JOINT
LEARNING
NETWORK
For Universal Health Coverage

USING HEALTH DATA TO IMPROVE UNIVERSAL HEALTH COVERAGE

THREE CASE STUDIES

A COMPANION GUIDE FOR ASSESSING DATA USE MATURITY

CONTENTS

PREFACE

The Joint Learning Network for Universal Health Coverage (JLN) is an innovative community of practitioners and policymakers from around the world who exchange knowledge and experiences and co-develop practical solutions for implementing universal health coverage (UHC) reforms. The resulting tools provide countries with guidance on designing and implementing efficient, equitable, and sustainable health care systems while contributing to global knowledge on how to achieve UHC.

In 2017, the JLN brought together committed practitioners from 10 countries[1] to form the Data Foundations Collaborative, with a goal of sharing experiences, expertise, and challenges related to using health data to improve UHC. With support from a facilitation team, the group collaboratively produced *Using Health Data to Improve Universal Health Coverage: Three Case Studies*, which provides insight into best practices for data governance and data use in three topic areas: chronic disease management, financial management, and use of health insurance claims data.

The case studies were created through in-person and virtual discussions of the Data Foundation Collaborative members. In October 2017, the participants met in Hanoi, Vietnam, to share experiences with the accessibility and usability of health care data. In April 2018, South Korea hosted a second in-person meeting that showcased its data systems and data use successes. In November 2018, members of the Collaborative gathered in Indonesia to review the case studies. The Collaborative identified the need for a supplement with practical guidance on how to apply the case study findings. In response, this companion guide for assessing data use maturity was created, providing a practical tool for countries who wish to undertake a review of data use maturity. JLN technical facilitators from PATH and Wipro Ltd. collected and synthesized the shared lessons and guidance and combined them with global expertise in health care data governance and use.

The authors gratefully acknowledge the generous funding from the Bill & Melinda Gates Foundation that made the production of this document possible. Other partners contributed valuable technical expertise and created opportunities for global exchange that greatly enriched the content. In particular, Wipro Ltd. provided significant contributions to the facilitation and technical content of the Collaborative. Special thanks to the JLN participants from Ghana, India, Indonesia, Kenya, Malaysia, Nigeria, Peru, the Philippines, South Korea and Sudan who graciously shared their knowledge and experiences with one another, demonstrating the value of JLN practitioner-to-practitioner learning.

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[1] The ten countries represented in the Data Foundations collaborative include: Ghana, India, Indonesia, Kenya, Malaysia, Nigeria, Peru, the Philippines, South Korea, and Sudan.

INTRODUCTION

Countries around the world are at different stages of maturity in the development of digital health information systems, but most are continuously seeking to improve the use of health care data. The Joint Learning Network for Universal Health Coverage's Data Foundations Collaborative has been working to understand the diverse range of experiences and common challenges of applying health care data towards Universal Health Coverage goals. Over the course of 2017 and 2018, participants from ten countries came together to discuss these topics and produce a set of general recommendations for data use.

The resulting publication, *Using Health Data to Improve Universal Health Coverage: Three Case Studies*, summarizes the experiences of these ten countries, with specific emphasis placed on the experiences of South Korea. The Data Foundations Collaborative unpacked country experiences to identify themes and lessons learned in three topic areas: chronic disease management, financial management, and the use of health insurance claims data.

In order to make these case studies a practical tool for countries undertaking a review of data use, the Collaborative developed this companion guide. This guide is intended to encourage conversations between national stakeholders about the state of data use within a country and guide these conversations toward the key areas identified by countries. Not intended to be a rigorous examination of data systems, this guide provides a starting point for countries to assess their data use maturity, identify areas of possible improvement, and apply learnings from the case studies to their context.

USING THE COMPANION GUIDE FOR ASSESSING DATA USE MATURITY

This guide serves as a self-assessment tool, designed as an informal mechanism for countries and ministries. As a self-assessment tool, it provides a framework for determining the maturity of data use within a program or functional area and guidance on creating a set of country-specific recommendations and considerations for moving to the next stage of maturity.[2] Organized into a series of modules correlating to the topics found in the case studies, this guide walks countries through assessments of data use for chronic disease management, financial management, and the use of health insurance claims data. The format can be applied to other data uses within the health care system, but that will require additional adaptation by countries.

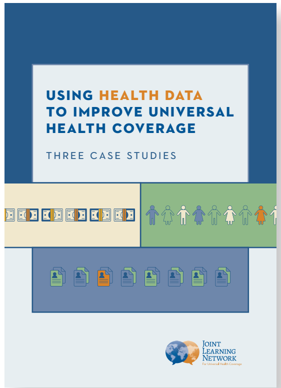
Steps for Case Study Adaptation

1. REVIEW CASE STUDIES

Read *Using Health Data to Improve Universal Health Coverage: Three Case Studies*.

