of public health interventions - Improved ability to analyze and report on population health outcomes.
5 Access to Knowledge and Education	<ul style="list-style-type: none"> - Improved access to health care provider knowledge sources, including medical literature, education, training, and other resources. - Improved access to consumer health knowledge sources, including health education and awareness, and prevention information for certain health conditions.
6 Health System Operations Planning and Management	<ul style="list-style-type: none"> - Improved access to quality data sources to inform health care service and health human resource planning and development.
7 Health Empowerment	<ul style="list-style-type: none"> - Improved participation of individuals in self-monitoring and chronic disease management. - Improved access to trusted health knowledge sources.
8 Innovation and Growth	<ul style="list-style-type: none"> - Increased standardization of information exchange and communication between different segments, agencies and organizations. - Increased opportunity for market innovation through access to national health data standards.
9 Performance Management and Accountability	<ul style="list-style-type: none"> - Improved overall management of national monitoring and reporting functions (i.e. planning and scheduling, progress monitoring, financials, risk management). - Improved monitoring of the delivery of action plan and achievement of the NHDR vision.

Health and Health-related Data

Health and health-related data collectively refers to a set of specific variables or parameters that relates to an individual and population health and well-being, including, but not limited to administrative and investment planning in health, public health, medical, pharmaceutical, and health financing data.¹⁶ The DOH shall lead the standardization of health and health-related data, in coordination with PhilHealth and other relevant stakeholders.

Examples of health and health-related data are as follows:

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|-----------------------|------------------------|
| 1. Accidents/Injuries | 20. Impact Assessments |
|-----------------------|------------------------|

¹⁶ §31.1 Implementing Rules & Regulations of RA11223

National Health Data Repository Framework

As of 28 March 2022

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- | | |
|---|--|
| <ol style="list-style-type: none">2. Accomplishments3. Availed Health Services (Population and Individual)4. Birth Data5. Blood Donors and Recipients6. Death Data7. Drug Test Results8. Environmental Health9. Financial (Budgets and Expenditures)10. Grants11. Health Care Institutions/Providers Licensing and Accreditation12. Health / Medical Records13. Health and Medical Travels14. Health Human Resources15. Health Promotions16. Health Regulations17. Health Services18. Health Technology Assessments19. Health Maintenance Organizations and Private Insurance Data | <ol style="list-style-type: none">21. Medical Care Assistance22. Membership Contributions to PhilHealth23. Monitoring and Evaluation24. Network Contracting25. Nutrition Data26. Organ Donors and Recipients27. PhilHealth Membership28. Population Data29. Program Activities and Projects30. Researches31. Resolutions32. Resource Centers33. Surveys34. Technical Assistance35. Vaccination Data36. Water and Social Hygiene37. Workplace Safety and Health Standards |
|---|--|

Data Sources

Health-related entities include, but not limited to, health care facilities, national and local government agencies involved in the provision of health services, and agencies involved in the collection of health data.¹⁷ These are as follows:

- | | |
|--|---|
| <ol style="list-style-type: none">1. Academic and Research Institutions2. Civil Society Organizations3. Development Partners4. Donor or Funding Agencies5. Health Professional Associations6. Local and International ICT Service Providers | <ol style="list-style-type: none">7. Medical Societies8. National and Local Government Agencies9. Non-government Organizations10. Other Stakeholders involved in the Provision of Health Services, and/or Processing and Submission of Health and Health-related Data11. Those Identified by the DOH and PhilHealth |
|--|---|

At present, health and health-related data originates from the various information systems or applications that health-related entities use to perform their functions. Some of the data sources are as follows:

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|---|---|
| <ol style="list-style-type: none">1. Census | Data on population and housing census for determining the size of the population and its geographical distribution, social, demographic and economic characteristics of its people. ¹⁸ |
|---|---|

¹⁷ §31.1 Implementing Rules & Regulations of RA 11223

¹⁸ Reference:

https://www.who.int/healthinfo/country_monitoring_evaluation/who-hmn-

National Health Data Repository Framework

As of 28 March 2022

2	Civil Registration and Vital Statistics	Data on births, death, and other major life events that are essential to understanding the development of a country and its people. ¹⁹
3	Disease Registry	Data on people with a specific disease or condition.
4	Disease Surveillance	Data that evaluates the effectiveness of control and preventive health measures, monitor changes in infectious agents, identify high risk populations or areas to target interventions, others.
5	Health Insurance Claims	Data on health insurance accreditation, membership, contributions, claims, legal cases, others.
6	Medical Records	Data on events, encounters, and/or transactions between patients and health care providers. It includes the identification information, consent forms, medical histories, family histories, treatment histories, medication information, medical directives, laboratory results, progress notes, and other relevant details about the patient or individual.
7	Peer-reviewed Literature	Information that have gone through an evaluation process in which journal editors and other expert scholars assess the quality and scientific merit of the article and its research. ²⁰
8	Researches	Data or information from studies regarding a particular concern, problem, or topic using scientific method.
9	Resource and Administrative Records	Data on logistics of health service inputs like health facilities, health human resources, budgets and expenditures, drugs, health-related commodities, and others.
10	Sensor Data	Data produced by sensor-based devices like vital signs, ECG, and handheld devices.
11	Service Records	Data on events with health consequences from other sectors other than the records of health service providers like police, environmental health authorities, occupational health agencies, veterinary services, health-related

[framework-standards-chi.pdf](#) (Framework and Standards for Country Health Information Systems – Second Edition)

¹⁹ [https://www.sdsntrends.org/research/2018/12/4/case-study-civil-registration-vital-statistics?locale=en#:~:text=Civil%20registration%20and%20vital%20statistics%20\(CRVS\)%20record%20births%2C%20deaths,12%20of%20the%2017%20SDGs.](https://www.sdsntrends.org/research/2018/12/4/case-study-civil-registration-vital-statistics?locale=en#:~:text=Civil%20registration%20and%20vital%20statistics%20(CRVS)%20record%20births%2C%20deaths,12%20of%20the%2017%20SDGs.)

²⁰ https://www.nlm.nih.gov/nichsr/stats_tutorial/section3/mod6_peer.html

	projects and programs, and others.
12 Smartphones and Health Apps	Data on health and activity-related like tracking of routine exercise, amount and quality of sleep.
13 Social Media	Data from interactions among people in which they create, share, and/or exchange data, information, or ideas in virtual networks and communities like social networking (e.g. facebook and twitter); uploaded photos and videos; interactive media like snapchat and tiktok; blogs like tumblr and reddit.
14 Surveys	Data on predefined group of respondents to gain information and insights into various topics or subject matters.
15 Wearables and Remote Patient Monitoring Devices	Data from fitness trackers, smart watches, biosensors, blood pressure monitors, glucose trackers, and electronic devices that are designed to collect health information and transfer the data to the user's smartphone and/or a cloud server where it can be retrieved accordingly.

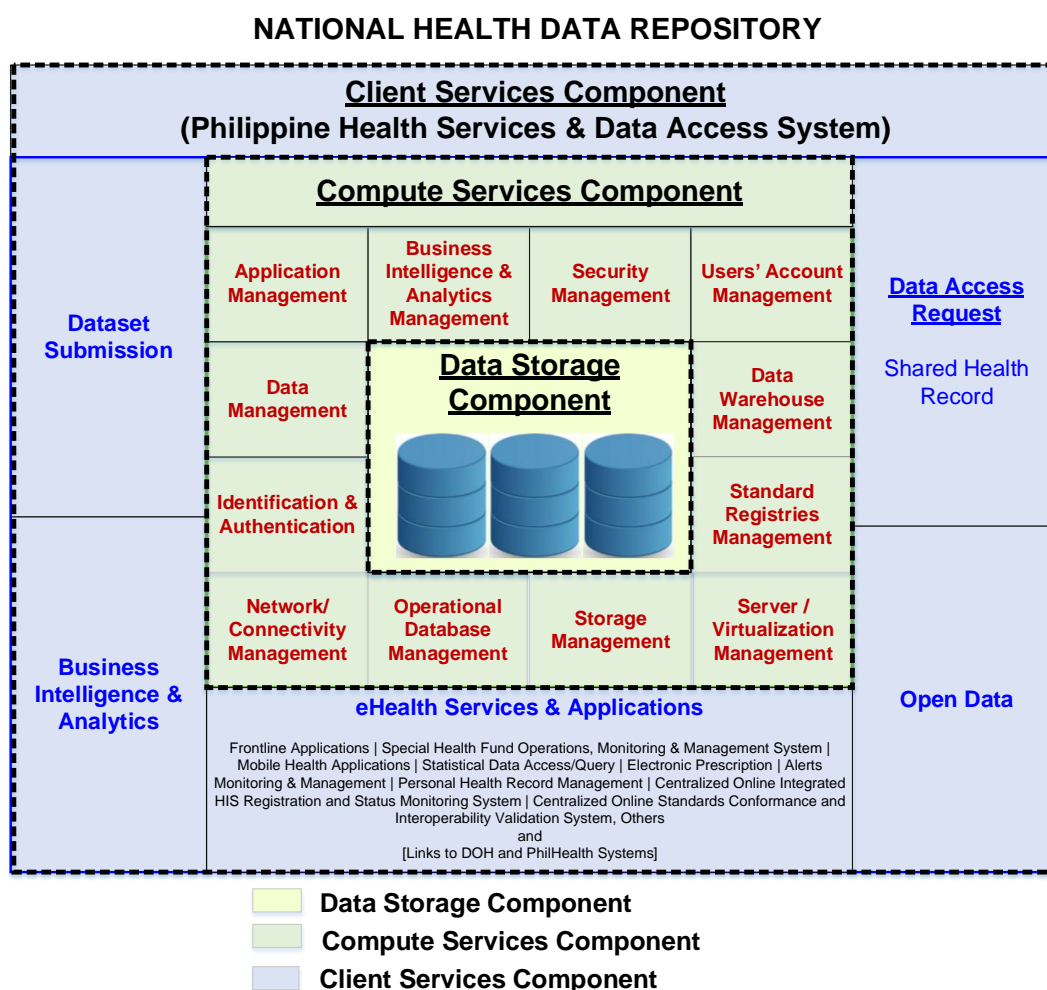
The DOH and PhilHealth shall study and evaluate the current data sources to ensure that there are no repetitive or duplicate datasets to be collected or submitted to the NHDR. Health and health-related data must come from the primary data source or as close as possible to the point of creation. Some examples of ensuring that there are no repetitive or duplicate datasets to be collected are as follows:

1. Datasets from a disease registry can be integrated into the electronic medical record.
2. Common datasets collected by the DOH and PhilHealth can be integrated like the patient's demographic data, clinical record, health care institution information, patient's confinement information, and others.

Challenges to ensure that there are no repetitive or duplicate datasets to be collected from the source will have to be taken into account and/or address by the DOH and PhilHealth.

Architectural Components

The NHDR is not just a physical storage of health and health-related data. There are architectural components that make up the NHDR in order to achieve integration and interoperability of all data processing systems. The architectural components that make up the NHDR are the Data Storage Component, Compute Services Component, and Client Services Component.



- | | |
|------------------------------|---|
| 1 Data Storage Component | The physical storage of health and health-related data. |
| 2 Compute Services Component | <p>The resources, tools, systems, and other services to ensure that the NHDR is available, accessible and serves the client services' component. It has the following sub-components:</p> <ol style="list-style-type: none"> a. Application Management: Manages the lifecycle process of developing, implementing, and maintaining systems, applications, or software. b. Business Intelligence and Analytics Management: Enables build of business intelligence applications by providing capabilities in analysis, information delivery, and platform integration. Business intelligence uses data to make decisions by collecting, reporting, and monitoring data for interpretation; and filters existing data to determine trends and patterns in the past and present for better decision making. Analytics utilizes business intelligence to interpret data to predict future patterns based on current data. c. Security Management: The tools or actions to establish and |

maintain security like information security, application or system security, network and internet security.

- d. Users' Account Management: Core part of the identity and access management; manages users' access to various IT resources like data, systems, applications, storage, networks, others.

Grants data access to different users as reinforced by permission rights and security levels, and structured according to data governance policies. This enables execution of health information access, data sharing and exchange between health care providers and entities involved in the provision of health service, including health care provider networks.

- e. Data Management: Ensures that quality data is stored, processed, transformed, and used to drive the decision making process.

- f. Data Warehouse Management: Maintains important or critical historical data that has been extracted from the operational database, and transformed into accessible formats for analytical users. It is designed to analyze, integrate, and report data coming from different sources; and uses Online Analytical Processing (OLAP).

- g. Identification and Authentication: Enables identification of a user, and verification/proof that such user is who that person is.

- h. Standard Registries and Codes Management Standard Registries and Codes Management: Enables identification or verification of codes or references that are considered standards to all who will be availing of the NHDR services.

- i. Network / Connectivity Management: Manages the data networking and connectivity infrastructure to support the NHDR services and applications.

- j. Operational Database Management: Ensures or guarantees the integrity and consistency of the submitted health data in the database through appropriate management of the following: data dictionary, data storage, security, access control, integrity, communication interfaces, others. It is designed to record the submitted health data; and uses Online Transactional Processing (OLTP).

- k. Storage Management: Associated services to support the secure storage of and access to the NHDR.

- l. Server/Virtualization Management: Manages the virtual

3 Client Services Component

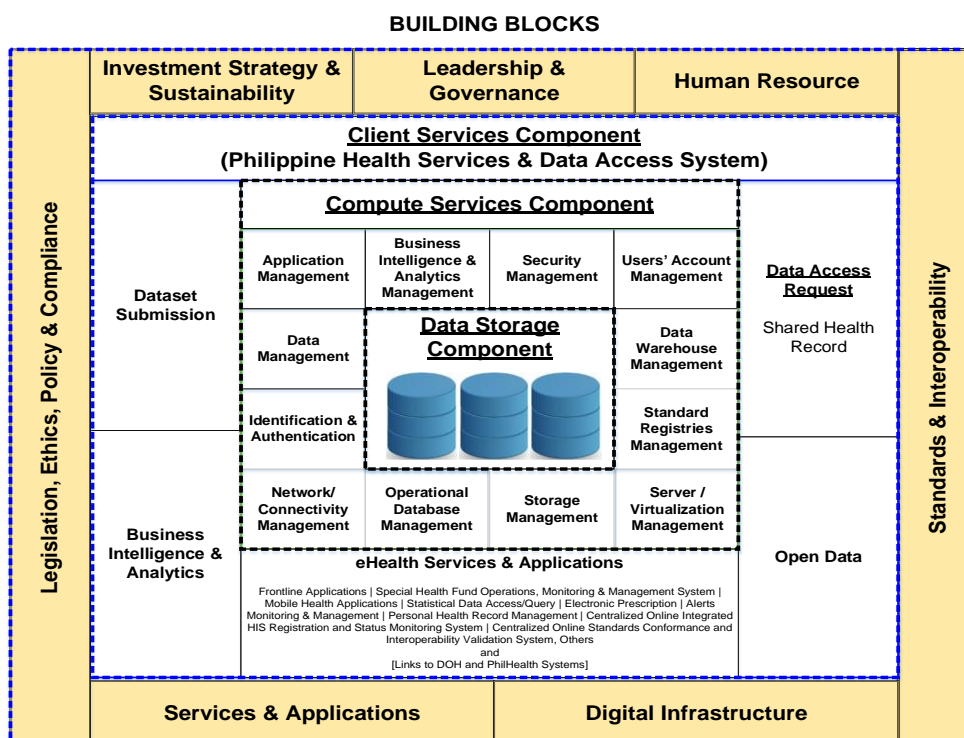
servers to support the NHDR services and applications.

The services, systems, or applications that clients can use to interact with the NHDR. The "Philippine Health Services and Data Access System" is the collective name to represent all systems or application. Initial systems are as follows:

- a. Dataset Submission: Enables all health-related entities to submit health and health-related data to the NHDR.
- b. Business Intelligence and Analytics: Enables end-users to generate meaningful data or information for decision making.
- c. Data Access Request: Enables health care providers, patients, pharmacies, laboratories, and others to appropriately access and securely share health data.
- d. eHealth Services and Applications: Systems, applications, or services to improve the efficiency and effectiveness of the health system management and health care delivery.
- e. Open Data: Dissemination of health and health-related data that are available to everyone to access, use and share. This can be linked to the Open Data Philippines that collects datasets from different government agencies that are deemed "open".

