



**BURKINA FASO**

# **National Health Information System and 2010 – 2020 Strategic Plan Evaluation**

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Prepared for the Government of  
Burkina Faso's Ministry of Health



**BILL & MELINDA  
GATES foundation**

 **The Global Fund**

**COOPER / SMITH**

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# ABBREVIATIONS

<b>BMGF</b>	The Bill and Melinda Gates Foundation
<b>CBO</b>	Community Based Organization
<b>CHR</b>	Regional Hospital (Centre Hospitalier Régional)
<b>CHU</b>	National Hospital (Centre Hospitalier Universitaire)
<b>CHW</b>	Community Health Worker
<b>CISSE</b>	Data Management Team at the district and regional levels (Centre d'Information Sanitaire et de Surveillance Epidémiologique)
<b>CM</b>	Large PHC Facility (Centre Médical)
<b>CMA</b>	District Hospital (Centre Médical avec Antenne Chirurgicale)
<b>CSPS</b>	Primary Health Care Facility (Centre de Santé et de Promotion Sociale)
<b>CUS</b>	Hospital Data Management Staff (Coordinateur d'Unité de Soins)
<b>DAF</b>	MoH Admin & Finance Directorate (Direction de l'Administration et des Finances)
<b>DGESS</b>	MoH Data Management Directorate (Direction Générale des Etudes et Statistiques Sectorielles)
<b>DGISS</b>	Health Information and Statistics Directorate (Direction Générale de l'Information et des Statistiques Sanitaires) – replaced by the DGESS and DSIS
<b>DGOS</b>	MoH Care Delivery Directorate (Direction Générale de l'Offre de Soins)
<b>DHIS2</b>	District Health Information System 2
<b>DHMT</b>	District Health Management Team
<b>DPPO</b>	MoH Planning Directorate (Direction de la Prospective et de la Planification Opérationnelle)
<b>DQA</b>	Data Quality Audit
<b>DRS</b>	Regional Health Management Team (also see RHMT) (Direction Régionale de la Santé)
<b>DSIS</b>	Ministry of Health Information Technology Directorate (Direction des Systèmes d'Information en Santé)
<b>DSS</b>	MoH Data Management Directorate (Direction des Statistiques Sectorielles)
<b>DUP</b>	Data Use Partnership
<b>DUS</b>	Data User Study
<b>ECD</b>	District Health Management Team (also see DHMT) (Équipe Cadre de District)
<b>ENDOS-BF</b>	National Data Warehouse built on DHIS2 (Entrepôt National des Données Sanitaires – Burkina Faso)
<b>ENSP</b>	National Public Health School (École Nationale de Santé Publique)
<b>EPI</b>	Expanded Program on Immunization
<b>GFF</b>	Global Financing Facility
<b>GoBF</b>	Government of Burkina Faso
<b>HCW</b>	Health Care Worker
<b>HISP</b>	Health Information Systems Programs
<b>HIV</b>	Human Immunodeficiency Virus
<b>IMCI</b>	Integrated Management of Childhood Illness
<b>ICP</b>	Head Nurse at Primary Health Care Facility (Infirmier Chef de Poste)



<b>IDP</b>	Internally Displaced Person
<b>M&amp;E</b>	Monitoring and Evaluation
<b>MoH</b>	Ministry of Health
<b>MPGIS</b>	Health Information Management Guide (Manuel de Procédure de Gestion de l'Information Sanitaire)
<b>NHA</b>	National Health Accounts
<b>NGO</b>	Non-Governmental Organization
<b>NHIS</b>	National Health Information System
<b>OBCE</b>	Executive Community-Based Organization (Organisation à Base Communautaire d'Exécution)
<b>PADS</b>	Program for Public Health Development (Programme d'Appui au Développement Sanitaire)
<b>PEV</b>	Immunization Directorate (Programme Elargi de Vaccination)
<b>PHC</b>	Primary Health Care
<b>PII</b>	Personally Identifiable Information
<b>PMTCT</b>	Preventing Mother to Child Transmission of HIV
<b>PNDES</b>	National Economic and Social Development Strategy (Plan National de Développement Economique et Social)
<b>PNDS</b>	National Public Health Development Program (Programme National de Développement Sanitaire)
<b>PRISM</b>	Performance of Routine Information System Management
<b>PTF</b>	Technical and Financial Partners (Partenaire Techniques et Financiers)
<b>REC</b>	Digital Consultation Register (Registre Electronique de Consultation)
<b>RENCAP</b>	Capacity Strengthening (RENforcement de CAPacité)
<b>RHMT</b>	Regional Health Management Team
<b>RMA</b>	Monthly Activity Report (Rapport Mensuel d'Activité)
<b>SIEM</b>	Infrastructure and Services Department (Service des Infrastructures des Equipements et de la Maintenance)
<b>SIGL</b>	Logistics Management Information System (Système d'Information sur la Gestion Logistique)
<b>SIH</b>	Hospital Information System (Système d'Information Hospitalier)
<b>SMS</b>	Short Message Service
<b>SNIS</b>	National Health Information System (Système National d'Information Sanitaire)
<b>STI</b>	Sexually Transmitted Infection
<b>SUS</b>	Hospital Information System staff (Surveillant d'Unité de Soins)
<b>SUT</b>	Technical Unit staff (Surveillant d'Unité Technique)
<b>TB</b>	Tuberculosis
<b>TFSC</b>	Task Force Community Health (Task Force Santé Communautaire)
<b>UNICEF</b>	United Nations Children's Fund
<b>UNOCHA</b>	United Nations Office for the Coordination of Humanitarian Affairs
<b>USAID</b>	United States Agency for International Development
<b>USSD</b>	Unstructured Supplementary Service Data
<b>WHO</b>	World Health Organization





# EXECUTIVE SUMMARY

## BACKGROUND

From 2010 to 2020, the Ministry of Health (MoH) of Burkina Faso implemented a National Health Information System (NHIS)<sup>1</sup> Strategic Plan. The Plan's goal was to enhance the system's overall functioning of the system, focusing on four main axes:

- Strengthening the NHIS's planning, coordination, and leadership
- Strengthening NHIS human and financial resources, equipment, and infrastructure
- Improving the production, management, and quality of health data
- Improving the production, dissemination, and use of health information

In 2019, while preparing to draft the 2021-2025 Strategic Plan, the MoH expressed interest in conducting a retrospective evaluation of their 2010-2020 NHIS Strategic Plan. The Bill & Melinda Gates Foundation (BMGF), along with the Global Fund, contacted Cooper/Smith to conduct this work based on similar assessments implemented in Malawi and Cameroon.

The Gates Foundation issued a 2-year grant (2019-2021) to Cooper/Smith under the Data Use Partnership (DUP) to support data use to improve health outcomes. Phase I (2019-2020) of this grant included this assessment. Data collection took place in Q1 2020 in five regions of Burkina Faso, in which 75 decision makers and 75 data handlers were interviewed and 69 facilities were assessed. Phase II (2020-2021) consists of technical support to the MoH based on the findings from this assessment.

## OBJECTIVES

The objectives of the evaluation were:

1. to assess the implementation of the 2010-2020 NHIS Strategic Plan and provide recommendations for the upcoming 2021–2025 NHIS Strategic Plan development (and other relevant national strategies);
2. to analyze the NHIS from a user perspective understand identify key data elements, sources, and systems used to make decisions. This information helps us ensure that the right information is available at the right time to make the right decisions; and
3. to ensure that the MoH and partners use our findings to improve data analysis and to improve health outcomes.

1. In French: Système National d'Information Sanitaire (SNIS) or NHIS



# REPORT OVERVIEW

This report has three parts:

- Part I: Introduction – including country and MoH overview and study context
- Part II: 2010 – 2020 NHIS Strategic Plan evaluation methods and findings
- Part III: NHIS user perspective evaluation (Data User Study/DUS)

## KEY FINDINGS

### I) NHIS 2010-2020 Strategic Plan Implementation

Our evaluation used a mixed methods approach, incorporating quantitative and qualitative questions, and a literature review. Overall, we found that the MoH did a satisfactory job in executing the Strategic Plan. However, in some areas, challenges remain. Below is a summary of NHIS Strategic Plan implementation success and limitations by Strategic Plan axis.

#### Axis 1: Strengthen planning, coordination and leadership of the NHIS

SUCCESSSES	LIMITATIONS
<ul style="list-style-type: none"> <li>+ Ensured that a functioning health information system is in place to collect information</li> <li>+ Coordinated sub-committees that met regularly</li> <li>+ Consistently developed the Data Management Directorate (Direction des Statistiques Sectorielles or DSS) and IT Directorate (Direction des Services de l'Information en Santé or DSIS) action plans annually</li> <li>+ Took into consideration partners and their needs when developing health information standards</li> </ul>	<ul style="list-style-type: none"> <li>- No mid-term assessment on the strategic implementation performed</li> <li>- No activities formally planned for the 2015-2020 period</li> <li>- Inconsistencies expressed by respondents on action plans' validation processes</li> <li>- No NHIS specific action plans developed and no DSS and DSIS action plans well distributed across levels</li> </ul>

#### Axis 2: Strengthen human and financial resources, equipment, and infrastructure

SUCCESSSES	LIMITATIONS
<ul style="list-style-type: none"> <li>+ Constructed and equipped an office for the General Directorate on Data Management (Direction Générale des Etudes et Statistiques Sanitaires or DGESS) according to plan</li> <li>+ Ensured that NHIS strengthening became a priority for donors through MoH advocacy</li> </ul>	<ul style="list-style-type: none"> <li>- Over 50% of respondents mentioned that Internet connectivity is a challenge and limits their ability to communicate and collect and analyze data.</li> <li>- Computers and devices for data collection and analysis are rarely available at the lowest levels of the health system</li> <li>- Facilities do not know how to maintain equipment or configure device settings.</li> </ul>



### Axis 3: Improve the production, management and quality of health data

SUCSESSES	LIMITATIONS
<ul style="list-style-type: none"> <li>+ <b>Successfully rolled out mHealth applications: mHealth application at the community level; Registre Electronique de Consultation (REC) at the primary health care (PHC) facility level; DHIS2 at the national level (Entrepôt National des Dnnées Sanitaires or ENDOS-BF)</b></li> <li>+ Ensured that population data is available, reported, and can be used across all levels of the health system</li> <li>+ Developed and rolled out a software for hospital data collection and management</li> <li>+ Provided an environment for supportive supervision across the majority of PHC facilities</li> <li>+ Planned and implemented surveys within the designated timeframe and used the data to inform programming</li> </ul>	<ul style="list-style-type: none"> <li>- The private sector reported low levels of data collection, raising questions on data completeness and quality.</li> <li>- It is unclear how often community data is validated. Community health workers (CHWs) were unsure of who validates their data, and respondents reported that community data is excluded if they cannot verify the data.</li> <li>- <b>While supervisory visits took place, 25% of respondents reported receiving no feedback.</b></li> <li>- There is no standardized process in place for data validation across regions and facilities; existing processes are not followed consistently.</li> </ul>

### Axis 4: Improve the production, dissemination and use of health information

SUCSESSES	LIMITATIONS
<ul style="list-style-type: none"> <li>+ Completed the National Health Accounts (NHA) on an annual basis</li> <li>+ <b>Developed and disseminated health statistical products</b></li> <li>+ Trained local decision makers on how to use health information for decision making</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Many data products were not disseminated to the lowest levels of the NHIS, or if they were, decision makers did not always share with other staff.</b></li> </ul>

## II) NHIS User Perspective Evaluation

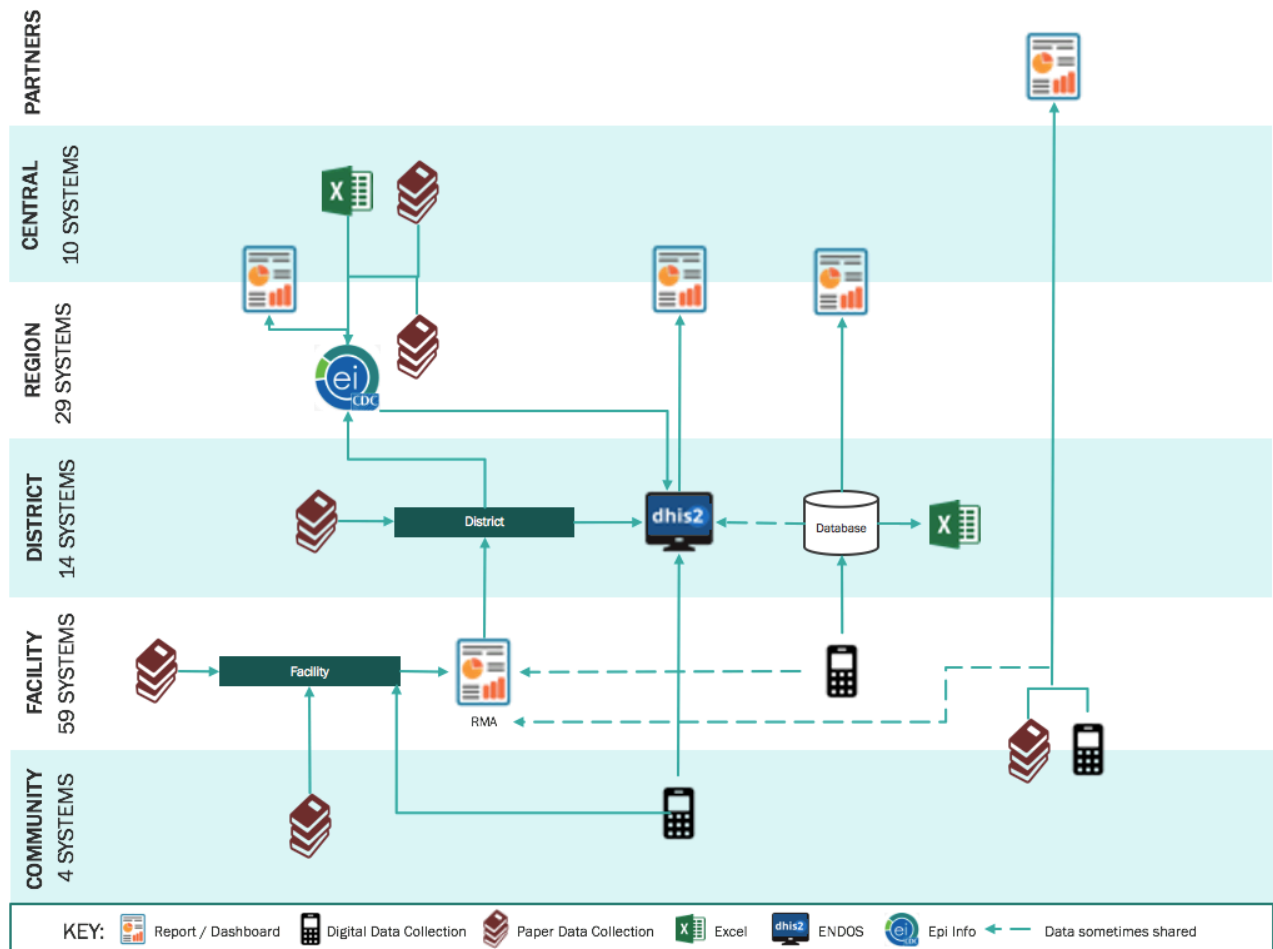
Systems live and die by their users. As part of our mandate to better understand opportunities for supporting and strengthening the NHIS, we did a deep dive into NHIS users' data use and decision making. Understanding the gaps which exist between what decision makers know, what decision makers need to know, and which data is collected by those who collect and aggregate data (called "data handlers") helps us uncover opportunities for strengthening the NHIS. We conducted a study (called a "Data User Study") that focuses on how decisions are being made and the information used to inform these decisions. Our study aims to answer the following question: is the **right data**, in the **right format**, in the hands of the **right person** to answer the **right question**?



# KEY FINDINGS

**FINDING 1) Health data systems are fragmented, hindering the ability of decision makers to fully access and use all available data for decision making.** As an example, there are over 110 active databases, applications, and digital tools currently at use within the country (Figure 1).

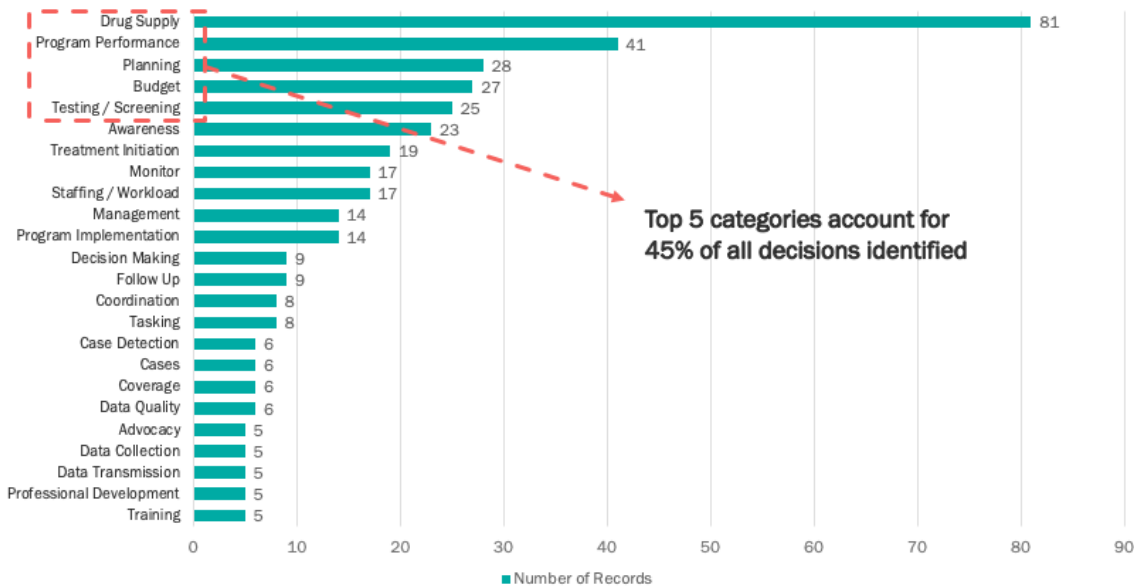
FIGURE 1: NHIS DATA FLOW





**FINDING 2) Decision makers are mostly focused on five decision categories: drug supply, program performance, planning, budget, and testing/screening.** These five decision categories account for 45% of all decisions identified by decision makers (Figure 2).

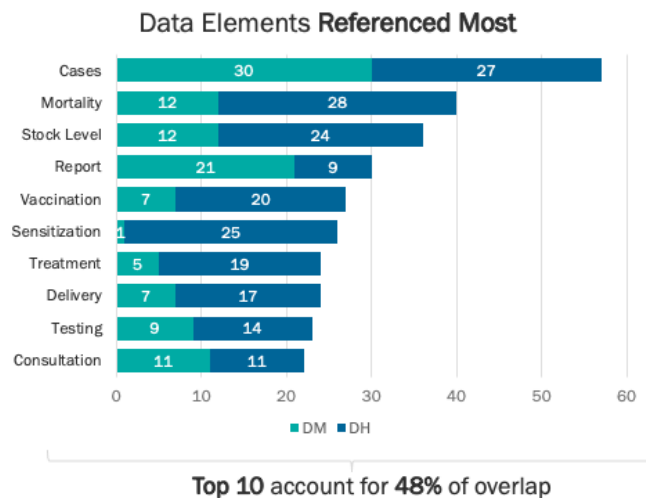
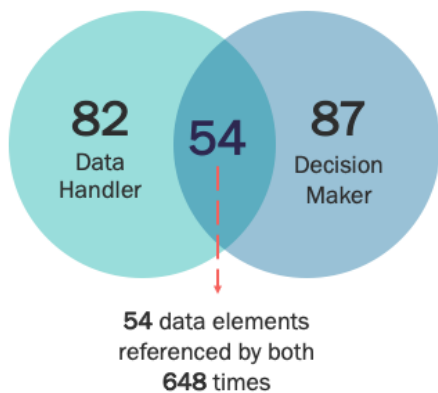
**FIGURE 2: MOST FREQUENT DECISIONS REFERENCED BY DECISION MAKERS**



**FINDING 3) Decision makers and data handlers are not aligned on which data elements are the most important.** As such, data handlers are collecting data that is not deemed useful or important for decision makers. As shown in Figure 3, a total of 223 unique data elements were mentioned during the DUS. Of those, 54 data elements were referenced by both data handlers and decision makers 648 times, accounting for 69% of responses, while the remaining 31% of data elements are not aligned. Figure 3 also shows the top ten most referenced data elements, identifying which data elements are seen as equally or disproportionately important by role. The top ten data elements account for 48% of the 54 data elements referenced by both roles.

**FIGURE 3: DATA ELEMENTS MOST REFERENCED BY DECISION MAKERS AND DATA HANDLERS**

**Minimal alignment between decision-makers & data handlers in terms of what data elements are important**

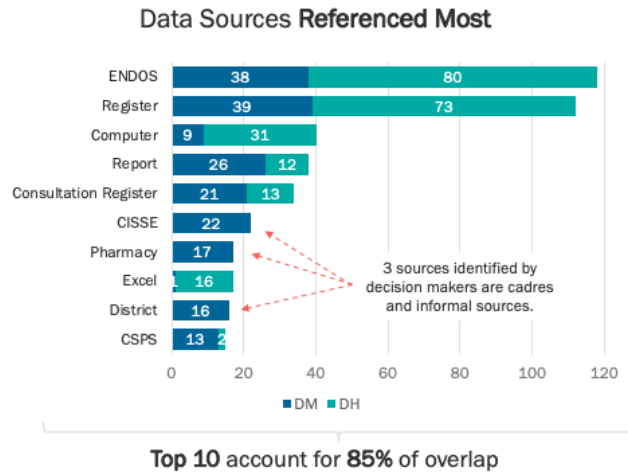
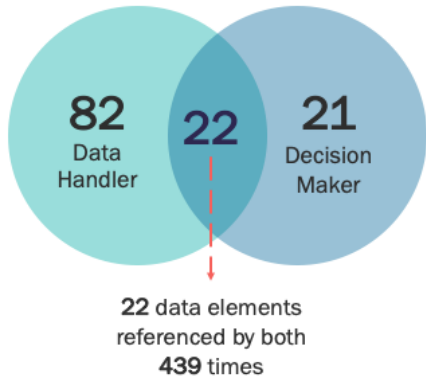




**FINDING 4) Decision makers and data handlers are even less aligned on which data sources are most important.** Figure 4 reveals that a total of 125 unique data sources were identified. Of those, only 22 sources were referenced by both data handlers and decision makers. Decision makers frequently mentioned informal data sources, such as individuals or cadres, as shown in the top ten most referenced data sources.

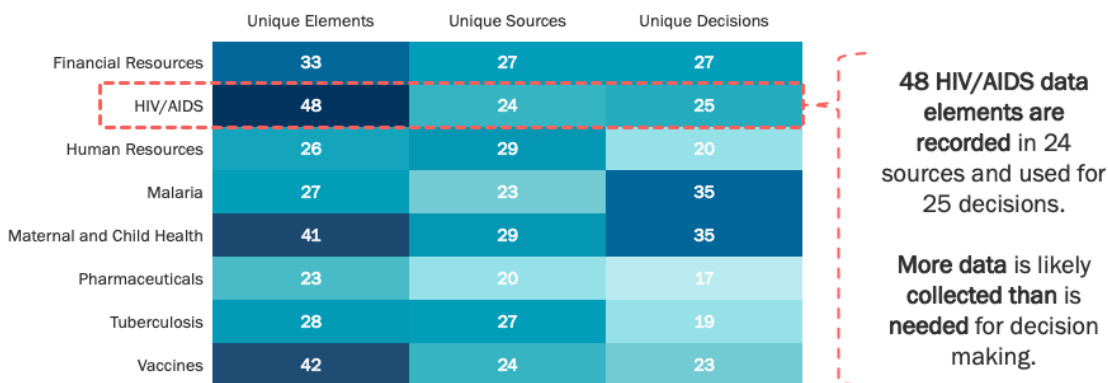
**FIGURE 4: DATA SOURCES IMPORTANCE (REFERENCED) BY DECISION MAKERS AND DATA HANDLERS**

Even less alignment between decision-makers and data handlers in terms of what data sources are important



**FINDING 5) More data is collected than is needed for decision making.** As a result, health workers at every level of the system spend between 13-46 hours per week collecting and making sense of data. As an example, there are 48 data elements collected for HIV/AIDS by data handlers, but decision makers only use 25 unique data elements to make decisions. Additionally, there may be room to streamline data collection processes. Human resource respondents identified 26 different data elements collected across 29 sources, showing that some data elements may be recorded in more than one source. Figure 5 shows the unique data elements, sources, and decisions for each programmatic area reviewing during the DUS.

**FIGURE 5: UNIQUE DATA ELEMENTS, SOURCES, AND DECISIONS BY PROGRAM AREA**



**FINDING 6) Routine supportive feedback is rare** (Figure 6). Approximately a quarter of decision makers reported receiving no feedback while less than 10% reported receiving routine feedback on data sharing, data quality, programmatic work, or words of appreciation.



FIGURE 6: FEEDBACK PROVIDED TO DECISION MAKERS ON PERFORMANCE



## MAIN RECOMMENDATIONS

- **Align data to decision makers' needs.** Streamlining data collection sources, data elements, and ensuring they are aligned to decision makers' needs can prevent bottlenecks and the overproduction of data and shift time away from data collection to data use.
- **Consider electronic data collection and systems where appropriate, accompanied by clear standards on when to "turn off" the paper.** Dependence on paper data collection and manual data analysis processes can be automated to improve efficiency. In Burkina Faso, 70% of respondents use paper systems. This is time-consuming and prone to human error, which could affect data quality.
- **Ensure interoperability between databases, applications, and ENDOS-BF will facilitate data sharing between programs and levels of the health system.** Siloed systems and a lack of interoperability hinders decision makers' ability to make the most informed decisions and prevents sharing between programs and levels of the health system. Additionally, ENDOS-BF is not used to its full potential, and decision makers often rely on informal sources for data.
- **Present raw data to decision makers.** Our findings showed that in many cases, data are presented in an aggregated manner on paper format. Providing decision makers with the opportunity to access and explore the raw data that feed into aggregate counts can help increase confidence in the data.
- **Provide training on digital devices before decentralizing data entry.** Respondents at the lower levels of the health system reported low access to technology, data literacy, and attendance to trainings. Trainings on technology and digital devices should be deployed before decentralization of data entry at the community and facility levels takes place.
- **Share data products at all levels of the health system.** Findings reveal data is flowing up to the central level of the health system, but seldom flows back down to the facility or community levels. Given some findings that show a lack of access to technological devices and/or low technology literacy, sharing data products on paper during supportive supervision visits, instead of electronically sharing them, may be the best way to ensure data is flowing down to each level of the system.





# PART I: INTRODUCTION

## RATIONALE & BACKGROUND

The Burkina Faso NHIS assessment and the 2010-2020 Strategic Plan implementation evaluation is funded by the Bill & Melinda Gates Foundation and implemented through the Government of Burkina Faso (GoBF) and Cooper/Smith. Cooper/Smith collaborated with the Ministry of Health to evaluate the implementation of the NHIS 2010-2020 Strategic Plan, analyze the results achieved, and draw lessons learned.

In 2010, the MoH of Burkina Faso defined a 10-year strategic plan for its National Health Information System (Système National d'Information Sanitaire or SNIS). During its implementation, the MoH achieved many milestones, including strengthening its NHIS and developing several successful digital initiatives.