2. DEFINE OBJECTIVES

Based on country priorities, determine how you would like to use this self-assessment guide to understand the maturity of health data use and apply recommendations. A country may complete a single module (chronic disease management, financial management, claims data utilization) in order to address the priority data needs of the UHC program.



USING HEALTH DATA
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HEALTH COVERAGE

THREE CASE STUDIES

3. SELF-ASSESSMENT

Begin the self-assessment activities.

a. Desk research

Following the methodology outlined below, conduct initial desk research to answer questions in the modules.

b. Identify stakeholders

Following the principles outlined below, select an appropriate group of respondents

c. Assessment on maturity

Following the suggested methodology below, and using the assessment tool template provided in Module 4,collect and analyze stakeholder responses.

d. Identify level of maturity and opportunity areas

With the desk research and responses from the assessment activities, determine the level of maturity of data use within the chosen topic area and identify high-priority areas for improvement or strengthening of data use.

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[2] This self-assessment tool supports the evaluation of data use maturity to allow countries to group recommendations found in *Using Health Data to Improve Universal Health Coverage* and adapt recommendations appropriately. This self-assessment is not intended for a comprehensive or detailed assessment of maturity – instead its intent is to provide a broad framework for conversations about data use maturity. The authors recognize other established maturity models, such as the Health Information Systems Interoperability Maturity Toolkit from MEASURE Evaluation and the Global Digital Health Index, as alternative tools that can provide a more comprehensive review of system maturity.

4. REVIEW CHALLENGES AND SOLUTIONS

Revisit *Using Health Data to Improve Universal Health Coverage: Three Case Studies*, in particular the recommendations at the conclusion of each of the topic areas, with the findings from the stakeholder responses.

5. SELECT APPROPRIATE SOLUTIONS AND RECOMMENDATIONS

Identify the appropriate solutions and recommendations that correlate to the level of maturity of data use and priority areas identified through the assessment process as a starting point for creating recommendations.

6. MAKE RECOMMENDATIONS

Develop a set of country-specific recommendations, guided by the solutions highlighted in the case studies. Countries may wish to expand the recommendations and/or make them more specific to the country context.

7. PLAN NEXT STEPS

Using the outcomes of the six prior steps, work with identified stakeholders to prioritize recommendations for implementation and resourcing.

Timeline

- Most modules should take a respondent one to two hours to complete.
- For open-ended questions or questions that include “please describe,” respondents’ answers will likely be one to seven sentences. Respondents should feel free to provide whatever level of detail they deem necessary to answer the question. The questions are not intended to be overly cumbersome to answer.
- In total, the assessment is estimated to take between one to three months, including the approval process, coordination with stakeholders, selection of respondents, administration of the questionnaire, compiling results, analysis of the results, review of case study recommendations, and development of an assessment report.

Principles for Self-Assessment

JLN countries that developed the Data Use Case Studies suggest the following guiding principles to facilitate a review of the case studies' findings and recommendations and align assessment of current maturity to appropriate solutions.

SELECTING RESPONDENTS

- **Expertise:** Respondents should be technically qualified to answer most of the questions in a module. They should be familiar enough with the relevant issues and institutions to recommend other respondents who can answer questions that they cannot answer.
- **Representativeness:** As much as possible, respondents should represent the range of perspectives within an institution or set of actors. For example, different divisions within a ministry of health or individuals with different technical responsibilities (IT, data analyst, health area specialist, operations) may have different experiences with and perceptions of data use in the country or the specific topic area of the module. In such cases, it is strongly encouraged to collect the information from stakeholders with varying perspectives on current processes, challenges, and priorities.
- **Availability:** The tool is intended to be administered during a relatively short period of time (several weeks rather than several months); implementers should select respondents who will be available to respond in such a time period.
- **"Snowball" or iterative selection:** Interviewers should ask the first set of respondents to recommend other respondents for additional interviews.
- **Resource constraints:** The tool is intended to be administered primarily "in-house" by individuals who are already working within a country's health system, such as health information managers. The number of respondents and length of time interviewers can spend on data collection and analysis should therefore correspond to those constraints.

MODIFYING THE TOOL

The tool can and should be modified in order to best align to each country's needs. Countries should modify the tool based on stated priorities and capacity of the stakeholders involved.

Countries should consider:

- **Structure:** The tool is structured around the three topic areas considered in the case studies: chronic disease management, financial management, and the use of health insurance claims data. A country may or may not have programs or interest in these topic areas. (For example, a country might not have a national health insurance scheme or may prioritize communicable disease management.) A country may choose to reorganize and/or add questions to the assessment depending on the structure of their health system.
- **Content:** Countries are encouraged to remove or rephrase modules and questions as needed. Certain modules or questions may not be relevant to a given country, or they may not be appropriately phrased for country context.
- **Language and culture:** Countries are encouraged to reword questions to suit their culture and norms and to best represent the intended objective of each question.