Building Blocks

The NHDR Framework uses building blocks that describe the needed components to be in place to achieve the NHDR vision and objectives. The building blocks are grouped into two (2) dimensions, i.e. enabling environment and ICT environment. Enabling environment refers to views, actions, and practices that support the efficient and effective functioning of the NHDR. The ICT environment refers to the infrastructure and mechanisms for executing the digital or electronic health interventions like hardware, network, services, and applications.



Enabling Environments

- | | |
|--|---|
| 1 Leadership and Governance | Ensure that strategic policy frameworks exist and are combined with effective oversight, coalition-building, regulation, attention to system-design and accountability. ²¹ |
| 2 Legislation, Ethics, Policy and Compliance | Govern the NHDR within the ambit of legislature, ethics, and policy for compliance. |
| 3 Investment Strategy and Sustainability | Availability of resources like funds to sustain the NHDR in terms of development, operations, and maintenance. |
| 4 Standards and Interoperability | Enable consistent and accurate collection and exchange of health information across geographical and health-sector boundaries; and health systems and services. |
| 5 Human Resource | The people who make up the workforce of an organization to design, build, operate, support, and maintain the NHDR. |

ICT Environments

- | | |
|-----------------------------|--|
| 6 Services and Applications | Systems, applications, innovations, solutions, software, and other services to achieve the benefits of the NHDR. |
| 7 Digital Infrastructure | Resources to operationalize the NHDR which includes the physical infrastructure (servers, storages, networking, |

²¹ https://www.who.int/health-topics/health-systems-governance#tab=tab_1

connectivity, others), operating system, database management and administration, network management and administration, among others.

A. LEADERSHIP AND GOVERNANCE

“The PhilHealth shall establish and maintain the NHDR for all health and health-related data submitted by health care providers, insurers, and health-related entities. It shall be considered as the overall Data Controller insofar as it controls the processing of health and health-related data through the NHDR. It shall assume full responsibility in complying with existing and applicable laws, rules, and other relevant issuances relating to the processing and submission of all health and health-related data through the NHDR, including data protection.”²²

Even if PhilHealth shall establish and maintain the NHDR, good governance is needed for its successful implementation and sustainability. Governance is the process of decision-making and the process by which decisions are implemented (or not implemented).²³ Good governance is measured by the eight (8) factors of participation, rule of law, transparency, responsiveness, consensus oriented, equity and inclusiveness, effectiveness and efficiency, and accountability.

Effective leadership and governance will improve transparency and credibility, facilitate guidance, and ensure that procedures for endorsing, approving, and owning the NHDR are in place. Effective management will ensure that the process will be undertaken in a systematic, organized, structured and timely manner with appropriate consultations with stakeholders. Leadership and governance will ensure that strategic policy frameworks exist and are combined with effective oversight, coalition-building, regulation, attention to system-design and accountability.²⁴

e-Health is the cost-effective and secure use of information and communication technologies in support of health and health-related fields.²⁵ “ICT applications in healthcare need to be governed by the highest accountable officials. This means they define the expected benefits, the risks to watch out for, and allocate resources”.²⁶ The NHDR is a national e-Health directive, solution, or mechanism to support the UHC Act, and falls within the ambit of the *Philippine eHealth Governance Framework*.

²² Letter D, Item V General Guidelines, JMC No.2021-0001 Implementing Guidelines of Section 31 of the Republic Act No. 11223, otherwise known as the “Universal Health Care (UHC) Act” on the Processing and Submission of Health and Health-related Data

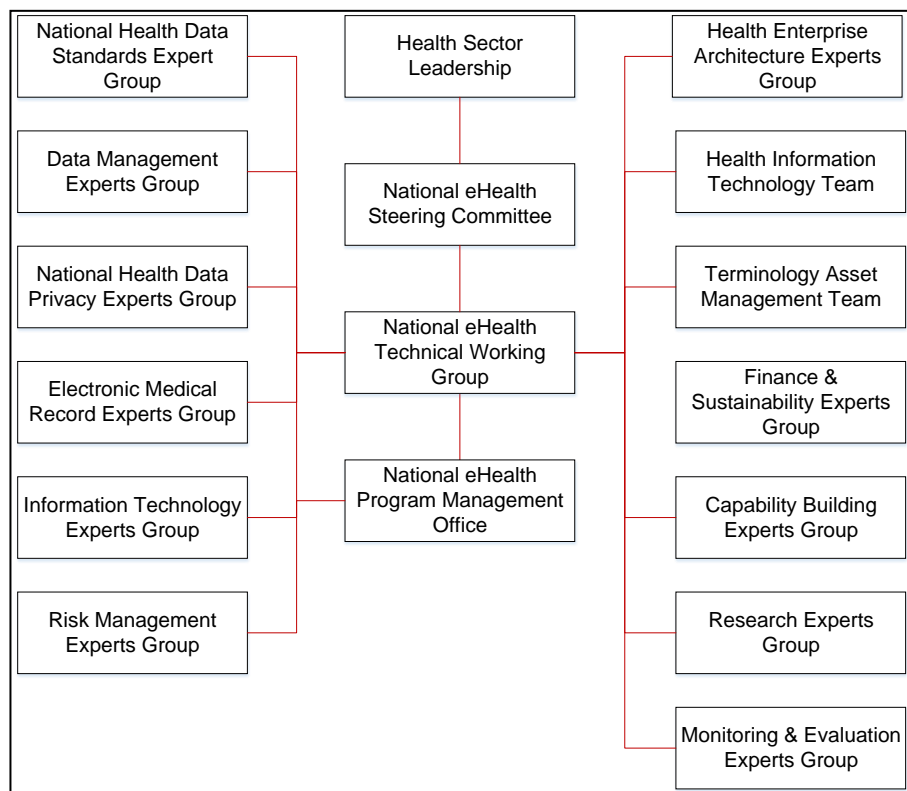
²³ <https://www.unescap.org/sites/default/files/good-governance.pdf>

²⁴ https://www.who.int/health-topics/health-systems-governance#tab=tab_1

²⁵ <https://www.who.int/westernpacific/activities/using-e-health-and-information-technology-to-improve-health>

²⁶ The AeHIN’s GAPS Framework, https://socialdigital.iadb.org/sites/default/files/2019-02/Session%208_Alvin%20Marcelo%20and%20Boonchai%20Kijsanayothin_0.pdf

PHILIPPINE EHEALTH GOVERNANCE FRAMEWORK



The Philippine eHealth Governance Framework consists of inter-agencies and multi-sectoral groups to ensure a more efficient process of planning, harmonization, alignment and interoperability, financing, development, implementation, monitoring and evaluation, and sustainability of various eHealth initiatives, programs and projects across the country.

The current organization and composition of the NeHSC, TWG, Expert Groups, and Program Management Office must be revisited and restructured by the DOH and PhilHealth to align with the UHC Act; and ensure that stakeholders’ needs are evaluated, direction is set through prioritization and decision-making, and performance and compliance monitored against agreed performance indicators.

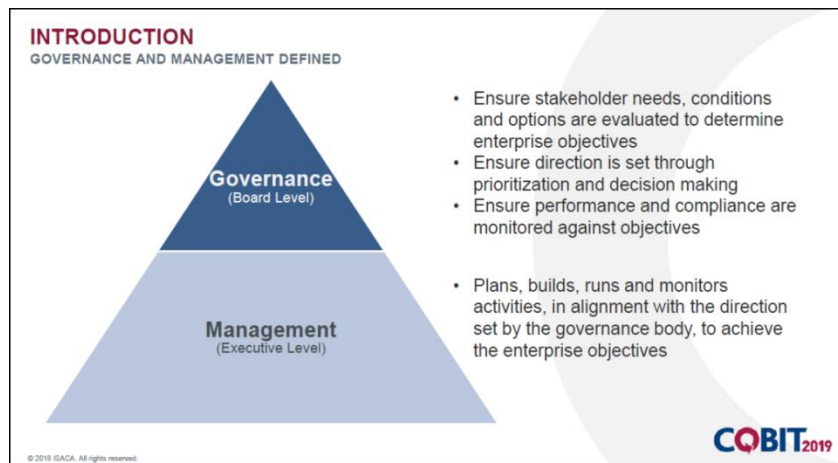
COBIT for Effective IT Governance

The Controlled Objectives for Information and Related Technology (COBIT) is a framework created by the Information Systems Audit and Control Association (ISACA) that can be used for the IT governance and management of technical issues, business risks, and control requirements. The COBIT framework makes a clear distinction between governance and management.

The NeHSC agreed to adopt COBIT5 as the IT Governance Framework for the Philippine eHealth Strategic Framework and Plan and mandated the TWG to move forward on consensus agreements reached by the participating agencies.²⁷

²⁷ eHEALTH GOVERNANCE IN THE PHILIPPINES: STATE-OF-THE-ART(<https://journals.ukzn.ac.za/index.php/JISfTeH/article/view/189/html>)

The DOH and PhilHealth can review and adopt the COBIT 2019 to facilitate a flexible and tailored Enterprise Governance of Information Technology (EGIT) system, and ensure the quality, control, and reliability of the NHDR.



Source: Introducing COBIT 2019, Executive Summary Nov 2018

Refer to <https://www.isaca.org/resources/cobit> for more information on COBIT 2019.

B. LEGISLATION, ETHICS, POLICY AND COMPLIANCE

Legislations

Legislations are the national laws and regulations that are set by the government for compliance. The minimum list of legislations relevant to the NHDR is as follows:

1. Memorandum Circular No. 5 – Directing all Government Agencies, Offices, Instrumentalities, as well as Local Government Units, to Prepare for the Implementation of the Philippine Identification System and its Integration into Government Processes, Databases, Systems and Services (from the Office of the President of the Philippines)
2. Republic Act 11223 - An Act Instituting Universal Health Care for All Filipinos, Prescribing Reforms in the Health Care System, and Appropriating Funds Therefor or “Universal Health Care Act”; and its Implementing Rules and Regulations
3. Republic Act 11055 – An Act Establishing the Philippine Identification System or “Philippine Identification System Act”; and its Implementing Rules and Regulations
4. Republic Act 11032 – An Act Promoting Ease of Doing Business and Efficient Delivery of Government Services, Amending for the Purpose Republic Act No. 9485, otherwise known as the Anti-Red Tape Act of 2007, and For Other Purposes or “Ease of Doing Business and Efficient Government Service Delivery Act of 2018”; and its Implementing Rules and Regulations
5. Republic Act 10175 – An Act Defining Cybercrime, Providing for the Prevention, Investigation, Suppression and the Imposition of Penalties Therefor and for other Purposes or “Cybercrime Prevention Act of 2012”; and its Implementing Rules and Regulations
6. Republic Act 10173 – An Act Protecting Individual Personal Information in Information and Communications Systems in the Government and the Private Sector, Creating for this Purpose a National Privacy Commission, and for other Purposes or “Data Privacy Act of 2012”; and its Implementing Rules and Regulations
7. Republic Act 10055 – An Act Providing the Framework and Support System for the Ownership, Management, Use, and Commercialization of Intellectual Property Generated From Research and Development Funded by Government and for other Purposes or “Philippine Technology Transfer Act of 2009”; and its Implementing Rules and Regulations
8. Republic Act 8792 – An Act Providing for the Recognition and Use of Electronic Commercial and Non-commercial Transactions and Documents, Penalties for Unlawful Use Thereof, and for other Purposes or “Electronic Commerce Act of 2000”; and its Implementing Rules and Regulations
9. Exceptions to Right to Access of Information as per Memorandum Circular No. 89 – Updating the Inventory of Exceptions to the Right to Access of Information Under Executive Order No. 02, Series of 2016

10. Executive Order # 2, s. 2016 on "Operationalizing in the Executive Branch the People's Constitutional Right to Information and the State Policies of Full Public Disclosure and Transparency in the Public Service and Providing Guidelines Therefor," in coordination with the concerned agency's Freedom of Information (FOI) Unit

Ethics

The activities to establish, operate, and maintain the NHDR deal with people and are all subject to ethical inquiry. The NHDR is expected to deliver positive outcomes and benefits, and may be compromised when personal interests are prioritized. The implementation of the NHDR shall be strengthened by the commitment of all implementers and/or stakeholders to abide by established ethical principles. The DOH's Administrative Order No. 2020-0061 dated 22 December 2020 on Guidelines on the Public Health Ethics Review and Creation of the DOH Public Health Ethics Committee can be reviewed and/or enhanced as to its applicability in the establishment, operations, and maintenance of the NHDR.

Policies

Policies are sets of rules or guidelines to follow in order to achieve a specific goal. The minimum list of policies relevant to the NHDR is as follows:

1. DOH-PhilHealth Joint Memorandum Circular # 2021-0001 (May 21, 2021) - Implementing Guidelines of Section 31 of the Republic Act No. 11223, otherwise known as the "Universal Health Care (UHC) Act" on the Processing and Submission of Health and Health-related Data
2. DOH-PhilHealth Joint Administrative Order # 2021-0002 (April 21, 2021) - Mandatory Adoption and Use of National Health Data Standards for Interoperability
3. DOH-PhilHealth Joint Administrative Order # 2021-0001 (April 21, 2021) - Guidelines on the Implementation and Maintenance of an Integrated Health Information System
4. DOH-PhilHealth-DICT Joint Administrative Order # 2021-0001 (August 11, 2021) – Guidelines on the Implementation of the Standards Conformance and Interoperability Validation
5. DOH-DOST-PhilHealth Joint Administrative Order # 2016-0002 (January 20, 2016) – Privacy Guidelines for the Implementation of the Philippine Health Information Exchange
6. DOH-DOST-PhilHealth Joint Administrative Order # 2016-0001 (January 20, 2016) – Implementation of the Philippine Health Information Exchange
7. PhilHealth Corporate Order # 2021-0079 (December 22, 2021) – Secure System Engineering Principles

Note: Apply Privacy by Design Principles

8. PhilHealth Corporate Order # 2021-0070 (October 19, 2021) - Securing Cloud Computing Services (Revision 2)

9. DICT Department Circular # 010 (June 2, 2020) – Amendments to Department Circular # 2017-002, Re: Prescribing the Philippine Government’s Cloud First Policy
10. DICT Department Circular # 007 (April 16, 2020) – Prescribing the Use of Updated Versions of Cryptographic Protocols for All Government Owned, Controlled, Managed, Contracted, or Sponsored Websites
11. DICT Department Circular # 003 (March 5, 2020) – Supplementing the DICT Memorandum Circular #s 005, 006, and 007, series of 2017, and Policies, Rules and Regulations on the Implementation of the National Cybersecurity Plan 2022
12. DICT Memorandum Circular # 007 (August 1, 2017) – Prescribing the Policies, Rules and Regulations on the Protection of Individuals Stipulated in the National Cybersecurity Plan 2022
13. DICT Memorandum Circular # 006 (August 1, 2017) – Prescribing the Policies, Rules and Regulations on the Protection of Government Agencies Stipulated in the National Cybersecurity Plan 2022
14. DICT Memorandum Circular # 005 (August 1, 2017) – Prescribing the Policies, Rules and Regulations on the Protection of Critical Infostructure Stipulated in the National Cybersecurity Plan 2022
15. DICT Memorandum Circular # 2017-004 (June 9, 2017) – Prescribing the Philippine Web Accessibility Policy and Adopting for this Purpose ISO/IEC 40500:2012 Information Technology – W3C Web Content Accessibility Guidelines (WCAG) 2.0 as The Philippine Standard for Making Web Content More Accessible to a Wider Range of People with Disabilities
16. DICT Department Circular # 2017-002, as amended by 010, s. 2020, re Prescribing the Philippine Government’s Cloud First Policy, declared it the policy of the government to adopt a “cloud first” approach and for government departments and agencies to consider cloud computing solutions as a primary part of the infostructure planning and procurement
17. DICT Department Circular # 2017-001 (January 18, 2017) – Amending the National Public Key Infrastructure (PNPKI) Root Certification Authority Certificate Policy Version 1.0
18. DOST Information and Communications Technology Office (now the DICT) Memorandum Circular # 2015-003 (April 27, 2015) – Approval of the Philippine Electronic Government Interoperability Framework (PEGIF) Part 2, otherwise known as the Information Interoperability Framework (IIF), for Implementation by Government Agencies
19. DOST Information and Communications Technology Office (now the DICT) Memorandum Circular # 2014-09001 (July 30, 2014) – Approval of the Philippine Electronic Government Interoperability Framework (PeGIF) Version 1.0 for Implementation by Government Agencies