In 2013, the MoH deployed a national data warehouse – Entrepôt National des DONnées Sanitaires du Burkina Faso – using the District Health Information System 2 (DHIS2). Data is reviewed and entered into ENDOS-BF at the hospital and district levels, and then synchronized to the server – a process that requires internet access. The regional level validates the data while the national level analyzes it. Additionally, the MoH has started a streamlining process to reduce the number of parallel databases and systems and ensure data is pushed into ENDOS-BF.

In 2017, community-based organizations (CBOs) began to directly enter their reporting data into ENDOS-BF. Building on that success, in 2018, the MoH successfully launched a data entry decentralization pilot in the North Region to push data entry to the facility level (about 200+ facilities), with a 100% success rate of reporting promptness and completeness.

The MoH, via the Data Management Department, uses DHIS2 to disseminate aggregated information through online dashboards and annual national MoH statistical reports. The MoH has also advocated for streamlining the number of databases and digital tools being used, encouraging stakeholders to use ENDOS-BF as their default database or ensure interoperability and data sharing between their application and ENDOS-BF.

In addition to ENDOS-BF, the MoH recently launched several successful digital projects:

- **The REC:** A CommCare-based digital job aid used by health care workers (HCWs) to implement the Integrated Management of Childhood Illness (IMCI) protocol. It is implemented in almost 70% of PHC facilities (Centre de Santé et de Promotion Sociale or CSPS) in the country and has been used in over 7M consultations. The REC is one of the largest mHealth projects in Sub-Saharan Africa. Data on 60 indicators is pushed from the Digital Consultation Register database to ENDOS-BF.

Information gleaned from this evaluation will provide a comprehensive situational analysis on which to build the next 5-year NHIS Strategic Plan.

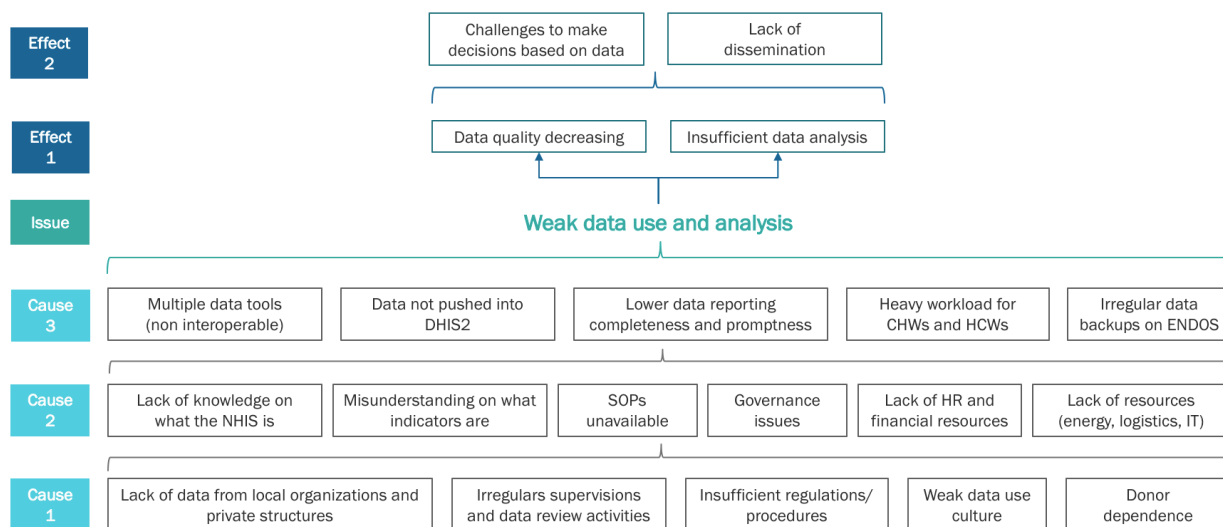


- **mHealth app:** Used by 200+ community health workers (CHWs) in one region (Nord), this mobile application has improved the monitoring of services provided to children under 5 at the community level. This system uses short message service (SMS) to transmit IMCI case status and inputs and to order products. This platform offers many other functionalities that could also be used in community-based surveillance, training, and sensitization of actors in the health system.

Building on this success, the MoH is interested in 1) improving service delivery by fostering a data use culture where health workers access, analyze, and interpret higher quality health data; 2) deepening the integration of the community level into the NHIS; and 3) increasing use of digital technologies in Burkina Faso to decrease the reporting burden for HCWs.

To assist the MoH in accomplishing its objectives, The Bill & Melinda Gates Foundation funded an evaluation of the 2010 – 2020 NHIS Strategic Plan and the NHIS from the user perspective. Cooper/Smith built upon previously completed analyses to understand current NHIS limitations<sup>2</sup>. Figure 7 shows some cause and effects of NHIS limitations as identified in the 2019 Health Information Systems Program (HISP) report.

**FIGURE 7: BURKINA FASO NHIS PROBLEM TREE, NHIS ASSESSMENT, HISP, 2019**



Sources: HISP NHIS Assessment Report, 2019

The goal of our analysis is to add more granularity to these previous studies by moving from a system perspective to a user-centric perspective.

Recognizing that the MoH of Burkina Faso must invest optimally to maximize health benefits with existing resources, Cooper/Smith sought to understand the key relationships between health-related data elements, systems, users, and decisions. Optimizing these relationships can maximize health outcomes. By investing in better health data, the MoH of Burkina Faso can facilitate more frequent use of health data in routine decision making, ultimately maximizing health outcomes. Figure 8 shows some of the questions that were considered while evaluating the 2010 – 2020 Strategic Plan implementation and the existing NHIS.

2. Etat des lieux sur le Systeme National d'Information Sanitaire (SNIS) du Burkina Faso, ENSEA et HISP-WA, Février 2019; Evaluation of the performance of the management of the health information system of routine (PRISM) in Burkina Faso, Measure Evaluation, April 2020



FIGURE 8: KEY QUESTIONS FOR UNDERSTANDING DATA ELEMENTS, SYSTEMS, USERS, AND DECISIONS FOR THE NHIS

**SYSTEM**

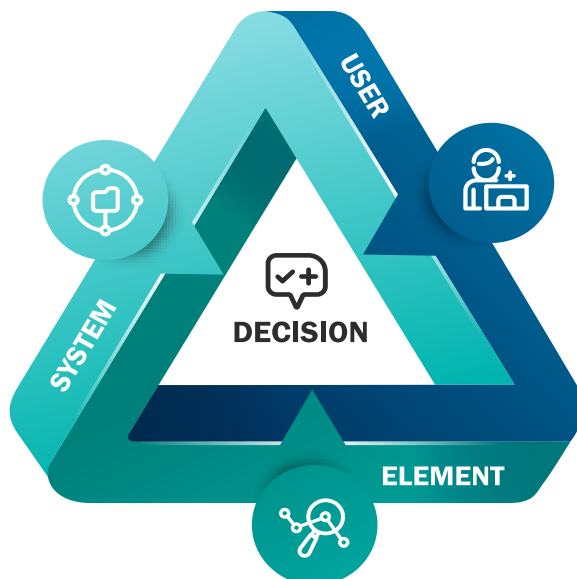
What comprehensive system (paper & electronic) manages each element?

**ELEMENT**

What is the comprehensive set of health-related data elements/indicators?

**USER**

Who are the individuals interacting with the data?



**The right data,  
In the right format  
In the hands of  
the right person  
To answer the  
right question**

The GoBF is currently drafting key strategies for 2021 – 2025, including the NHIS 2021-2025 Strategic Plan, the Digital Health Strategy, the Health Sector Development Plan (Plan National de Développement Sanitaire or PNDS), and the National Economic and Social Development Strategy (Plan National de Développement Economique et Social or PNDES). Information gleaned from this evaluation will provide a comprehensive situational analysis on which to build the next 5-year NHIS Strategic Plan, context to guide the development of other key strategies, and novel and creative approaches to institutionalize a culture of data use in the future.

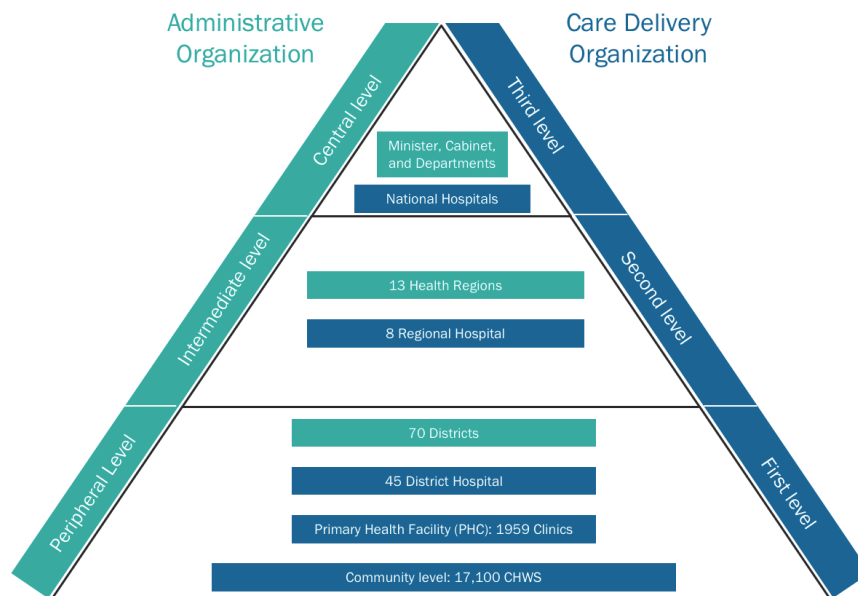
## BURKINA FASO’S NATIONAL HEALTH SYSTEM STRUCTURE

The administrative structure of the health system includes three levels: central, intermediate, and peripheral. The central level is comprised of central and attached structures organized around the cabinet of the Minister and the General Secretariat. The intermediate level corresponds to the 13 regional health directorates (Direction Régionale de la Santé or DRS) responsible for implementing government policy in health regions. Finally, the peripheral level is comprised of 70 health districts – the most decentralized operational entities in the national health system. Figure 9 provides a visualization of Burkina Faso’s health system structure.





FIGURE 9: BURKINA FASO MOH ORGANIZATION, 2019 MHEALTH ASSESSMENT IN BURKINA FASO AND PERSPECTIVES, DSIS



Sources: Etat des lieux de la e-santé au Burkina et perspectives, Direction des Systèmes d'Information en Santé, Dr Ouedraogo Boukary; MD, MPH, PhD (informatique médicale/Epidémiologie)

Alongside the administrative structure, the public healthcare establishments are also organized into three levels and provide primary, secondary, and tertiary care.

1. The health district is made up of two levels: the PHC facility and the medical center (Centre Médical or CM). The health district is the first contact between the population and health services and ensures, firstly, that the minimum package of activities is curative, preventive, promotional, and rehabilitative and, secondly, the collection, processing, and analysis of health information.
2. The second level of care includes the medical center with surgical capabilities (Centre Médical avec Antenne Chirurgicale or CMA) and regional hospital centers (Centre Hospitalier Régional or CHR). The CMA complements the health district and serves as a reference center to offer referral and emergency care.
3. The third and highest level of care is the national hospital center (Centre Hospitalier Universitaire or CHU).

Complementary to the public healthcare administration, there are private and denominational establishments which participate in the provision of care. CBOs and the CHWs are also involved in the healthcare system. Their role is largely in the prevention and promotion of health. CHWs are recruited by the State and work in close collaboration with the Nurses/Heads of Post (Infirmier Chef de Poste or ICP).



# DESCRIPTION OF THE 2010 – 2020 NATIONAL HEALTH INFORMATION SYSTEM STRATEGIC PLAN

The NHIS produces Burkina Faso’s main health statistics. Data from the NHIS is used to calculate MoH defined indicators. Its objectives are to:

- provide the MoH with a decision support tool;
- provide all NHIS stakeholders and users with a tool to assess the health situation;
- support the planning, management, and evaluation process for health programs and services;
- support research; and
- support international health data sharing.

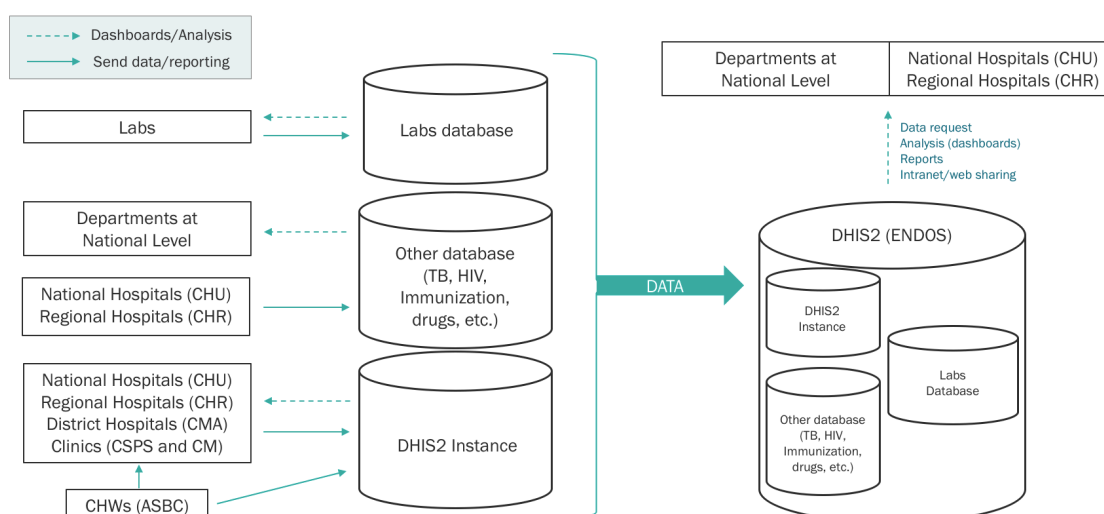
With the 2010 – 2020 NHIS Strategic Plan, the MoH sought to guide the implementation of a stable and efficient health information system. The execution of this plan allowed stakeholders to have data available for design, monitoring and evaluation of health policies, projects, and programs.

The goal of the Strategic Plan was to produce reliable and timely statistics while ensuring the implementation of statistical activities. It focused on four strategic axes:

- **Axis 1:** Strengthening Planning, Coordination, and Leadership
- **Axis 2:** Strengthening Human, Financial, Equipment, and Infrastructure Resources
- **Axis 3:** Improving the Production, Management, and Quality of Health Data
- **Axis 4:** Improving the Production, Dissemination, and Use of Health Information

The goal was that by 2020, Burkina Faso would have an integrated and accessible health information system performing well at all levels, producing quality health information in real time, that was to be used by all stakeholders for decision making. Figure 10 displays the 2020 vision for the NHIS.

**FIGURE 10: VISION FOR BURKINA FASO NHIS IN 2020, MHEALTH ASSESSMENT IN BURKINA FASO AND PERSPECTIVES, ICT DIRECTORATE (ÉTAT DES LIEUX DE LA E-SANTÉ AU BURKINA ET PERSPECTIVES, DIRECTION DES SYSTÈMES D'INFORMATION EN SANTÉ)**



Sources: Etat des lieux de la e-santé au Burkina et perspectives, Direction des Systèmes d'Information en Santé, Dr Ouedraogo Boukary; MD, MPH, PhD (informatique médicale/Epidémiologie)



## STUDY PURPOSE & OBJECTIVES

Our evaluation objectives were to:

1. evaluate the implementation of the 2010-2020 NHIS Strategic Plan and draw lessons for each strategic axis to provide recommendations for the upcoming 2021–2025 NHIS Strategic Plan development;
2. analyze the NHIS from a user perspective to identify key data elements, sources, and systems used to make decisions; and
3. identify critical decision points and events encountered by decision makers and the information used, available, and needed to improve program effectiveness.

## METHODOLOGY

Our study used a mixed method approach. Our methods and data collection tools were reviewed and approved by the MoH. We used the following methods:

1. Desk review
2. Individual surveys
3. Systems mapping

### Desk Review

The goal of the desk review was to obtain and categorize as much information as possible to validate activities and results achieved from the implementation of the NHIS. Data for the desk analysis was obtained from within the MoH and other GoBF sources. A full list of documents reviewed can be found in Annex I.

### Individual Surveys

Targeted respondents were assigned to 1 of 4 survey instruments based on functional role: national NHIS leadership, facility in-charge, data handler or decision maker. Primary data was collected using a total of 4 surveys:

1. National NHIS strategic plan activity implementation survey
2. Facility profile
3. Data handler survey
4. Decision maker survey

The National NHIS strategic plan activity implementation survey focused solely on Objective 1 of the study; some of the information from the other participant surveys (2 through 4) is used to provide further context to the activity implementation survey. In addition to contributing information to Objective 1, the other three surveys were used to provide information for Objectives 2 and 3. All data collection tools were administered by a research professional in French and both digitally recorded—with the permission of the respondent—and transcribed by hand.

Full survey questions can be found in Annex II.





## NHIS Strategic Plan Activity Implementation Survey

The NHIS Strategic Plan Activity Implementation survey targeted stakeholders, such as Directorates Managers. These stakeholders set the 2010 – 2020 NHIS Strategic Plan implementation and strategy direction at the national level, had financial oversight of the Strategic Plan's implementation, oversaw the implementation of activities at the national level, and/or participated in coordination activities.

A total of 10 individuals participated in the survey.

## Facility Profile

Each facility visited completed a facility profile to capture data on factors to describe the limitations, needs, and potential of each site. We collected the following facility information:

- Infrastructure and resources (power, furniture, computers, access to internet, services provided, number of staff, etc.)
- Available guidance and documentation developed during the implementation of the NHIS Strategic Plan
- Current data systems in place (paper and electronic)
- Urban or rural distinction

A total of 69 facilities participated.

## Data Handler Survey

Targeted respondents categorized as “data handlers/collectors” at the community, facility, district, regional, and national levels participated in this survey. Our goal was to better understand who collects data, who uses data, which data elements (or indicators) are being collected across programmatic areas where data is recorded. We also wanted to better understand the flow of data.

A total of 75 individuals were interviewed.

## System Mapping

We completed a full inventory of all currently used systems, applications, and paper registers. The diagram is available in Part III.

## Data Analysis

Interviews were recorded, transcribed, and inputted into a CommCare application. After being cleaned, quantitative data was analyzed using Tableau. Qualitative data was coded and analyzed in NVivo.

In line with the evaluation objectives, report results are divided into two parts. The second part focuses on the evaluation of the 2010 – 2020 NHIS Strategic Plan implementation (Objective 1) and the third part on evaluating data use and decision making within the NHIS (Objectives 2 and 3).



# SITE SELECTION

The sampling frame was presented to and approved by the MoH via the DSS and DSIS in January 2020.

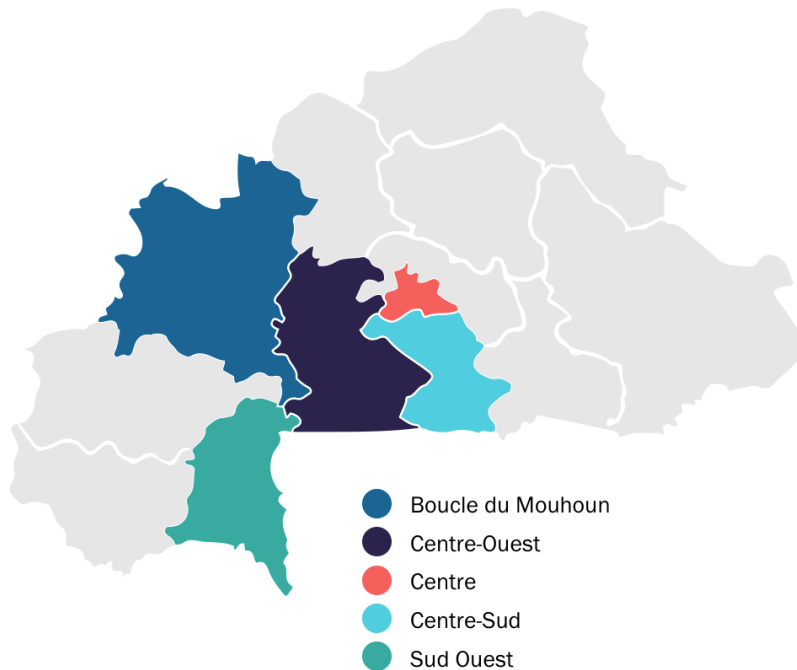
## Regional Selection and Stratification

A sampling frame was constructed to assist the evaluation team with selecting field sites and survey respondents. The selected sample aimed to be as representative as possible of the potential sites and users that would be targeted for NHIS Strategic Plan implementation activities, as well as typical of data users and decision makers involved in the provision and/or planning of health services and support in Burkina Faso.

Figure 11 shows which regions were selected to participate in the evaluation. In selecting the sample, the following key elements were taken into consideration:

1. Security concerns on the ground
2. Mix of urban, rural, and semi-rural
3. Proliferation or inexistence of eHealth applications
4. Timeliness and completeness of reporting (mix of high-, medium-, and low-performing facilities)

**FIGURE 11: EVALUATION FOCUS REGIONS**



Within each region, one high-performing and one low-performing district was selected based on data quality as reported in the MoH Annual Statistics 2018, taking into account data completeness and timeliness of their reporting. Please see Annex III for a full list of participating districts and facilities.

## Health Facility Selection and Stratification

The sampling frame for health facilities represented a range of factors that affect data production and data quality, as well as capture information from high-performing and low-performing sites. Facilities were selected based on patient volume (measured by the number of new consultations) each year and included one high, medium, and low volume facility per district. Care was given to ensure a mix of public and private facilities.

### Facility-level sample

In each selected PHC facility, interviews were conducted with key staff, including:

- CHWs
- The Facility in Charge
- The person most often responsible for handling data (collecting, reporting, validating, etc.)

### Data Handler Sample

Data handler survey respondents came from the community, PHC facility, district, regional, and national levels. Their functional roles were expected to be most involved in data collection and data management.

### Decision Maker Sample

Decision maker survey respondents came from the PHC facility, district, regional, and national levels. These individuals are core members of management teams.

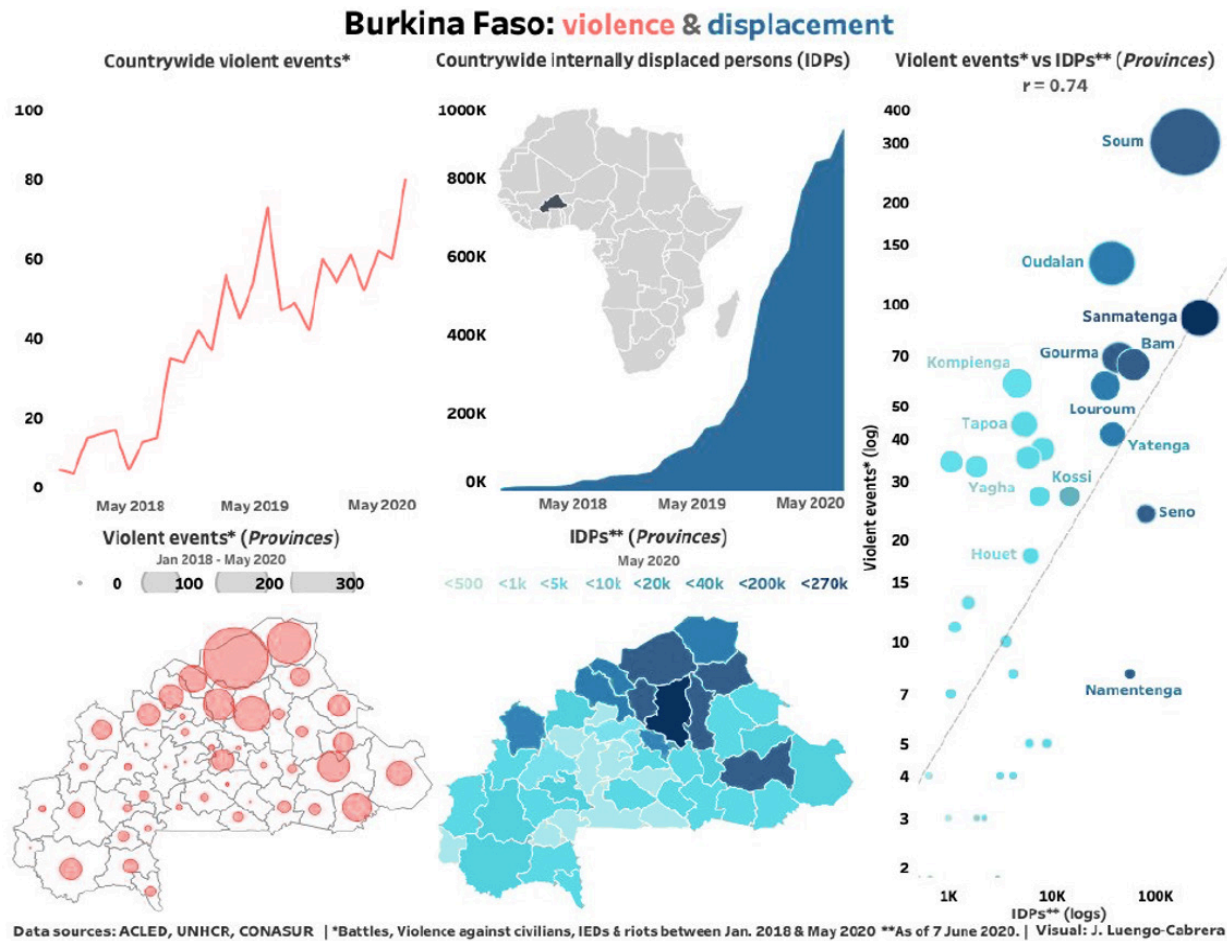
## STUDY LIMITATIONS

Only one NHIS Strategic Plan respondent was in their role for the entire duration of the NHIS Strategic Plan implementation. Approximately 80% of the NHIS Strategic Plan respondents have been in their role less than five years. As a result, respondents could not always confirm that activities took place.

Additionally, security concerns resulted in the inability to access certain areas of the country and therefore to undergo a complete mapping of systems. This is a notable shortcoming as the security situation has a significant impact on the healthcare system. Since January 2016, Islamic terrorist groups have increased their presence and activities in Burkina Faso, carrying three major attacks in the capital (2016, 2017, 2018) and targeting state symbols and representatives across the country. Figure 12 shows recent violence and displacement statistics within Burkina Faso.



FIGURE 12: BURKINA FASO VIOLENCE AND DISPLACEMENT, 2018-2020, CRISIS GROUP



This insecurity has hindered the health system and access to care. As of August 2020, according to the Burkina Faso Health Cluster<sup>3</sup>:

- 95 PHC facilities are currently closed (5% of all 1,896 PHC facilities in the country<sup>4</sup>)
- 199 PHC facilities are partially functioning (10.5% of all PHC facilities in the country)
- 183 PHC facilities have catchment areas where Internally Displaced Persons (IDPs) are located (9.65% of all PHC facilities in the country)

**As of August 2020, 95 PHC facilities (5% of all facilities) were closed due to the security situation.**

The Health Cluster estimates that about 1.5M people do not have proper access to care because of the security situation. The ability to travel to these areas and assess the healthcare system would have provided additional context on the state of health in Burkina Faso, further guiding recommendations for the next NHIS planning cycle.