Suggested Methodology

The Data Foundations Collaborative suggest countries adopt the following methodology:

- **Preliminary Research:** Before countries administer the assessment, they should conduct some preliminary desk-based research to quickly answer some of the questions. A set of questions has been provided for each module to guide the preliminary research and to help compile essential documents for consideration. In some instances, this information may already exist in a single document, which can be used in place of preliminary research. This research will provide data against which to crosscheck certain answers. In some cases, doing so may also increase the quality of information and reduce the amount of time needed to complete the modules.
- **Team composition:** Suggested team composition includes a team lead, ideally someone in a management/senior level position at the health financing agency or ministry of health, and 3-5 individual collaborators from the other stakeholders/ agencies involved. The team may also include any consultants hired, and local or regional partner(s).

- **Sample selection:** Depending on the landscape and actors, implementers will likely (a) sample a certain number of stakeholders or (b) carefully select key respondents. For example, they might sample a selection of public and private providers (given their high number and geographic distribution) but interview only specific individuals from the Ministry of Finance who are engaged in health financing. There is no set number of respondents for each module, and countries will not be able to interview all possible respondents. The goal is to identify potentially significant stakeholder misalignments, not collect all potential viewpoints.
- **Collection methods:** The implementers can collect responses by conducting a workshop or by in-person interviews. In the workshop approach, implementers can introduce the tool, and then have the responders self-administer the survey. When conducting in-person interviews, implementers should meet with one respondent at a time and work through the survey together, with the implementer asking questions and recording respondent answers.
- **Analysis:** As with data collection, the exact approach that the implementers use to analyze collected data may vary among countries. JLN intends for the data analysis to lead to practical recommendations that can be applied in-country and communicated effectively with other JLN partners — rather than be directly comparable across countries. With that core objective in mind, the country should consider the following approach:
    - » Develop a systematic approach to analyzing the results. Review the information and data, organize findings into several themes, and present key findings (e.g., areas of misalignment) and conclusions in an accessible format to allow for potential cross-country discussion.
    - » Qualitative software (such as Atlas.ti or NVivo) can augment the analysis, but is not necessary. In most cases, it will not be possible or feasible (largely due to time or resource constraints).
    - » The Data Foundations collaborative does not anticipate that countries will engage in extensive quantitative analysis, but some descriptive statistics or simple tabulations/cross-tabulations can be helpful for identifying patterns in respondents' answers to certain questions and for communicating results to policymakers and partners.

Expected Outputs

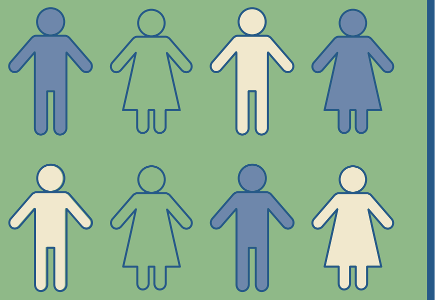
Countries that pilot the tool may produce concise synopses of findings and recommendations, presented in a 10- to 15-page report and/or a PowerPoint presentation tailored for their country policymakers' consumption. JLN members included the following types of information in their reports:

1. Brief country context related to Chronic Disease Management, Financial Management, or Claims Data Utilization and the country's motivation for implementing the tool.
2. Methodology of the assessment
3. Challenges that the team encountered implementing the tool
4. Overview of key findings, organized by module or by functions/themes that cut across modules
5. Tables, charts, and narrative to summarize findings
6. Recommendations
7. Next steps or recommendations for further research

In some cases, further data analysis or research may be needed to provide additional layers of specificity to the resulting recommendations. In other cases, recommendations will align with existing country priorities and activities, or be beyond the scope of the stakeholders involved.

MODULE 01.

CHRONIC DISEASE MANAGEMENT



The first case study in *Using Health Data to Improve Universal Health Coverage* examines how national health programs have used data to identify populations at risk of chronic disease, shape new care models, reduce care variation, and improve outcomes using evidence-based treatment. Specifically, the case study examines how national health programs have leveraged data information systems and screening programs to inform national approaches to chronic disease management.

This module helps countries consolidate relevant information about their chronic disease management programs and supporting health information systems in order to assess the level of maturity and map recommendations from *Using Health Data to Improve Universal Health Coverage* to national priorities and areas of opportunity.