20. NPC Circular # 2021-02 (November 8, 2021) – Guidelines on the Processing of Personal Data During Public Health Emergencies for Public Health Measures
21. NPC Circular # 2020-03 (December 23, 2020) – Data Sharing Agreements
22. NPC Circular #18-02 (September 20, 2018) – Guidelines on Compliance Checks
23. NPC Circular # 17-01 (July 31, 2017) – Registration of Data Processing and Notifications Regarding Automated Decision-Making
24. NPC Circular # 16-03 (December 15, 2016) – Personal Data Breach Management
25. NPC Circular # 16-01 (October 10, 2016) – Security of Personal Data in Government Agencies
26. NPC Circular # 16-02 (October 10, 2016) – Data Sharing Agreements Involving Government Agencies

There are *operational policies or directives* that have to be formulated by the DOH and PhilHealth. Operational policies are lines of action with regard to the operations and administration of the NHDR. The minimum list of operational policies relevant to the NHDR is as follows:

1. Access and Consent Policy
2. Audit and Compliance Policy
3. Data Classification
4. Data Governance and Management System
5. Data Retention Policy
6. Data Sharing, including Memorandum of Agreement/Understanding
7. Governance Policy and SOPs of the NeHSC, TWG, and expert Groups
8. Guidelines in the receiving, evaluating, and managing data access requests
9. Implementation and Maintenance of the National Health Data Dictionary
10. Implementing Guidelines and SOPs of the Centralized Online Integrated HIS Registration and Status Monitoring System
11. Implementing Guidelines and SOPs of the Centralized Online SCIV System (together with its performance indicators, method, and tool for monthly monitoring by the Regional SCIV Administrators)
12. Licensing and Accreditation Policy to Strengthen Compliance
13. National Trust Framework Implementation Guidelines
14. Performance indicators, method, and tool for monthly monitoring by the regional integrated HIS Coordinators
15. Performance Monitoring and Evaluation to include metrics to measure the progress and success of implementing or adopting the health data standards in the country, implementation of an integrated health information system, standards conformance validation, and NHDR services
16. Privacy Policy
17. RACI Chart or Matrix of DOH and PhilHealth to set specific responsibilities and accountabilities on adopting the health and health-related data standards in the country, implementation of an integrated health information system, standards conformance validation, and NHDR services

18. Regional Manual of Procedures on Technical Support to the adoption of health data standards, implementation of integrated HIS, standards conformation validation, and submission of health and health-related data
19. SOPs on the approval and disapproval of data access requests, particularly among the concerned Data Stewards
20. SCIV testing methodology and SCIV Toolkit
21. SCIV TWG Policies and SOPs to include working arrangements, testing methodology, toolkit, others
22. SOPs in Updating the National Health Data Standards
23. SOPs or Operational Guidelines in the submission of health and health-related data to the NHDR
24. Standard Template of Transition Plan and Monthly Status Report on the Integrated HIS
25. Storage and Retention Policy
26. Unified Data Analysis and Reporting Generation in the Business Intelligence and Analytics Platform of the NHDR
27. Unified operational guidelines that conforms to the data management and governance principles; specific procedures and quality standards in the processing of health data, and data access; specific accountabilities of all those involved in the processing of health data are set, established, or defined
28. Unified Operational Guidelines that defines the specific procedures and quality standards in the processing of health and health-related data like data access, data protection; and specific accountabilities of those involved in the processing of health and health-related data
29. Unique Patient/Health Identifier for Data Collection and Sharing
30. Updated DOH-DOST-PHIC JAO 2016-0002 – Privacy Guidelines for the Implementation of the Philippine Health Information Exchange
31. Updated DOH-PHIC-DOST JAO 2016-0003 – Implementation of the Philippine Health Information Exchange
32. Usage and Disclosure Policy

Compliance

Compliance supports the development of eHealth systems, solutions or products and that are compatible with the NHDR. The issuances for compliance by all health-related entities are:

1. DOH-PhilHealth Joint Administrative Order # 2021-0002 : Mandatory Adoption and Use of National Health Data Standards for Interoperability
2. DOH-PhilHealth-DICT Joint Administrative Order # 2021-0001 : Guidelines on the Implementation of the Standards Conformance and Interoperability Validation

C. INVESTMENT STRATEGY AND SUSTAINABILITY

Investment Strategy and Sustainability refers to the availability of resources like funds to sustain the NHDR in terms of development, operations, and maintenance. The DOH and PhilHealth shall provide funds and counterpart resources necessary and appropriate to the overall and regularly funded functions of each agency for the proper implementation of the Processing and Submission of Health and Health-related Data, subject to the usual government accounting and auditing rules and regulations.²⁸

Funding Models

PhilHealth can consider several funding models or approaches to support the sustainability of the NHDR like public-private partnership, pooled DOH-PhilHealth budgets, hybrid sharing of budgets, and development partners.

1 Public-Private Partnership (PPP)	<p>A contractual agreement between the Government and a private firm targeted towards financing, designing, implementing and operating infrastructure facilities and services that were traditionally provided by the public sector.²⁹</p> <p>PhilHealth can enter into a PPP with a private firm to develop, operate, and maintain the NHDR. Payment of fees can be paid on agreed schedule, i.e. total investments expended on the project, plus a reasonable rate of return</p>
2 Pooled DOH-PhilHealth Budgets	<p>The DOH and PhilHealth can pool their budgets to fund the development, operations, and/or maintenance of the NHDR if there are no transfer restrictions between both parties.</p>
3 Hybrid Sharing of Budgets	<p>Additional budgets may come from the following:</p> <ul style="list-style-type: none">- DICT: may fund the adoption of cloud infrastructure to operationalize the NHDR through its Government Cloud service.- Development partners, international organizations and donors such as the World Bank, International Monetary Fund, United Nations specialized agencies, aid agencies, others.
4 Development Partners	<p>Organizations, bilateral donors and multilateral agencies working in partnership with national and local bodies to provide assistance or support.</p>

²⁸ Reference: Joint Memorandum Circular No. 2021-0001 Implementing Guidelines of Section 31 of RA No. 11223, otherwise known as the “Universal Health Care (UHC) Act,” on the Processing and Submission of Health and Health-related Data, Item IV. Definition of Terms, Item VIII Budget Requirements

²⁹ <https://ppp.gov.ph/ppp-program/what-is-ppp/>

D. STANDARDS AND INTEROPERABILITY

Interoperability is the ability of different information systems, applications, and devices to access, share, exchange, integrate, and use data. Interoperability requires the use of standards to ensure that data is available and retains its meaning through the various processes of the health system. Standards provide a common language and set of expectations that enable interoperability between different information systems, applications, and devices. Standards and interoperability enable the consistent and accurate collection and exchange of health data or information across geographical and health-sector boundaries.

Components of standards and interoperability are as follows:

1 Common Terminologies	Use of common language for describing symptoms, treatments, diagnoses and treatments like clinical coding standards, medicines terminology standards, and medical terminology standards.
2 Data Structure Standards	Govern the way health datasets are submitted and stored using consistent data structures to ensure that information is not misinterpreted and can perform operations on stored data more efficiently.
3 Messaging Standards	Standards on message structure to enable health and health-related data to be transmitted and received through secure messaging infrastructure from one entity to another. This also includes acknowledgements that should be provided when a message is delivered or opened, and warnings if not delivered or declined.
4 Secure Messaging Standards	Standards for the secure transmission and delivery of messages, and appropriate authentication of the message receiver to ensure that health and health-related data are securely transmitted and delivered to the correct recipient.
5 Standards Conformance and Interoperability Validation	A validation or certification process to confirm compliance of different information systems, applications, or software products to national health data standards.

National Health Data Standards

The National Health Data Standards refers to a set of standardized health or health-related terminology, definition and structure for interoperability. The DOH and PhilHealth issued Joint Memorandum Circular No. 2021-0020 – Mandatory Adoption and Use of National Health Data Standards for Interoperability dated April 23, 2021. All health-related entities shall adopt and use the national health data standards in their information systems for their administrative and investment planning in health, public health, medical, pharmaceutical and health financing data, including enterprise resource planning, human resource information management, electronic medical/health records, laboratory and diagnostics, electronic prescription and dispensing log, telemedicine, referral system, supply chain management, claims processing and provider payment, financial and capital

asset, quality management, and other eHealth services, products, systems and applications, networks, and technologies for public health use.

The list of national health data standards will be regularly updated with new standards being added, and existing standards continuously being monitored, reviewed and evaluated. The complete and updated list of the mandatory national health data standards, including their structure, shall be published in a standard health data catalogue and made available electronically in the DOH-maintained National Health Data Dictionary until such time that a national terminology service is established, or otherwise through DOH-Knowledge Management and Information Technology Service.

Data Codes

A data code is a short word used to abbreviate a data. It can be a number, letter, character, or combination thereof to represent a data element or data item.³⁰ It facilitates consolidation of data, aggregation, reporting, integration, and interpretation for better insights or meaningful analysis. Other than those defined in the National Health Data Standards, the DOH and PhilHealth must review and finalize (update, delete, or add) the codes of the following data for its applicability or use:

- | | |
|--|---|
| 1. Accommodation Type | 76. Hired (iClinicSys) |
| 2. Activity (iClinicSys) | 77. Imaging (iClinicSys) |
| 3. Action Taken (iClinicSys) | 78. Immunization / Vaccination Type |
| 4. Alert Identifier | 79. Injury Intent |
| 5. Alert for Disability (Integrated Clinic IS) | 80. Injury Nature |
| 6. Allergy Category | 81. Injury Risk |
| 7. Allergy/Intolerance Type | 82. Injury Type |
| 8. Amniotic Fluid | 83. Involvement (iClinicSys) |
| 9. Anatomical Location | 84. Laboratory Type |
| 10. Animal Type | 85. Laterality |
| 11. Attendant (iClinicSys) | 86. Leprosy Classification |
| 12. Baby Delivered (iClinicSys) | 87. Leprosy Mode |
| 13. Birth Multiplicity – Number Code | 88. Malaria Method |
| 14. Birth Multiplicity – Type Code | 89. Malaria Outcome |
| 15. Blood Type | 90. Malaria Species |
| 16. Body Mass Index - Category | 91. Menu Type |
| 17. Body Mass Index - Result | 92. Menu Privilege |
| 18. Body Site | 93. Mode of Transaction (iClinicSys) |
| 19. Bowel Movement | 94. Mode of Transportation (iClinicSys) |
| 20. Cause of Death | 95. Nationality |
| 21. Chief Complaint | 96. Negative-Positive Code (iClinicSys) |
| 22. Child Care – Sick Age Range | 97. Newborn Screening |
| 23. Child Care – Vitamin Dose | 98. Occupational Category |
| 24. Child Care Plan | 99. Occupational Exposure |
| 25. Child Protection | 100. Oral Health |
| 26. Citizenship | 101. Past Medical History (iClinicSys) |
| 27. Civil Status | 102. Place of Occurrence |
| 28. Claims Document Type | 103. Personnel Status |
| | 104. Postpartum Supplement |

³⁰ <https://www.thefreedictionary.com/data+code>

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29. Clinical Sign (iClinicSys)	105. Postpartum Visit
30. Commodity Code	106. Prefix
31. COPD Code (iClinicSys)	107. Prenatal Abdominal Leopold
32. Consultation Type	108. Prenatal Danger Sign
33. Country	109. Prenatal Delivery Type
34. Covid-19 Classifications	110. Prenatal Delivered
35. Covid-19 Tests	111. Prenatal Maturity
36. Death Certificate Code (iClinicSys)	112. Prenatal Outcome
37. Death - Disposal	113. Past Medical History
38. Death – Manner	114. Patient Type
39. Death – Maternal Condition	115. Patient Status
40. Death - Stage	116. PhilHealth Membership Type
41. Death – Type	117. PhilHealth RVS
42. Delivery – Mode	118. PhilHealth' Benefit Packages / Case Rate
43. Delivery – Place	119. Physical Examination
44. Dental – Health Condition Status	120. Place of Death
45. Dependent Type	121. Program Code (iClinicSys)
46. Detected Issue Category	122. Program Type (iClinicSys)
47. Disability Type	123. Rapid Assessment
48. Disposition / Condition Upon Discharge	124. Reason for Signing On Behalf of the Member/Patient
49. Doctor's Order	125. Referral – Reason
50. Drugs / Medicine – Dosage	126. Referral – Service
51. Drugs / Medicine - Intake	127. Referral – Status
52. Drugs / Medicine - Prescription	128. Referral – To Consultation
53. Drugs / Medicine – Regimen	129. Referral - Type
54. Educational Attainment	130. Relationship
55. Educational Level	131. Religion
56. Encounter Type	132. Schistosomiasis Case Examination
57. Ethnicity	133. Schistosomiasis Outcome
58. Family Member	134. Severity
59. Family Planning Form	135. Sex / Gender
60. Family Planning Drop-out	136. Smoking Type
61. Family Planning Method	137. Specimen Type
62. Family Planning Type	138. Sputum Method
63. Fecundity	139. Sputum Result
64. Feed (iClinicSys)	140. System Review
65. Filariasis - Clinical	141. Suffix
66. Filariasis - Result	142. System Type
67. Firecracker Type	143. Tetanus Toxoid
68. First Aid Given	144. Treatment
69. Food Received	145. Tuberculosis – Classification
70. Frequency – No. of Exercise Unit of Measure (iClinicSys)	146. Tuberculosis Duration
71. Geography (Region, Province, City/Municipality, District, Barangay, Zipcode)	147. Tuberculosis Outcome
72. Growth Height	148. Type Exposure
73. Growth Weight	149. Unit of Measurement
74. Growth Height-Age	150. Vaccination Type
75. Health Insurance Membership Type	151. Vaginal Bleeding
	152. Vital Signs
	153. Assessment - Vital Signs Blood Pressure

Standards Conformance and Interoperability Validation

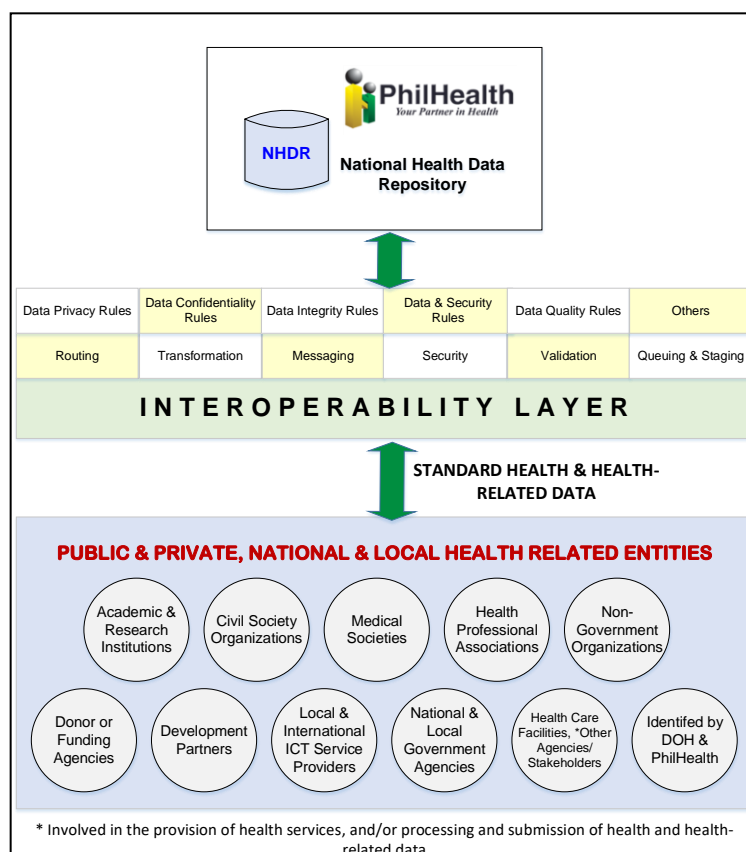
The Standards Conformance and Interoperability Validation is a compliance monitoring mechanism to achieve an integrated and interoperable health and health-related data submission and report processing. It will enable different health information systems and eHealth solutions of health care providers, insurers, and health-related entities to submit health and health-related data to the NHDR.

All health information systems and eHealth solutions that are being implemented or will be implemented by health care providers, insurers, and health-related entities shall be required to undergo and pass the Standards Conformance and Interoperability Validation to verify conformance with national health data standards for interoperability, and compliance with rules on processing and submission of health and health-related data to the NHDR.