3. The cluster approach is a mechanism overseen by UNOCHA to ensure coordination in critical areas of humanitarian work.

4. Total number of PHC facility in Burkina Faso as reported in the 2018 MoH Statistical Production (Annuaire Statistique)





# PART II: 2010-2020 NHIS STRATEGIC PLAN EVALUATION RESULTS

The following sections outline findings from evaluating the implementation of the 2010 – 2020 NHIS Strategic Plan. Findings are structured around the four Strategic Plan axes. Each NHIS activity is listed and is assessed, including whether the activity took place, when, and how. For each axis, we also include an analysis of strengths and opportunities for improvement.

Data from all four surveys and the desk analysis was used to determine if activities were completed. Each activity was also given a color score based on whether or not the activity was fully completed (green), partially completed (light blue), or not completed (red)<sup>5</sup>.

## AXIS 1: STRENGTHENING PLANNING, COORDINATION, AND LEADERSHIP

OBJECTIVE	PRIORITY INTERVENTION	SCORE
<b>Objective 1:</b> Strengthen the coordination of the entire NHIS and consultation with partners	<b>1.1:</b> Development of health information management standards and procedures	
	<b>1.2:</b> Establishment of a functional mechanism for coordinating subsystems	
<b>Objective 2:</b> Ensure the implementation, monitoring and evaluation of the NHIS Strategic Plan	<b>2.1:</b> Development and Implementation of Annual NHIS Action Plans	
	<b>2.2:</b> Monitoring and evaluation of the implementation of the strategic plan	
	<b>2.3:</b> Development of the new strategic plan	

Activities fully accomplished     
 Activities partially accomplished     
 Activities not accomplished

5. The complete scorecard is available in Annex I



The NHIS relies on coordination amongst different components. The development of the health information system should be supported by procedures and standards; this requires coordination, design and planning. Axis 1 is concerned with ensuring these designs and plans are adequately developed, implemented, and followed.

## Objective 1: Strengthen the coordination of the entire NHIS and consultation with partner

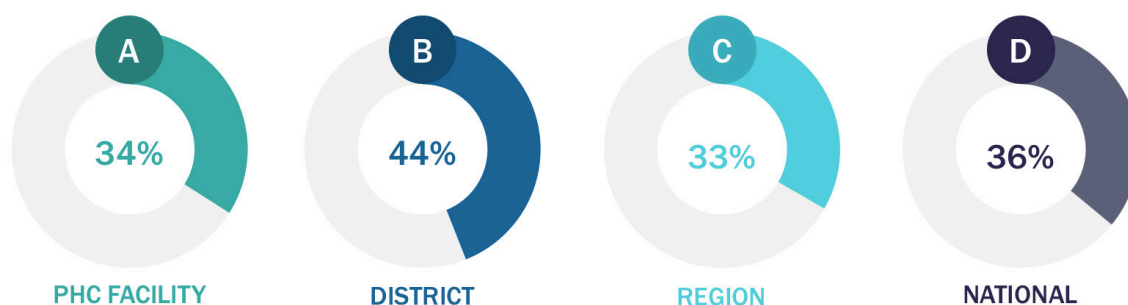
### ✔ Activity 1.1: Development of standards and procedures for health information management

Health information management standards were developed at the central level through a validation team and validation workshop with partners. The regions received trainings on the standards and procedures and reported receiving guidelines on how to implement the NHIS. According to our desk review, two guidelines were produced in 2015:

- Le Manuel de Procédure de Gestion de l'Information Sanitaire (MPGIS) (Processes for Health Data Management)
- Les Metadonnees des Indicateurs du Systeme National D'information Sanitaire (Manual for NHIS Indicator Metadata)

The majority of respondents felt that staff at the district and facility level have access to health information standards and procedures and have been trained on them. However, facilities did not report a wide dissemination of the documents. Less than half of the facilities at all levels reported having the health information standards and procedures (see Figure 13). This ranged from 33% at the regional level to 44% at the district level.

FIGURE 13: % OF FACILITIES THAT REPORTED RECEIVING HEALTH INFORMATION STANDARDS AND PROCEDURES



Respondents reported that most health information is being stored in external cloud servers (e.g., the REC data is stored in the CommCare cloud; ENDOS-BF data is stored on Oslo University servers).

However, some data handlers reported that data isn't easily accessible and is stored on personal computers. One M&E Officer said, "Where is data stored? It's in our

**"Where is data stored? It's in our computers and USB keys, we also keep it in our inboxes." M&E Officer**

These examples of data hosting outside of Burkina Faso are allowed on a temporary basis, the MoH having the objective to get all data moved back to Burkina Faso when a proper hosting infrastructure is in place



computers and USB keys, we also keep it in our inboxes.” Health information standards and procedures state an explicit policy on health information management. Based on the standards and procedures, the MoH protects sensitive health data by password protecting their databases. Care is taken to avoid collecting personal identifiable information, and only those with certain permission levels are able to access sensitive data.

### — **Activity 1.1: Establishment of a functional mechanism for coordination of sub-systems**

More than half of respondents confirmed that a consultation meeting was held to develop a coordination mechanism and that the mechanism was ratified by an administrative act. While the committee was to meet semi-annually during NHIS Strategic Plan implementation, respondents confirmed that it met at least once, with two respondents saying that the committee met twice during the implementation period (10 years). Respondents felt that the committee could have been better coordinated to function more efficiently.

The committees established sub-committees that were active during the NHIS Strategic Plan implementation: mHealth, Task Force Santé Communautaire or TFSC, IMCI-REC, malaria, tuberculosis (TB), and nutrition. The programmatic sub-committees met quarterly while the other sub-committees met semi-annually. The sub-committees reviewed programmatic data together to ensure proper program management.

## **Objective 2: Ensure the implementation, monitoring, and evaluation of the NHIS Strategic Plan**

### — **Activity 2.1: Development and Implementation of Annual NHIS Action Plans**

No specific annual NHIS action plans were developed. However, DSS and DSIS each developed annual action plans each year. The 2010-2020 Strategic Plan contains a list of predefined activities for the 2010-2015 period.

Respondents mentioned varying levels of action plan distribution, some saying that action plans were distributed to partners and planning directors during funding sessions and at validation meetings. However, it was not mentioned that they were disseminated to lower levels of the health system, and one respondent stated that action plans are not well distributed.

### ✗ **Activity 2.2: Monitoring and Evaluation Implementation of the Strategic Plan**

An external mid-term evaluation was not conducted. Additionally, respondents did not know if the 2010 – 2020 NHIS Strategic Plan had achieved at least 85% of indicator targets by the mid-term evaluation or used at least 85% of the budget.

The NHIS Strategic Plan included indicators. Respondents mentioned the following indicators were monitored quarterly:

- Data completeness
- Data timeliness
- Nurses per 5,000 population
- Child mortality rate
- Number of functional devices
- Recovery rate
- Mortality rate
- Programmatic indicators
- Concordance index
- Maternal health



Respondents reported that data is accessed in ENDOS-BF through supervision visits, and by receiving documents from facilities / reports. The data is accessed in some cases daily and in other cases weekly or quarterly. The information is used to track events, plan, acquire supplies, review structure information, correct data quality issues, monitor indicator progress, and distribute resources through the health system.

Data quality is verified through an annual data quality assessment, through reviews, and working group validations. Health facilities are also responsible for reviewing their data quality. If data is missing or inaccurate, it is corrected by comparing data at the base and at the reporting level, by the DSS and the facility that produced the data. Additional information about data quality can be found in Axis 3.

### ✘ **Activity 2.3: Development of the New Strategic Plan**

As a mid-term evaluation did not take place, the 2010-2020 NHIS Strategic Plan was not restructured at the implementation mid-point. Development of new strategic plans for the 2021-2025 period will start at the end of 2020/early 2021.

## **AXIS 1- STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND THREATS**

### **Strengths**

- Coordination mechanisms are in place at the sub-committee level and meet regularly.
- DSS and DSIS action plans are consistently developed annually.
- A functioning health information system is in place to collect information and annual reports are being provided across all levels of the health system.
- Partners were taken into consideration and their needs included in the development of health information standards.

### **Weaknesses**

- No mid-term assessment on the strategic implementation was performed.
- No activities were formally planned for the 2015-2020 period.
- There is no consistency regarding who is responsible for approving and validating action plans.
- Action plans were not well distributed across levels.

### **Opportunities**

- Strengthen governance by developing an NHIS enterprise architecture that defines how data is shared between systems and creating policies and incentives to adhere to the architecture.
- While sub-committees are already meeting consistently, there is opportunity for more consistent and coordinated collaboration between head committees and sub-committees.
- Policies and standards are already defined and documented. The MoH can ensure that the documents are disseminated across all levels of the health system so that all levels can consistently apply the standards.
- Respondents requested a better understanding of indicator definitions, target setting, and calculations.





## Threats

- COVID-19 related constraints may delay the ability of the MoH to meet or gather input into the 2021–2025 NHIS Strategic Plan.
- The security situation in some parts of the country might make it difficult to collect data or information necessary to elaborate the future strategic plan.

## AXIS 2: STRENGTHENING HUMAN, FINANCIAL, EQUIPMENT, AND INFRASTRUCTURE RESOURCES

OBJECTIVE	PRIORITY INTERVENTION	SCORE
<b>Objective 3:</b> Strengthen the NHIS in human resources in quality and number	<b>3.1:</b> Advocacy action for capacity building for the benefit of the NHIS	—
	<b>3.2:</b> Realization of continuing and ongoing training	—
<b>Objective 4:</b> Strengthen infrastructures and equipment for the benefit of the NHIS	<b>4.1:</b> Construction of adequate premises for the DGISS <sup>7</sup>	✓
	<b>4.2:</b> Acquisition of equipment for the DGISS	✓
	<b>4.3:</b> Reinforcement of the computer equipment of the structures of the NHIS	—
<b>Objective 5:</b> Develop an integrated communication architecture for health data	<b>5.1:</b> Develop a plan for networking health information management structures	—
	<b>5.2:</b> Strengthening the internet connection of the MoH	✗
<b>Objective 6:</b> Increase funding for the NHIS	<b>6.1:</b> Advocacy for the financing of the strategic plan	—

✓ Activities fully accomplished

— Activities partially accomplished

✗ Activities not accomplished

The NHIS can only work effectively if resources are well-accounted for and used efficiently. Axis 2 focuses on strengthening human resources through continuous training and increasing workforce capacity. It further focuses on financial, equipment and infrastructure resources for system development. The NHIS Strategic Plan specifically highlights the need to improve IT equipment, communication, and logistics; and to advocate for increased funding for the NHIS.

7. Direction Générale de l'Informatique et des Statistiques Sectorielles (DGISS) or Directorate for Statistics, Research and Data Management was broken into two directorates, DGESS and DSIS, after the plan was elaborated.



## Objective 3: Strengthen the NHIS in human resources in quality and number

### — Activity 3.1: Advocacy action for capacity building for the benefit of the NHIS

DSS and DSIS annual action plans were used as an advocacy tool for funding with partners. Respondents felt that advocacy measures used did not increase funding. Respondents suggested that partners should share their budget and information prior to funding and review meetings, and that staff should be trained on advocacy and new tools.

### — Activity 3.2: Realization of initial and continuing training

The positions, profiles, and staffing requirements of the NHIS were defined and documented in the MPGIS. However, half of the respondents felt that the MoH did not have sufficient staff to be able to carry out activities. One respondent mentioned that the MoH hired four staff and another that they hired seven temporary staff to focus on NHIS activities.

Training curricula related to the NHIS Strategic Plan was developed in the National School of Public Health (Ecole Nationale de Santé Publique or ENSP). A NHIS Strategic Plan training plan was developed by DGEISS for short- and long-term training in epidemiology, statistics, and computer science annually. While the trainings were not reported to reach the number of staff intended due to funding, at least 19 pharmacists and accountants took advantage of short-term trainings, while IT and pharmacy staff took part in long-term trainings. Participants were selected according to seniority.

When staff are hired, they have the following trainings available to them on an ongoing basis: computer, health information management, use of tools, data quality verification, NHIS, and data management. NHIS respondents reported that 50-80% of staff take advantage of ongoing trainings. Decision makers and data handlers were asked which trainings they have participated in. It is important to note that while the majority of respondents reported having attended at least one training, 30% have never attended a training, though the distribution is skewed. Approximately 40% of CHWs reported never attending a training compared to 14% of regional staff. According to responses, CHWs, on average, participate in 2.45 less trainings per person than district staff (2.1 vs. 4.55 trainings per person). The remaining facility levels averaged approximately 3.5 trainings per person.

**Approximately 30% of all respondents have never attended a training (40% in cases of CHWs).**

Figure 14 shows the types of trainings that respondents have participated in. Trainings related to systems, data analysis, and data analysis tools ranked relatively low on the types of trainings respondents attended.



**FIGURE 14: NUMBER OF TRAININGS DATA HANDLERS AND DECISION MAKERS ATTENDED BY LEVEL AND TRAINING TOPIC**

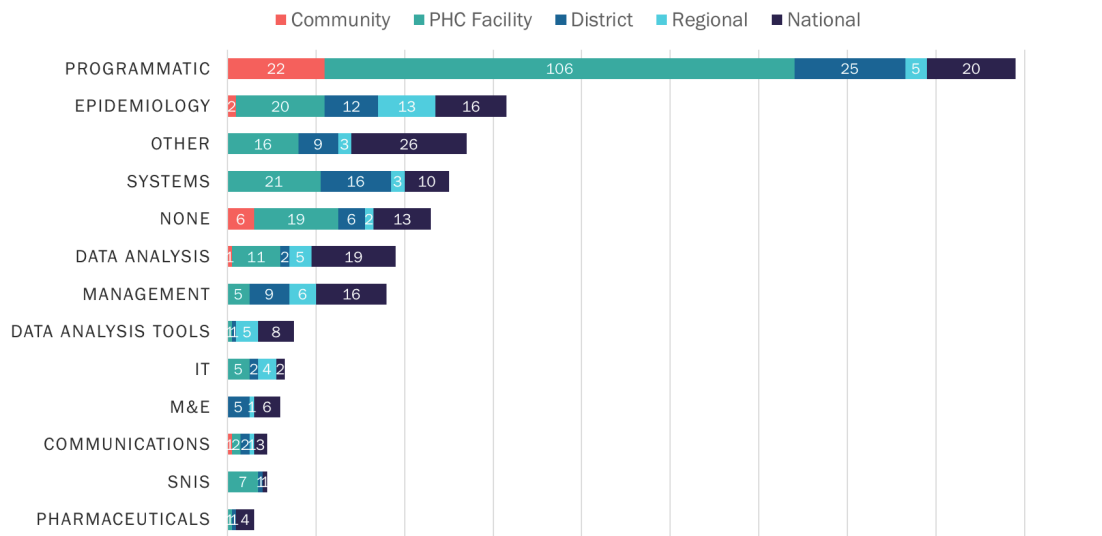
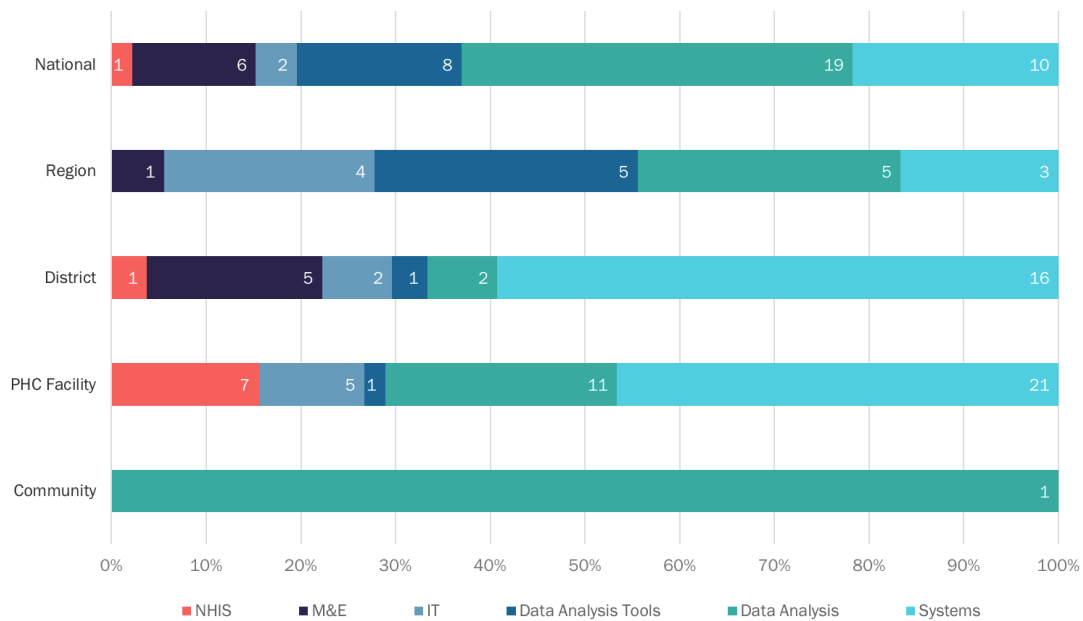


Figure 15 shows the distribution by level of participants to NHIS related trainings. While more facility staff participated in the study than other levels, it is still interesting to note that they do not make up the majority of training attendees for most topics. Furthermore, CHWs are largely left out of NHIS specific trainings. A District Health Manager also reported, “Each time it is the data manager who is trained on using and accessing these platforms. But they never train the decision maker, they should at least teach us the basics.”

**FIGURE 15: DISTRIBUTION OF NHIS SPECIFIC TRAININGS BY LEVEL**



## Objective 4: Strengthen infrastructure and equipment for the benefit of the NHIS

### ✔ Activity 4.1: Construction of adequate premises for the DGISS (Former DSS + DSIS)

One respondent confirmed that construction was completed for the DGISS. No technical studies were reported as completed prior to the construction.

### ✔ Activity 4.2: Acquisition of equipment for DGISS

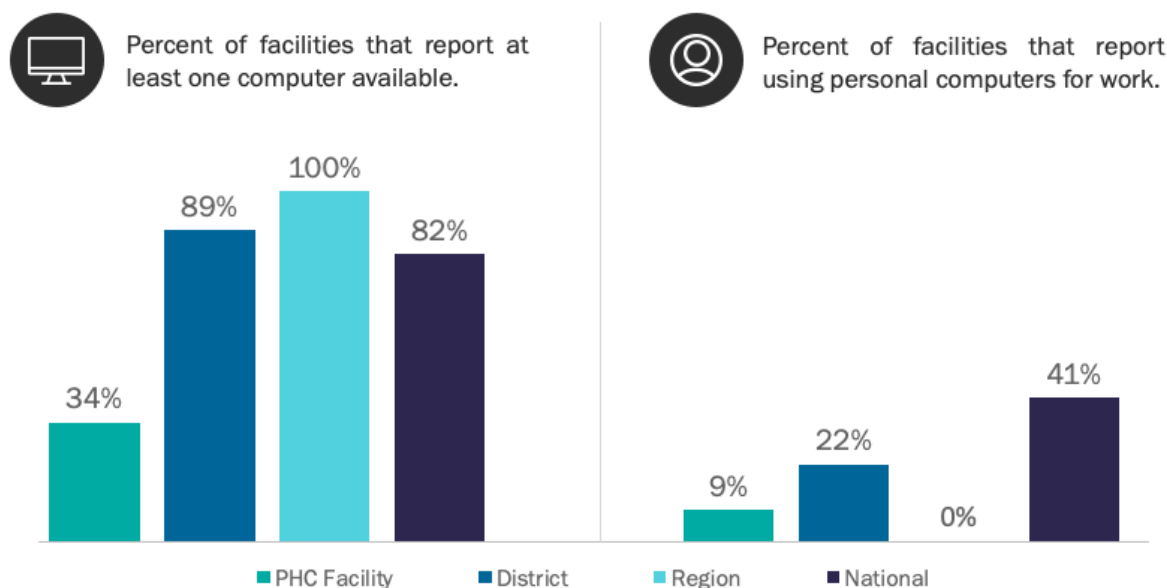
Computers were purchased for the DGISS and also at facility / district levels in conjunction with the DGISS construction. Vehicles were also acquired for the DGISS based on the NHIS Strategic Plan.

### — Activity 4.3: Reinforcement of the computer equipment and archiving of the structures of the NHIS

Facilities were provided with archival furniture as part of the NHIS Strategic Plan. The percent of facilities that reported having archival furniture varied, from 100% at the regional and district level, to 91% at the national level and only 75% of PHC facilities.

A computer equipment plan was developed according to the NHIS Strategic Plan. NHIS evaluation respondents said that 100% of regions, hospitals, and districts have working computers. However, when asked, the number of facilities with working computers was lower than what NHIS Strategic Plan respondents reported. More than 80% of facilities at the district, regional, and national levels reported having at least one computer, with 100% of those at the regional level having a computer. Only 34% of PHC facilities reported having a computer (Figure 16).

FIGURE 16: PERCENTAGE OF FACILITIES WITH COMPUTERS BY LEVEL

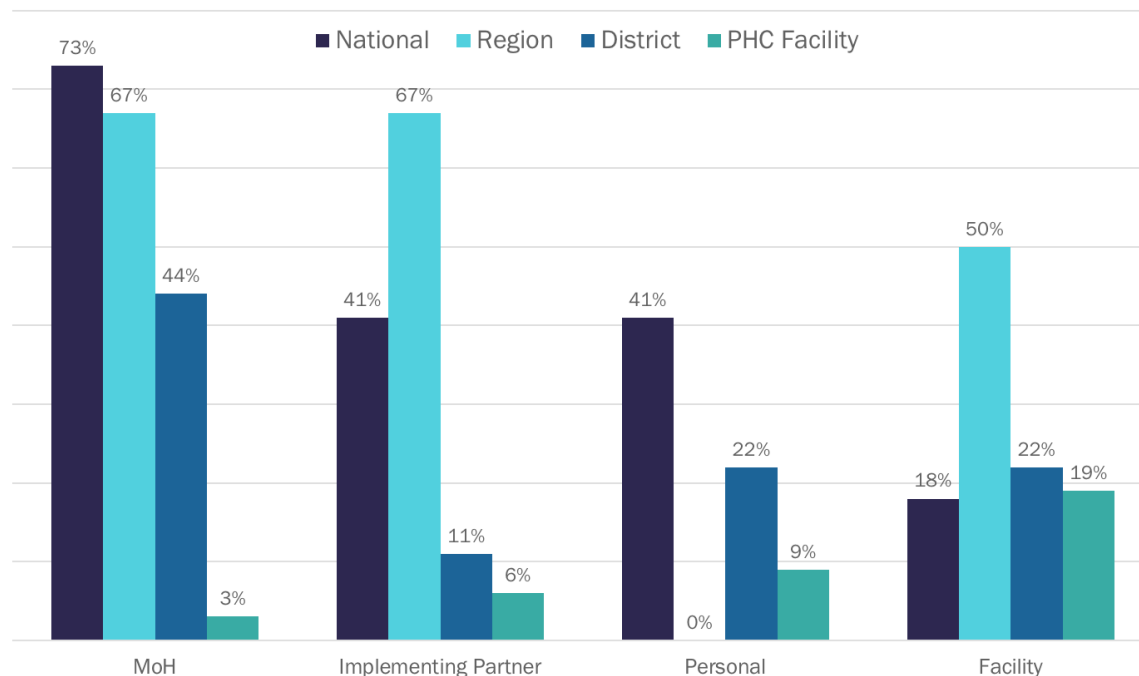


Approximately 41% of respondents at the national level reported using their personal computer for work, while 22% and 0% at the district and regional level said the same, respectively. There may be potential security concerns if patient data is stored on personal computers.

Figure 17 shows the percentage of facilities at each level that reported being provided with at least one computer by each source. The MoH and implementing partners are the main providers of computers; however, both primarily provide computers to national and regional level facilities. The MoH provided computers to 73%

of national facilities and 63% of regional facilities, while implementing partners provided a computer to 67% of the regional facilities. Both the MoH (3%) and implementing partners (6%) seldom provided computers to PHC facilities. Alongside the low reporting of having a computer, most PHC facilities purchased a computer with their own budget.

**FIGURE 17: PERCENTAGE OF FACILITIES REPORTING RECEIVING A COMPUTER BY SOURCE**

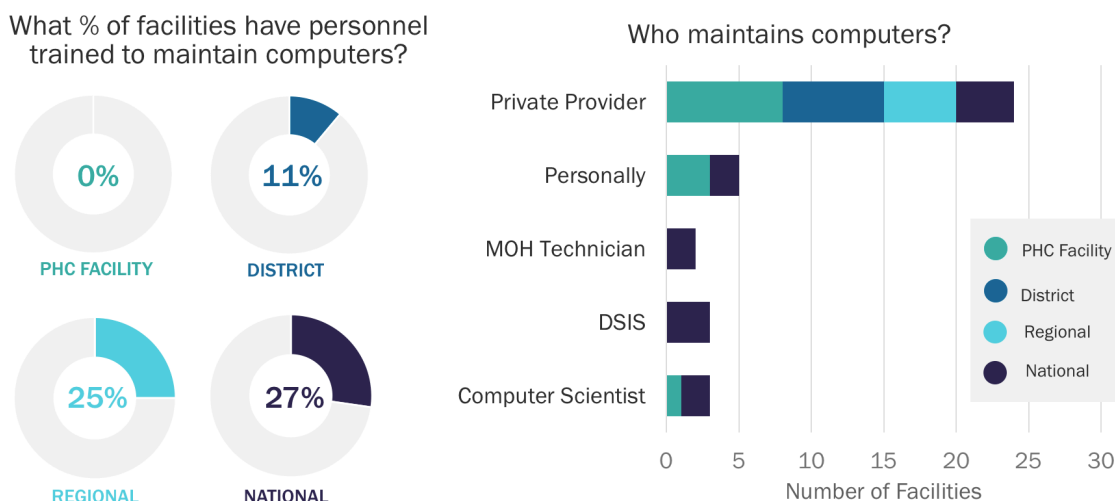


Equipment standards were developed and disseminated across the health system. However, a computer maintenance guide was not reported to be developed and disseminated. Respondents also reported that the Maintenance and Equipment Directorate Managers (Services des Infrastructures, des Equipements et de la Maintenance or SIEM) and the Data Management Departments at the District and Regional levels (Centre d'Information Sanitaire et de Surveillance Epidémiologique or CISSE) were not trained in the preventive and first-level maintenance of computer equipment due to funding constraints. NHIS managers reported going to external sources for computer maintenance.

This was confirmed with what facilities reported. Approximately 25% of staff at the regional and national levels are able to maintain computers, while only 11% and 0% at the district and PHC level are able to do the same. The significant majority of facilities rely on a private provider to maintain computers (Figure 18).



FIGURE 18: HOW COMPUTERS ARE MAINTAINED BY LEVEL



While only a third of PHC facilities reported having a computer, almost half were provided with a phone or tablet. This is similar to the 33% reported at the district and regional level, respectively. Very few facilities at the national level (9%) were given these devices by their facility. However, those given devices were largely responsible for buying their own data. Approximately 25% of PHC facilities provided devices are provided data credits, and 8% at the national level. No one at the district or regional level was given data. Thus, while respondents may have devices, many are likely unable to use them due to a lack of connectivity.