BACKGROUND

Stages of Maturity in Using Chronic Disease Management Data

EARLY STAGE	MIDDLE STAGE	MATURE STAGE
• Multiple data systems (e.g., from the MOH and from the national health insurance system) are not connected or integrated. • Data from other sources are typically not available for analysis.	• Surveys to collect chronic disease data are intermittent and have low coverage. • All data are combined into a single system. • Data standards are implemented and data quality is improved.	• Screening data and metadata are more standardized. • Data privacy and data ownership are issues of public and policy debate. • Accessibility of population health data to policymakers, researchers, and other stakeholders supports better analysis of data to shape chronic disease management programs.

USES FOR DATA IN CHRONIC DISEASE MANAGEMENT PROGRAMS

The countries identified the following ways data can be used in chronic disease management:

1. To identify at-risk populations or develop risk profiles for populations or individuals
2. To shape new care models
3. To create and update evidence-based practice guidelines
4. To inform patient self-management education
5. To reduce care variation
6. To improve patient outcomes using evidence-based treatment
7. For routine reporting
8. To determine budgeting and resourcing for chronic disease management
9. For patient outreach and messaging to increase patient engagement
10. To identify and improve quality measures

Chronic Disease Management Situational Analysis Guide

The Chronic Disease Management Situational Analysis Guide provides a standard set of questions for preliminary research. These questions are intended to establish the existing program governance, data use, and technology components for the assessment. This section should be completed prior to the assessment activities using a mixture of documentation review and informational interviews. Intended answer length is indicated alongside each question. The answers should then be validated with participants when completing the maturity assessment.

Results from this situational analysis will be used in the introduction and background sections of the final assessment report, in order to set the stage for specific recommendations and next steps.

1. PROGRAM NAME

List the official name of the chronic disease management program and associated acronym (if relevant).

2. PROGRAM MISSION, GOALS, AND PRIORITIES

Approximately 3-5 sentences per question.

a. **Mission:** Does the chronic disease management program have a stated mission? Please list.

b. **Goals:** Does the chronic disease management program have stated goals? Please list.

c. **Prioritization:** Does the chronic disease management program have prioritized goals, activities or outcomes? Please list.

3. PROGRAM GOVERNANCE AND STRUCTURE:

Provide specific references and website links where possible.

a. **Documentation:** Please list and/or link to all relevant documentation for the governance of the chronic disease management program.

Example: Philippine Package of Essential noncommunicable Disease Interventions (Phil PEN) Protocol. (Philippines)

b. **Key Stakeholders:** Please list all major stakeholders within the chronic disease management program and their primary function.

Example: Student health screening is administered by the Ministry of Education, while other screening services are administered by the NHIS. (Korea)

c. **Working groups:** Are there any crosscutting bodies working on chronic disease management? Please list.

d. **Public/Private Partnerships:** Are there any public/private partnerships working on chronic disease management? Please list.

Example: A corporate social responsibility coalition on HIV (Indonesia)

Example: Eligible public or private healthcare providers can participate in the national health screening program administered by the NHIS (Korea)

e. **Are there any other notable stakeholders or governance features** not included in 3a-3d? Please list.

Example: In 2015, Kenya carried out a STEPS survey to assess the burden of chronic diseases and their risk factors. (Kenya)

4. FUNDING SOURCES

a. **Please list the primary funding source(s)** for your chronic disease management program(s).

5. TECHNOLOGY AND DATA SYSTEMS

List all relevant systems or software. Provide as much detail as possible (software name, version, etc.).

a. **What software is used** for data collection for the chronic disease management program?

Example: P-Care (web-based EMR software) (Indonesia)

b. **What hardware systems are used** for data collection for the chronic disease management program?

Example: P-Care is a web-based system accessed through a web browser on a desktop or laptop computer within a health facility. (Indonesia)

c. **What analytics or data processing software is used?**

Example: DHIS2, Tableau, Excel, etc.

d. **Where are the data warehoused?**

Example: Data are collected in the Malaysian Health Data Warehouse (MyHDW). (Malaysia)

6. PROGRAMMATIC DATA USE

Please answer each question in 1-2 paragraphs.

a. **How are data used** to help meet the stated (or unstated) goals of the chronic disease management program?

b. **What additional data** would strengthen the chronic disease management program?

c. **How do data influence programmatic priorities?** Are data used for decision-making during the programmatic planning process?

d. **How are data used to benefit patients** within the chronic disease management program?

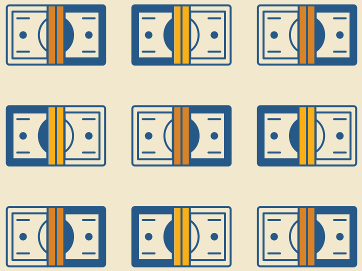
7. PRIORITIZATION OF DATA USE

Based on pre-identified applications of data, please indicate how the chronic disease management program uses data. Please add any additional data use applications to this prioritization as necessary.