Interoperability Layer

All health care providers, insurers and health-related entities have to submit health and health-related data to the NHDR, as defined by the DOH and PhilHealth through the National Health Data Standards for Interoperability. In order to submit data electronically to the NHDR, their systems or applications (e.g. EMR, Hospital Information System, Pharmacy System, Finance System, Administrative and Logistic Systems, others) must pass the Standards Conformance and Interoperability Validation (SCIV).

The interoperability layer is the single point of entry to enable submission of health and health-related data to the NHDR. It identifies and authenticates users; checks access rights and privileges; logs transactions; checks compliance with data codes, data privacy rules, data confidentiality, data integrity, data security, data quality; and others as defined by the DOH and PhilHealth.



E. SERVICES AND APPLICATIONS

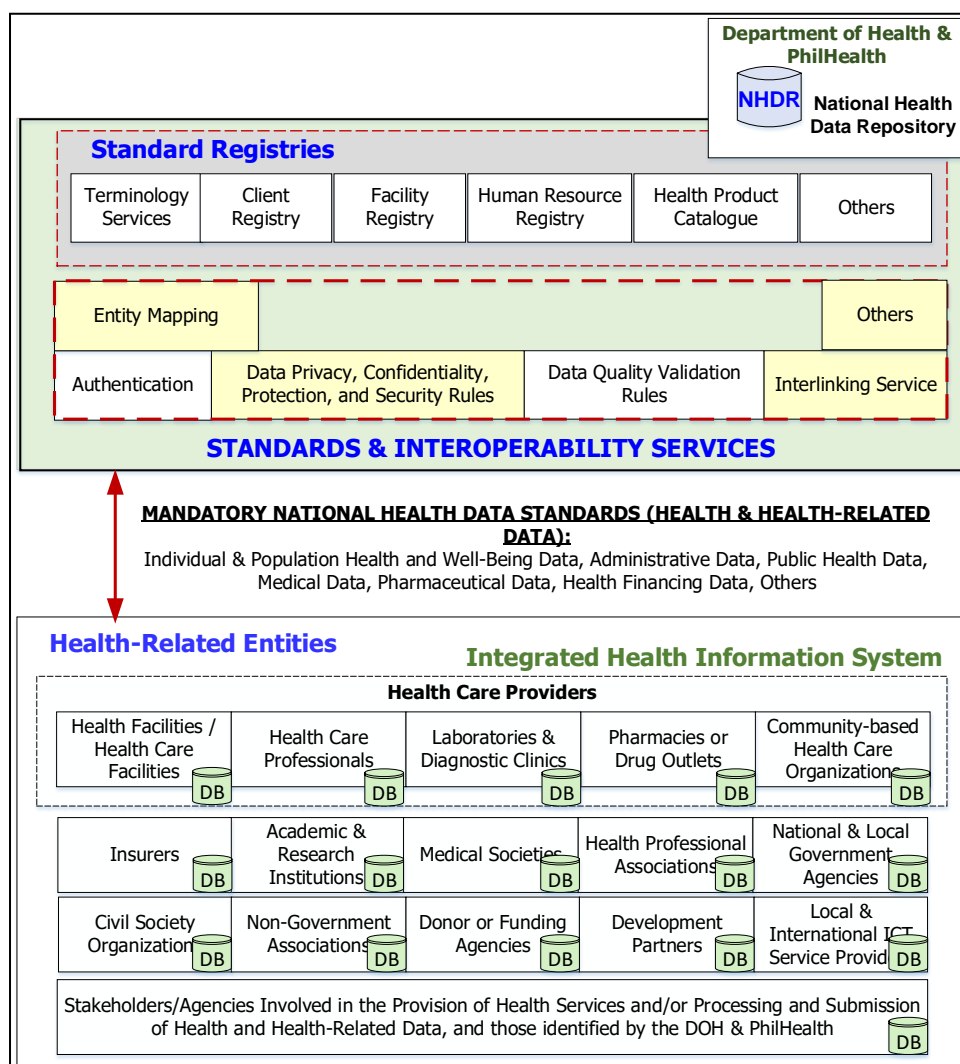
Services and applications are the systems, applications, innovations, solutions, software, and other services that clients can use to interact with the NHDR.

Dataset Submission

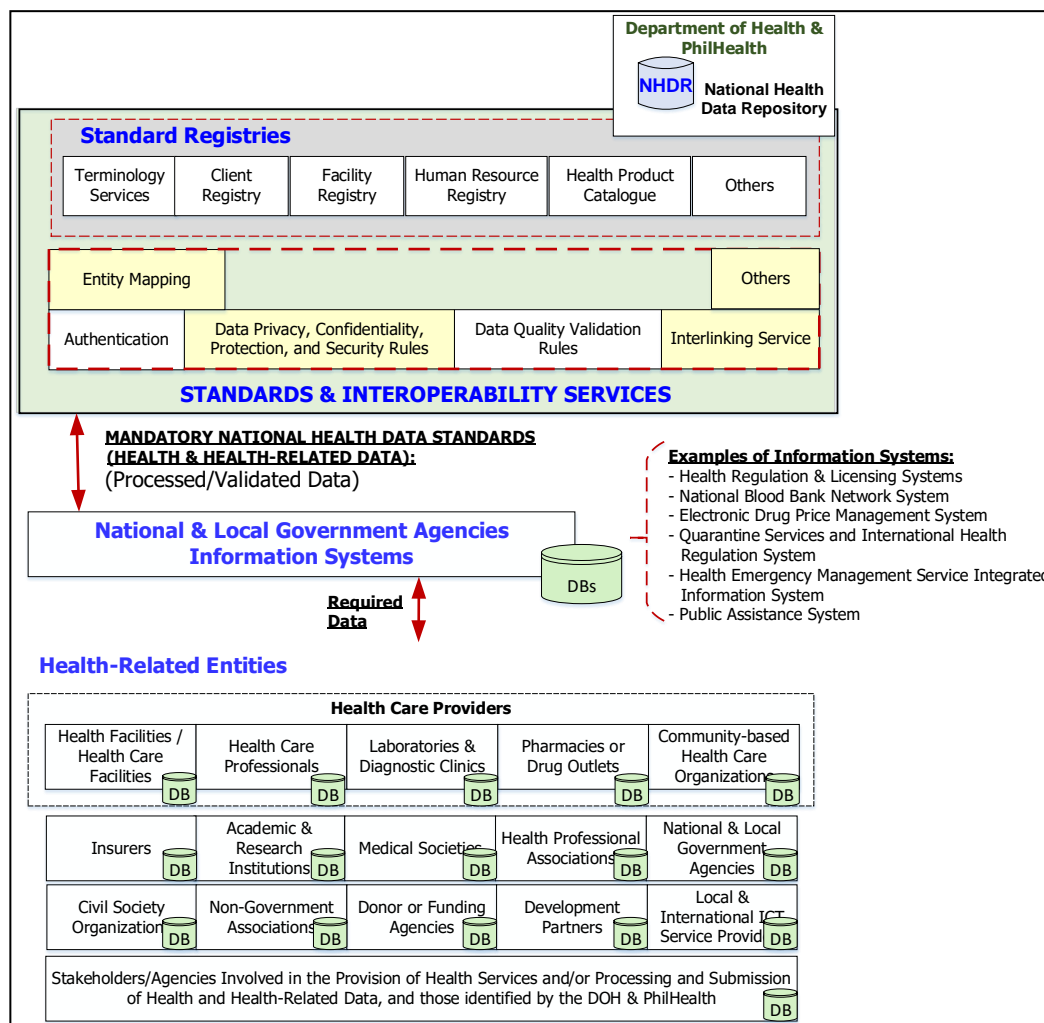
Health care providers, insurers and health-related entities with certified or validated information systems or applications can submit health and health-related data to the NHDR using centralized or decentralized model of submission.

Centralized Dataset Submission Model

The Centralized Dataset Submission Model enables the health care providers, insurers, and health-related entities to submit health and health-related data directly to the NHDR. These health and health-related data are health or medical records, accidents/injuries, health programs or projects, and others as will be determined by the DOH and PhilHealth.



Decentralized Dataset Submission Model



National and local government units collect data to serve their mandates or functions. There are health-related data that have to undergo processing at the national and local government units before it can be submitted to the NHDR. An example of this is the DOH Integrated Licensing Information System (for health facilities and services) that includes the licensing and accreditation of health facilities (hospitals, clinics, laboratories, and other health service establishments) and services that require document review and actual site inspection. The DOH and PhilHealth will review and decide what data will be submitted to the NHDR, i.e. all or only those that passed the document review and actual site inspection of the DOH.

Another example is the Philippine Statistics Authority that conducts periodic censuses on population, housing, agriculture, fisheries, business, industry, and other sectors of the economy. Data on birth and death can be submitted to the NHDR. The DOH and PhilHealth will review and decide the data that can be directly submitted or pass the national or local government units' processing to the NHDR.

Datasets for Integration/Harmonization into the NHDR

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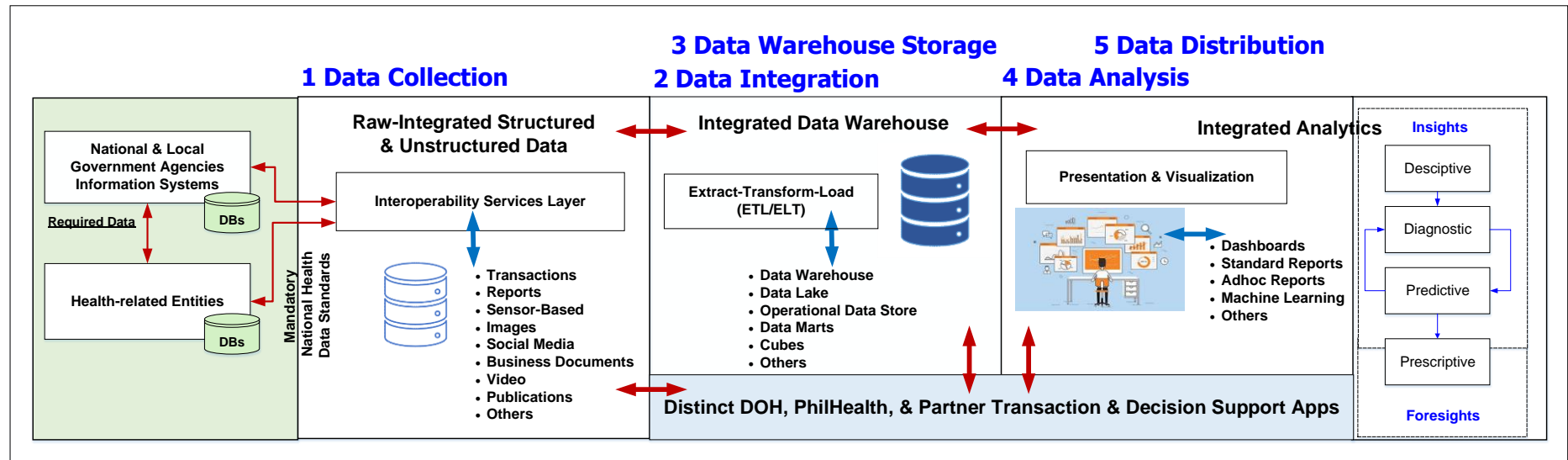
There are existing DOH information or application systems where the datasets have to be integrated or harmonized into the NHDR. Examples of these information or application systems are:

- Electronic Drug Price Management System
- Family Planning Registry
- Field Health Service Information System
- Filariasis Information System
- Integrated Clinic System
- Integrated Drug Test Operations and Management Information System
- Integrated Hospital Operations and Management Information System
- Integrated Licensing Information System
- Integrated TB Information System
- Leprosy Information System/Leprosy Alert Response And Surveillance Network
- Maternal And Neonatal Death Reporting System
- National Blood Bank Network System
- National Health Facility Registry
- National Health Workforce Registry
- National Rabies Information System
- Other Vertical Health Programs Info/Reporting Systems like Malaria and Other Infectious Diseases (ID), and also Non-Communicable Diseases
- Philippine Integrated Disease Surveillance Reporting System
- Schistosomiasis Information System
- Watching Over' Mothers And Babies
- Others as Defined in the Information System Strategic Plan

Business Intelligence and Analytics

All health and health-related data (whether restricted, private, or public) shall be integrated, processed, and analyzed for insights to support the operational, tactical, and strategic planning of the DOH and PhilHealth. Business Intelligence (BI) is a technology-driven process for analyzing data and delivering actionable information that helps executives, managers, and workers make informed business decisions.³¹

The diagram below shows the Business Intelligence and Analytics Framework of the NHDR. The framework includes data collection, data integration, data storage, data analysis, and data distribution.



³¹ <https://searchbusinessanalytics.techtarget.com/definition/business-intelligence-BI>

1. **Data Collection:** All health and health-related data submitted by all health-related entities will be initially stored in a database for integration and further processing.
2. **Data Integration:** Health and health-related data will be pulled from the initial storage, cleaned and loaded to the final stage, i.e. data warehouse storage. As the data is moved to the data warehouse, it can be formatted, reorganized, cleaned, validated, aggregated or summarized, integrated, and transformed as applicable. Depending on the architectural design (as will be finalized during the detailed technical design phase of the business intelligence), an extract, transform, and load (ETL) or extract, load, and transform (ELT) process will move the data from the initial source to the data warehouse.
3. **Data Warehouse Storage:** The data warehouse is the centralized repository of integrated health and health-related data from the initial source. It stores current and historical data that are used for reporting and analysis. The data in the data warehouse can be stored in the lowest level of detail (e.g. patient level), with aggregated views for reporting; and becomes a permanent storage for reporting, analysis, and business intelligence.

The data warehouse represents the single source of truth for health where it is also easier to create business intelligence solutions, such as online analytical processing (OLAP) cubes. Datasets can be organized into analytics data models or OLAP cubes to prepare them for data analysis. OLAP cubes can provide self-service business intelligence capabilities to users. It can provide rapid analysis of data, can display and aggregate huge amounts of data, provide users with searchable access to any data points, and users can slice and dice the data depending on their needs or interests.

4. **Data Analysis:** Health and health-related data in the data warehouse can be visualized and shared using powerful business intelligence or analytics tool or solution. The tool will enable connection to the data in the data warehouse, transform and model the data, create graphs and charts, and create dashboards and reports. There are models to support the spectrum of DOH and PhilHealth analytics requirements like:
 - **Descriptive Analytics:** This answers the question: "What happened?" - Uses aggregation and data mining techniques to provide historical insights on health indicators using dashboards, reports, and other types of presentation.
 - **Diagnostic Analytics:** This technique answers the question "Why did it happen?" - Diagnostic analytics takes a deeper look at data to understand the causes of events and behaviors. It is a form of advance analytics which could examine why certain diseases may have different claim level (amount and count) patterns based on payment schemes. It could also help understand the effects of vaccinations in reducing the incidences of diseases.
 - **Predictive and Prescriptive Analytics:** These techniques answer the questions: "What could happen?" and "What should we do?"
 - **Text Analytics:** This converts large volumes of textual data into summaries from surveys, news, emails, blogs, forums, transcripts, and documents.

- Advanced techniques like Audio Analytics, Video Analytics, and Social Media Analytics - Audio analytics extract information from audio files, and can help analyze human language, linguistics, and speech; video analytics helps monitor and analyze video streams; social media analytics can mine structured and unstructured data from social networks like FB, blogs like Twitter, media sharing sites like Instagram, others.

5. **Data Distribution:** Information presented in the form of graphs, charts, dashboards, and reports can be shared with others. Users like executives, managers, and business process units can use the information for decision-making, strategic, operational, and tactical planning, development of policies and program interventions, among others.