## Objective 5: Develop an integrated communication architecture for health data management activity 5.1: Development of a networking plan for health information management

### Activity 5.1: Development of a networking plan for health information management

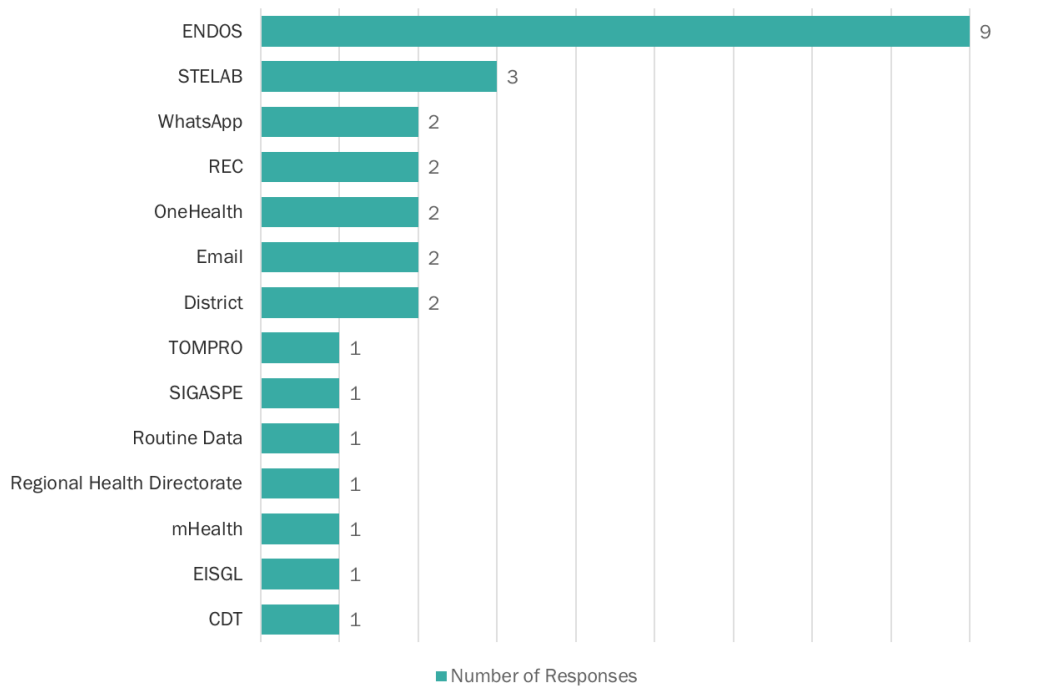
A study was conducted on the networking (e.g., data sharing across systems and applications) of health information management structures in 2018<sup>8</sup>. This study identified 110 active systems and applications as of September 2020, many of which were found to be unrelated (Annex V).

A plan was developed for networking health information management structures by the DGISS. A team was developed to oversee the networking process. A respondent mentioned that the health information management structure was networked, though was unable to describe how.

Facilities reported low interoperability between systems (Figure 19). One respondent said, “**There is a plethora of system and there is no coordination between the systems.**” ENDOS-BF was the most mentioned system as being networked.

8. Rapport sur l'état des lieux de la cartographie des applications de remontée et d'analyse au Ministère de la Santé (Burkina Faso), Mars 2018

FIGURE 19: WHAT SYSTEMS ARE NETWORKED ACROSS FACILITIES

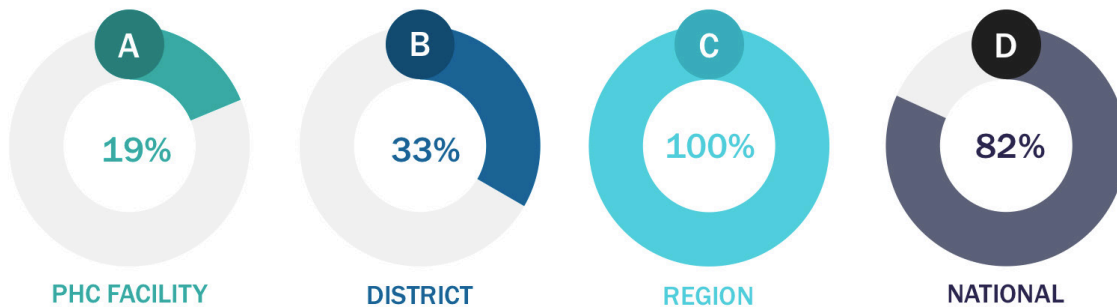


**✘ Activity 5.2: Strengthening MoH Internet Access**

NHIS Strategic Plan evaluation respondents reported that 100% of districts and facilities have access to the internet. Facilities reported differently, with varying levels of internet access between levels (Figure 20). Nearly every facility at the regional and national level reported having internet. This was far less at the district (33%) and PHC facility (19%) levels. Over 50% of respondents mentioned that connectivity is a challenge. To compensate for low or unsteady access, a possible solution presented by participants was to provide staff with data credits to ensure connectivity. → A study was conducted on the networking (e.g., data sharing across systems and applications) of health information management structures in 2018<sup>9</sup>.

An M&E Manager explained: “This is the connection problem; often there is a connectivity problem that arises, the speed is low. There is also the fact that I do not have connection credits, I use my own money to be able to connect, in the month I use XOF 20,000 (USD 36) for the connection.”

FIGURE 20: PERCENTAGE OF FACILITIES THAT HAVE INTERNET



9. Rapport sur l'état des lieux de la cartographie des applications de remontée et d'analyse au Ministère de la Santé (Burkina Faso), Mars 2018



## Objective 6: Increase funding for the NHIS

### — Activity 6.1: Advocacy for the financing of the strategic plan (State, partners)

NHIS Strategic Plan respondents contributed to budget development by supporting the development of plans, advocating for funding, tracking activities, and mobilizing financial resources. They provided the following budget information to leadership: resources allocated, resources consumed, difficulties presented, budget forecast, mobilization rate, misallocation, activity budgets, balance sheet of allowances, and allocation rate. The information was provided through paper, financial statements, semi-annual reviews, financial balance sheets, planning and electronically. Budget information was provided to Administrative & Finance Directorate (Direction Administrative et Financière or DAF), Planning Directorate (Direction de la Prospective et de la Planification Opérationnelle or DPPO), other national departments, Regional Health Management Team (Direction Régionale de la Santé or DRS), District Health Management Team (Equipe Cadre de District or ECD) and regional and national hospitals.

NHIS Strategic Plan evaluation respondents think that those who receive budget information use it to analyze budgets, identify bottlenecks, implement activities, make decisions, advocate for needs, and inform the NHA.

One respondent reported that a round table of technical and financial partners was organized for the financing of the Strategic Plan and met annually. The World Health Organization (WHO), United Nations Children's Fund (UNICEF), and United States Agency for International Development (USAID) were invited to attend. While respondents did not report any additional partners that were identified as a result of the round table meeting, NHIS strengthening has become a priority for the Global Fund and Global Financing Facility (GFF) following MoH advocacy.

The NHIS budget was developed through a situational analysis, using the action plan, and coordinating with partners. Ministry and partner needs were used to determine the budget development. The final NHIS budget was approved by DAF, ministers, partners, national committee, and technical and financial partners (Partenaires Technique et Financiers or PTF). Respondents could not respond to what percent of NHIS funding is partner, donor, or government funding. Expenditures were tracked through support documents, attendance lists, and annual financial reports. No specific system was identified for tracking expenditures.

Respondents were asked how they compare actual versus budgeted expenditures and mentioned partner's decisions, financial balance sheets, and action plans. Respondents did not provide a comprehensive list of expenditure subcategories that are tracked. Respondents also could not provide specific advocacy activities that were effective in increasing the budget, with the exception of developing strategic plans.

## AXIS 2 STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND THREATS

### Strengths

- The DGISS was constructed and equipped according to plan.
- Following MoH advocacy, NHIS strengthening has become a priority for donors:
  - The Global Fund is considering supporting the NHIS strengthening in its next funding cycle (2021-2023), following the MoH request for support
  - The GFF: In 2019, the MoH submitted an investment case to the GFF with one axis on strengthening the NHIS to improve decision making (Axis 3.2)





## Weaknesses

- Over 50% of respondents mentioned that internet connectivity is a challenge and limits their ability to communicate and collect and analyze data.
- Computers and devices for data collection and analysis are rarely available at the lowest levels of the health system.
- Facilities do not know how to maintain equipment or configure device settings.

**Over 50% of respondents mentioned that Internet connectivity is a challenge and limits their ability to communicate, collect, and analyze data.**

## Opportunities

- Connectivity is weak across facilities. New systems and applications should allow for offline data entry for any data entry system that is decentralized.
- Respondents highlighted the need to digitize data collection and analysis processes.
- Respondents requested additional training in computer use, data collection, and data analysis. These trainings could further promote a data use culture.
- CHWs are/will be at the forefront of data collection, and future trainings can focus on CHW data collection and analysis. Additionally, as PHC facility staff and managers are the first line of defense for data quality and review, trainings for these staff can focus on data quality.
- Deploying infrastructure for enhanced connectivity can be expensive. Data credits may prove to be a good option to increase connectivity for data entry and sharing of information.
- Develop a dynamic health financing and resource application platform to better track public and external funding and use as an advocacy tool.
- As personal devices are used to store or analyze data, there is an opportunity to review data security policies and ensure that patient information is stored securely.
- MoH owned equipment is tracked in an ad hoc manner. There is an opportunity to develop a standardized tracking process before issuing devices to PHC facilities and CHWs.

**CHWs are/will be at the forefront of data collection, and future trainings can focus on CHW data collection and analysis.**

## Threats

- Should hardware be provided at the CHW and PHC facility levels when data entry is decentralized, there will be a large upfront cost to the MoH to provide hardware, training, and maintenance.
- IT infrastructure cost may be high.
- Some MoH staff use their own money to pay for internet connection which could challenge further digitization of the system.
- Some staff use personal computers for work, potentially causing a data security issue if any personally identifiable information (PII) is saved on personal computers.
- IT equipment could be targeted by armed groups.






## AXIS 3: IMPROVING THE PRODUCTION, MANAGEMENT, AND QUALITY OF HEALTH DATA

OBJECTIVE	PRIORITY INTERVENTION	SCORE
<b>Objective 7:</b> Provide survey and census results in time for planning cycles	<b>7.1:</b> Development of consultation with the INSD <sup>10</sup> to have timely data from the census and demographic surveys	✓
	<b>7.2:</b> Strengthening data sources by conducting specific surveys	✓
<b>Objective 8:</b> Harmonize data sources for calculating health indicators at all levels	<b>8.1:</b> Availability at all levels of the system of population data needed to calculate health indicators	✓
	<b>8.2:</b> Updating and dissemination of the NHIS metadata	—
<b>Objective 9:</b> Adapting indicators and collection tools to changing health information needs	<b>9.1:</b> Review of the NHIS indicators	—
	<b>9.2:</b> Evaluation and revision every five years of data collection tools	—
	<b>9.3:</b> Regular supply of all structures in support of routine data collection	✓
<b>Objective 10:</b> Improve the processing and archiving of health information at the different levels of the system	<b>10.1:</b> Implementation of an integrated and efficient tool for processing and sharing health information at all levels	—
	<b>10.2:</b> Design of a data processing software for hospitals	✓
	<b>10.3:</b> Development of the master plan of the hospital information system	—
<b>Objective 11:</b> Improve the quality of the data produced by the NHIS	<b>11.1:</b> Realization of specific supervision	✓
	<b>11.2:</b> Organization of data validation activities at regional level	✓
	<b>11.3:</b> Realization of the quality control of the data of the NHIS	✓

10. Institut National de la Statistique et de la Démographie (INSD): National Statistic and Demographic Department



<b>Objective 12:</b> Improve the completeness of data	<b>12.1:</b> Improving the completeness of data at the level of private and faith-based health facilities	
	<b>12.2:</b> Development of a data collection system at community level	

-  Activities fully accomplished
-  Activities partially accomplished
-  Activities not accomplished

Information systems are designed and used to make quality information available to users. For this, data sources have to be reinforced through the promotion of existing surveys, the addition of pertinent surveys, and the planning and implementation of major surveys that take into account the planning cycles of the MoH. Axis 3 is concerned with improving the production, management, and quality of health data. Sources, such as the census and household surveys, are essential for calculating indicators. The findings are dependent on the regularity and quality of the data. Axis 3 reinforces the need for quality control procedures and standard indicator calculations. Finally, it addresses data management, IT tools, and an integrated database management system. These are needed to strengthen the information system, facilitate communication and information research, and enable the comparability of data.

## Objective 7: Provide survey and census results in time for planning cycles

### **Activity 7.1: Development of consultation with the INSD to have timely data from the census and demographic surveys**

Population data was updated and distributed annually since 2011. Completed surveys are listed under Activity 7.2.

### **Activity 7.2: Strengthening data sources through conducting specific surveys**

The National Survey on the Prevalence of TB was conducted in 2018 and used for planning, situational analysis, and dissemination across the health system. Additionally, the National Survey on Vaccination Coverage, the National Malaria Survey, and the National Survey on Nutrition were conducted during the NHIS Strategic Plan implementation period.

## Objective 8: Harmonize data sources for calculating health indicators at all levels

### **Activity 8.1: Provision at all levels of the system of population data needed to calculate health indicators**

Most of the NHIS Strategic Plan respondents, with the exception of one, reported that the National Demographic Institute developed standardized population data which was then distributed to the health district and provincial levels.

A target population reference document was also developed to assist with calculating NHIS indicators. One respondent reported it was disseminated down to the district level, while another stated it was distributed among the central and peripheral levels. Approximately 67% of regional and 53% of PHC facilities reported having the document, while only 22% of districts said that they have the target population reference document. Most data handlers (64%) had access to the document. The majority of those who did not have access were at the community or PHC level. Data handlers had similar access



to the reference document on indicator definitions and calculations. Approximately 61% reported having the document available. Of those who did not have it available, 90% were at the community and PHC Facility levels.

The discrepancy between the facilities that reported having it and the data handlers that reported accessing it shows that, although they were disseminated, other methods that increase awareness and use may be needed. Further, dissemination experiences some challenges when reaching the lowest levels.

### — **Activity 8.2: Update and dissemination of the NHIS metadata**

In March 2015, the MoH produced the NHIS Metadata document, which includes 348 indicators across 12 sections. The sections include: administration and management, resources, curative care, hospital care, maternal and child health, nutrition, vaccination, malaria, sexually transmitted infections (STIs) / HIV/AIDS, TB, epidemiological surveillance, and drugs and laboratory. The document was developed with technical and financial partners.

The NHIS metadata was documented and disseminated at all levels according to NHIS survey respondents. According to the facility survey, the document was disseminated at higher levels, including 83% of regional facilities. However, only 13% of PHC facilities said they received the NHIS metadata. While it was produced, the dissemination did not reach lower levels.

There was also a lack of consensus among NHIS Strategic Plan respondents as to whether the CISSE leadership training workshop on NHIS metadata was held. More than half stated they did not know whether or not it happened. Those who confirmed the CISSE leadership training workshop took place stated that data producers, academia, technical and financial partners, district and regional data managers, DSIS, and Service Delivery Directorate (Direction Générale de l'Offre de Soins or DGOS) were in attendance.

## **Objective 9: Adapting indicators and collection tools to changing health information needs**

### — **Activity 9.1: Review of the NHIS indicators**

No survey respondent could confirm if a survey on health information needs was conducted.

Indicator review workshops took place in 2013, 2014, and 2019. The workshops were attended by MoH stakeholders, technical and financial partners, community stakeholders, and academia.

Data handlers and decision makers reported their attendance to the indicator workshops. For the former, the variation in attendance ranged from 0% at the community level to 100% at the regional level. With the exception of the regional level, attendance decreased as one moved from higher to lower levels. The highest percentage of decision makers that went to a workshop were at the national level (65%) with the remaining levels having approximately a third of respondents reporting attendance.<sup>11</sup>

### — **Activity 9.2: Evaluation and harmonization every five years of data collection tools**

NHIS Strategic Plan survey respondents could not confirm if a study was conducted on integrated data collection tools. An integrated data collection tool development workshop was stated to have taken place in 2016. NHIS stakeholders, health actors, and community partners were in attendance at the workshop.

11. In 2020, the MoH, with support from the Global Fund, has been implementing an indicator review at the PHC facility level. As of August 2020, the process was still ongoing.



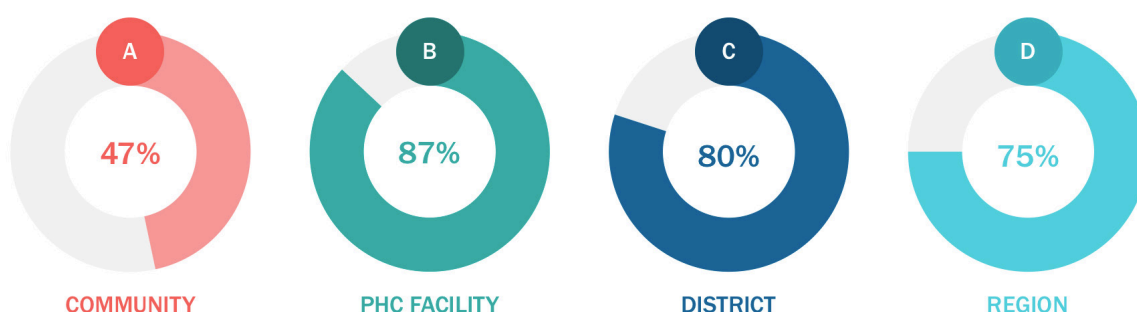
As a result of the workshop, new data collection tools were developed, including a post-abortion care registry, a monthly health training activity report, and a hospital activity report. These tools were developed in 2016, although how it was tested was unknown by respondents. Data managers of the district and regional levels and facility staff were trained on using harmonized and integrated tools.

**✔ Activity 9.3: Regular supply of all structures in support of routine data collection**

Most respondents stated that the new data collection tools were distributed to all health facilities. To request additional data collection tools, facilities request new registers to the Facility in Charge or nurse, place an order with DSS, or create photocopy versions.

Decision makers and data handlers were asked if registers are consistently available (Figure 21). More than half of CHWs reported that registers are not consistently available for data collection.

**FIGURE 21: PERCENTAGE OF FACILITIES THAT REPORT HAVING REGISTERS CONSISTENTLY AVAILABLE**



**Objective 10: Improve the processing and archiving of health information at the different levels of the system**

**— Activity 10.1: Implementation of an integrated and efficient tool for processing and sharing health information at all levels**

ENDOS-BF was developed during the NHIS Strategic Plan implementation. Prior to rolling it out, specifications for an integrated data warehouse with web interface were documented. It was designed, developed, and tested by DSS and DHIS2 at the University of Oslo. All users had access to ENDOS-BF during the NHIS Strategic Plan implementation. The functionality of the data warehouse was not tested in the three pilot regions for reasons related to cost. ENDOS-BF was deployed to the district, region, and central levels.

Additionally, the MoH, with Global Fund support, launched a pilot project to decentralize data entry at the PHC facility level via the DHIS2-based mobile application Capture. The application is used in the Nord region in 200+ facilities.

However, some decision makers also pointed to the limits of the current system regarding data access: “Yes, you can access some ENDOS-BF instances which are public, but you can only look at the graph, you cannot extract data. If you need the data, you need to call someone and ask him”.

**✔ Activity 10.2: Design of a data processing software for hospitals**

Specifications for hospital data processing software compatible with the data warehouse was documented. The data processing software for the Hospital Health Information System (Système d’information Hospi-



talier or SIH) was then designed, developed, and tested. Respondents reported the software was deployed to all hospitals and users were trained in 2013: Hospital Data Management staff or Coordinateur d'Unité de Soins (CUS); Hospital Information System staff or Surveillant d'Unité de Soins (SUS), and Surveillant d'Unité Technique (SUT). However, the respondents were not able to name the system. This study has identified up to 21 systems in use in Burkina Faso hospitals as of August 2020.

When hospitals were asked whether the software was available, 100% of national and regional hospitals stated it was. However, no district hospital reported having such a software. Only 18% stated that they had been trained on the software.

### — **Activity 10.3: Development of the master plan of the hospital information system**

The master plan for the hospital information system was not developed during the 2010-2015 phase of the NHIS Strategic Plan implementation. As of August 2020, 21 systems and applications are used in regional and national hospitals in Burkina Faso.

However, the MoH published two key documents:

- In 2015, a guide to help hospitals elaborate an information system (Guide d'élaboration de schema directeur de SIH).
- In 2019, the "Référentiel de mise en place d'un Système d'Information Hospitalier (SIH)" that defined a vision for the HIS for hospitals in Burkina Faso with suggested mechanisms and next steps for implementation.

## **Objective 11: Improve the quality of the data produced by the NHIS**

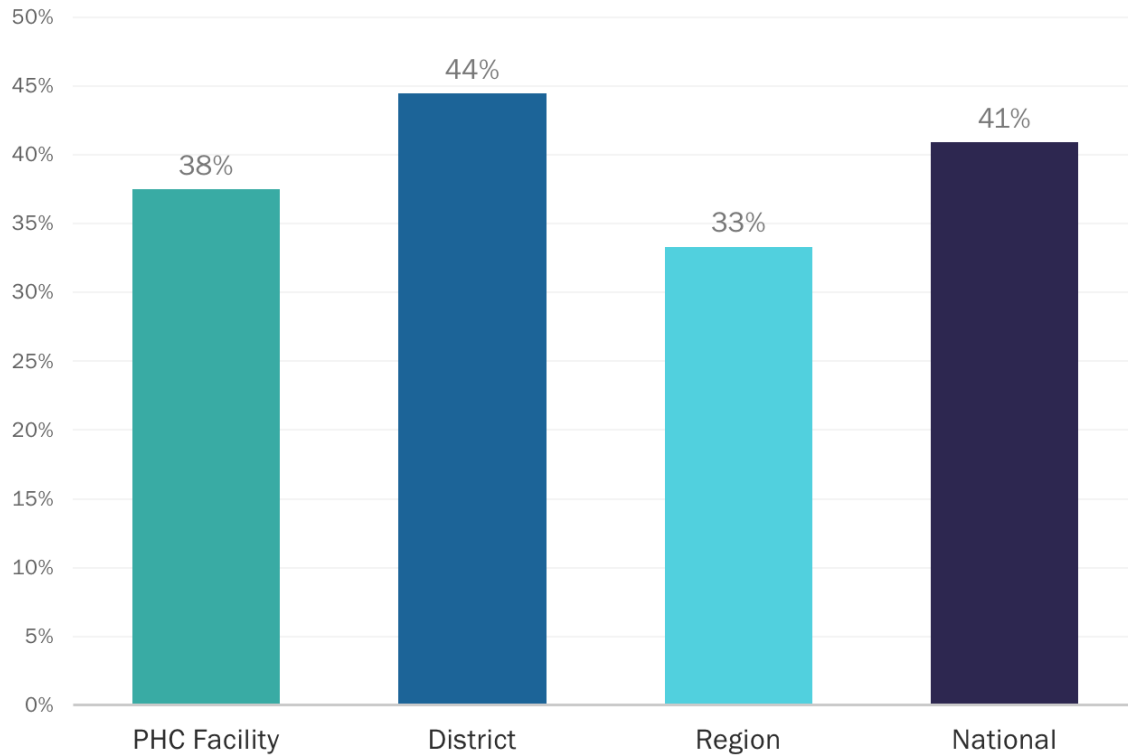
### — **Activity 11.1: Realization of specific supervision**

Most NHIS respondents agreed that supportive supervision at hospitals took place on a semi-annual basis, with one respondent saying it occurred quarterly and another saying it never happened.

Supportive supervision guidelines were developed and reported to be distributed to all structures. Respondents stated whether they had access to the supportive supervision guidelines in their facility. Regional level facilities reported the lowest availability, at 33%, and the district level reported the highest at 44%. Although there was only slight variation between levels, overall availability is low with less than half of the facilities at each level reporting access (Figure 22).



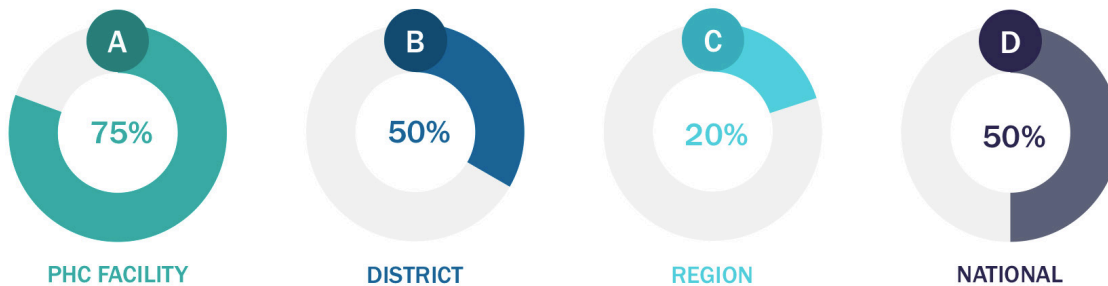
**FIGURE 22: PERCENTAGE OF FACILITIES THAT HAVE SUPPORTIVE SUPERVISION GUIDELINES**



**WHO guidelines state supervision should take place at least quarterly. Approximately 75% of PHC Facilities reported receiving quarterly supervision.**

Facilities further reported on the frequency of supervision (Figure 23). WHO guidelines state supervision should take place at least quarterly. Approximately 75% of PHC facilities reported receiving quarterly supervision. Regional facilities are the least likely to receive supportive supervision, with only 20% meeting the standard. This aligns with NHIS Strategic Plan respondents' statement that supervision typically takes place semi-annually; however, this is less frequent than recommended guidelines.

**FIGURE 23: PERCENTAGE OF FACILITIES THAT REPORT RECEIVING QUARTERLY SUPERVISION**

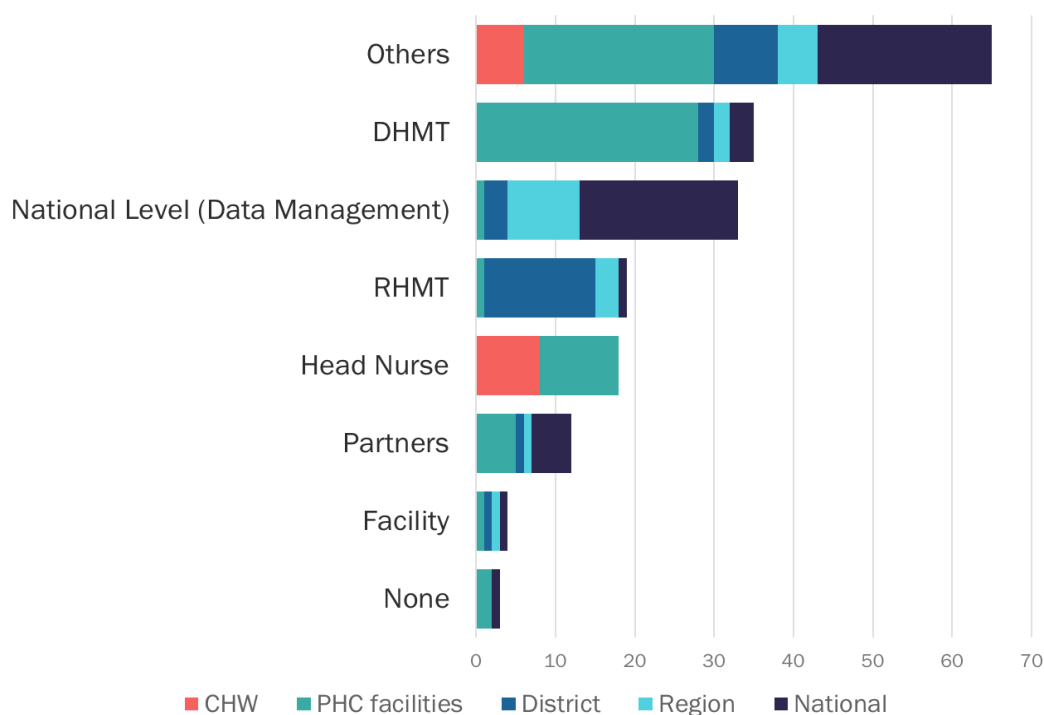




Additionally, a quarter of decision makers stated they receive no feedback, despite consistently reporting to senior levels. As one PHC Facility Manager said, “I have been filling reports and sending data to the district for over two years, but I have never received any feedback.” A nurse also reported, “There is no feedback! So, you don’t know... Sure they call you if it’s poorly filled, but you don’t know if they used it afterwards, there is no feedback at all.” Feedback was also rarely, less than 10% of the time, related to data sharing, data quality, programmatic work, or appreciation for work done.