DATA USE IN CHRONIC DISEASE MANAGEMENT	PRIORITY RANKING 1 = highest priority 10 = lowest priority
To identify at-risk populations and/or develop risk profiles for populations or individuals	
To shape new care models	
To create and update evidence-based practice guidelines	
To inform patient self-management education	
To reduce care variation	
To improve patient outcomes using evidence-based treatment	
For routine reporting	
To determine budget and resourcing for chronic disease management	
For patient outreach and messaging to increase patient engagement	
To identify and improve quality measures	
Other (Please list)	

MODULE 02.

FINANCIAL MANAGEMENT



The second case study in *Using Health Data to Improve Universal Health Coverage* examines how data are used in financial management of health programs. It provides examples of different financial structures and how countries apply data to budgeting, financial management, and risk analysis.

This module helps countries consolidate relevant information about health system financial management and budgeting in order to assess the level of maturity and map recommendations from *Using Health Data to Improve Universal Health Coverage* to national priorities and areas of opportunity

BACKGROUND

Stages of Maturity in Using Financial Management Data

EARLY STAGE	MIDDLE STAGE	MATURE STAGE
• Budgets are inconsistent or cover only some regions or health areas. • Budget information is not available in real time. • Census data are used to set costs. • Historical financial data are not available. • Funding is not aligned—different programs have different funding sources.	• Some historical cost data are available to inform current year budgets. • Funding sources are not streamlined, but they are aligned in focus and purpose. • Most public system data are included in a central reporting hub, but not private-sector data. • Access to utilization-based data is limited.	• Real-time, ongoing financial reporting is used and accessible • The annual budgeting process is consistent and comprehensive. • Claims data and financial data are included in a central processing hub for reporting and analytics. • Private and public data are both accessible. • Financial data are used for reviewing and adjusting benefits packages, setting premium and revenue targets, selecting provider payment methods, and setting payment rates.

USES FOR DATA IN FINANCIAL MANAGEMENT

The countries identified the following ways data can be used in financial management:

1. To review and adjust benefits packages
2. To set premium and revenue targets
3. To select provider payment methods
4. To set payment rates
5. To improve allocation of resources
6. To reduce fraud
7. To improve annual budgeting
8. To improve health system efficiency
9. To improve cashflow prediction accuracy

Financial Management Situational Analysis Guide

The Financial Management Situational Analysis Guide provides a standard set of questions for preliminary research. These questions are intended to establish the existing financial structure, data use, and technology components for the assessment. This section should be completed prior to the assessment activities using a mixture of documentation review and informational interviews. Intended answer length is indicated alongside each question. The answers should then be validated with participants when completing the maturity assessment.

Results from this situational analysis will be used in the introduction and background sections of the final assessment report, in order to set the stage for specific recommendations and next steps.

1. PROGRAM GOALS, AND PRIORITIES

Approximately 3-5 sentences per question.

a. **Goals:** Are there specific financial management goals for the health system? Please list.

b. **Prioritization:** How does financial management prioritize goals, activities or outcomes?

2. GOVERNANCE AND STRUCTURE

Provide specific references and website links where possible.

a. **Documentation:** Please list and/or link to all relevant documentation for financial management of the health system.

Example: Real-time financial management policies and procedures (Korea)

Example: World Bank review (Indonesia): Spend More, Spend Right, Spend Better

c. **Financial Management Structure:** Briefly explain the financial management or budgeting process for the health system.

Example: The Ministry of Health proposes a budget to subsidize premiums for the poor and transfers the funds to BPJS. Projections are based on the previous year's budget and an estimate of the poor population. (Indonesia)

d. **Key Stakeholders:** Please list all major stakeholders involved with budgeting or financial management.

Example: The NHIS checks revenues and expenditure, analyzes financial risk factors, and carries out budget projections. (Korea)

e. **Working groups:** Are there any crosscutting bodies involved in financial management or budgeting? Please list.

Example: Financial management and budgeting include the National Development Planning Agency (BAPPENAS), the NTT Development Planning Agency (BAPPEDA), Forum Musrenbang, and the National Social Security Council (DJSN). (Indonesia)

f. **Are there any other notable stakeholders or governance features** not included in 3a-3d? Please list.

Example: The country does not have a national health insurance system; however, people can buy private insurance to access additional services offered by the private sector. (Malaysia)

3. FUNDING SOURCES

a. **Please list the primary funding sources** included in the health system financial management or budgeting process.

4. TECHNOLOGY AND DATA SYSTEMS

List all relevant systems or software. Provide as much detail as possible (software name, version, etc.).

a. **What software is used** for data collection for financial management?

Example: Financial management system from Ministry of Finance and e-Claim from Ministry of Health: Indonesia Case-Based Group (Indonesia)

Example: Vedica (Indonesia)

Example: Defrauda (Indonesia)

b. **What hardware systems are used** for data collection for financial management?