Integrated / Harmonized Reports

The NHDR will address the recurring issues and problems on poor quality and untimely generation and reporting of data/information for evidenced-informed sectoral policy and planning. Integrated or unified reports or dashboards can be created like:

- Electronic health record showing the unified view of a patient's record (e.g. demographic information and clinical information on examination tests and results, others)
- Integrated reports on disease surveillance, disaster preparedness and response, financial management, health advisories, health activities and services, health human resources, health laws/policies/standards, health programs, logistics, licensing and accreditation, medical assistance, performance monitoring, national health insurance program, technical reports/publications/researches, surveys, and others

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Electronic Health Record (Unified View of Patient's Record)	Examination Tests & Outputs	Financial Management	Health Laws, Policies, & Standards	Disaster Preparedness & Response
Disease Surveillance & Health Programs <ul style="list-style-type: none"> Disease Surveillance Notifiable Diseases Health Programs: <ul style="list-style-type: none"> Blindness Prevention Program Cancer Prevention & Control Cardiovascular Disease and Diabetes Mellitus Prevention and Control Deworming Services Environmental Health & Sanitation Services Family Planning Services Filariasis Prevention & Control HIV-AIDS/STI Prevention and Control Services Immunization Services Intrapartum Care and Delivery Outcome Leprosy Lifestyle Related Diseases Malaria Management of Sick Infants and Children Nutrition Services Oral Health Care Prenatal Care Rabies Safe Motherhood Program Schistosomiasis Prevention & Control Soil Transmitted Helminthiasis Prevention and Control Tuberculosis Others 	Health Activities & Services <ul style="list-style-type: none"> F1 Plus Botika ng Bayan and Botika ng Bayani Program - Licensed Outlets Official Development Assistance on Health, Budget, Activities, Utilization, Accomplishments & Status Inventories & Results Health Technology Health Activities (e.g. Events, Campaigns); Particulars (Round/Batch, Vaccine, Target Population/Areas, Eligible Population, Dates of Activity, Coverage, Coverage Rate) Health Promotion Awareness Campaigns (e.g. BIDA Solusyon sa COVID-19, Healthy Pilipinas) LGU Health services like maintenance of Barangay health center and day-care center LGU Services and Facilities related to general hygiene and sanitation, beautification, and solid waste collection LGU health services like implementation of programs and projects on primary health care, maternal and child care, and communicable and non-communicable disease control services; access to secondary and tertiary health services; purchase of medicines, medical supplies, and equipment LGU Infrastructure facilities like clinics, health centers and other health facilities necessary to carry out health services Others 	<ul style="list-style-type: none"> Approved Budget for the Contract of Procurement Packages by Particulars, e.g. (Vaccines, drugs and medicines, medical, dental, laboratory supplies, family planning commodities, and supplies); (type of procurement (goods and services, consulting services, infrastructure) Health Budget (i.e. DOH, DOH Attached Corporations, DOH Attached Agencies, National & Local Government Units, Health Care Providers, Insurers, Others): By Particulars (Personnel Services, MOOE, Capital Outlay, Others); (by Programs); By Organizational Outcomes (Administration & Support Services, Support to Operations, Operations Budget); Others like Bayanihan I and II Health Budget Allotment & Obligation Health Budget Utilization / Disbursement Medical Assistance Budget & Utilization NHIP Reserve Funds Others 	<ul style="list-style-type: none"> Health Laws, Policies, Frameworks, Public Health Standards, others Manuals, Modules, Standard Operating Procedures, Guidelines, Technical Guides, Handbooks Sectoral Engagement & Partnerships (e.g. Memorandum of Agreement/Understanding, Task Force Groups, Committees, Technical Working Groups, Coordinated Operations) Others 	<ul style="list-style-type: none"> Death Cases Disasters by Particulars(e.g. Volcanic Eruptions, Typhoons, Earthquakes) Essential Health Services Delivered Hospitals, Bed Utilization & Availability Hotlines Isolation & Quarantine Sites, Utilization & Availability Treatment & Monitoring Facilities, Utilization & Availability Telemedicine, Schedules, Contact Information Logistics & Estimated Costs Damaged Health Facilities & Estimated Costs Others
Medical Assistance <ul style="list-style-type: none"> Medical Assistance Programs; Particulars (By establishments' list and count [e.g. Malasakit Centers]) Others 	<ul style="list-style-type: none"> LGU Infrastructure facilities like clinics, health centers and other health facilities necessary to carry out health services Others 	Licensing & Accreditation <ul style="list-style-type: none"> Licensed Health Care Facilities, Establishments, Others Registered or Certified Health Products Accredited Health Care Providers - NHIP Certified/Validated IT Service Providers Accredited Health Care Provider Networks LGU Issued Health-related Licenses & Permits Health Certifications Others 	Logistics <ul style="list-style-type: none"> Health Logistics Inventory (Items, Quantities Received, Quantities Delivered/Dispensed, Stocks on Hand, others) Others 	Health Human Resource <ul style="list-style-type: none"> Health Human Resource By Particulars (e.g. Scholarship Programs; Course, Institution, Batches, Scholars) Health Human Resource By Particulars (e.g. Scholarship Programs; Origin of Scholars [Indigenous Community, GIDA, Others]; Degree Program / Course [Doctor of Medicine, Diploma in Midwifery, BS in Midwifery]) Health Human Resource Deployment By Particulars (e.g. Nurses, Doctors, Dentists, Midwives, Medical Technologies, Nutritionists-Dieticians, Public Health Associates, Pharmacists, Physical Therapists) Health Human Resource Deployment By Particulars (e.g. Specialists under Residency Programs) Others
Capability Building <ul style="list-style-type: none"> Unified eLearning Programs by Particulars (e.g. Courses) Others 	Technical Reports, Publications, & Researches <ul style="list-style-type: none"> Classification, Types, Counts, Percentages Others 	Health Advisories <ul style="list-style-type: none"> Classification, Types, Counts, Percentages Others 	Demographic Information <ul style="list-style-type: none"> Demographic Profile (e.g. Health Care Providers, Number and Ratio to Population by Region, Province and City) Others 	
National Health Insurance Program <ul style="list-style-type: none"> Membership & Contributions Benefits Claims Others 			Performance Monitoring <ul style="list-style-type: none"> Performance Scorecards (e.g. City/Municipality Composite Measure Scorecard, LGU Health Scorecard, Hospital Scorecard) Outcomes Assessment of Services Rendered by Health Care Providers - NHIP Others 	
			Surveys, Publications <ul style="list-style-type: none"> Classification, Types, Counts, Percentages Client Satisfaction Surveys Others 	
			Administrative Cases <ul style="list-style-type: none"> Health Care Providers and Members - NHIP 	<Others>

Data Access Request

Data access refers to data release and data sharing.³² Data sharing refers to the disclosure of health and health-related data of public interest available as open to the public. Data sharing refers to the sharing, disclosure, or transfer to a third-party of health and health-related data under the custody of a data controller to one or more other data controllers. All data sharing of private or restricted data shall require the execution of a data sharing agreement (DSA) or its equivalent. Health and health-related data will be made available and accessible to every stakeholder in the right way, and processed in a lawful, ethical, secure, consistent, and efficient manner at all levels of health care utilization.

An individual can have the right of access to his/her personal data which have been submitted to the NHDR. Approval and disapproval of data access requests shall be a shared responsibility between the DOH and PhilHealth. As such, a policy and detailed procedures on data access request and response shall be formulated by the DOH and PhilHealth to include the following major areas of concern:

1. Legitimate basis for the data access request
2. Exceptions to Right to Access of Information as per Memorandum Circular No. 89 – Updating the Inventory of Exceptions to the Right to Access of Information Under Executive Order No. 02, Series of 2016
3. Determination of data classification of health and health-related data being requested as basis for approval or disapproval³³

Data Classification	Action
a Contains personal data	Comply with the National Privacy Commission Circular 2020-003 on “Data Sharing Agreement”
b Contains only non-personal data but considered as private data	Comply with the DOH and PhilHealth Policy on data access
c Contains only public data	Approval and directed to the Open Data Platform of the NHDR
d Contains restricted data	Automatic disapproval

³² Item IV Definition of Terms, JMC No. 2021-0001 Implementing Guidelines of Section 31 of RA No. 11223, otherwise known as the “Universal Health Care (UHC) Act,” on the Processing and Submission of Health and Health-related Data

³³ 1b of Letter C, Item VI Specific Guidelines, JMC No. 2021-0001 Implementing Guidelines of Section 31 of RA No. 11223, otherwise known as the “Universal Health Care (UHC) Act,” on the Processing and Submission of Health and Health-related Data

Health Information Exchange (HIE)

Health Information Exchange (HIE) allows health care professionals and patients to appropriately access and securely share a patient's medical information electronically.³⁴ There are several benefits in the electronic exchange of medical information like improving the quality of health care by reducing medical errors like in the case of medication; reduce the amount of time patients spend in filling out their medical histories and other data that has been previously provided; and reduce unnecessary tests and services.

The DOH, DOST and PhilHealth Joint Administrative Order No. 2016-0001 (January 20, 2016) – Implementation of the Philippine Health Information Exchange institutionalized the adoption and implementation of the Philippine Health Information Exchange (PHIE) as an integral component of the health care delivery system to support and facilitate the attainment of Universal Health Care. It set the direction and defined the policies to guide decisions and achieve rational outcomes in the implementation of the PHIE, and provided the operational mandate and management guidelines for the implementation of the PHIE based on the agreed upon policies and protocols.

Another DOH, DOST, and PhilHealth Joint Administrative Order No. 2016-0002 (January 20, 2016) – Privacy Guidelines for the Implementation of the Philippine Health Information Exchange was released for the processing of health information to ensure that public health goals are achieved and the quality of patient care is improved through utilization of information and communications technology, while protecting the privacy of patients and their health information. It defined and limited the circumstances in which an individual's health information is collected, accessed, disclosed or otherwise processed; provided parameters for obtaining consent from the patient for participation in the PHIE; defined the rights of patients participating in the PHIE; and provided guidelines for data protection.

The Philippine Health Information Exchange and its privacy guidelines were not implemented. The NHDR is an enabler to support the implementation of the PHIE to facilitate the attainment of UHC. As such, the joint administrative issuances in the implementation of the PHIE and its privacy guidelines must be reviewed, evaluated, and/or updated by the DOH and PhilHealth to align with the UHC Act.

HIE Use Cases:

There are a number of HIE use cases to improve care coordination and integration into various care transitions. Examples of some use cases using the NHDR are as follows:

Query-based Exchange: Enables health care professionals to find and/or request information on a patient from other health care professionals using the NHDR. Emergency room health professionals can utilize the query-based exchange to access a patient's information such as medications and alerts to avoid duplicative testing or adverse medication reactions.

³⁴ <https://www.healthit.gov/topic/health-it-and-health-information-exchange-basics/health-information-exchange>

Network Referral System: The referral system is a process undertaken by a health care provider with insufficient resources to manage a patient's condition, and seeks the assistance of a better resourced health care provider. A rural health unit health care provider (RHU-HCP) can send a referral request to a specialist in a hospital via the NHDR. The RHU-HCP searches for a specialist using the NHDR, uploads the referral request and health record to the NHDR. The specialist will be notified, able to receive the referral request and health record from the NHDR, and set the appointment schedule. The specialist uploads the patient's encounter data after consultation or discharge.

Open Data

Statistical data or reports can be generated from the data warehouse, i.e. items of numerical health data, information, or facts that are grouped into definite areas or subjects. The NHDR's Open Data will include the presentation of statistical data with visualizations, and its metadata. Open Data will allow the DOH and PhilHealth to share data under an open data license where data can be freely used, re-used and redistributed by anyone without restrictions other than proper source attribution.

The NHDR's Open Data site can be linked with Open Data Philippines, the Philippine Government's program to proactively release public sector datasets and generate an ecosystem for its use and reuse by the public.³⁵

eHealth Services and Applications

eHealth is the use of information and communication technologies for health to improve the efficiency and effectiveness of health system management and care delivery. eHealth services, applications or solutions using the NHDR can be designed, developed, and implemented by the DOH and PhilHealth. Examples of eHealth services are as follows:

1. Frontline Applications that directly benefit an individual. Examples are:
 - Find a Doctor, Experiences, Services, and Fee
 - Check a DOH Licensed and PhilHealth Accredited Health Care Facility
 - Find a Drug/Medicine, Lowest Price, and Nearest Pharmacy
 - Find a Health Insurance Institution, Packages, and Amount
 - Find a Laboratory / Examination Services, with Lowest Cost, and Nearest Health Care Institution
 - Find a Licensed / Accredited Health Product or Equipment, with Lowest Price, and Nearest Store
 - Find a Specific Medical Assistance
 - Find a Telemedicine Provider, Experiences, Desired Services, and Fee
2. Special Health Fund Operations, Monitoring and Management System: enables pooling, management, and monitoring of all resources intended for health services.
3. Mobile Health Applications or Services through mobile technology like mobile phones and handheld computers. Examples are: Treatment support, health advice and medication compliance; Health information to health care providers,

³⁵ <https://www.opengovpartnership.org/members/philippines/commitments/PH0031/>

researchers, and patients; Health education and awareness programs; diagnostic and treatment support; communication for health-care workers

4. Electronic Prescription: serves as hub that routes e-prescription data from a health care provider to a participating pharmacy electronically; pharmacy checks availability of prescribed drugs or medications; and sends notification to the patient of its availability.
5. Alerts Monitoring and Management: trigger alerts based on policies or when certain conditions occur.
6. Personal Health Record Management: allows individuals or patients to maintain and manage their health information; or that of others for whom they are authorized in a secured environment. It may also include a dashboard for their health monitoring.

F. DIGITAL INFRASTRUCTURE

Digital Infrastructure refers to the digital technologies to enable the NHDR to operate efficiently and effectively. The DICT DC No. 2017-002 re: Philippine Government's Cloud First Policy, declared it the policy of the government to adopt a "cloud first" approach and for government departments and agencies to consider cloud computing solutions as a primary part of their infostructure planning and procurement. DC No. 010 Series 2020 provided amendments to DC No. 2017-002.

PhilHealth's Corporate Order No. 2021-0070 Securing Cloud Computing Services (Revision 2) aims to ensure that the use of cloud computing services is implemented in accordance with the amended Circular of the DICT (DC No. 010 Series 2020 provided amendments to DC No. 2017-002), the Right to Privacy as enshrined in the 1987 Constitution of the Philippines, the e-Commerce Law of 2000, Data Privacy Act of 2012, National Cybersecurity Plan of 2022, and existing Corporate policies.

The NHDR shall adopt cloud computing as the preferred ICT deployment strategy, method, or technology for the delivery of its intended objectives and services, aligned with Section 1.2 of the amended DICT's CFP. All risks and vulnerabilities associated with the data stored or processed using the public cloud deployment model shall be adequately and efficiently addressed through appropriate controls and security protocols.

In case the DICT will shoulder the cloud computing infrastructure service, a Memorandum of Agreement must be executed between the DOH, PhilHealth, and DICT for the DICT to host the NHDR including its applications or information systems, disaster recovery, security, network/internet connectivity, others; administrative, technical and end-users support to manage the cloud operations; and responsibilities of concerned parties.

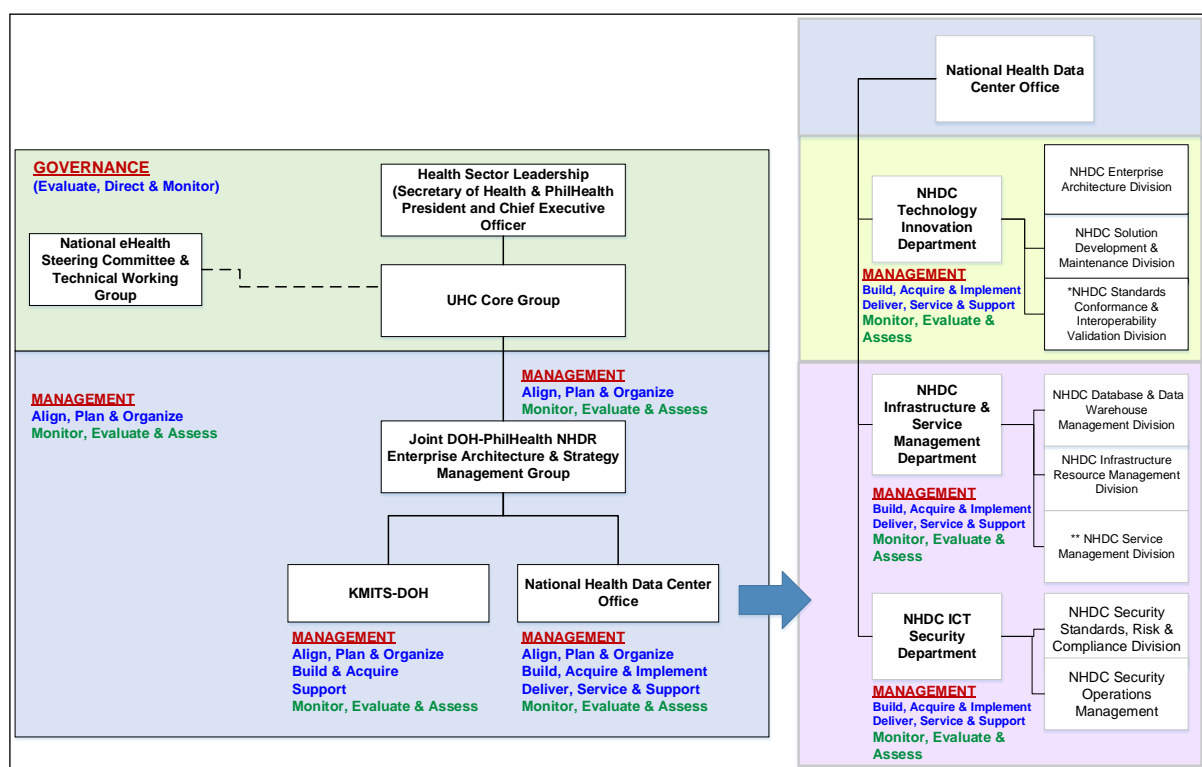
Detailed technical specifications of the cloud computing infrastructure service shall be done by the DOH and PhilHealth, in coordination with the DICT. The technical specifications will include among others the backup and recovery strategy, and mechanism for DOH to have a copy of the NHDR health and health-related data.