When respondents are in need of help, most stated they turn to ‘Others,’ which includes various departments and individuals (Figure 24). There was little consistency between responses on what constitutes as ‘Others’. Decision makers turn the most to the district, DRS, and partners for support, while data handlers go to nurses, DSS, and the district for support. CHWs go to managers, the facility-in-charge, and associations for assistance.

**FIGURE 24: WHERE DO RESPONDENTS TURN FOR HELP?**



**✓ Activity 11.2: Organization of data validation activities at regional level**

An integrated data validation guide for the NHIS – the MPGIS – was developed and distributed to all levels. It was validated in a workshop and with the general consensus of high-level actors. Facilities reported overall low access to the report. Regional facilities had the highest availability; approximately one-third have access.

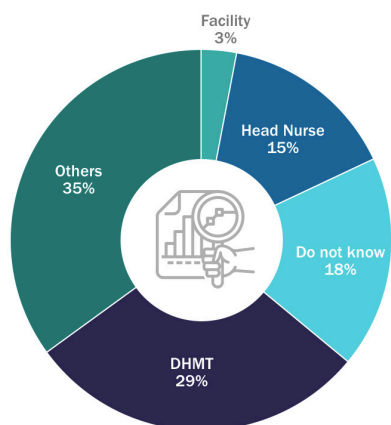
Respondents reported that they performed data analysis on all types of data. Some respondents stated they analyzed data daily, while others reported annually. NHIS data is validated through workshops, systematic monitoring, and analysis assessments. NHIS specific data is validated monthly and annually by the central directorates (DGESS and DSS), hospitals (CHU and CHR), and regional and district levels.



Data handlers and decision makers were asked how data is validated. Over 30% said they had participated in data validation workshops or other meetings to present and validate data. Staff compare data in ENDOS-BF, systems, and reports to register data. They noted that validation rules in ENDOS-BF help to identify common types of data entry errors. If data is found to be inaccurate, it is corrected in the source and system, or, in other cases, excluded and removed from the source and system.

As seen in Figure 25, data was most often validated by ‘Others’ (35%) and the DHMT (29%), with 18% of respondents not knowing who validates data. The majority of CHWs did not know who validates data. PHC facilities rely heavily on nurses and the district to validate data. Based on answers, it seems that despite the framework set by the MoH, no consistent process for data validation is followed.

**FIGURE 25: WHO VALIDATES DATA?**



The “other” positions that validated data included: DSS, TB program staff, Controller staff, monitoring and evaluation (M&E), health workers, Expanded Program on Immunization (EPI) Managers, cashiers, doctors, and data centers. Quarterly and monthly data validation is most common according to data handlers and decision makers. A large proportion of data handlers (17%) did not know how frequently data was validated. Approximately 14% of data handlers stated that data validation happens semi-annually or less often, while 13% of decision makers said the same. Further, 7% and 4% of data handlers and decision makers, respectively, said data validation never happens.

**✓ Activity 11.3: Realization of the quality control of the data of the NHIS**

A data quality survey manual for the NHIS was developed in 2016 (e.g., Guide pour le contrôle de la qualité des données de routine). The DSS indicated that a data quality audit (DQA) was conducted across all levels of the health system (PHC facility, district, regional, and national levels on an annual basis. However, other respondents reported that a DQA only took place in 2018. Data sources that were audited and contained discrepancies were remedied and corrected by going back to the source for verification, contacting structures to confirm the data source and findings, or cleaning up the system.

Additionally, in November 2018, the MoH produced a Health Data Quality Improvement Plan for 2019-2020.<sup>12</sup> In 2020, the Performance of Routine Information System Management (PRISM) assessment was completed by Measure Evaluation to look at data quality.<sup>13</sup>

When asked whether they had quality control measures in place, 25% of data handlers said they did not have any procedures. On the other hand, 84% of decision makers said they did have procedures in place.

**Objective 12: Improve data completeness**

**— Activity 12.1: Improving data completeness at private and faith-based health facilities**

Data was collected of private and faith-based health facilities in Ouagadougou (the capital) and Bobo-Dioulasso (second biggest city in the country), including data on activities, public and private structures,

12. Plan d’Amélioration de la Qualité des Données Sanitaires (PAQDS) 2019-2020

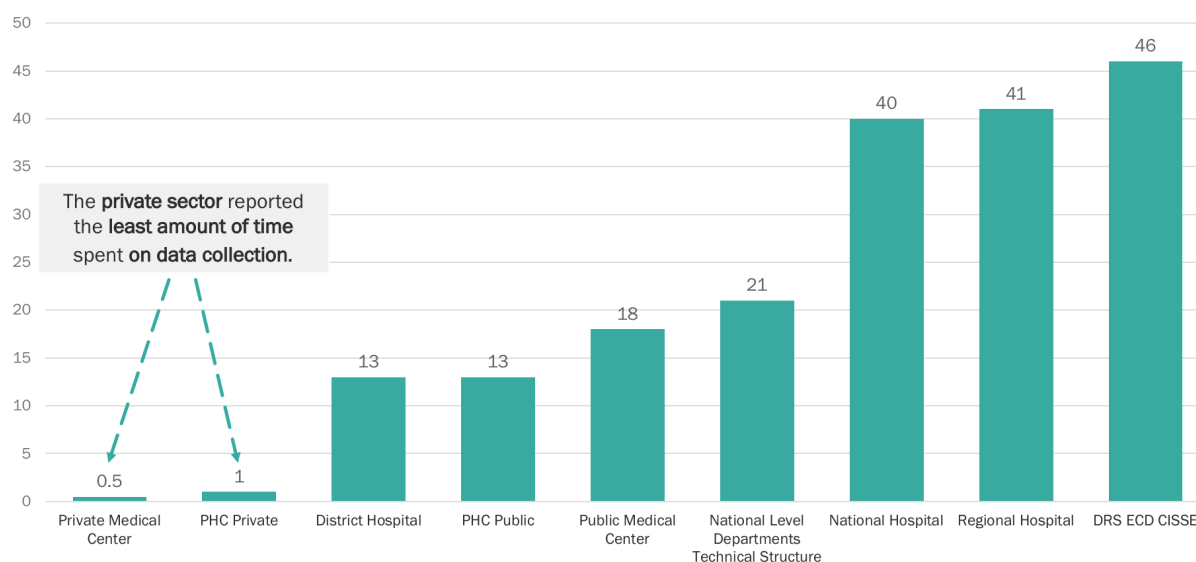
13. Evaluation of the performance of the management of the health information system of routine (PRISM) in Burkina Faso, Measure Evaluation, April 2020



Monthly Activity Report (Rapport Mensuel d'Activité or RMA) data, and benefit-related and drug-related data. Data flows through the system through counting, RMA assessments, and reporting on ENDOS-BF. All respondents stated data is stored on ENDOS-BF.

The study found major differences between the number of hours spent weekly on data collection activities between the private and public sector. Figure 26 shows that private medical centers and private PHC facilities reported an hour or less a week of data collection activities. This raises the question on data completeness and data quality within the private sector.

**FIGURE 26: AVERAGE HOURS PER WEEK SPENT ON DATA COLLECTION ACTIVITIES**



The national directory of private facilities was updated and is accessible to users. The last census of private and faith-based health facilities was conducted in 2019. Respondents were unsure if a workshop on the community-based subsystem had been organized and held.

### — Activity 12.2: Development of a data collection system at community level

Integrated data collection tools were developed at the community level. These tools were on community RMA, HIV, Malaria, TB, nutrition, and maternal and child health. Communities were trained on data collection in 2016 and 2017. The new data collection tools were distributed to all CHWs.

Data is collected by NGO-RENCAP (RENforcement de CAPacité or Capacity Strengthening) and executive community-based organizations (organisation à base communautaire d'exécution or OBCE). The data collected is on HIV, malaria, TB, nutrition, and maternal and child health. NGOs were trained on data collection in 2018 and 2019. It is stored on ENDOS-BF, and with the DSIS and Community Health Directorate. The data is processed through extractions, analysis, interpretation, and information back-ups. A tool was developed to process the data, and the CISSE were trained on the data collection tools for NGO-RENCAP.

In 2018, the Burkina Faso MoH, with support from UNICEF, developed the mHealth Burkina app to facilitate data collection at the community level. Data was sent via mobile phone to head nurses at the facility for validation. Data was also duplicated on a DHIS2 instance for access by stakeholders at the district, regional, and national levels. As of August 2020, the application was deployed in six health districts and used by over 180 head nurses and 1,600 HCWs.<sup>14</sup>

14. Additional information on the mHealth initiative: <https://www.odess.io/initiative-detail/mhealth.html>



# AXIS 3 STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND THREATS

## Strengths

- The MoH has successfully rolled out mHealth applications.
- Population data is available and reported to be used across all levels of the health system.
- A data processing software was developed and rolled out to hospitals.
- Supportive supervision is taking place across the majority of PHC facilities.
- Surveys took place as planned and within the planned timeframe. The data was used to inform programming.

## Weaknesses

- The private sector reported low levels of data collection, raising questions on data completeness and quality.
- It is unclear how often community data is validated. CHWs are unsure who validates their data, and respondents reported that community data is excluded if they cannot verify the data.
- While supervisory visits are taking place, 25% of respondents reported receiving no feedback.
- There is no standardized process in place for data validation across regions and facilities; existing processes are not followed consistently.

**While supervisory visits are taking place, 25% of respondents reported receiving no feedback.**

## Opportunities

- Respondents reported that supportive supervision is taking place at the facility level. Less supervision takes place higher up the health system. There is an opportunity to identify what additional support is needed at the district and regional levels.
- There is an opportunity to put in place clear validation guidance to ensure consistency across regions and facilities.
- Respondents at PHC facilities rely heavily on the district to validate data instead of internal processes. As data entry is decentralized, it is recommended to establish data validation procedures within facilities and for community level data.
- The private sector reported the least amount of time spent in data collection activities. There is an opportunity to strengthen data collection and sharing between the private and public sector.

## Threats

- Security situations and COVID may preclude regular supervisory visits.



## AXIS 4: IMPROVING THE PRODUCTION, DISSEMINATION, AND USE OF HEALTH INFORMATION

OBJECTIVE	PRIORITY INTERVENTION	SCORE
<b>Objective 13:</b> Strengthen the production and sharing of health information	<b>13.1:</b> Preparation of the main current statistical publications at national level	—
	<b>13.2:</b> Strengthening statistical production at regional level	—
	<b>13.3:</b> Development of National Health Accounts	✓
	<b>13.4:</b> Improving the dissemination of health information	—
	<b>13.5:</b> Training of local decision makers, opinion leaders, the media etc. to use health information for decision making	✓
<b>Objective 14:</b> Make information available in real time	<b>4.1:</b> Creation of a NHIS website	—
	<b>4.2:</b> Putting the data warehouse online	✗



Activities fully accomplished



Activities partially accomplished



Activities not accomplished

Axis 4 addresses the need for easily accessible information to encourage evidence-based decision making among management and managers. The aims of this axis include the need for the NHIS to be designed, so that information is directly and easily accessible and timely and for information to be presented in a digestible manner.

The Burkina Faso MoH 2015 Manual on Health Information Processes details how the information is collected from the community and PHC facility levels and then transmitted to the upper levels. Figure 27 details the process, which might take up to two months from the data being collected to be made available to the national level.



FIGURE 27: BURKINA FASO MOH NHIS DATA FLOW DATA AND REVIEW PROCESS

Level	Report type	Period covered by the report	Transmission level	Transmission / entry / validation deadline
Community	Community health Monthly Activity Report (MAR)	From the 26th of the previous month to the 25th of the current month	PHC Facility/ NGO RenCap	End of current month
PHC Facility	Summary of the community MAR	From the 26th of the previous month to the 25th of the current month	DHMT	5th of the following month
PHC Facility/ District Hospital	MAR	From the 26th of the previous month to the 25th of the current month	DHMT	5th of the following month
Hospital care units and services	MAR	From the 26th of the previous month to the 25th of the current month	Hospital Health Information and Planning Unit	5th of the following month
District Health Management Team (DHMT)	MAR data entry into DHIS2 (ENDOS)	From the 26th of the previous month to the 25th of the current month	Online	Until the 20th of the following month
Hospital Health Information and Planning Unit	MAR data entry into DHIS2 (ENDOS)	From the 26th of the previous month to the 25th of the current month	Online	Until the 20th of the following month
Regional Health Management Team	Ensure review and validation of all reports mentioned above	From the 26th of the previous month to the 25th of the current month	Online	Data review to be completed at the latest by the 25th of the next month

### Objective 13: Strengthen the production and sharing of health information<sup>15</sup>

#### — Activity 13.1: Preparation of the main current statistical publications at national level

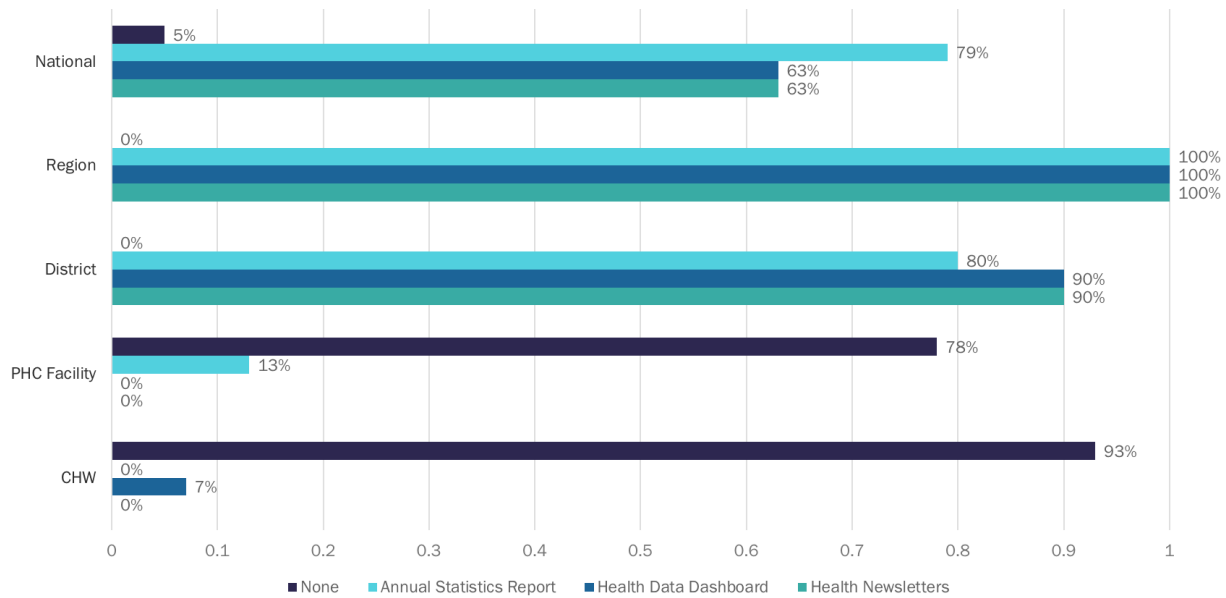
Respondents reported that an annual statistical yearbook, dashboards, and health newsletters were produced. They were shared with NHIS actors, all users and partners. The annual report is completed each year in the first quarter and available online on the MoH website.

Data handlers and decision makers were asked if they had seen statistical products named above (Figures 28 - 29). Community and PHC facility staff were very likely to report seeing none of the reports (93% and 78%, respectively). This is similar to decision makers at the PHC facility level, 67% of whom have never seen a report. Dissemination at the community level is poor; data handlers at that level reported only

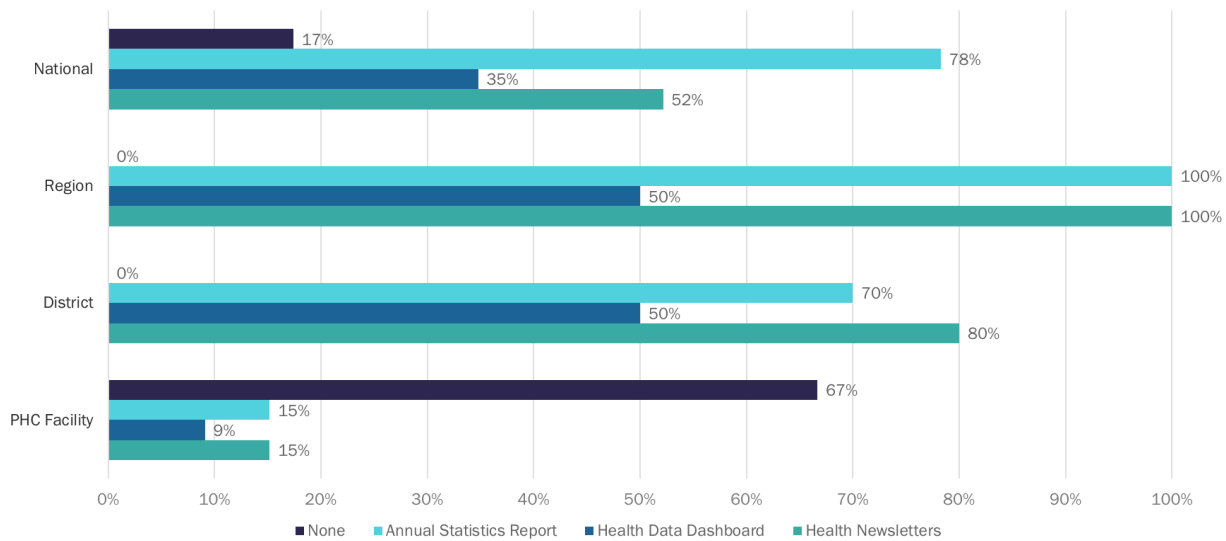
15. Even if the 2010-2020 Strategic Plan did not include specific objectives or activities relating to epidemiological surveillance, it is worth noting the establishment of the laboratory sample traceability system (STELAB)

seeing the dashboard (7%). The regional level has the highest reporting of seeing the report; 100% of data handlers at the regional level have seen all three mediums of information. More than half of the decision makers and data handlers at the district and national level have seen all three. Approximately 53% of decision makers said they share the report, while 26% said they do not share them. The remaining 18% reported never seeing any documentation.

**FIGURE 28: PERCENTAGE OF DATA HANDLERS THAT REPORT SEEING STATVISTICAL PRODUCTS**



**FIGURE 29: PERCENTAGE OF DECISION MAKERS THAT REPORT SEEING STATISTICAL PRODUCTS**





### Activity 13.2: Strengthening statistical production at regional level

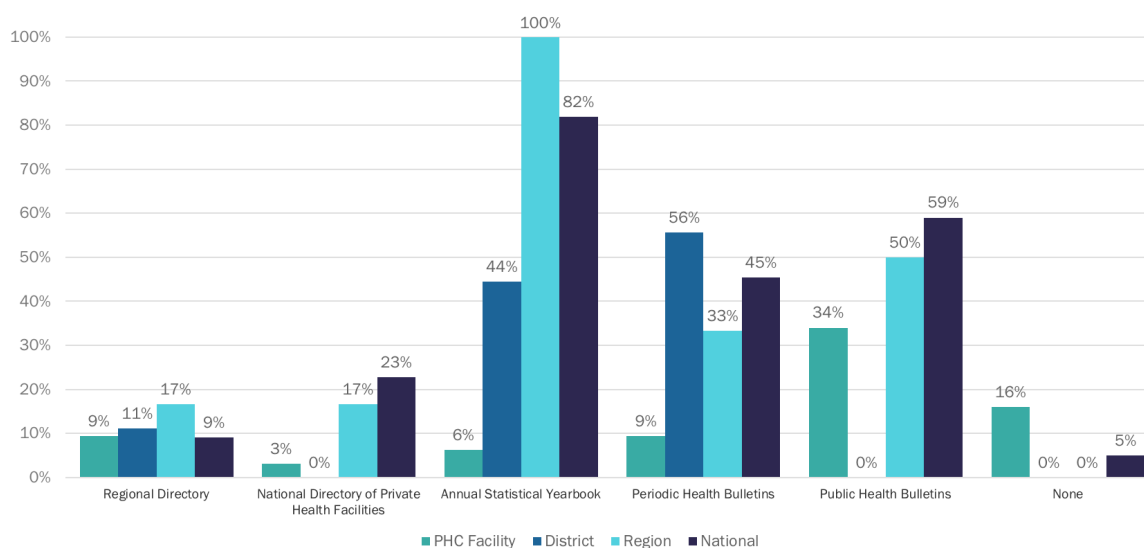
Half of the respondents said a regional directory was developed; however, the other half said it was not. Those who said it had been developed reported that it included all 13 regions and was disseminated to local decision makers and facilities. Respondents reporting a regional directory are located in the Centre, Centre-Ouest, and Centre-Sud regions. This would indicate that the practice of producing statistical document at the regional level is uneven across Burkina Faso.

Figure 30 shows which facilities reported health information products available to them.

Overall, dissemination and document availability were very low, particularly at the PHC level where at best 34% of facilities had only one type of document. Less than a quarter of facilities at each level had the directory, with regional facilities being the most likely to have the document (17%) and the national level the least likely (9%). According to responses, the annual statistical yearbook was better disseminated to facilities than the regional directory. All facilities at the national level had the yearbook and 82% at the district level. By far the lowest availability was at PHC facilities with only 6% having the document.

**Overall, dissemination and document availability were very low, particularly at the PHC level where at best 34% of facilities had only one type of statistical document.**

FIGURE 30: PERCENT OF FACILITIES THAT RECEIVE HEALTH INFORMATION PRODUCTS



One respondent noted that having documents available does not translate to data use. **“Having a copy (of a budget, a report, or a statistical document) does not mean they (data handlers and decision makers) are doing something with it.”** Other respondents mentioned that the health information system is good and could be improved by more real time information and greater availability across levels. One District Health Manager commented that, **“It is the health information system. What we have is already good, but we should work to make it better known and to make it a better decision-making tool. Because you see the bulletins, it comes at times long after the data was collected and doesn’t allow time to respond, whereas a bulletin must be reactive and fairly fast. So perhaps improving the collection of information from health facilities. Above all, currently one of the reasons it’s like that, is that everything is focused on the central level. Before, I know that there were still health bulletins at the regional level. But for more than three or four years, it is no longer financed.”**



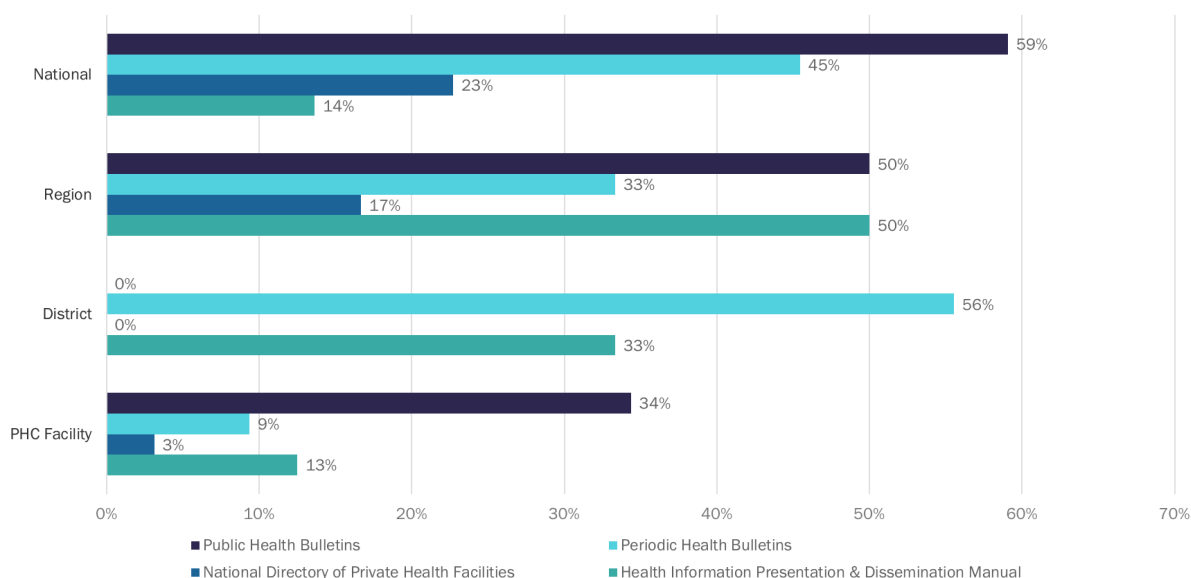
✔ **Activity 13.3: Development of National Health Accounts**

None of the respondents knew whether an IT tool was developed for managing health financing data. The NHAs are reportedly completed annually. The last NHA was completed in 2019 and included malaria, TB, HIV, and reproductive health.

— **Activity 13.4: Improving the dissemination of health information**

The MPGIS was developed to provide guidance on presenting and disseminating health information in 2015. Dissemination of key health information documents does not go above 60% at any facility level (Figure 31). Generally, the Bulletins Sanitaires Publics and the periodic health bulletins are the most widely disseminated. Very few facilities report having the national directory of private health facilities; 0% of facilities at the district level have this document. Access is the lowest among PHC and district facilities.

**FIGURE 31: PERCENT OF FACILITIES THAT REPORT HAVING HEALTH INFORMATION PRODUCTS**



Most NHIS Strategic Plan respondents did not know if a health statistics day was organized. At a health statistics day, the decision makers present data, discuss it, and review data quality in a workshop format. However, decision makers and data handlers confirmed that health statistics days took place. Decision makers and data handlers across the various levels, with the exception of CHWs, attended the event.

✔ **Activity 13.5: Training of local decision makers, opinion leaders, the media, etc. to use health information for decision making**

Trainings were provided to stakeholders on the use of health information for decision making, focusing on the assurance of data quality and in the form of validation meetings. ENDOS-BF, computers, and video projections were used in the training. Data managers, partners, and the MoH were trained in 2018.

**Objective 14: Make information available in real time**

— **Activity 14.1: Creation of the NHIS website**

An NHIS specific website was not created. However, data is stored on ENDOS-BF. People can access the data with their user account and a passcode. There is overall a lack of repository for reports and



documentation, though the MoH has made some documents publicly available on its website<sup>16</sup>. As the study collected documents for the desk analysis, respondents were able to provide the documents, but not from a digital repository.

### ✘ **Activity 14.2: Uploading the Data Warehouse**

ENDOS-BF is connected to the internet with access rights and security; functionalities exist to produce online health information coupled with geographical information systems. The MoH is currently elaborating plans to set up a data warehouse.

## **AXIS 4 STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND THREATS**

### **Strengths**

- NHAs are completed annually.
- Health statistical products are developed on a consistent basis.
- Training of local decision makers took place on using health information for decision making.

### **Weaknesses**

- Many data products do not get disseminated down to the lowest levels of the NHIS, or if they do, they go to decision makers who may not always share them with other staff.