Example: Ministry of Health Online system with Data Center (Indonesia)

c. **What analytics or data processing software is used?**

Example: Customized web portal produces daily or monthly reports with data visualization (Korea)

d. **Where are the data warehoused?**

Example: Since Malaysia lacks a claims database to inform health expenditure, it established the Malaysia National Health Account (MNHA) to provide macro-level health expenditure information based on the internationally standardized National Health Accounts methodology.

5. PROGRAMMATIC DATA USE

Please answer each question in 1-2 paragraphs.

a. **How are data used to help meet the stated (or unstated) goals of financial management?**

b. **What additional data would strengthen** the financial management or budgeting process?

c. **How do data influence budget allocation?** Are data used for decision-making during the financial planning process?

6. PRIORITIZATION OF DATA USE

Based on pre-identified applications of data, please indicate how the chronic disease management program uses data. Please add any additional data use applications to this prioritization as necessary.

DATA USE IN FINANCIAL MANAGEMENT	PRIORITY RANKING 1 = highest priority 9 = lowest priority
To review and adjust benefits packages	
To set premium and revenue targets	
To select provider payment methods	
To set payment rates	
To improve allocation of resources	
To reduce fraud	
To improve annual budgeting	
To improve health system efficiency	
To improve cashflow prediction accuracy	
Other (please list)	

MODULE 03.

CLAIMS DATA UTILIZATION

The third case study in *Using Health Data to Improve Universal Health Coverage* examines ways to use insurance claims data to improve operational efficiency and service delivery and understand the cost of those services.

This module helps countries consolidate relevant information about their national insurance scheme and supporting health information systems in order to assess the level of maturity and map recommendations from *Using Health Data to Improve Universal Health Coverage* to national priorities and areas of opportunity

BACKGROUND

Stages of Maturity in Using Claims Data

EARLY STAGE	MIDDLE STAGE	MATURE STAGE
• Physical infrastructure is in place, but no collection of claims data (or no national insurance scheme). • Moving from paper to electronic claim submissions. • Programs and investments focus on increasing data quality and reliability.	• Increase in electronic submissions. • Data storage needs addressed. • Harmonization of data from different sources (including care data and billing data). • Data are shared between the MOH and NHIS. • Capacity building and training of staff on claims data analytics and use. • Initial connections between internal and external data sources to produce “big data.”	• Private-sector data integrated into the system. • Data warehouse and reporting platforms for claims data are in place. • Claims data are used as a proxy for population health data or supplement data from clinical care. • Analytics capacity and tools are in place to use claims data for more than operations. • Governance structures for the entire data lifecycle are in place and reinforced throughout the health system.

USES FOR CLAIMS DATA

The countries in the Data Foundations Collaborative identified the following ways to use claims data:

1. To track disease demographics and disease patterns
2. To help assess facilities and improve the quality of care
3. To give providers feedback on their performance
4. To inform medicine purchasing, prescribing, and dispensing
5. To predict future expenditures, guide budgeting, and identify budget priorities
6. To assess health programs and guide program implementation, expansion, and modification
7. To help define benefits packages
8. To help detect fraud
9. To review insurance premium rates
10. To share with stakeholders for research purposes

Insurance Claims Data Situational Analysis Guide

The Insurance Claims Data Situational Analysis Guide provides a standard set of questions for preliminary research. These questions are intended to establish the existing financial structure, data use, and technology components for the assessment. This section should be completed prior to the assessment activities using a mixture of documentation review and informational interviews. Intended answer length is indicated alongside each question. The answers should then be validated with participants when completing the maturity assessment.

Results from this situational analysis will be used in the introduction and background sections of the final assessment report, in order to set the stage for specific recommendations and next steps.

1. PROGRAM NAME

List the official name of the national insurance scheme and associated acronym (if relevant).

2. PROGRAM MISSION, GOALS, AND PRIORITIES

Approximately 3-5 sentences per question.

a. **Mission:** Does the national health insurance scheme have a stated mission? Please list.

b. **Goals:** Are there specific goals for the national health insurance scheme? Please list.

c. **Prioritization:** How does the national health insurance scheme prioritize goals, activities or outcomes?

3. PROGRAM GOVERNANCE AND STRUCTURE:

Provide specific references and website links where possible.

a. **Documentation:** Please list and/or link to all relevant documentation for the national health insurance scheme.

Example: Collection of Universal Health Coverage Rules (Indonesia)

b. **Claims Structure:** Briefly explain the claims structure used by the national insurance scheme.