G. HUMAN RESOURCE

Human Resource refers to the personnel who shall design, develop, operate, support, and maintain the NHDR. The human resource must have the necessary knowledge, skills, expertise, and experiences to undertake the NHDR’s activities and tasks. There is a proposed National Health Data Center Office (NHDCO) to be lodged in PhilHealth to oversee, develop, implement, and maintain the NHDR.

The DOH and PhilHealth shall provide adequate human resource development for select personnel to undergo relevant and appropriate trainings, seminars, and certification courses, and programs of the DICT or its partner institutions for capacity building and development of the essential skills relating to compliance with local and international standards and best practices for ICT design, infrastructure, security and operations.

Organizational Structure and Functions of the NHDCO



General Functional Statements

National Health Data Center Office

1. Oversee, develop, implement, and maintain ICT initiatives, innovations, solutions to ensure that such run smoothly and align with the overall strategy of the UHC;
2. Perform strategic planning and recommend courses of action for technology-related improvements; and
3. Create schedules, define the scope and budget (usual project management tasks) and oversee ICT project from end to end.

NHDC Technology Innovation Department

1. Set national standards, review of policies, work instructions, guidelines, procedures including SOPs, maintenance, monitoring, and evaluation, systems integration and harmonization, and technology innovation or research and development;
2. Harmonize national ICT health activities and align with the UHC;
3. Develop and maintain citizen-centric applications or solutions; and
4. Optimize use of resources; and address weaknesses or inefficiencies that occur when undertaking a project and eliminating potential risks, which can occur due to lack of information or system available.

NHDC EA Division

1. Enterprise Architecture: Formulate and maintain the NHDC Enterprise Architecture to standardize and organize the ICT infrastructure, ensure alignment to UHC or national goals, able to support digital transformation and growth of data;
2. NHDC Planning and Budget Management: Prepare the necessary plans and budget requirements, and relevant documents for compliance;
3. NHDC Standards (Policies, Standard Operating Procedures, Guidelines, and other Protocols) Formulation, Review and Evaluation: Develop new standards; update existing standards; review terms of references, ICT proposals, and other NHDC related projects or programs. (Examples are NHDC Data Management and Administration, Users' Access Policy, NHDC Security Manual, NHDC Backup and Recovery, Cybersecurity Policy, Backup and Recovery policies, NHDC Data Privacy, others);
4. NHDC Standards Compliance Monitoring: Monitor and assess the performance of the NHDC using metrics as agreed by PhilHealth and DOH;
5. NHDC Risk Management: Identify, assess, and control threats; implement a risk management plan or strategy to protect the NHDC; and
6. Artifacts Maintenance: Maintain a central ICT artifact, a granular architectural work product that describes an architecture from a specific viewpoint. Examples include a network diagram, a server specification, a use-case specification, a list of architectural requirements, and a business interaction matrix.

NHDC Solution Development and Maintenance Division

1. National Data Submission: Develop and maintain the data submission programs or scripts, and other utilities to enable submission of health and health-related data to the NHDC;
2. Enables build of business intelligence applications by providing capabilities in analysis, information delivery, and platform integration. Business intelligence uses data to make decisions by collecting, reporting, and monitoring data for interpretation; and filters existing data to determine trends and patterns in the past and present for better decision making. Analytics utilizes business intelligence to interpret data to predict future patterns based on current data;
3. Machine Learning and Big Data Analytics: Build/Maintain models using appropriate technology to support the health sector's strategic planning,

- e.g., use predictive analytics to examine unstructured data like social media posts; use of machine learning to evaluate behavior, others;
4. Grants data access to different users as reinforced by permission rights and security levels, and structured according to data governance policies. This enables execution of health information access, data sharing and exchange between health care providers and entities involved in the provision of health service, including health care provider networks;
 5. Health Information Exchange: Build/maintain a secure data exchange/sharing among health care providers/institutions to reduce spending, duplicative testing and services; fraud prevention and detection, others;
 6. NHDC Data Dictionary Management: Manage the data dictionary, where the NHDC stores definitions of the data elements and their relationships (metadata);
 7. Database Access Languages and Application Programming Interfaces: Create queries and Application Programming Interfaces to make it easy for user to specify what they want done without the headache of explaining how to specifically do it;
 8. Database Communication Interfaces: Create Database Communication Interfaces to accept different end user requests through different network environments;
 9. Transaction Management. Manage transaction database to guarantee that all the updates in a given transaction are made or not made and complies with the properties on atomicity, consistency, isolation, and durability;
 10. Enable generation of meaningful data or information to assist health care providers in the decision-making process (e.g., diagnosis and treatment; identification of potential drug interactions, others);
 11. Enable use of priority eHealth services and applications to improve the efficiency and effectiveness of the health system management and health care delivery;
 12. Enable use of mobile devices for data collection, real time monitoring of individual's health; diagnosis and treatment support, among others; and
 13. Support for electronic consultations or provision of health-care services at a distance.

NHDC Standards Conformance and Interoperability Validation Division

1. Issue schedules for orientation and testing for software validation;
2. Conduct orientation of software validation;
3. Conduct software validation testing;
4. Confirm result of software validation testing and recommend for issuance of validation certification;
5. Provide technical support in software validation testing; and
6. Monitor performance of implementing sites on standards conformance and interoperability implementation.

NHDC Infrastructure and Service Management Department

1. NHDC Infrastructure:

- a. Plan, design, implement and maintain server configurations, routing protocols, network configurations and storage environments to facilitate the needs of the NHDCO;
 - b. Configure server backups, monitor network use statistics and loads, and implement contingency plans to minimize network and system downtime; and
 - c. Ensure implementation of security policies and protocols.
2. **Service Management:** Deliver information technology services through Service Management, a framework to structure IT-related activities and the interactions of IT technical personnel with clients.

NHDC Database and Data Warehouse Management Division

1. Data Integrity Management: Manage data integrity to reduce things such as data redundancy, which is when data is stored in more than one place unnecessarily, and maximizing data consistency, making sure database is returning correct/same answer each time for same question asked;
2. Ensure that quality data is stored, processed, transformed, and used to drive the decision-making process. This also establishes the policies and processes for building trust in the data;
3. Maintain important or critical historical data that has been extracted from the operational database, and transformed into accessible formats for analytical users. It is designed to analyze, integrate, and report data coming from different sources; and uses Online Analytical Processing (OLAP);
4. Enable identification or verification of codes or references that are considered standards to all who will be availing of the NHDC services;
5. Ensure or guarantee the integrity and consistency of the submitted health and health-related data in the database through appropriate management of the following: data dictionary, data storage, security, access control, integrity, communication interfaces, others. It is designed to record the submitted health and health-related data; and uses Online Transactional Processing (OLTP); and
6. Enable dissemination of health and health-related data that is available to everyone to access, use and share. This can be linked to the Open Data Philippines that collects datasets from different government agencies that are deemed "open".

NHDC Resource Management Division

1. NHDC Technology Improvements: ensure continuous improvements in the data center using applicable emerging or advanced technologies to improve power and storage efficiency, and user's experience;
2. Manage the data networking and connectivity infrastructure to support the NHDC services and applications;
3. Manage the virtual servers to support the NHDC services and applications;
4. NHDC User's Access Management: Enable multiple users to access the NHDC without affecting the integrity of the database;

5. Backup and Recovery Management: Manage backup and recovery to ensure data safety and integrity; and
6. Associated services to support the secure storage of and access to the NHDC.

NHDC Service Management Division

1. Define and maintain service request / incidence classification and prioritization to ensure consistent approaches to handle and address problems;
2. Establish and maintain service/ incident models for issues or problems to enable efficient and effective resolution;
3. Log all service requests and incidents; record all relevant data or information; and maintain historical record;
4. Maintain the log or catalogue to establish audit trails of the problem's processes, including its status like closed, open, in progress, others;
5. Using manual or automated system, classify service requests and incidents;
6. Address service requests and incidents based on impact and urgency;
7. Identify service request/incident resolution; Assign to expert functions if needed;
8. Engage appropriate level of management if needed;
9. Perform recovery action if needed to resolve and recover from incidents;
10. Document incident resolution for future reference;
11. Verify with concerned users that the service request/incident has been accomplished or resolved within acceptable or agreed period of time;
12. Close service requests/incidents;
13. Monitor status of the problem; track service request/ incident escalations and resolutions to completion;
14. Identify problems in coordination with the other sections through correlation of incident reports, error logs and others;
15. Handle problems using evidenced data;
16. Consult with business process unit/office to ensure that problem identification and root cause analysis are performed; and
17. Monitor the continuing impact of problems.

NHDC ICT Security Department

1. Define, communicate, and enforce technology-related policies, standards and procedures;
2. Mitigate risk related to data breaches and cyber-attacks; and
3. Develop security incident management plans and ensures that all technology-related systems, innovations, or solutions meet defined security requirements.

NHDC Security Standards, Risk and Compliance Division

1. ICT Security Risks Management: Identify, assess, and mitigate ICT security risks; monitor changes in current threats and trend for future threat analysis; conduct periodic risk evaluations; and identify mitigation measures;

2. ICT Security Standards Development: Conceptualize and formulate viable, efficient and effective security measures, policies and procedures related, but not limited to Business Continuity Plans, Backup and Archival, Database Security, Access Controls, Incident Management, Software Development and Acquisition Security; and Wireless Networking Security; establish framework to control the collection, use, and disclosure of the personal information;
3. ICT Security Review and Evaluation: Review Data Sharing Agreements; outsourcing Agreements; Consent Forms, Non-Disclosure Agreements, and other documents affecting data protection;
4. Privacy Impact Assessment: Conduct regular privacy impact assessment to ensure compliance with the requirements of Data Privacy Act;
5. ICT Security Research and Development: Research on mainstream, new, cutting-edge technologies and methodologies designed to ensure the security and integrity on information resources;
6. ICT Security Investigation: Investigate security/data breaches; and
7. ICT Security Compliance: Formulate annual reports of security incidents and data breaches to the NPC, and other privacy requirements required by the government.

Note:

This will serve as the Data Protection Unit which will report to the overall Corporate Data Protection Officer of PhilHealth. The functions will be for updating and presentation to the Change Management Committee of PhilHealth.

NHDC Security Operations Division

1. Responsible for the day-to-day operational component or continuous monitoring of ICT infrastructure security to enable timely detection and response of security incidents;
2. Implement the ICT Security strategy, policies, procedures and protocols; and point of collaboration in coordinated efforts to monitor, assess, and defend against attacks;
3. Monitor and analyze on day-to-day the security health/posture of the NHDC, i.e., activity on networks, endpoints, servers, databases, applications/systems, websites, and other systems, for anomalous activity related to security incident or compromise;
4. Detect, analyze, and respond to ICT security incidents;
5. Ensure that potential security incidents are identified, analyzed, defended, investigated, and reported to the Corporate Information Security Department;
6. Collaborate with national ICT Security operations' initiatives, programs, and projects to enhance operational security mechanisms or processes;
7. Provide technical support to external national ICT Security operations' initiatives, programs, and projects;
8. Assess and mitigate threats; identify emerging risks;
9. Preserve, identify, extract, and document evidence which can be used in the court of law (i.e., computer forensics, disk forensics, network

- forensics, database forensics, email forensics, wireless forensics, others);
and
10. ICT Security Management: Manage/Administer the following:
 - a. Hardware inventories, disposal of obsolete equipment, physical access to servers and storage devices, running of patches, conduct of network scans, intrusion detection and prevention, external access or inter-linkages with offices, and penetration testing;
 - b. Databases, software and information systems;
 - c. Application Vulnerabilities;
 - d. System Security Testing;
 - e. Systems hardening;
 - f. Log management and review;
 - g. Administration of Security Event and Information Management;
 - h. Logical access rights review and maintenance;
 - i. Data Archival; and
 - j. Data backup and restoration

Joint DOH-PhilHealth NHDR Enterprise Architecture and Strategy Management Group

1. Establish the NHDR framework and enterprise architecture.
2. Execute the strategic direction in line with the enterprise architecture.
3. Manage activities, budget, risks, communication, and mechanisms to achieve the vision and benefits of the NHDR.
4. Establish quality requirements in all activities, processes, and procedures.
5. Establish effective management of the health sector's data across the data life cycle.
6. Formulate relevant policies and guidelines to support the establishment, operations, and maintenance of the NHDR.
7. Identify, assess, and address risks.
8. Monitor progress, performance, and status of establishing, operationalizing, and maintenance of the NHDR.

Health Care Providers or Institutions' Information Technology Support Personnel

The KMITS-DOH can formulate the required number and qualifications of information technology support personnel to implement or operationalize an integrated health information system at different levels of the hospitals and rural health unit facilities; and including the datasets submission or transmission to the NHDR.

PART 2: ACTION PLAN

The Action Plan is built on the NHDR's building blocks, and serves as a roadmap that defines the two (2) strategic phases to develop and implement the NHDR.

Phase 1: Standards Setting and EMR-NHDR Model Development and Implementation

At present, there is inconsistent adoption of health data standards across the healthcare service delivery chain in the country. There are different eHealth services, systems, applications, networks, and technologies with different data definitions, terminologies, elements, and structures being used by healthcare providers. Standards Setting encompasses the development and/or updating of the National Health Data Standards for Interoperability that shall serve as basis for the submission of the required health and health-related data to the NHDR, and standards conformance and interoperability validation of health information systems or eHealth services.

In Phase 1, the DOH shall also update its health enterprise architecture and integrated health information system framework, and restructure the Philippine eHealth Governance structure to ensure commitment and accountability in the development and implementation of the NHDR. The NHDR is a large and complex project, i.e. with multiple goals to achieve; variety of tasks to accomplish; collaboration, coordination, and/or engagement with different stakeholders; feasibility or applicability of using new standards and/or emerging technologies; presence of autonomous and independent systems and people that have to be integrated or harmonized; readiness of health-related entities to comply; and availability of resources for implementation.

As such, a use-case driven approach or MODEL (also refers to Electronic Medical Record – National Health Data Repository Model) shall be used to develop and implement the NHDR. The MODEL shall use "use cases" to effectively envision the outcomes, manage the scope, capture a set of requirements, focus on useful ways to use and gain value if the system is used, and drive the incremental development of the NHDR to completion.

Two (2) Use Cases of the Initial MODEL

- 1. Dataset Submission.** This is the ability of one information technology system to send quality health data from an Electronic Medical Record to the NHDR's data storage (FHIR Server³⁶). The NHDR will not interpret the submitted health data, but acknowledges receipt of the health data, stores the health data, and exports the health data to a data lake³⁷ storage.
- 2. Unified Business Intelligence & Analytics.** This allows the flow of health data from the data lake into the data warehouse where health data are transformed, enriched, standardized, cleansed, integrated, stored, and modelled to support various analytics needs or requirements.

³⁶ A FHIR Server supports the processing, validation, and storage of health data according to the HL7 Fast Healthcare Interoperability Resources (FHIR) specification.

³⁷ A data lake is a storage repository that holds a vast amount of raw data in its native format until it is needed for analytics applications. (<https://www.techtarget.com/searchdatamanagement/definition/data-lake>)

Integrated Health Information System (IHIS)

There are three (3) minimum requirements for compliance under the Enterprise Architecture Implementation Area, i.e. (1) fully functional, integrated health information system (HIS) as evidenced by capacity to demonstrate required functionalities, (2) compliance with the national health standards for interoperability as provided under the order and any subsequent issuances, and (3) Passing the DOH, PhilHealth, and DICT Standards Conformance and Interoperability Validation (SCIV) for application software as provided in the released issuance from the DOH, PhilHealth, and DICT.