### **Opportunities**

- Data products are being developed and shared across the health system. There is an opportunity to ensure that data products are shared all the way to the community level.
- Developing an online master health facility registry can allow the MoH to review records and identify gaps in reporting and services across facilities.
- Partnering with telecommunication companies, the MoH can provide a free survey for facilities to quickly report data issues via cell phones using Unstructured Supplementary Service Data (USSD) technology.
- Facilities would like to ensure relevant MoH documents and registers are available. While ENDOS-BF stores some data, a central document repository could be developed so that all staff can have access to documents and guidelines.

### **Threats**

- Focus on COVID may result in lower quality data for other health programmatic areas and may impact the quality of statistical publications.
- Security issues may result in facilities being closed and/or unable to produce data.

16. <https://www.sante.gov.bf/ressources/documents>



**FIGURE 32: MOH NHIS STRATEGIC PLAN 2010-2020 IMPLEMENTATION SCORECARD**



Based on scores for each activity, objectives were also given a score (Figure 32). The MoH was able to complete three objectives fully, all related to data quality (7, 8, and 11) but did not complete activities regarding overall system architecture and information availability (5 and 14).

Has the implementation of the strategic plan made it possible to achieve the vision defined during the drafting of the plan? The vision as stated in the NHIS Strategic Plan, was that by 2020, “Burkina Faso should have an integrated, efficient health information system at all levels, producing quality information in real time, accessible to health and used by all actors at the cost of decisions based on factual bases with a view to improving the health of populations.”

Looking at the activities carried out, this vision has been partially achieved. The MoH has set up a database centralizing data (ENDOS-BF), defined health information standards and procedures (MPGIS), a data quality improvement plan (PAQDS), and has successfully implemented digital tools, such as the mHealth or the REC.

However, the information system remains fragmented (more than 110 applications found in September 2020), the quality of health information is still a problem (especially at community and peripheral level), and data are not accessible in real time (data collection and validation procedures can take up to two months). All of this reduces the ability of decision makers to make evidence-based decisions.

The next 2021-2025 strategic plan must therefore focus on strengthening NHIS governance (definition, implementation, and control of standards and procedures), address the issue of interoperability, streamline the number of applications used, and strengthen the capacity of peripheral level actors in data collection and analysis.



# PART III: NATIONAL HEALTH INFORMATION SYSTEM USER PERSPECTIVE EVALUATION

## OVERVIEW

Systems live and die by their users. As part of our mandate to better understand opportunities for supporting and strengthening the NHIS, we did a deep dive into NHIS users’ data use and decision making. Understanding the gaps which exist between what decision makers know, what decision makers need to know, and which data is collected by those who collect and aggregate data (called “data handlers”) helps us uncover opportunities for strengthening the NHIS. We conducted a study (called a “Data User Study”) that focuses on how decisions are being made and the information used to inform these decisions. Our study aims to answer the following question: is the **right data**, in the **right format**, in the hands of the **right person** to answer the **right question**?

FIGURE 33: KEY QUESTIONS FOR UNDERSTANDING DATA ELEMENTS, SYSTEMS, USERS, AND DECISIONS FOR THE NHIS

### SYSTEM

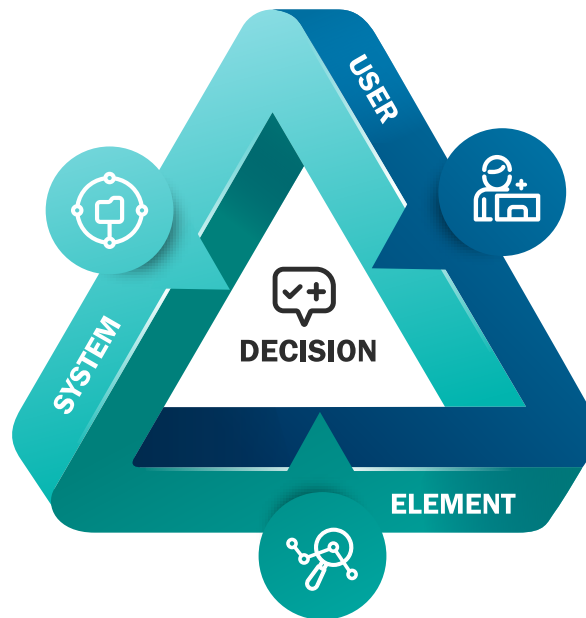
What comprehensive system (paper & electronic) manages each element?

### ELEMENT

What is the comprehensive set of health-related data elements/indicators?

### USER

Who are the individuals interacting with the data?



**The right data,  
In the right format  
In the hands of  
the right person  
To answer the  
right question**



This section has the following parts:

1. Study methods, data collection, and analysis
2. Study terminology
3. Findings:
  - a. Main takeaways
  - b. Decision, analysis, and capacities
  - c. Data elements, sources, collection, and systems
  - d. Respondent profiles and operating environment
4. Strengths, weaknesses, opportunities, and threats

## STUDY METHODS, DATA COLLECTION, AND ANALYSIS

We conducted 150 interviews across all levels of the health system. We also used a mixed-methods approach for this study.

FIGURE 34: DATA USER STUDY METHODOLOGY



A total of 69 facilities were selected to participate in the evaluation and complete the facility survey. The distribution of selected facilities by level and region is shown in Figure 35. PHC facilities represented the highest number of facilities. Approximately 30% of facilities were located in a rural setting, 36% in an urban setting and the remaining 33% facilities (regional or district level) location stratification was not applicable.





FIGURE 35: FACILITIES SURVEYED BY LEVEL AND REGION







Level	Boucle du Mouhoun	Centre	Centre-Ouest	Centre-Sud	Sud-Ouest	Total
PHC Facility	5	8	7	6	6	32
District	2	1	2	2	2	9
Regional	2	0	1	1	2	6
National	0	22	0	0	0	22
<b>Total</b>	<b>9</b>	<b>31</b>	<b>10</b>	<b>9</b>	<b>10</b>	<b>69</b>

The types of facilities that participated in the study by level include:

- **PHC facilities:** public primary health centers, private primary health centers, public medical centers, private medical centers
- **District facilities:** District Health Management Team (DHMT), including the data management team; district hospitals
- **Regional facilities:** Regional Health Management Team (RHMT), including the data management team; regional hospitals
- **National facilities:** national hospitals, national level departments, technical structures

## STUDY TERMINOLOGY

FIGURE 36: KEY TERMINOLOGY FOR NHIS EVALUATION

 <p><b>DECISION MAKER</b> An individual responsible for making decisions (e.g. Facility in Charge, Director)</p>	 <p><b>DATA HANDLER</b> An individual responsible for collecting and aggregating data (e.g., CHW, Nurse)</p>
 <p><b>DATA ELEMENT</b> A single data point that can be collected, collated, analyzed, and stored (e.g., TB screening result, patient gender)</p>	 <p><b>DATA SOURCE</b> Paper and electronic systems where health related data elements are recorded/ stored (e.g. ENDOS)</p>
 <p><b>DECISION</b> A conclusion or action to take regarding patient care, administration, implementation, etc. (e.g., ordering pharmaceuticals, resource allocation)</p>	 <p><b>UNIQUE</b> An element, source, or decision that is not duplicated or double counted</p>



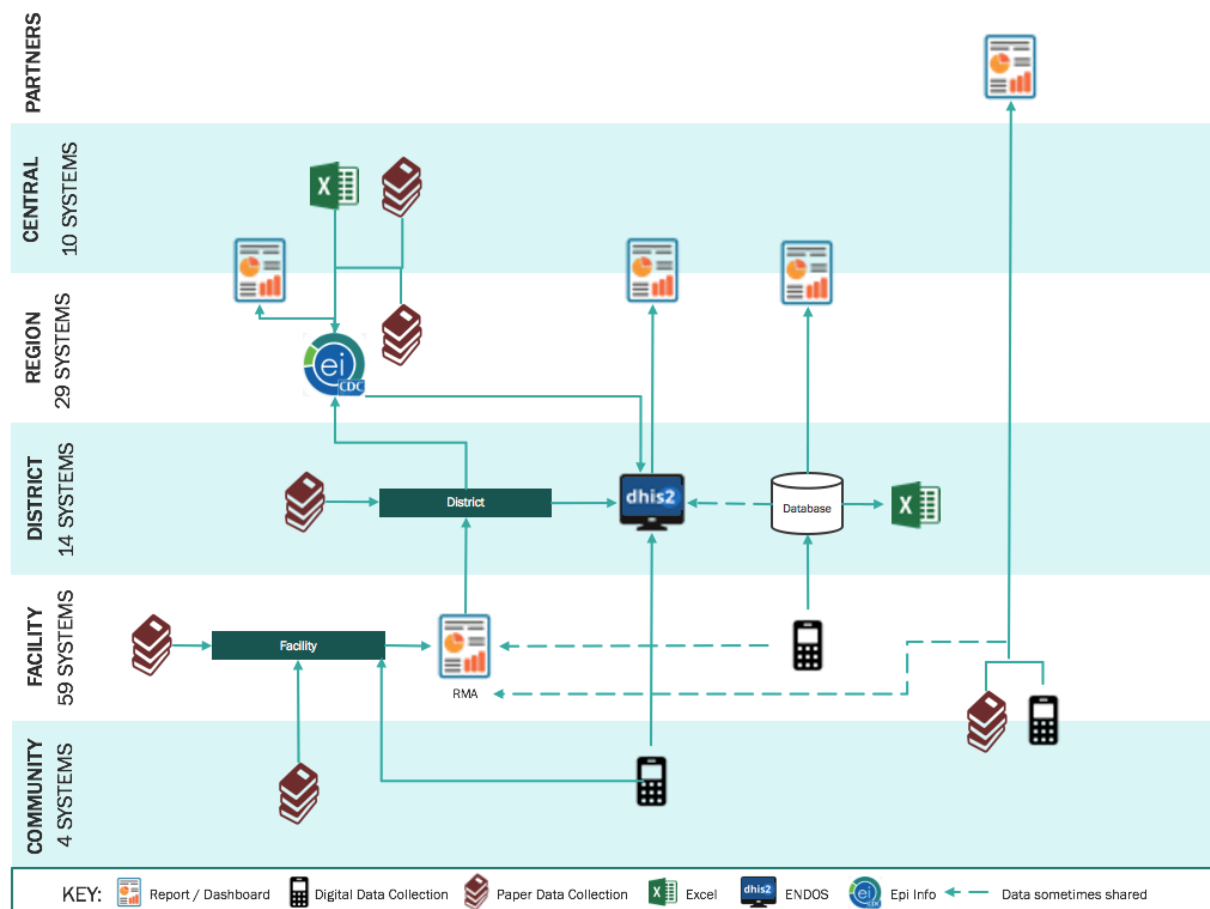
# FINDINGS

We hope that our findings can lead to recommendations for how the NHIS can be designed to better meet users' needs, improve information use for decision making, and ultimately, improve health outcomes. Here are our main takeaways:

## A) MAIN TAKEAWAYS

**FINDING 1) Health data systems are fragmented, hindering the ability of decision makers to fully access and use all available data for decision making.** As an example, there are over 110 active databases, applications, and digital tools currently at use within the country (Figure 37).

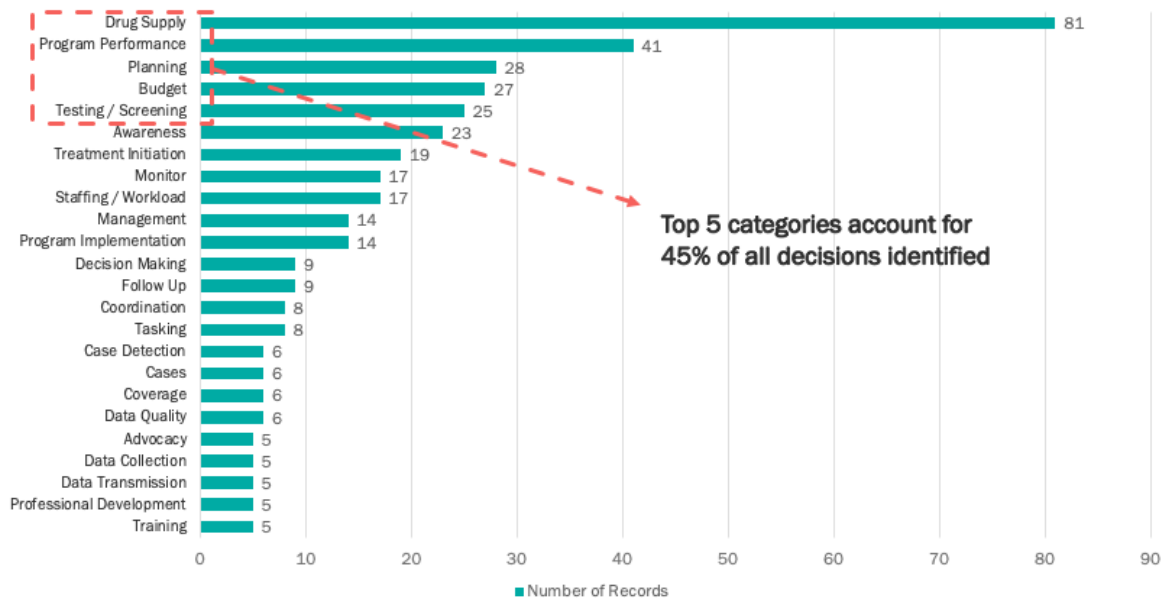
FIGURE 37: NHIS DATA FLOW



**FINDING 2) Decision makers are mostly focused on five decision categories: drug supply, program performance, planning, budget, and testing/screening.** These five decision categories account for 45% of all decisions identified by decision makers (Figure 38).



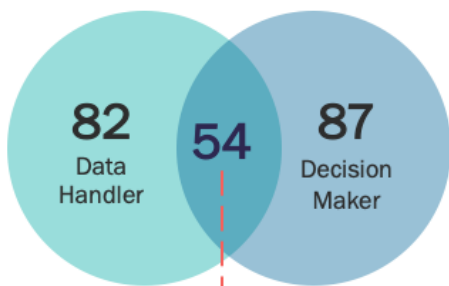
**FIGURE 38: MOST FREQUENT DECISIONS REFERENCED BY DECISION MAKERS**



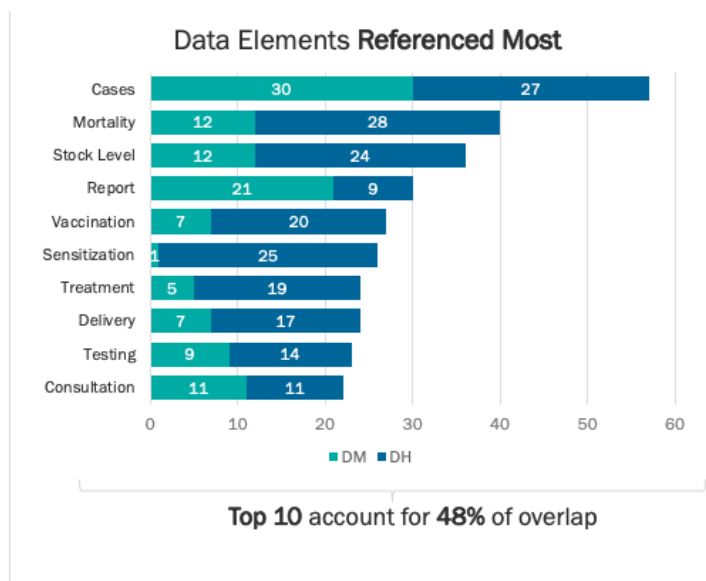
**FINDING 3) Decision makers and data handlers are not aligned on which data elements are the most important.** As such, data handlers are collecting data that is not deemed useful or important for decision makers. As shown in Figure 3, a total of 223 unique data elements were mentioned during the DUS. Of those, 54 data elements were referenced by both data handlers and decision makers 648 times, accounting for 69% of responses, while the remaining 31% of data elements are not aligned. Figure 39 also shows the top ten most referenced data elements, identifying which data elements are seen as equally or disproportionately important by role. The top ten data elements account for 48% of the 54 data elements referenced by both roles.

**FIGURE 39: DATA ELEMENTS MOST REFERENCED BY DECISION MAKERS AND DATA HANDLERS**

**Minimal alignment** between decision-makers & data handlers in terms of what data elements are important

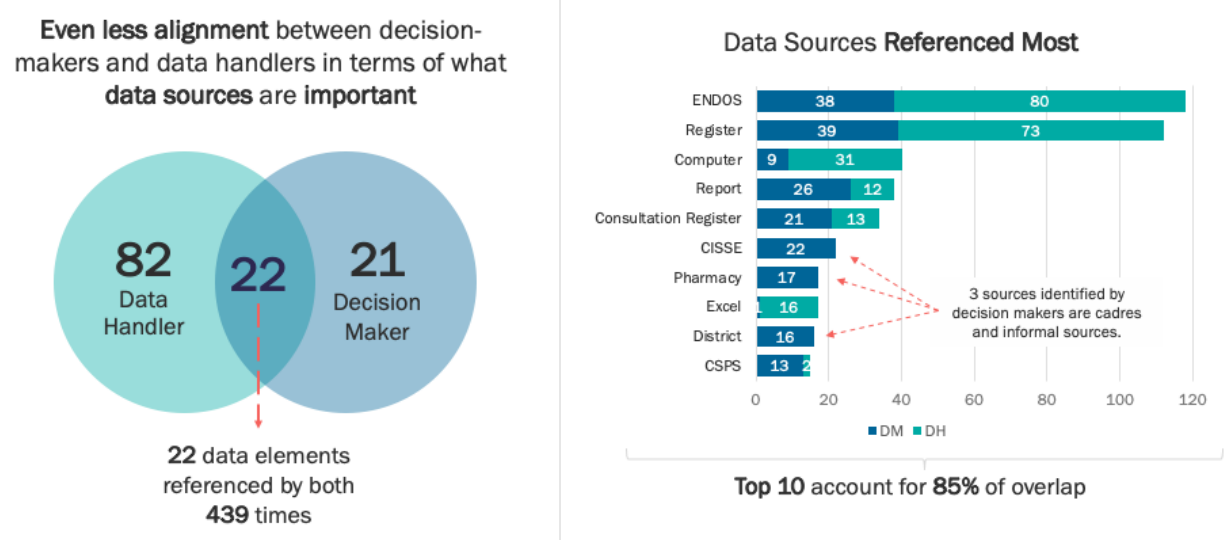


54 data elements referenced by both 648 times



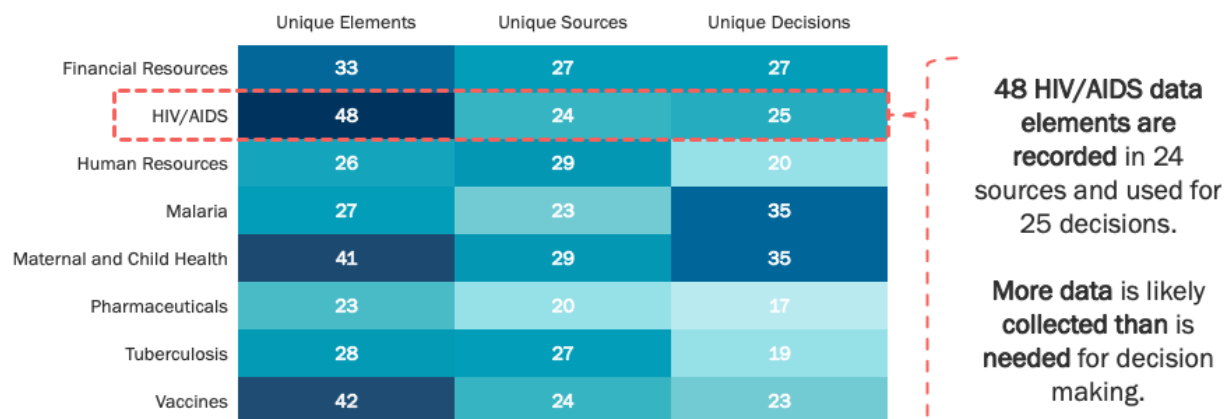
**FINDING 4) Decision makers and data handlers are even less aligned on which data sources are most important.** Figure 40 reveals that a total of 125 unique data sources were identified. Of those, only 22 sources were referenced by both data handlers and decision makers. Decision makers frequently mentioned informal data sources, such as individuals or cadres, as shown in the top ten most referenced data sources.

**FIGURE 40: DATA SOURCES IMPORTANCE (REFERENCED) BY DECISION MAKERS AND DATA HANDLERS**



**FINDING 5) More data is collected than is needed for decision making.** As a result, health workers at every level of the system spend between 13-46 hours per week collecting and making sense of data. As an example, there are 48 data elements collected for HIV/AIDS by data handlers, but decision makers only use 25 unique data elements to make decisions. Additionally, there may be room to streamline data collection processes. Human resource respondents identified 26 different data elements collected across 29 sources, showing that some data elements may be recorded in more than one source. Figure 5 shows the unique data elements, sources, and decisions for each programmatic area reviewing during the DUS.

**FIGURE 41: UNIQUE DATA ELEMENTS, SOURCES, AND DECISIONS BY PROGRAM AREA PROGRAM AREA**



**FINDING 6) Routine supportive feedback is rare** (Figure 42). Approximately a quarter of decision makers reported receiving no feedback while less than 10% reported receiving routine feedback on data sharing, data quality, programmatic work, or words of appreciation.

FIGURE 42: FEEDBACK PROVIDED TO DECISION MAKERS ON PERFORMANCE



## B) DECISIONS, ANALYSIS, AND CAPACITIES

Our study asked data handlers and decision makers about data in eight programmatic areas: malaria, pharmaceuticals, maternal and child health, HIV/AIDS, TB, vaccines, financial resources, and human resources. Data handlers were asked which data elements they collect for each programmatic area, where the information is recorded, and how the information flows up the NHIS. Decision makers were asked what decisions they make for each programmatic area, the data elements used to make those decisions, and the sources they use to find the data they need.

### Decisions

A total of 444 decisions were referenced by 75 decision makers. These decisions were coded and grouped into 55 total unique categories. As shown in Figure 53, the top five decision categories were drug supply, program performance, planning, budget, and testing/screening. These five categories accounted for 45% of all decisions identified (Figure 43).

**The top five decision categories were drug supply, program performance, planning, budget, and testing/screening. These five categories accounted for 45% of all decisions identified by decision makers.**



**FIGURE 43: DECISIONS IDENTIFIED BY DECISION MAKERS**

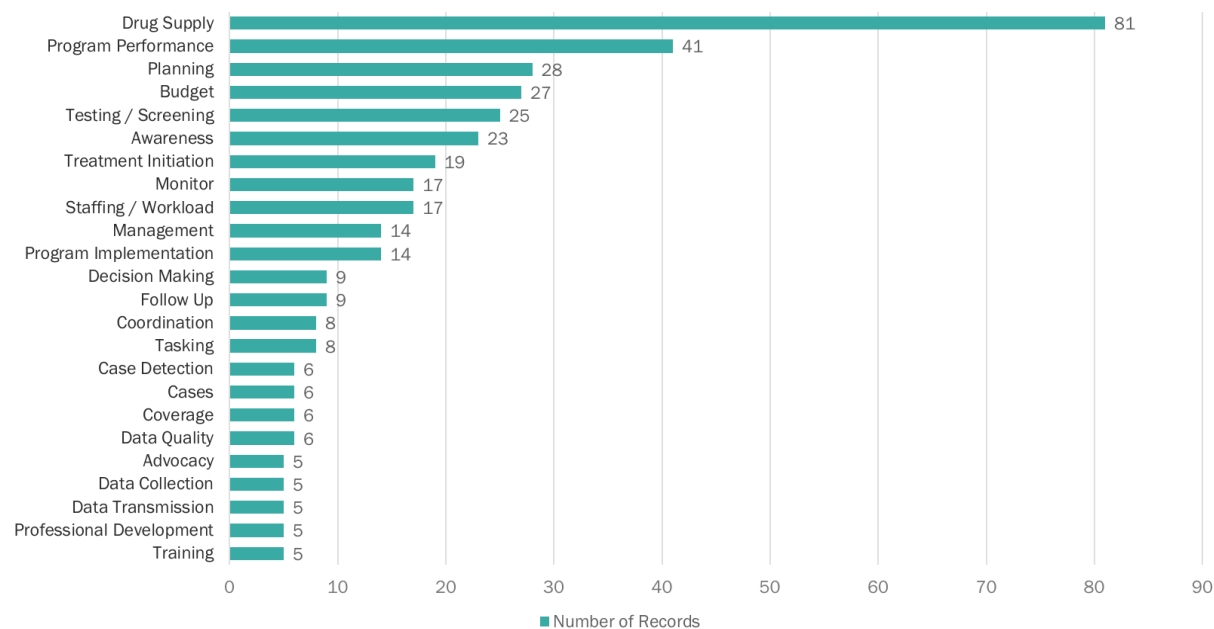


Figure 44 shows the unique data elements, sources, and decisions cited by each programmatic area. Please note that the number represents the number of unique components for a specific programmatic area, and not to the study as a whole. For instance, both malaria and maternal and child health may look at the number of consultations as a data element, and it is counted in both programmatic areas as a unique element in this figure.

**FIGURE 44: UNIQUE DATA ELEMENTS, SOURCES, AND DECISIONS BY PROGRAMMATIC AREA**

	Unique Elements	Unique Sources	Unique Decisions
Financial Resources	33	27	27
HIV/AIDS	48	24	25
Human Resources	26	29	20
Malaria	27	23	35
Maternal and Child Health	41	29	35
Pharmaceuticals	23	20	17
Tuberculosis	28	27	19
Vaccines	42	24	23



In some cases, more data is likely collected than is needed for decision making. As an example, there are 48 data elements collected for HIV/AIDS by data handlers, but decision makers only use 25 unique data elements to make decisions. Additionally, there may be room to streamline data collection processes. Human resource respondents identified 26 different data elements collected across 29 sources, showing that some data elements may be recorded in more than one source.

Essentially, decision makers may not have the right information needed to make the optimal decision. Figures 45-46 show the number of data elements and data sources identified by data handlers and decision makers, respectively.

**FIGURE 45: DATA ELEMENTS MENTIONED BY PROGRAMMATIC AREA**

	Data Handler	Decision Maker
Financial Resources	19	44
HIV/AIDS	80	46
Human Resources	22	34
Malaria	84	58
Maternal and Child Health	136	53
Pharmaceuticals	37	52
Tuberculosis	84	53
Vaccines	80	55
<b>Total:</b>	<b>542</b>	<b>395</b>

**FIGURE 46: DATA SOURCES MENTIONED BY PROGRAMMATIC AREA**

	Data Handler	Decision Maker
Financial Resources	14	40
HIV/AIDS	41	45
Human Resources	21	40
Malaria	62	50
Maternal and Child Health	57	49
Pharmaceuticals	27	43
Tuberculosis	40	43
Vaccines	51	46
<b>Total:</b>	<b>313</b>	<b>356</b>



In most cases, data handlers collected more data elements than are used for decision making. Decision makers also relied on more data sources than data handlers use for collection, often seeking informal data sources. Decision makers, across all programmatic areas, identified 104 unique sources that they use to inform decisions. Of those sources, 31 are different registers, and 29 are individuals or departments. Again, this highlights that there may be a gap between what decision makers need to inform decisions, and what is collected and available to them.