Example: Before sending a claim, staff at the hospital inputs disease and demographic data to the e-Claim application. This data is used by the Ministry of Health to determine the fee for the health service. The data is used by BPJS to verify the insurance claim. (Indonesia)

c. **Key Stakeholders:** Please list all major stakeholders involved with the national insurance scheme.

Example: Ministry of Health, BPJS Kesehatan, Board of National Social Security, Ministry of Finance, Local Governments (Indonesia)

d. **Working groups:** Are there any crosscutting bodies involved with the national insurance scheme? Please list.

Example: National Development Planning Agency, Ministry for Human Development and Cultural Affairs, Professional Health Organizations (Indonesia)

e. **Are there any other notable stakeholders or governance features** not included in 3a-3d? Please list.

4. FUNDING SOURCES

a. **Please list the primary funding sources** of the national health insurance scheme.

5. TECHNOLOGY AND DATA SYSTEMS

List all relevant systems or software. Provide as much detail as possible (software name, version, etc.).

a. **What software is used** for insurance claims submission and/or management?

Example: HIRA uses an IT system called the HIRA System to carry out essential functions. (Korea)

b. **What hardware systems are used** for data collection for insurance claims collection?

Example: Facilities submit claims either electronically (using the digital eClaims platform) or through a paper-based system. (Ghana)

c. **What analytics or data processing software is used?**

Example: Tableau, Excel, etc.

d. **Where are the data warehoused?**

6. PROGRAMMATIC DATA USE

Please answer each question in 1-2 paragraphs.

a. **How are data used to help meet the stated (or unstated) goals of the national health insurance scheme?**

b. **What additional data would strengthen the national health insurance scheme?**

c. **How do data influence service provision, insurance benefits, or insurance premiums?**

7. PRIORITIZATION OF DATA USE

Based on pre-identified applications of data, please indicate how the chronic disease management program uses data. Please add any additional data use applications to this prioritization as necessary.

USES OF INSURANCE CLAIMS DATA	**PRIORITY RANKING** 1 = highest priority 10 = lowest priority
To track disease demographics and disease patterns	
To help assess facilities and improve the quality of care	
To give providers feedback on their performance	
To inform medicine purchasing, prescribing, and dispensing	
To predict future expenditures, guide budgeting, and identify budget priorities	
To assess health programs and guide program implementation, expansion, and modification	
To help define benefits packages	
To help detect fraud	
To review insurance premium rates	
To share with stakeholders for research purposes	
To track disease demographics and disease patterns	
Other (please list)	

MODULE 04.

DATA USE MATURITY ASSESSMENT

by Data Governance Topic Area

The Data Use Maturity Assessment provides a structured tool for determining the maturity of data use within a health system. Once a country has selected the relevant health area or topic and completed the topic-specific questions identified in the previous modules, they should complete this assessment tool. The question in Module 4 are designed to be applicable across health areas or topics with specific focus on data use. These questions may be administered as a survey, or adapted for use in a workshop (see Using the Companion Guide). Each item is evaluated with one of the following scales:

- Never, Infrequently, Frequently, Always
- Does not exist, Exists but is not applied, Exists and is applied occasionally, Exists and is applied consistently
- Does not adhere to standards, Considers standards, Utilizes some standards, Fully adheres to standards
- Yes, No
- 0-50%, 50-75%, 75%+
- 0, 1-3, 4+
- No human resources available, Untrained human resources available, trained human resources available, Specialized and dedicated human resources available

Results from this situational analysis will be used in the introduction and background sections of the final assessment report, in order to set the stage for specific recommendations and next steps.

DATA COLLECTION

Technology	Data are collected using electronic data capture	Never
	Data are collected using mobile technologies	Never
	Software for data collection adheres to globally recognized standards.	Does not adhere to standards
	Databases used to collect and store data are up-to-date	Never
	Software and database are capable of capturing all data elements required	Yes
	Design of the database is informed by demands of the users	Never
Coverage	The number of stakeholders contributing data to a single system	0
	% of population covered by data collection	0-50%
	% of country's geographic area covered by data collection	0-50%
Data Sources	Demographic data are used	Never
	Clinical data are used	Never
	EMRs are used.	Never
	Internet of Things (devices and/or mobile applications) is used	Never
	Third-party data sources are included.	Never
Data collection process	Data are collected in real-time	Never
	Data are aggregated or available in real-time	Never
	Duplicate data entry is required.	Never
	Data collection is included in routine health system processes.	Never
	Privacy/confidentiality is considered during the data collection process.	Never

GOVERNANCE AND POLICY

Standards	National data and technology standards exist and are applied consistently.	Does not exist
	National data and technology standards utilize globally recognized standards.	Does not adhere to standards
Privacy, confidentiality, and security	Privacy and data security regulations or laws exist and are applied consistently.	Does not exist
	Technology solutions are used to protect data security and privacy.	Never
	Standards exist for the deidentification or anonymizing of data for sharing purposes.	Does not exist
Data sharing policies	National data sharing policies exist and are utilized consistently.	Does not exist
	Regional (cross-country) data sharing policies exist and are utilized consistently.	Does not exist
Data collection process	Laws or standards define the ownership of data and are applied consistently.	Does not exist