A fully functional integrated HIS at the level of the health facilities is an important consideration or requirement prior to compliance with the national health standards for interoperability, and will affect the overall integration timeline. The specifications for DOH, PhilHealth, and DICT to issue SCIV Certification must be based on criteria or evidence measures to demonstrate the required functionalities. The Integrated IHIS-NHDR Workplan will be updated accordingly once we received the target timeline.

List of Minimum Datasets with the Data Dictionaries & Data Quality Rules, and initially aligned with the FHIR Standards to be Uploaded or Submitted to the NHDR: Please see DOH-PhilHealth Joint Administrative Order No. 2021-0001 dated 21 April 2021 – Guidelines in the Implementation and Maintenance of an Integrated Health Information System, Annex A – Integrated HIS Implementation Model, page 2, IHISIM Implementation Diagram).

1. Electronic Health/Medical Record – On-going with DOH-KMITS
2. Referral System Management
3. Telemedicine
4. Laboratory & Diagnostics
5. Electronic Prescription and Dispensing
6. Human Resources Information
 - i. Clinical Decision Support
 - ii. Enterprise Resource Planning
 - iii. Supply Chain Management
 - iv. Financial & Capital Asset Management
 - v. Quality Management System

This is an important consideration or requirement prior to compliance with the national health standards for interoperability, and will affect the overall integration timeline, as well as the submission of health and health-related datasets to the NHDR. The Integrated IHIS-NHDR Workplan will be regularly updated.

Phase 2: Updating of the EMR-NHDR Model and Implementation

Scaling Up the MODEL

The MODEL shall be enhanced and extended as new use cases are included (see Annex 1.0 – Examples of Use Cases). There will be a continuous and incremental integration and delivery of services and systems. The MODEL will evolve and can be applied to health-related data.

Major activities to be undertaken in scaling up the MODEL are as follows:

1. Design of the Process Flows

This is the development of an optimized process flows to describe a particular use case. An optimized process flow is efficient, integrated, and aligned with the NHDR Framework. The design of the process flows will include the use case name, actors, processes, business rules, and relationships or links to the other processes.

2. Expansion of the Minimum Standard Health Datasets

This is the identification of data to achieve the objectives of a use case, validation of data, and inclusion of new data in the list of minimum standard health data sets. This will also include the review and identification of data sources, standardization of data, and definition of data quality rules.

3. Development and/or Enhancement of the Dataset Submission and Unified Business Intelligence & Analytics

The process and data requirements of a use case will be incorporated or integrated into the Dataset Submission and Unified Business Intelligence & Analytics.

4. Review and Enhancement of the Data Governance Standards

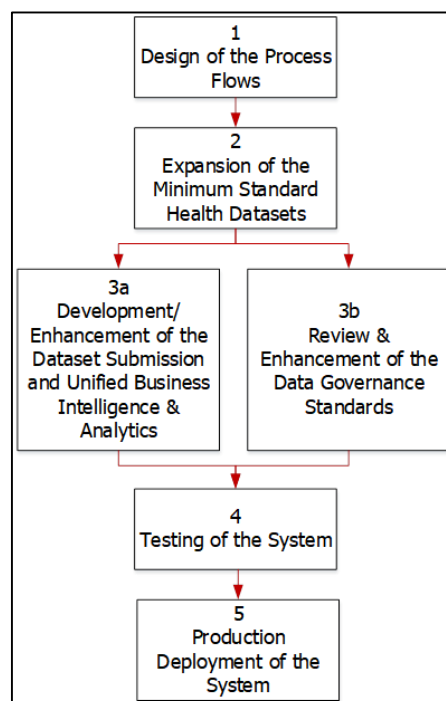
The data management requirements of a use case will be incorporated or integrated into the Data Governance Standards.

5. Testing of the System

The updated dataset submission and unified business intelligence and analytics will be tested to confirm the requirements of a use case.

6. Production Deployment of the System

The updated dataset submission and unified business intelligence and analytics will be deployed in a production environment.



National Health Data Repository Framework

As of 28 March 2022

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
		PHASE 1 Standards Setting Electronic Medical Record (EMR) - National Health Data Repository (NHDR) Modelling	PHASE 2 Updating and Implementation of the EMR-NHDR Model (Health Data)			Continuing System Maintenance Performance Monitoring & Evaluation			
				Updating and Implementation of the EMR-NHDR Model (Health-related Data)					
Continuous Integration and Delivery Support to Operations									

Note:

Detailed activities and monitoring of accomplishments and status will be included in the Integrated Workplan.

RISK MANAGEMENT

The development and implementation of the NHDR involve a level of risks or uncertainties that can have positive or negative impacts or effects. It is necessary to manage the risks to achieve the intended objectives of the NHDR, avoid failure and reworks, and maintain proper focus. The Health Sector Risk Registry (HSRR) of the National eHealth Program can be used to record and monitor all identified risks during the development and implementation of the NHDR.

The HSRR can include a unique identifier for ease of reference, type of risk, description, probability of the risk to occur, impact of the risk if it will occur, mitigation strategy, person or entity responsible for monitoring the risk, and date stamped like date logged and reviewed. The Risk Management Experts Group of the Philippine eHealth Governance can provide procedures on how to use the HSRR.

MONITORING AND EVALUATION

Monitoring and evaluation shows the progress in implementing this NHDR Framework and measures the outputs and/or outcomes in the development and implementation of the NHDR based on agreed indicators by the DOH and PhilHealth. Monitoring and evaluation also identifies the planned activities or guidelines that are achieved and address those that are not being achieved. Output indicators provide insights into the adoption of the NHDR, and outcome indicators provide insights into the tangible results for concerned users or stakeholders from the use of the NHDR.

A results-based management strategy is appropriate to track and assess the results of developing and implementing the NHDR using this framework. It focuses on the performance and achievement of outputs and outcomes. Further, there are two (2) components of the monitoring and evaluation, as follows:

1. NHDR Framework Monitoring and Evaluation - monitors the execution of this NHDR Framework.

2. Results Monitoring and Evaluation - complements the NHDR’s monitoring and evaluation of the NHDR Framework by measuring results from the execution of this NHDR Framework.

Action Points

Leadership and Governance	Action Point 1	Develop the structure, roles and responsibilities of concerned agencies or offices to ensure accountability, transparency, and effective leadership in the establishment, operations, and maintenance of the NHDR.	DOH
	Action Point 2	Restructure the National eHealth Steering Committee, Technical Working Group, and Expert Groups to support the NHDR.	DOH
	Action Point 3	Develop or finalize the matrix of roles and responsibilities of DOH and PhilHealth based on the interdependent policies of the NHDR.	DOH
Legislation, Ethics, Policy and Compliance	Action Point 4	Review all issuances relative to the establishment and maintenance of the NHDR if compliant with Section 5 of Republic Act 11032 or Anti-Red Tape Act of 2007 and its implementing rules and regulations, and initiate appropriate action.	DOH
	Action Point 5	Identify other policies, guidelines, and standard operating procedures to support the NHDR.	PhilHealth
	Action Point 6	Develop the NHDR Ethics Framework to strengthen public trust in the submission and processing of health and health-related data.	PhilHealth
	Action Point 7	Evaluate models to fund the establishment and maintenance of the NHDR, and ensure its sustainability.	PhilHealth
Standards and Interoperability	Action Point 8	Complete the standard health and health-related data to be submitted to the NHDR.	DOH
	Action Point 9	Establish the matrix of health and health-related data vis-à-vis the health-related entities responsible for its submission.	DOH
	Action Point 10	Complete and check the accuracy of the standard registries and other needed codes through the National Health Data Dictionary	DOH

National Health Data Repository Framework

As of 28 March 2022

		to facilitate the mandatory adoption and use of national health data standards for interoperability.	
	Action Point 11	Ensure the completeness and accuracy of the data elements that must have standard data codes through the National Health Data Dictionary to facilitate the mandatory adoption and use of national health data standards for interoperability.	DOH
Services and Applications	Action Point 12	Define and evaluate models of dataset submission to the NHDR.	PhilHealth
	Action Point 13	Define the policies, protocols, formats, and standards needed to implement a National Trust Framework for the NHDR.	PhilHealth
	Action Point 14	Identify the eHealth Services and Applications that can be implemented using the NHDR.	PhilHealth
	Action Point 15	Develop the Centralized Online Integrated HIS Registration and Status Monitoring System, and Centralized Online Standards Conformance and Interoperability Validation System. This must include the Implementing Policies and Guidelines and Standard Operating Procedures.	DOH
	Action Point 16	Define the Business Intelligence and Analytics Framework for a unified data analysis and reporting between the DOH and PhilHealth.	PhilHealth
	Action Point 17	Identify the data and/or reports that can be made available to the public for free.	DOH
Digital Infrastructure	Action Point 18	Confirm the cloud computing infrastructure support of the DICT and enter into a Memorandum of Agreement as applicable.	PhilHealth
Human Resource	Action Point 19	Review and evaluate the proposed organizational NHDR structure to establish, operate, and maintain the NHDR.	PhilHealth
Implementation Mode	Action Point 20	Finalize the priorities of health and health-related data for Phase 1 and 2 implementations. and define the implementation activities (Implementation Plan) to roll out the NHDR.	DOH

National Health Data Repository Framework

As of 28 March 2022

Transition Model	Action Point 21	Finalize the transition approach or strategy on how to move from current state to the NHDR to include activities, timeline, responsible entities, and deliverables.	DOH
Monitoring and Evaluation Model	Action Point 22	Develop an inclusive and effective platform for monitoring and evaluating the performance of the NHDR in the context of the UHC implementation.	DOH

ANNEX 1.0 REFERENCES

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14. National eHealth Strategy Toolkit, World Health Organization and International Telecommunication Union 2012
15. UHC Approved Issuances:
16. DOH and PhilHealth Joint Memorandum Circular # 2021-0001 : Implementing Guidelines of Section 31 of the Republic Act No. 11223, otherwise known as the “Universal Health Care (UHC) Act” on the Processing and Submission of Health data
17. DOH and PhilHealth Joint Administrative Order # 2021-0002 : Mandatory Adoption and Use of National Health Data Standards for Interoperability

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18. DOH and PhilHealth Joint Administrative Order # 2021-0001 : Guidelines on the Implementation and Maintenance of an Integrated Health Information System
19. DOH, PhilHealth, and DICT Joint Administrative Order # 2021-0001 : Guidelines on the Implementation of the Standards Conformance and Interoperability Validation

ANNEX 2.0 – LIST OF ICT MODELS AND OUTPUTS

1. Developing a Harmonized Analytics Roadmap and Initial Solutions for the DOH and PhilHealth: An EU Technical Assistance Project to enhance the analytics roadmap to further solidify the foundation for developing and implementing harmonized analytics that is aligned with the enterprise architectures of DOH and PhilHealth, as well as its specific-agency analytics initiatives; build capacity in DOH and PhilHealth to develop and maintain production business intelligence solutions; and assist DOH in establishing the DOH data warehouse and analytics.
2. Data Mapping of Data to Target UHC Integrated Data and KPIs: A WHO Technical Assistance Project on data mapping of relevant data towards integrated data model or framework setting on health data collection, processing, analysis, and utilization in the light of the passing of the UHC.
3. PhilHealth ICT Infrastructure Roadmap: An Asian Development Bank Technical Assistance Project to develop a short and long term ICT infrastructure roadmap to serve as a sound basis for investment and reliable PhilHealth's services and support to the UHC Act.
4. Assessment of PhilHealth's ICT Infrastructure: An Asian Development Bank Technical Assistance Project to evaluate PhilHealth's ICT Enterprise Architecture and ICT Human Resources.
5. DICT Department Circular No. 010, s. 2020 Amendments to Department Circular No. 2017-002 Philippine Government's Cloud First Policy: Prescribes the Philippine Government's Cloud First Policy to adopt a "cloud first" approach and for government departments and agencies to consider cloud computing solutions as a primary part of their infostructure planning and procurement.
6. DICT's National Cybersecurity Plan 2022: Assures the continuous operation of our nation's critical infostructures, public and military networks; implements cyber resiliency measures to enhance our ability to respond to threats before, during and after attacks; effective coordination with law enforcement agencies; and cybersecurity educated society.
7. National eHealth Strategy Toolkit, World Health Organization and International Telecommunication Union 2012: An expert, practical guide that provides governments, their ministries and stakeholders with a solid foundation and method for the development and implementation of a national eHealth vision, action plan and monitoring framework.
8. Joint Administrative Order No. 2016-0003 between DOH and PhilHealth on the Adoption of the Philippine Health Information Exchange (PHIE) Lite: An enabling strategic instrument to rationalize, harmonize and unify the DOH and PhilHealth's architecture, data and technology solutions.
9. PhilHealth's Circular No. 2016-016 Full Implementation of Electronic Claims System (eClaims) and Circular No. 2017-0030 Implementation of the eClaims Using Hybrid Approach: A data submission interoperability model with software certification or validation to enable different EMRs and HISs to electronically submit or transmit claims data to PhilHealth.

10. Joint Administrative Order No. 2016-0003 between DOH, PhilHealth, and DOST on the Implementation of the PHIE: Adopts a use case/scenario approach, with the initial implementation essentially focusing on the PHIE Lite, the harmonization of applications and health information systems of DOH and PhilHealth.
11. Joint Administrative Order No. 2016-0003 between DOH, PhilHealth, and Department of Science and Technology on the Privacy Guidelines for the Implementation of the PHIE: Defines and limits the circumstances in which an individual's health information is collected, accessed, used, disclosed or otherwise processed; provides parameters for obtaining consent from the patient for participation in the PHIE; defines the rights of patients participating in the PHIE; and provides guidelines for data protection.

ANNEX 3.0 – ROLES AND RESPONSIBILITIES

(Source:

Implementing Rules and Regulations of the UHC (RA No. 11223)

DOH and PhilHealth JMC No. 2021-0001 dated May 21, 2021: Implementing Guidelines of Section 31 of the Republic Act No. 11223, otherwise known as the “Universal Health Care (UHC) Act” on the Processing and Submission of Health and Health-related Data)

Department of Health

1. Provide policy directions and oversight, together with the interagency NeHSC-TWG and other relevant stakeholders, in the processing, submission, data management and governance of health and health-related data.
2. Activate the interagency NeHSC-TWG.
3. Develop guidelines in the submission of health and health-related data, together with the PhilHealth, and in consultation with the DICT and NPC.³⁸
4. Establish mechanisms that integrate explicit use of evidence into the policy and decision-making process, strengthen health policy and systems research, and support the growth of research consortia in line with the vision of the Philippine National Health Research System as stipulated in RA 10532 (Philippine National Health Research System Act of 2013).³⁹
5. Act as data controller of all health and health-related data it processes within its Department.
6. Act as receiver of all health and health-related data submitted through the NHDR provided as by PhilHealth, and make available the infrastructure and related platform to receive the hared health and health-related data.
7. Lead the standardization of health and health-related data, in coordination with PhilHealth and other relevant stakeholders.
8. Develop and implement operational guidelines in the processing of health and health-related data under its control, including those for data access and data protection.
9. Implement strong, appropriate and reasonable data protection measures at all levels of data processing.
10. Provide technical assistance to PhilHealth in the management of the NHDR.
11. Build capacity and provide technical assistance to all health care providers, insurers, and health-related entities to ensure compliance with the standards on the processing and submission of health and health-related data set forth under this JMC and other related issuances.

PhilHealth

1. Provide policy directions and oversight, together with the interagency NeHSC-TWG and other relevant stakeholders, in the processing, submission, data management and governance of health and health-related data.
2. Develop guidelines in the submission of health and health-related data, together with the DOH, and in consultation with the DICT and NPC.⁴⁰

³⁸ § 31.1 IRR of RA11223 or UHC Act

³⁹ § 31.3 IRR of RA11223 or UHC Act

⁴⁰ ⁴⁰ § 31.1 IRR of RA11223 or UHC Act

3. Establish mechanisms that integrate explicit use of evidence into the policy and decision-making process, strengthen health policy and systems research, and support the growth of research consortia in line with the vision of the Philippine National Health Research System as stipulated in RA 10532 (Philippine National Health Research System Act of 2013).⁴¹
4. Act as data controller of all health and health-related data it processes within the Corporation.
5. Establish and maintain the NHDR, and act as its data controller.
6. Provide access to DOH on all health and health-related data submitted through the NHDR.
7. Co-lead the standardization of health and health-related data DOH, in coordination with relevant stakeholders.
8. Develop and implement corporate operational guidelines in the processing of health and health-related data under its control, including those for data access and data protection.
9. Implement strong and reasonable data protection measures at all levels of data processing.