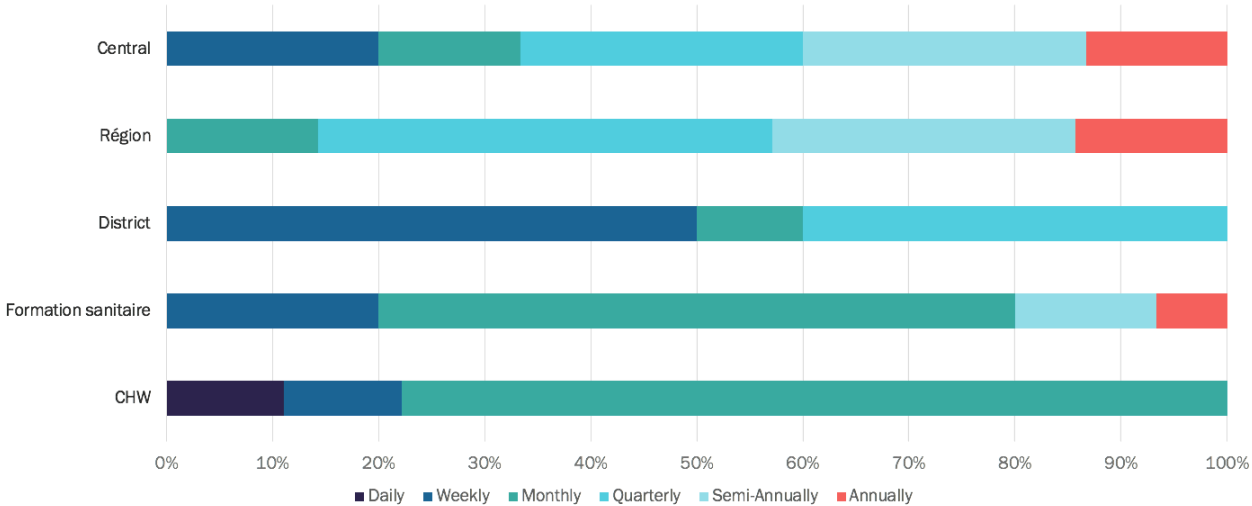
**Analysis**

Data analysis is part of ensuring the right data is in the right format in order to make the best decision. Data handlers (Figure 47) and decision makers (Figure 48) reported on how frequently they conduct data analysis. Data analysis frequency is shown by level. Only 60% of data handlers reported performing data analysis. Despite being largely responsible for data collection, more than two-thirds (76%) of CHWs and PHC staff do not perform data analysis. Of those who do perform data analysis, more than half report performing the analysis on a monthly basis (52%), followed by weekly and quarterly frequencies.

**Only 60% of data handlers reported performing data analysis. Despite being largely responsible for data collection, more than two-thirds (76%) of CHWs and PHC staff do not perform data analysis.**

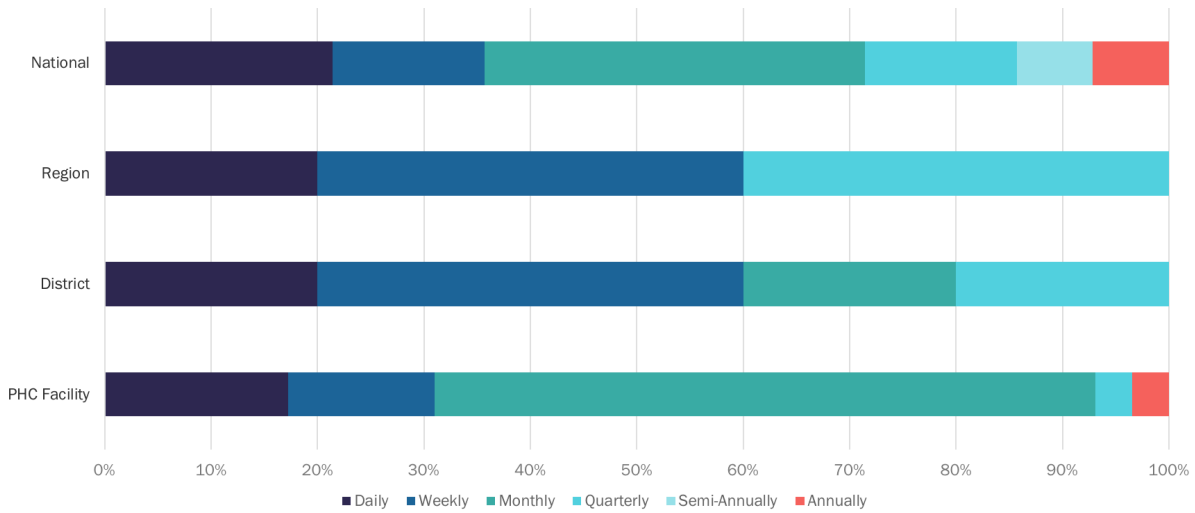
Approximately 19% of decision makers surveyed stated that they do not analyze data. Of those who do perform data analysis, the most common frequency is monthly (43%), followed by weekly (21%), and daily (19%) (Figure 48). At the PHC facility and national levels, monthly was the most common frequency; weekly had the highest frequency at the regional level, and quarterly and weekly at the district level. The decision makers who reported only performing data analysis annually came from the PHC facility and national levels.

**FIGURE 47: FREQUENCY OF DATA HANDLER DATA ANALYSIS**





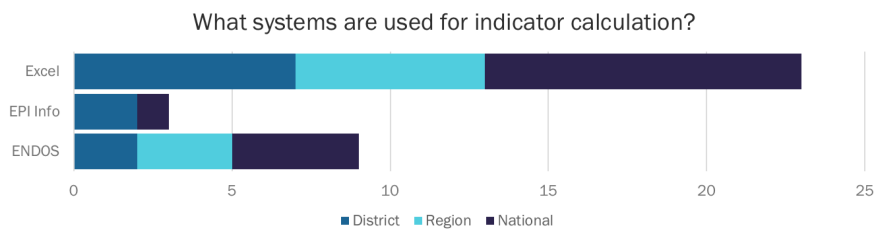
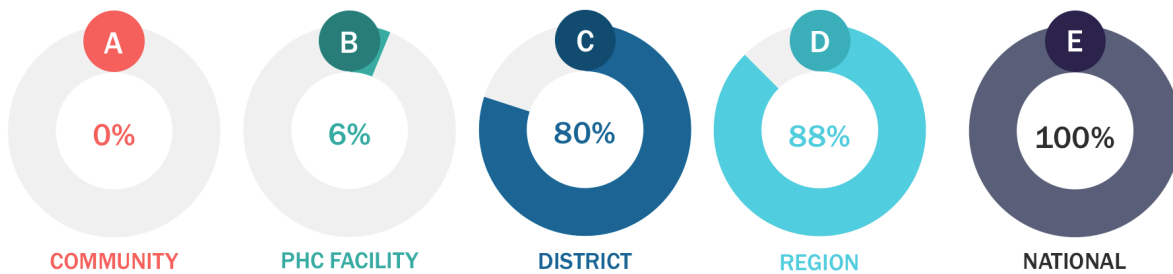
**FIGURE 48: FREQUENCY OF DECISION MAKER DATA ANALYSIS**



It is important to note how data is analyzed. Different methods vary in terms of the level of effort and time required, as well as the likelihood that human error may interfere. Data handlers and decision makers were asked what systems are used for data analysis and calculating indicators. Figure 49 shows that most CHWs and PHC staff involved in data analysis calculate indicators manually, which can result in more miscalculations than other automated platforms. For those at the district level and higher, most respondents reported using Excel to calculate indicators, followed by ENDOS-BF. Time-consuming and erroneous methods, like calculating indicators by hand, could affect data quality. As many CHWs and PHC Facilities do not have access to computers, they would be required to do calculations by hand.

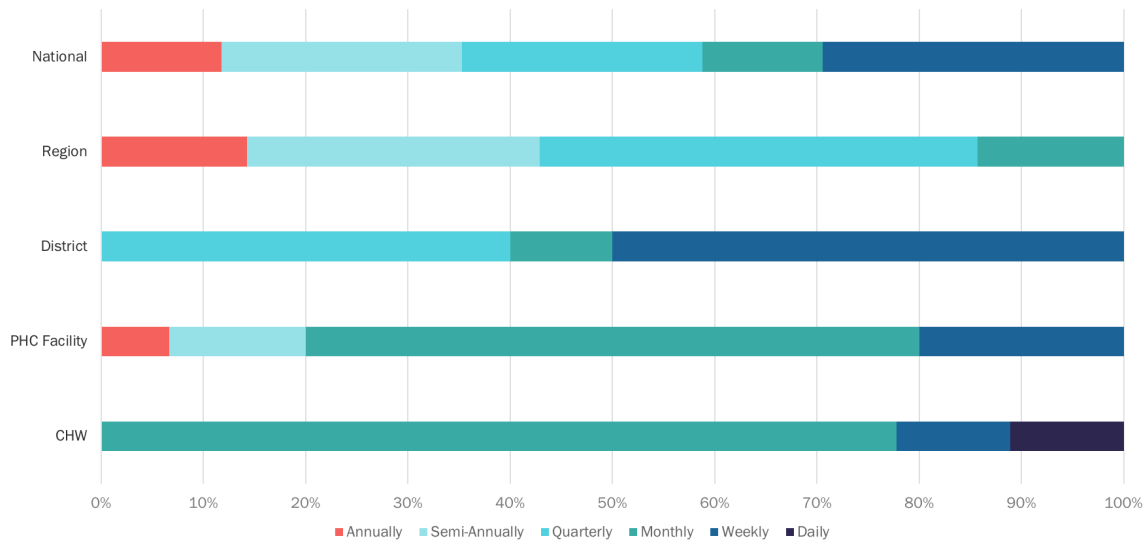
**Most CHWs and PHC staff involved in data analysis calculate indicators manually, which can result in miscalculations as a result of human error.**

**FIGURE 49: PERCENT OF INDICATORS CALCULATED USING A SYSTEM BY LEVEL**



Data that is collected and analyzed is inconsequential if it is not presented to the right people in a timely manner to assist in their decision making. Data handlers reported on how frequently they present data (Figure 50). A quarter of data handlers said that they do not present data. Most data handlers (74%) that reported never presenting data came from the community and PHC facility levels. Following standard reporting periods, those who present data most commonly present on a monthly (36%), weekly (21%), or quarterly basis (20%). Given that data is most often presented upward within the NHIS, national level facilities reported presenting data the least frequently, with 27% reporting semi-annually and 13% reporting an annual frequency.

**FIGURE 50: FREQUENCY THAT DATA HANDLERS PRESENT DATA**



Decision makers were asked the same. Approximately 19% of decision makers, predominantly from the national and PHC facility levels, report never presenting data. Similarly, to data handlers, the most common frequency is monthly at 31%, followed by weekly (26%), and quarterly (24%). The only respondents who reported to present data annually (3%) came from the national level.

**Data is flowing up the NHIS, but not necessarily flowing back down the system.**

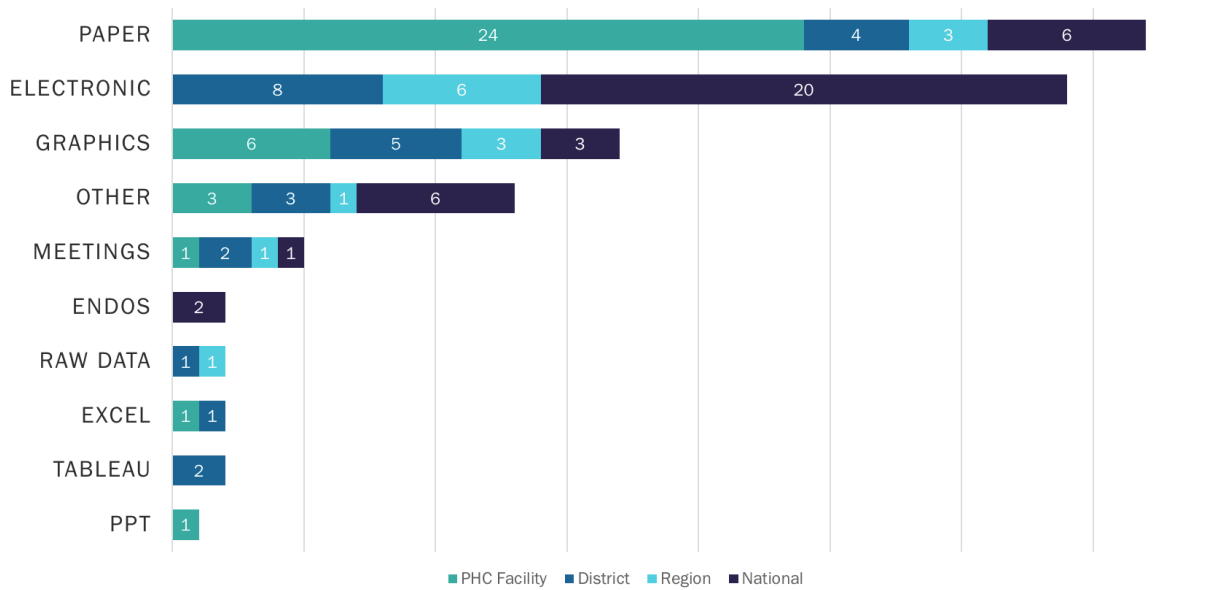
Having data presented to data handlers is as important as them presenting data to decision makers. For one, this ensures that data is flowing in multiple directions in the NHIS, both up and down, which aids in instilling a data culture. It is also a factor in understanding whether the right people are having relevant and high-quality data presented to them when they need it. When asked whether they have data presented to them, 39% of data handlers stated that

they have data presented to them. The majority of these individuals are at the national level (41%), district level (31%), and regional level (20%). Only 7% of data handlers at the PHC facility level said they had data presented to them. Data is most often presented on a monthly basis. This may show that data is flowing up the NHIS, but not necessarily flowing back down the system.

In line with other findings, paper is the most common form of presenting information at the PHC facility level. Data is more frequently shared electronically, such as through email, as it moves up to the national level. Even though facilities do not identify with a data analysis role, they are most likely to present data in a graphic form. 'Other' responses included texting, phone calls, PDFs, analyzed data, etc. (Figure 51).



FIGURE 51: WAYS THAT DATA IS PRESENTED

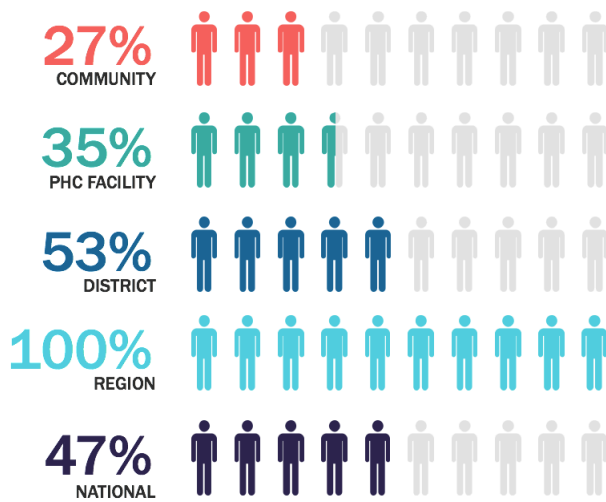


### Capacities

Data handlers and decision makers need to have the soft and hard skills required to perform data-related work responsibilities. This has a significant role in ensuring the data is high-quality and leads to the most advantageous decisions. Indeed, even with access to technology and supporting infrastructure, without digital literacy and data related skills, they may be unable to correctly collect, analyze, and present data.

As mentioned in Part II, trainings related to systems, data analysis, and data analysis tools ranked relatively low on the types of trainings respondents attended. Figure 52 shows the percentage of data handlers that have been trained on data analysis. Data analysis training is focused at the regional (100%) and district (54%) levels, with approximately a quarter (27%) of data handlers at the community level receiving such training. It may also be that those who are trained on data analysis at the district and regional levels later move to positions at the regional or national levels, while those untrained remain stagnant in their roles.

FIGURE 52: PERCENTAGE OF DATA HANDLERS THAT RECEIVED TRAINING ON DATA ANALYSIS BY LEVEL



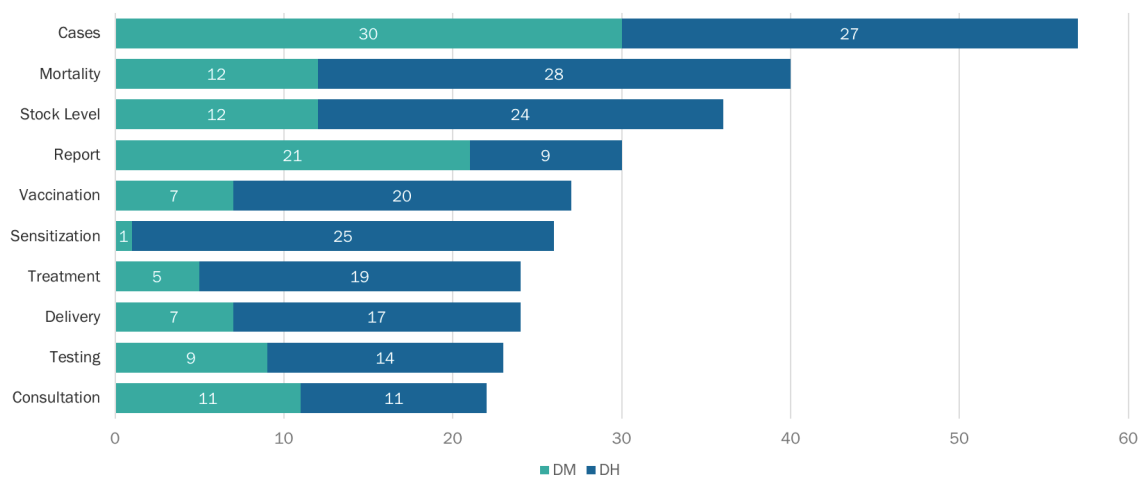
## C) DATA ELEMENTS, SOURCES, COLLECTION, AND SYSTEMS

### Data Elements

Knowing which data elements and sources are used to make decisions is paramount to understanding if what is currently collected and available meets the needs of the user and, as a whole, functions as an optimal NHIS. Overall, there were 937 data elements mentioned during the study. The top five data elements are cases, mortality, stock levels, reports, and vaccinations. Figure 53 shows the number of times each data element was mentioned by data user type.

Data handlers mentioned 82 unique data elements 135 times, while decision makers mentioned 87 unique elements mentioned 154 times. This means that there are 82 data elements that are collected – or approximately 15% of responses – are not used for decision making. Additionally, 87 data elements are not collected but are needed for decision making – accounting for approximately 16% of responses. Data handlers and decision makers both mentioned the same 54 unique data elements a total of 648 times. The top ten data elements account for 48% of the overlap of data elements mentioned by both data handlers and decision makers. However, within the top ten data elements, there are discrepancies as to which elements are most important based on role. For instance, decision makers mostly do not use the “sensitization” data element for decisions, but sensitization was the third most referenced element by data handlers.

FIGURE 53: NUMBER OF TIMES A DATA ELEMENT WAS MENTIONED



### Data Sources

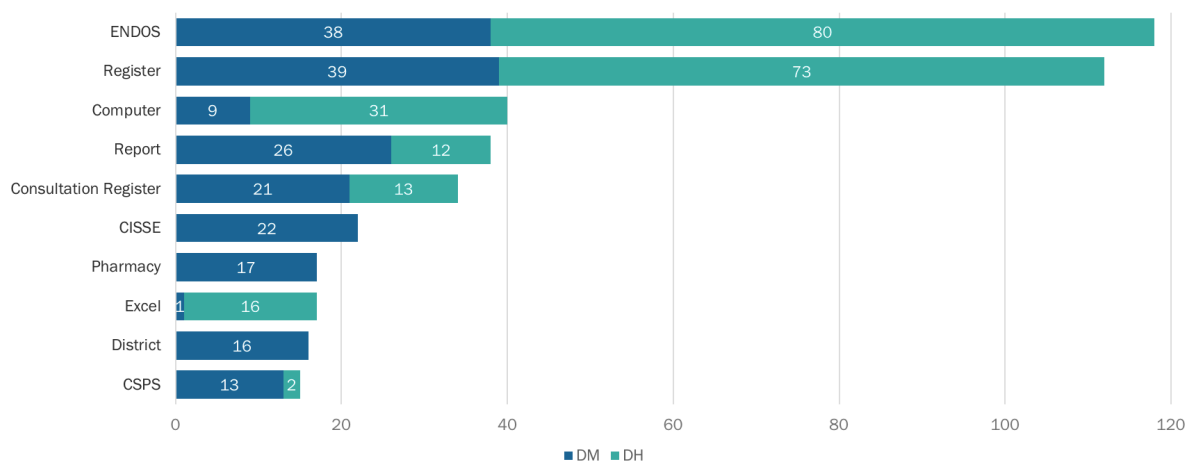
Data sources and systems refer to the platforms where data is stored and accessed, both electronically and on paper. Overall, there were a total of 669 data sources mentioned during the study. Data handlers mentioned 21 unique data sources 49 times, while decision makers mentioned 82 unique data sources mentioned 181 times. This shows a misalignment in which data sources are needed for decisions compared to where data is captured. Approximately 7% of all sources mentioned are not used for decisions, while 27% of data sources are not captured by data handlers – meaning decision makers seek informal or outside sources to find the information needed for decisions. Data handlers and decision makers both mentioned the same 22 unique data elements a total of 439 times (Figure 54).

The top sources were ENDOS-BF, registers, computers, reports, and the consultation register. It is interesting to note that three of the top ten data sources are people – showing that decision makers rely



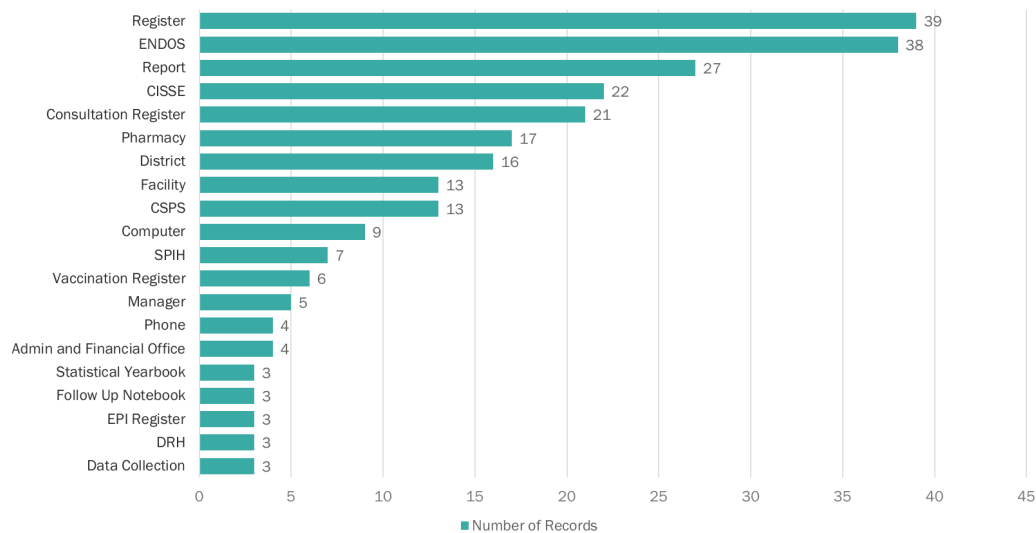
on individuals and departments to informally provide data for decisions. One manager said, “True, some instances of ENDOS-BF are public, but you can only look at the graphs, you cannot extract data from it. Now, if you need the data, you have to call someone and get to him to access the data.”

**FIGURE 54: # OF TIMES A DATA SOURCE WAS MENTIONED**



As mentioned earlier, even though ENDOS-BF is operating, decision makers go through informal channels to receive information. Some of the individuals consulted for data are the CISSE (District and Regional Data Managers), pharmacy, district, facility, or CSPS (PHC facility). Besides ENDOS-BF, digital systems ranked relatively low for sources used for decision making (Figure 55).

**FIGURE 55: DECISION MAKERS SOURCES BY FREQUENCY MENTIONED**



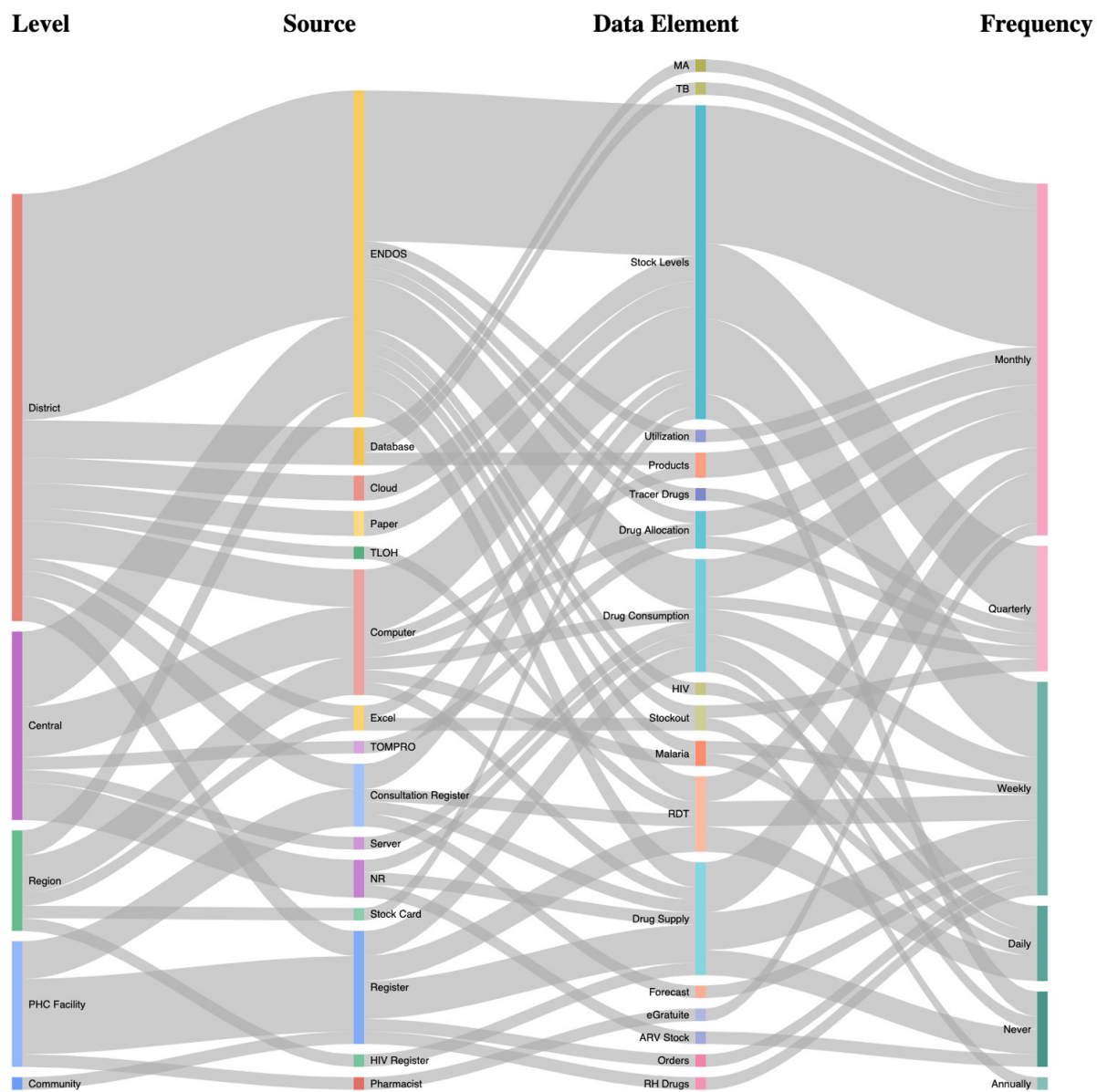
A total of 142 unique registers were identified during the study. A full list of registers identified during the study are included in Annex IV. The list was compiled from data handlers listing registers they use for data collection, decision makers identifying specific registers they use for decision making, and facilities listing all registers available at their facilities. Only six registers were identified by each group: the facility, data handlers, and decision makers. The registers included the consultation, cold chain, EPI, preventing mother



to child transmission (PMTCT), and vaccination registers, as well as personal notebooks. While respondents may have incorrectly identified the names of registers, facilities clearly listed many more registers than decision makers and data handlers use. This presents an opportunity to streamline registers to ensure staff are not overburdened by the number of registers and data collection tools that are used at the point of service.