DATA AGGREGATION, INTEGRATION, TRANSFERABILITY, AND ACCESS

Aggregation	Data are easily aggregated from all data collection sources	Never
	Standards or guidelines for data aggregation are available and applied consistently.	Does not exist
	Detailed drill-down data are available after aggregation	Never
	Standard data formats exist and are used consistently.	Does not exist
	Unique IDs exist for patients, providers, facilities, and other entities within the system.	Yes
	Data warehouses exist.	Yes
	Data collection standards exist and are used consistently.	Does not exist
Data transferability/ shareability	Standards for data security and anonymization of data for sharing/ aggregation exist and are applied consistently	Does not exist
	A shared architecture technology or data architecture is in place to allow for aggregation.	Does not exist
	Data exchange standards exist and are used consistently.	Does not exist
Data harmonization	Standard terminology exists and is used consistently	Does not exist
	Standard naming conventions exist and are used consistently.	Does not exist
	A single national platform allows data to be viewed.	Yes
Access	A defined set of users has access to data from all systems.	Yes
	Access to data exists at all levels of the health system.	Yes

SYSTEM (TECHNOLOGY) INTEGRATION AND INTEROPERABILITY

Standards	National technology standards exist and are utilized consistently.	Does not exist
	National technology standards adhere to global technology standards.	Does not adhere to standards
Required Resources	Network connectivity and network infrastructure supports data collection, aggregation, and analysis.	Never
	Infrastructure and processes are in place to enter, transmit, extract, merge, and transfer data.	Never
	Human resources with appropriate competencies to support system integration are available.	No human resources available
Technical problem solving	Dedicated technical support is available.	Yes
	Multi-stakeholder events for technical problem solving (training, workshops, hackathons, interoperability labs) occur at regular intervals.	Does not exist

DATA QUALITY

Assessment	Data quality assessment tools exist and are used consistently.	Does not exist
	Data quality audits are performed consistently.	Does not exist
Data management	Data cleaning and/or data validation processes are in place and are used consistently.	Does not exist
	Data management standards are in place and are used consistently.	Does not exist
	Coding standards are in place and used consistently.	Does not exist
Data completeness	All required data fields are available in all data sets.	Never
	Data are collected beyond required data sets	Never
	Data are available for all levels of the health system.	Never
	Appropriate metadata are captured for all data.	Never

ANALYTICS AND VISUALIZATION

Resources	Human resources with appropriate competencies to support data analytics and visualization are available.	No human resources available
Systems	Analytics and visualization software is available and used consistently.	Does not exist
	Data collection or aggregation systems have built-in analytics capacity without requiring additional software.	Yes
Visualization	Data dashboards are available and used consistently.	Does not exist
	A defined set of users has access to data visualizations.	Never
	Access to data visualizations exists at all levels of the health system.	Never
	Data analysis and presentation guidelines exist and are used consistently.	Does not exist
	Visualizations are created from reliable data sources.	Never
Data use and dissemination	Data analytics and visualizations are used to improve or make decisions.	Never
	Data collected are based on and meets user needs	Never
	Data contribute to policy development and practical guidance	Never
	Data analytics and visualization are disseminated to external technical audiences.	Never

One approach to using this assessment is to assign a score to each of the responses and tally them to a total. While a summary total may provide some sense of satisfaction (e.g., we've scored 18 of 25, for example), the more critical use of the responses in the above maturity assessment is to help one discern patterns in the responses. For example, are deficiencies in maturity due to lack of technology, lack of people (or training), or undefined or under-used processes.

Usually, it will be some combination, and the strengths and weaknesses may differ in the areas of data collection; governance and policy; data aggregation, integration, transferability, and access; system (technology) integration and interoperability; data quality; and analytics and visualization. The maturity assessment will also provide a guide for what steps to take next in each area. For example, moving from governance policies that do not exist, to drafting them, is a different task—and requires different skills than moving from "Exists but is not applied" to adopting them as standard practice.

In an arena as large and complex as that of universal healthcare, it is helpful to divide the components into achievable parts, and to articulate interim achievement milestones. The journey toward universal healthcare, from whatever the current level of data use maturity, requires diligent commitment on many fronts simultaneously. Improving the quality, availability, and use of data is a critically important aspect of that journey.

> **"Never doubt that a small group of thoughtful, committed, citizens can change the world. Indeed, it is the only thing that ever has."**
>
> *-Margaret Mead*

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