Department of Information and Communications Technology and National Privacy Commission

Set organizational, physical, and technical security measures for data protection in the processing of health and health-related data for DOH and PhilHealth to implement.

Local Government Units

Establish mechanisms that integrate explicit use of evidence into the policy and decision-making process, strengthen health policy and systems research, and support the growth of research consortia in line with the vision of the Philippine National Health Research System as stipulated in RA 10532 (Philippine National Health Research System Act of 2013).⁴²

Interagency Committee on Health and Nutrition Statistics

Formulate policies and guidelines on data access relative to the covered public data, through the PSA and DOH.

Health Care Providers, Insurers, and Health-Related Entities

Process and submit health and health-related data for local and national health data reporting to PhilHealth through the NHDR, and/or DOH using their iHIS, or any equivalent reporting mechanism as necessary, following the standards set forth in this JMC and other related issuances.

⁴¹ ⁴¹ § 31.3 IRR of RA11223 or UHC Act

⁴² ⁴² § 31.3 IRR of RA11223 or UHC Act

ANNEX 4.0 – LIST OF SURVEYS

Source: 1st Meeting of Technical Working Group on Health, Nutrition, and Demographic – related Data, 23 November 2021

1. 2014 Philippine Integrated HIV Behavioural and Serologic Survey
2. A Study of Health Seeking Behaviour of the Poor in the NHTS
3. A Survey of the Effects of Sin Tax on the Behaviour of Attitude of Filipino Towards Tobacco, Alcohol, and PhilHealth Benefit Utilization
4. Access to and Utilization of Health Care and Services in Selected Geographically Isolated Disadvantaged Areas (GIDAs) in the Country
5. Annual Poverty Indicators Survey (PSA)
6. Assessment of the Philippine Emergency Obstetric and Newborn Care Initiative
7. Bi-Annual Responsiveness Report
8. Climate Change Impact on Human Health, Water/Sanitation and Food Safety
9. Community-based Survey on the Prevalence of Soil-Transmitted Helminthiasis, Schistosomiasis and other in Intestinal Parasitic Infections among Preschool age Children, Adolescents and Adults
10. COVID-19 Vaccine Government Employees Survey
11. COVID-19 Vaccine Feedback Survey
12. COVID-19 Vaccine General Population Survey
13. COVID-19 Vaccine Health Care Workers Survey
14. COVID-19 Vaccine Patient Group Survey
15. COVID-19 Vaccine Senior Citizens Survey
16. COVID-19 Vaccine Youth and Parents Survey
17. COVID-19 Vaccine Non-Healthcare Workers Survey
18. Determination of the Nutrient Composition of Popular Street Foods Within the Vicinity of Selected Members of South Manila Inter-Institutional Consortium Schools
19. Diversity and Inclusion Programs in Health Care Facilities
20. DOH Quarterly National Face-to-Face Survey
21. Expanded National Nutrition Survey (FNRI)
22. Gender Responsiveness of TB Prevention and Management in a High TB-Burden Urban Area: An Exploratory Study
23. Global Adult Tobacco Survey
24. Global School-Based Health Survey
25. Global Youth Tobacco Survey
26. Graphic Health Warnings Survey on Vapes, Heated Tobacco Products and Other Similar Products
27. Health Care Waste Management Self Assessment Tool
28. Health Literacy and Knowledge, Attitude, and Practices (KAP) Survey on Health Promotion
29. Health System Responsiveness
30. Health System Responsiveness Rider Questions to Pulse Asia Research Inc.'s Ulat ng Bayan Survey
31. Hepatitis B Seroprevalance Survey (UP-NIH)
32. In-depth Assessment of the Causes and Effects of Adolescent Pregnancy in Selected Regions in the Philippines
33. Longitudinal Cohort Study on Filipino Boy and Girl (Wave 4)
34. Medical Facilities for Overseas Workers and Seafarers in Hospitals
35. National Demographic Health Survey
36. National Drug Resistance Survey on Tuberculosis in the Philippines

37. National Health Expenditure Survey
38. National Health Literacy Survey
39. National Nutrition Survey (FNRI)
40. National Prevalence Survey for Mental Health and Well-Being
41. National Prevalence Survey of Leprosy in the Philippines
42. National Survey on Mental Health Literacy
43. National Survey on Oral Health
44. National Survey on the Prevalence of Soil Transmitted Helminthiasis, Schistosomiasis and other in Intestinal Parasitic Infections among Public School Children in the Philippines
45. National Survey to Monitor the Impact of the Sin Tax Law
46. National Tuberculosis Prevalence Survey
47. Philippine National Blindness Survey and Eye Disease Study
48. Population Based Survey using Lot Quality Assurance Sampling (LQAS) Methodology to Determine Contraceptive Coverage in 17 Provinces of the Philippines (One Province Per Region)
49. Survey on the BIDA Solusyon sa COVID-19 Campaign of the Department of Health
50. The Epidemiologic Status of Yaws in the Philippines: A Nationwide Survey and Clinico-Seroprevalence Study
51. Young Adult Fertility and Sexuality Study (UPPI and DRDF)

ANNEX 5.0 – MATRIX OF ROLES AND RESPONSIBILITIES OF DOH AND PHILHEALTH (BASED ON THE INTERDEPENDENT POLICIES OF THE NHDR)

SPECIFIC TO DOH OR PHILHEALTH	DOH AND PHILHEALTH	NeHSC/NeHTWG
1. Mandatory Adoption and Use of National Health Data Standards for Interoperability	Provide policy directions and oversight in consultation, coordination, and/or networking with interagency eHealth partners and concerned stakeholders, on all matters relating to planning, formulation, adoption and use, monitoring, evaluation, and updating of national health data standards.	Recommend policies and implementation strategies for mandatory adoption and use based on the assessment and monitoring reports of the National Health Data Standards Sub-Working Group (NHDS-SWG). Assist the DOH and PhilHealth in planning, implementation, monitoring and evaluation of the adoption and use of national health data standards for interoperability in consultation and collaboration with with all concerned stakeholders.
	Formulate new national health data standards, update, and maintain existing ones in consultation and coordination with interagency eHealth partners. Monitoring and evaluation results shall serve as basis or reference for the addition of new national health data standards, and update to existing ones. Set and approve the national health data standards for mandatory adoption and use. Comply with the national health data standards change management process in the formulation, adoption and use, monitoring, evaluation, and updating of national health data standards.	Recommend national health data standards for mandatory adoption and use based on the assessment and monitoring reports of the NHDS-SWG. With the assistance of the National Health Data Standards Sub-working Group, review and recommend national health data standards, conduct the necessary consultations and coordination with concerned stakeholders, conduct researches to facilitate application of emerging health data standards, support capacity-building initiatives, and monitor the adoption and use. Receive inputs and feedback from implementers of the national health data standards for improving the current data sets/standards.
	Regularly monitor, review, and evaluate the adoption and use of mandatory national health data standards using agreed method, tool, and set of indicators for performance monitoring, and measured by the progress made in improving local and national health data reporting from the source to PhilHealth and/or DOH. Develop performance metrics to measure the progress and success of adoption and use of the national health data standards.	
	Publish the complete and updated list of the mandatory national health data standards, including their structure in a standard health data catalogue and made available electronically in the DOH – maintained National Health Data Dictionary	

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	which can be accessed at www.nhdd.doh.gov.ph until such time that a national Terminology Service is established, or otherwise through KMITS-DOH.	
	Oversee the monitoring of adoption and use of mandatory national health data standards with the assistance of the interagency NeHTWG and NHDS-SWG.	Assist the DOH and PhilHealth in overseeing the monitoring of adoption and use of mandatory national health data standards.
	Regularly perform monitoring, and provide annual advisory updates issued every January of the succeeding year.	
	Perform evaluation every two (2) years with clear directions on the scope and method of execution; and evaluation results shall be use to determine if the adoption of national health data standards is effective in attaining its goals and objectives in relation to UHC Act, and consequently serve as the basis or reference for improvements in policy and program implementation.	
	Issue new authoritative releases every January of the succeeding year.	
	Provide the necessary resources to support the mandatory adoption and use of national health data standards for interoperability.	
	Provide technical assistance and guidance to all implementers and other concerned stakeholders on national health data standards for interoperability.	
	National eHealth Program Management Office – KMITS, DOH Serve as the overall technical and administrative secretariat on all matters relating to the formulation, adoption and use, monitoring, evaluation and updating of national health data standards, in accordance with the policy directions from the SOH and PhilHealth PCEO as informed through the NeHTWG and NHDS-SWG.	
2. Implementation and Maintenance of an Integrated Health Information Systems		
	Provide overall policy directions and oversight relating to the implementation and maintenance of an integrated HIS. Collaborate with corresponding healthcare providers, insurers, interagency ehealth partners, other relevant national and local government agencies, and health related entities in the planning and adoption of the most practical and feasible approaches to an integrated HIS.	
	Set the the minimum uniform standards on enterprise architecture, cybersecurity, data privacy, ICT service components, and other requirements as provided under Section 36 of the UHC Act and its implementing rules and regulations for conformance and compliance by all health care providers and insurers implementing and maintaining an integrated health information system.	

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	Provide the minimum standards that will guide all health care providers and insurers in integrating their existing or planned health information system.	
DOH Provides an integrated health information system for those entities that have no means or capacity to develop and implement, and which can be availed at no cost.		
	Include in the licensing and accreditation requirements the implementation and maintenance of an integrated health information system starting October 2022. It shall also form part of the certification/license to operate for health-related entities existing outside the jurisdiction of DOH and PhilHealth that will implement or are implementing any integrated health information system module.	
	Incentivize health care providers and insurers through appropriate mechanism, and formalized through an appropriate issuance.	
	Establish and maintain the Centralized Online Integrated HIS Registration and Status Monitoring System to enable all healthcare providers and insurers to register their existing or ongoing development of HIS (Scheduled start date was 01 July 2021); transition plan; and monthly status report. Develop the transition plan and monthly status report templates, and process for their accomplishments.	
	Adopt the Integrated HIS Implementation Module in the implementation and maintenance of an integrated HIS to progressively achieve the full implementation of all core modules and appropriate functionalities of integrated HIS.	
	Define the implementation strategies and standards, and oversee and monitor the implementation and maintenance of an integrated HIS.	
	Designate regional integrated HIS Coordinators who shall provide administrative, coordination, and technical assistance or support in the implementation and maintenance of an integrated HIS.	
	Set performance indicators, method, and tool for monthly monitoring by the regional integrated HIS Coordinators.	

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	Issue annual advisory updates every January of the succeeding year based on monitoring results.	
	<p>Perform evaluation every two (2) years to determine if the implementation of an integrated HIS is effective in attaining its goals and objectives in relation to the UHC Act, and consequently, serve as basis or reference for improvements in policy and program implementation.</p> <p>Issue new policy and programmatic updates every January of the succeeding year.</p>	
3. Implementation of the Standards Conformance and Interoperability Validation		
	Together with the DICT, provide overall policy direction and oversight relating to the SCIV implementation; and act as the lead administrators of the SCIV.	
	Plan and adopt ICT best practices, standards, and approaches to software validation in collaboration with healthcare providers, insurers, health-related entities, and other relevant stakeholders.	
	Ensure the creation of the SCIV TWG that shall define the implementation strategies and standards, oversee, and monitor the implementation of the SCIV.	
	Ensure the conduct of a bi-annual assessment of the SCIV implementation.	
	Designate Regional SCIV Administrators who shall implement the SCIV process, and provide administrative, coordination, and technical assistance or support to all applicants.	
	Ensure the creation of a SCIV testing methodology and SCIV Toolkit which shall be, implemented, and maintained accordingly following best practices, and standards on software validation .	
	Ensure development of the Centralized Online Standards Conformance and Interoperability Validation System, together with its guidelines and standard operating procedures.	
	<p>Set performance indicators, method, and tool for monthly monitoring by the Regional SCIV Administrators.</p> <p>Issue annual advisory updates every January of the succeeding year based on monitoring results.</p>	
	Perform evaluation every two (2) years to determine if the implementation of the SCIV in attaining its goals and objectives is effective in relation to the UHC Act, and consequently, serve as basis or reference for improvements in policy and program implementation.	

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SPECIFIC TO DOH OR PHILHEALTH	DOH AND PHILHEALTH	NeHSC/NeHTWG
	Issue new policy and programmatic updates every January of the succeeding year.	
4. Implementation Guidelines on the Processing and Submission of Health and Health-Related Data		
<p>PHILHEALTH Establish and maintain the NHDR for all health and health-related data submitted by health care providers, insurers, and health-related entities; and Assume FULL RESPONSIBILITY in complying with existing and applicable laws, rules, and other relevant issuances relating to the processing and submission of health and health-related data through the NHDR, including data protection.</p>		Together with the NeHSC evaluates, directs, monitors, aligns, plans, and organizes the policy directions and activities relating to the processing, submission, data management, and governance of health and health-related data.
<p>PHILHEALTH Act as the overall Data Controller as it controls the processing of health and health-related data through the NHDR.</p>	<p>Ensures that DOH and PhilHealth shall be the overall Data Controller of all health and health-related data that their respective organization is processing; and assume FULL RESPONSIBILITY as data custodians and personal information controllers.</p> <p>Oversee and ensure that all Data Stewards within their organization comply with existing and applicable laws, rules, and other relevant issuances relating to the processing of health and health-related data, including those for data protection.</p>	Serves as the intermediary among the Data Controller, Data Stewards, and other relevant stakeholders (e.g. standards development organizations, and standards setting bodies).
<p>PHILHEALTH Develop appropriate guidelines in the establishment and maintenance of the NHDR, in coordination with the DOH and other relevant agencies.</p>		Review and approve the operational guidelines in the establishment and maintenance of the NHDR.
<p>PHILHEALTH Provide DOH access to all health data submitted through the NHDR, subject to agreed service/operational level agreement; and existing and applicable laws, rules, and policies.</p>	Ensure that a service/operational level agreement or its equivalent shall be executed by PhilHealth and DOH on access to all health data submitted through the NHDR, subject to existing and applicable laws, rules, and policies.	
	Ensure implementation of a unified data	

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	<p>architecture to ensure an integrated approach to processing, submission, data management, and governance of health and health related data, including seamless data sharing and exchange between them, and ease of data access by various stakeholders.</p> <p>Ensure that all data processing systems of DOH and PhilHealth shall be integrated and interoperable, and mandatory adopt and use the approved national health data standards for interoperability. No data processing system shall be implemented as a stand-alone system.</p>	
	<p>Ensure development of a unified operational guidelines that conforms to the data management and governance principles; specific procedures and quality standards in the processing of health data, and data access.</p>	
	<p>Ensure that specific accountabilities of all those involved in the processing of health data are set, established, or defined.</p>	
	<p>Ensure that DOH and PhilHealth implement a strong, reasonable, and appropriate organizational, physical, and technical security measures for data protection as set by the NPC and DICT in the processing of health data, and shall uphold and protect the data protection rights of all data subjects and the data controller at all times.</p>	
	<p>Ensure compliance of the NHDR to all laws, regulations, policies, procedures, and other relevant protocols and standards.</p>	
	<p>Determine data classification and release accordingly.</p>	
	<p>Ensure unified data analysis and reporting generation in the BIA platform of the NHDR where all health data shall be integrated, processed and analyzed for insights to support the operational, tactical, and strategic planning of the DOH and/or PhilHealth; and release of appropriate issuance to this effect.</p>	
	<p>Ensure that all health care providers, insurers, and health-related entities shall process and submit health data for local and national health data reporting to PhilHealth through the NHDR, or DOH using their integrated health information system (iHIS), or any equivalent reporting mechanism as necessary, provided that health data collected from other reporting mechanisms shall also be submitted to NHDR as a single source of truth for health; and release of appropriate issuance to this effect.</p>	
	<p>Ensure that the implementation of data access conforms or complies to existing</p>	

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	<p>laws, rules, regulations, policies, and other protocols or standards.</p> <p>Shared responsibility in the approval and disapproval of data access requests, particularly among the concerned Data Stewards. Develop guidelines in the receiving, evaluating, and managing data access requests for health data being controlled, in accordance with approved standards and other relevant policies issued by the NeHSC-TWG.</p>	

**FOR QUESTIONS OR FEEDBACK,
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