Figures 56 and 57 further emphasize the gap between what is collected, where it is recorded, and where decision makers go to find information. Figure 56 looks at the relationship between what drug supply related elements are collected, how often it is collected, and what source and level it is collected at. The width of the line shows the strength of the relationship. For example, a wider line means a stronger relationship.

**FIGURE 56: DATA HANDLER DRUG SUPPLY ELEMENTS**





When compared to Figure 57, Figure 56 shows that there are less sources where drug supply data elements are collected than the sources that decision makers go to. However, the most used data elements are similar between the two groups: stock levels, drug consumption, and drug supply.

Figure 57 looks at the relationship between drug supply decisions, what level they are made at, where decision makers go to access the information, which data elements are used, and how frequently the decision is made.

FIGURE 57: DECISION MAKER DRUG SUPPLY DECISIONS

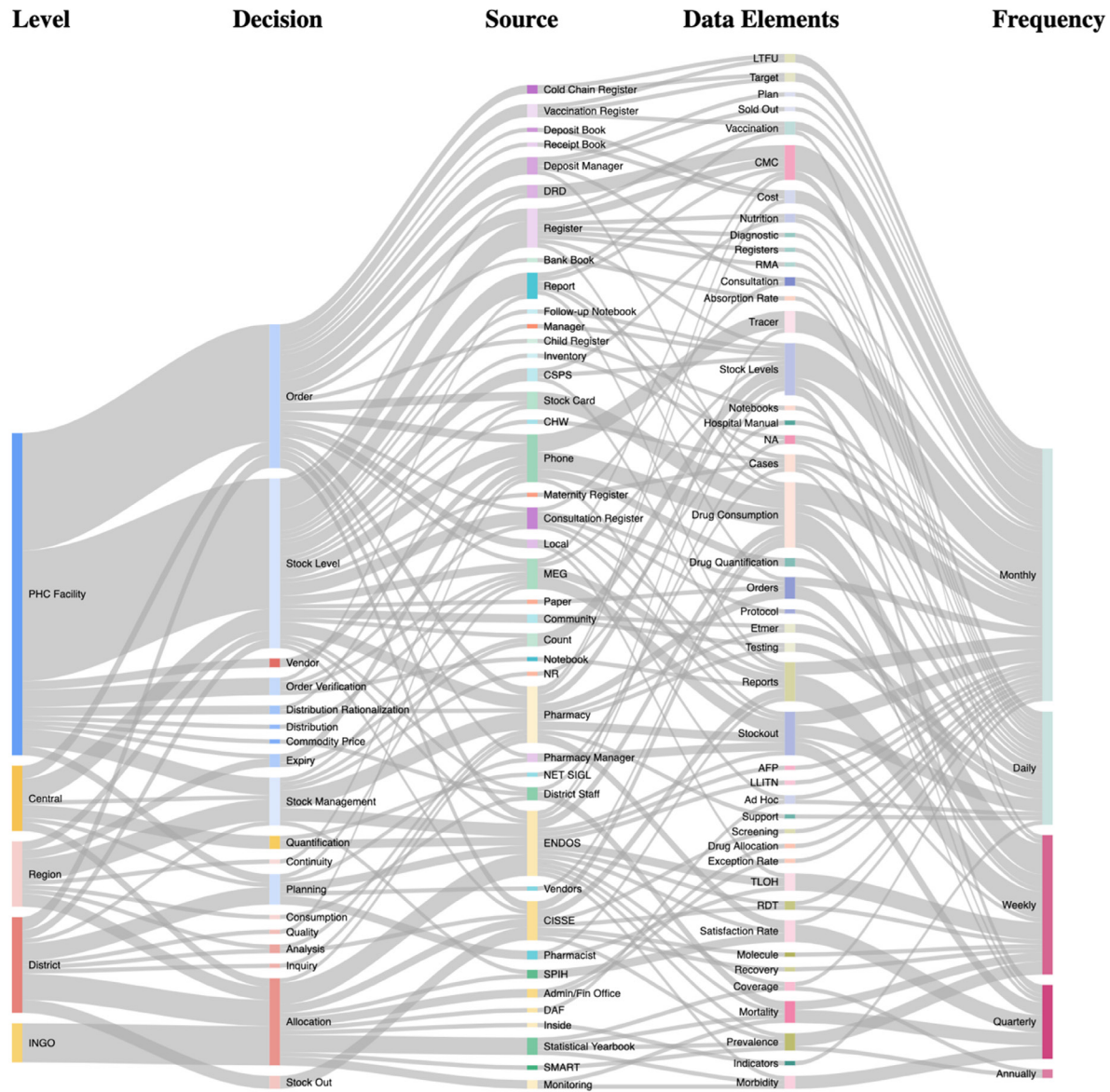


Figure 57 shows us that districts are largely responsible for drug supply planning and allocation, while PHC facilities work with vendors and are responsible for drug supply distribution. Decision makers go to a wide variety of sources to find the information they need, including many informal sources; among the top three sources is “phone.” Additionally, we can see that while stock levels, drug consumption, and stock outs are





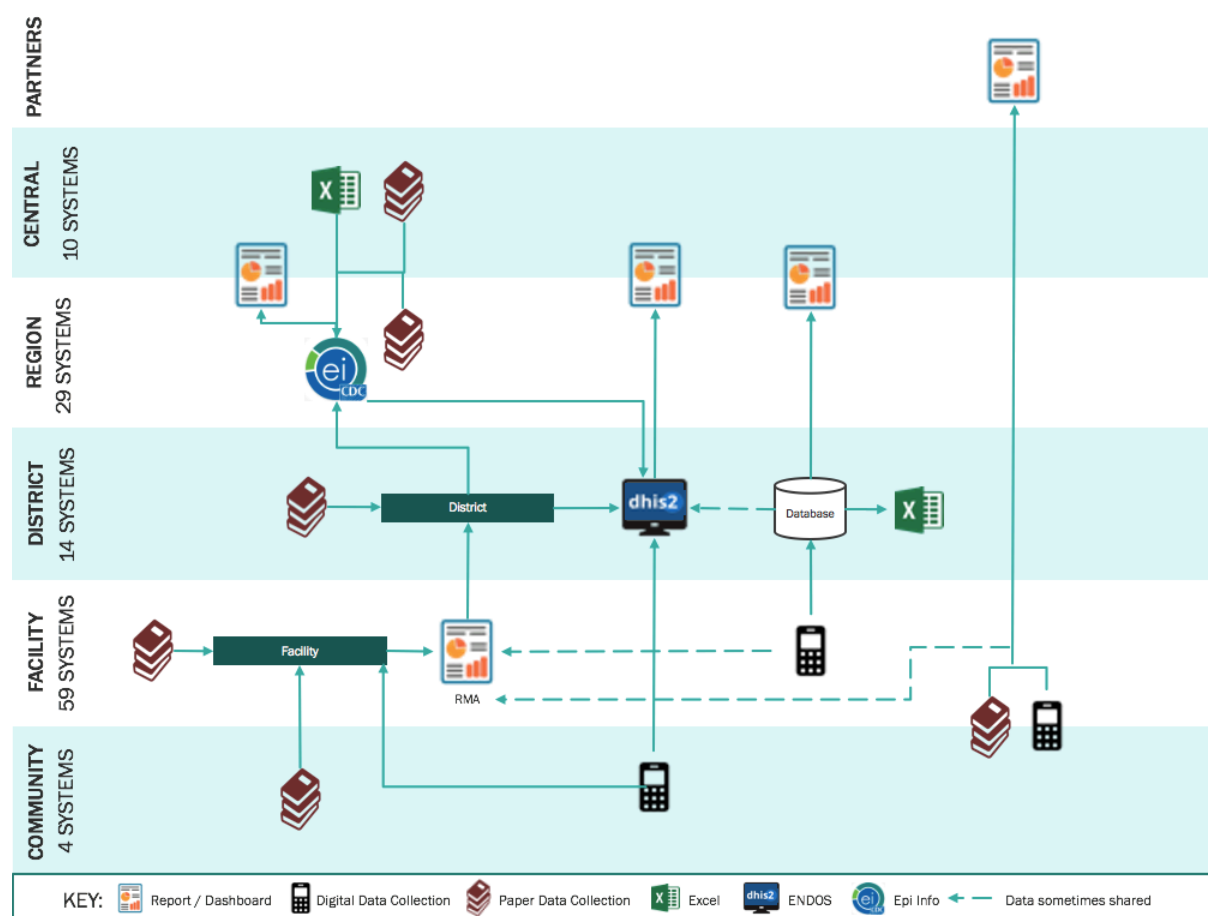
the most used data elements, we do not see many programmatic data elements used for decision making. For instance, one might look at the number of consultations for a specific programmatic area in addition to stock levels.

## Data Collection

Data collection, whether electronic or paper-based, is an important step in ensuring the elements, sources, and systems have the information needed for optimal decision making. Collecting data is necessary to ensure the functioning of the system, track its operation, and swiftly address any shortcomings.

This study identified at least 110 active systems and 65 paper-based registers and forms within Burkina Faso NHIS. Over 19 different software are used for data collection. The majority of the systems are owned and maintained by the MoH. Please refer to Annex V for the full list of systems. During this study, we found that data flows generally followed four different channels (Figure 58).

FIGURE 58: BURKINA FASO NHIS DATA FLOW, AUGUST 2020: 110 ACTIVE SYSTEMS AND 65 PAPER-BASED REGISTERS

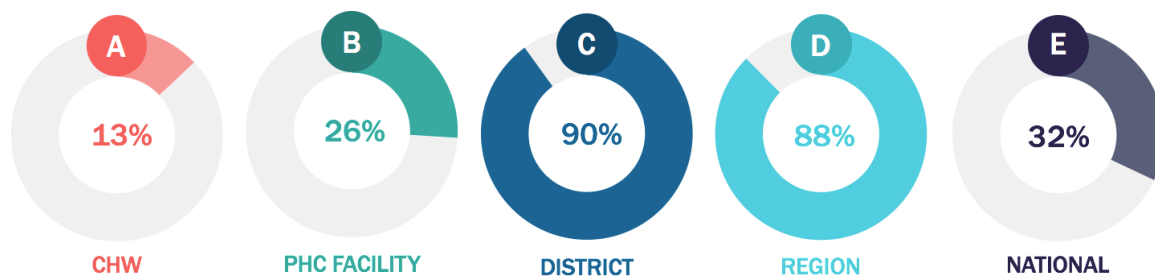


1. Data is collected at the community or facility level using registers or forms. The facility compiles the information into the RMA and sends to the district. The district enters the information into ENDOS-BF. The region validates the data, while the national level will compile, analyze, and report on the data.

2. Surveillance data is collected at all levels of the health system in forms, registers, and Excel. The district, region, or central levels then enter the data into Epi Info. Epi Info will send the data to ENDOS-BF.
3. Apps are developed for digital data collection. The data is directly entered into the database and is also usually sent to the facility to include in the RMA.
4. Partners develop apps or systems that collect data. Data is sent directly to the partner from the community or facility. In some cases, data is also shared with the facility for inclusion in the RMA.

NHIS indicators are mostly tracked at the district and regional levels, with very few respondents at the community (13%), PHC facility (26%) and national (32%) levels reporting collecting the indicators (Figure 59). This matches the overall data flow structure where data is collected at the community or PHC facility, and then sent to the district for input into ENDOS-BF (Figure 58).

**FIGURE 59: PERCENTAGE OF LEVELS THAT COLLECT NHIS SPECIFIC INDICATORS**



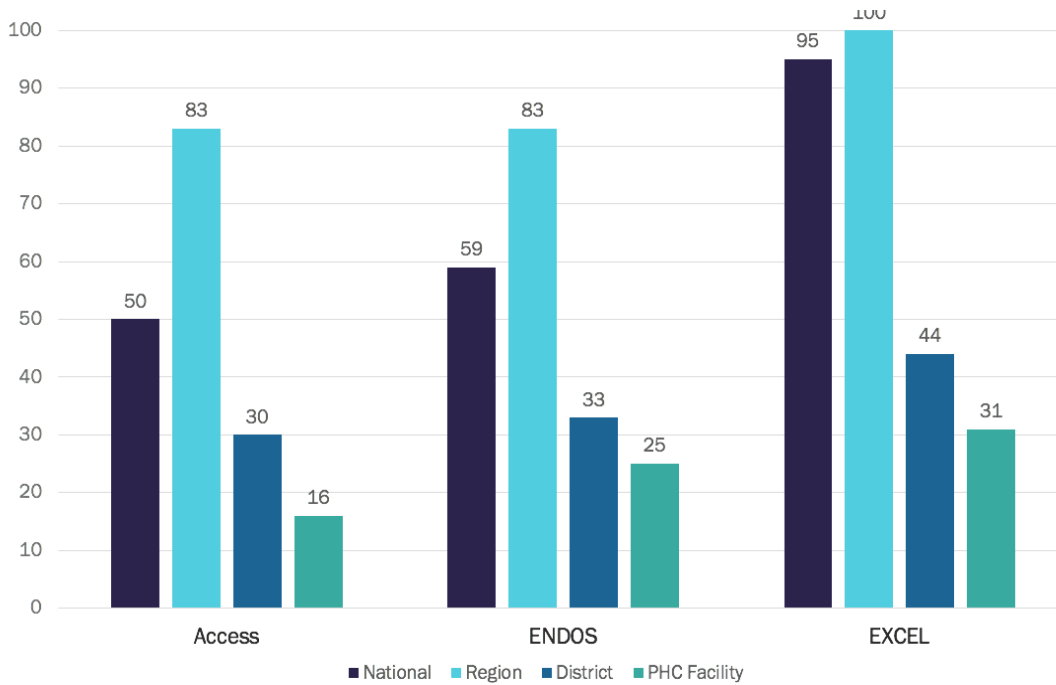
In most cases, data is entered into systems at the district level, reviewed and approved at the region level, and analyzed and reported on by the national level. However, the number of applications and systems, coupled with the four identified channels, generate information siloes and data collection duplication, as can be seen in the number of data elements and sources that were highlighted in Figures 53 and 54 above.

## Systems

Having adequate access to technology ensures that information is not only uploaded to the sources and systems, but that the process is efficient and user-friendly. This section reveals findings related to the technology and systems available to data handlers and decision makers.

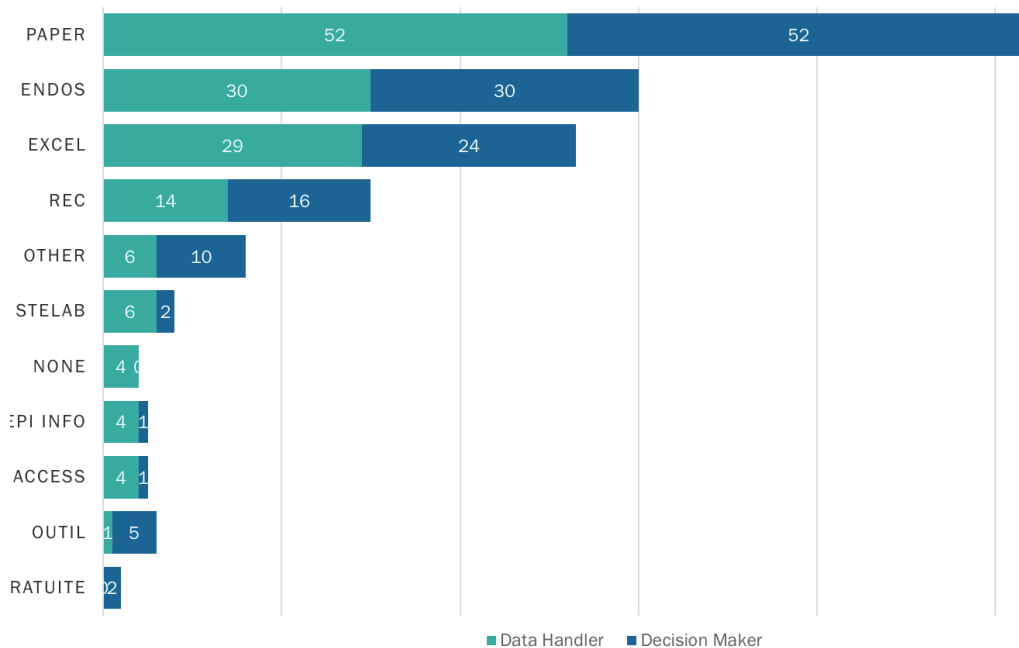
Figure 60 shows the percent of facilities reporting the availability of software platforms. Excel is the most common platform at all levels. Regional facilities are the most equipped with all platforms (Access, ENDOS-BF, and Excel), while PHC facilities reported the least access to platforms. This makes PHC facilities reliant on other levels to compile and analyze data. District facilities also reported poor access when compared to national and regional facilities, although they are more likely to have the systems than PHC facilities.

**FIGURE 60: PERCENTAGE OF FACILITIES WITH ACCESS TO SOFTWARE**



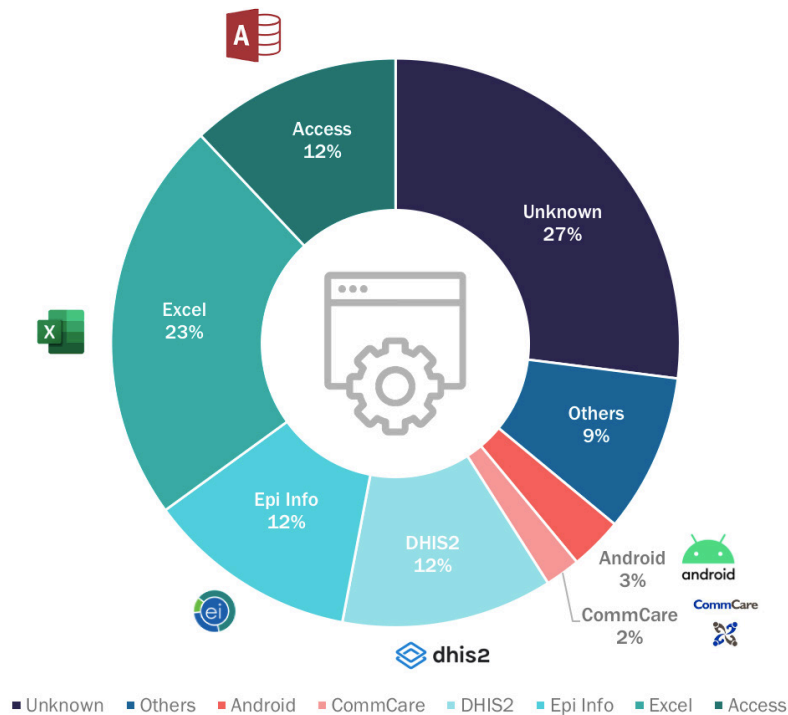
Further emphasizing the use of paper and manual calculations within the NHIS, data handlers and decision makers were asked which applications they use in their role (Figure 61). Approximately 70% of data handlers and decision makers use paper systems, with close to 40% of both groups using ENDOS-BF and Excel. Approximately 5% of data handlers reported not using any system. Systems in the “other” category include: CS Pro, PFPP, PowerPoint, ESPO, HeRAMS, SIMR, R, ARC-GIS, QGIS, NET SIGL, GES, TOMPRO, and OneHealth.

**FIGURE 61: APPLICATIONS MOST USED BY DATA HANDLERS AND DECISION MAKERS**



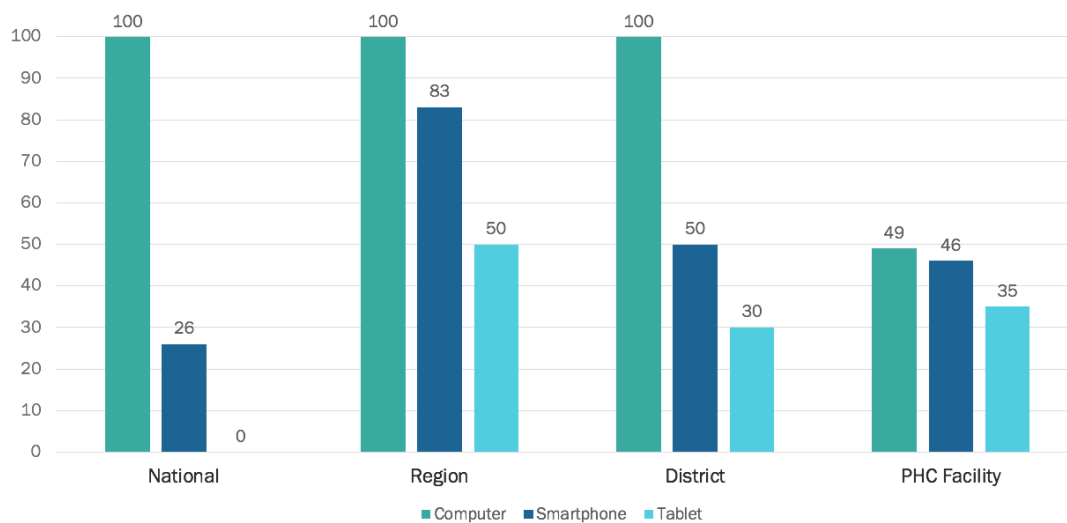
The study also identified 19 different types of software used within the NHIS (Figure 62). Excel (23%), Access (12%), and Epi Info (12%) are the software used for almost half of all systems, while 27% of all systems are using unknown software as respondents were unable to provide the information.

**FIGURE 62: SOFTWARE USED WITHIN BURKINA FASO NHIS**

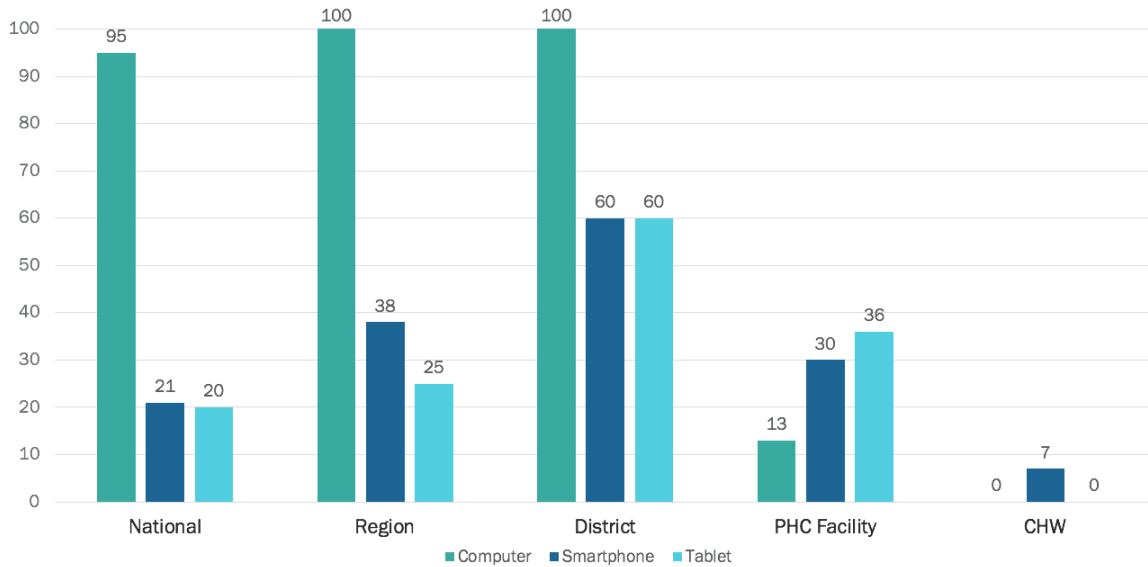


The majority of all data handlers and decision makers at every level, with the exception of the PHC facility, have access to a computer. CHWs and PHC staff identified low levels of access to technology, specifically among data handlers. Figures 63 – 64 show what percent of data handlers and decision makers have access to a computer, tablet, or smartphone – either personally or through their facility.

**FIGURE 63: PERCENTAGE OF DECISION MAKERS WITH TECH ACCESS**



**FIGURE 64: PERCENTAGE OF DATA HANDLERS WITH TECH ACCESS**

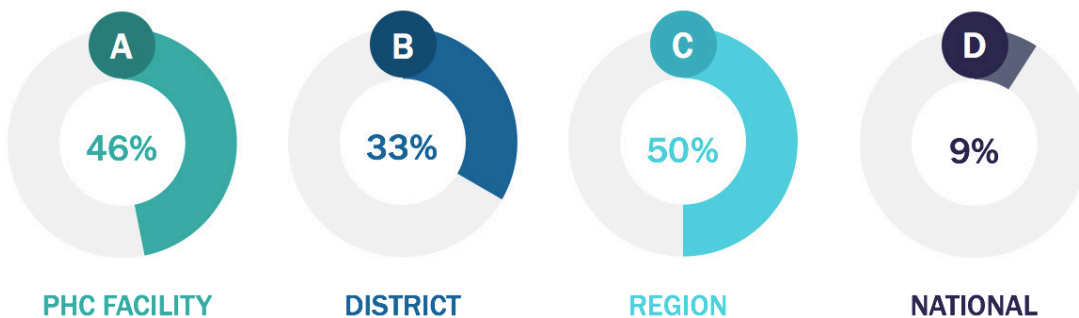


Much like computers, CHWs do not have access to tablets, and only one CHW reported having access to a smartphone. Access to smartphones and tablets are highest among district data handlers, followed by regional decision makers. Generally, decision makers have the same or more access to tablets and smartphones than data handlers. National decision makers reported low levels of access to cell phones, though we observed a higher level of smartphone ownership during the study.

In terms of ownership, almost half of the PHC facilities were provided with a phone or tablet by their facility (Figure 65). This is similar to the 33% reported at the district and regional level, respectively. Very few facilities at the national level (9%) were given these devices by their facility. In addition to considering whether CHWs have the skills needed to enter data of a high quality, these findings show that there may need an increase in the provision of technology to CHWs to allow for data entry and potentially training to improve technological literacy.

National level decision makers reported to not have access and familiarity with tablets. Since decision makers are responsible for developing processes for data collection on tablets, it will be important for decision makers to engage with data handlers to understand what factors can influence the success of data collection via tablets.

**FIGURE 65: PERCENTAGE OF FACILITIES THAT PROVIDE SMARTPHONES AND/OR TABLETS BY LEVEL**



As previously discussed in Part II, internet connectivity varies widely depending on level. While nearly every facility at the regional and national level reported having internet, only 33% of district and 19% of PHC facilities reported having internet. Furthermore, those provided with facility devices were largely responsible for buying their own data credits (Figure 66). Approximately 25% of PHC facility provided devices are provided data credits, while only 8% are provided data credits at the national level. No one at the district or regional level was provided data credits. One M&E Officer said, “The difficulty is that it is the staff who buy (internet) credits with their own money.” Thus, while some respondents have devices, many are likely unable to use them due to a lack of connectivity.

**FIGURE 66: PERCENTAGE OF FACILITIES THAT PROVIDE DEVICES & FUND MOBILE PHONE DATA**

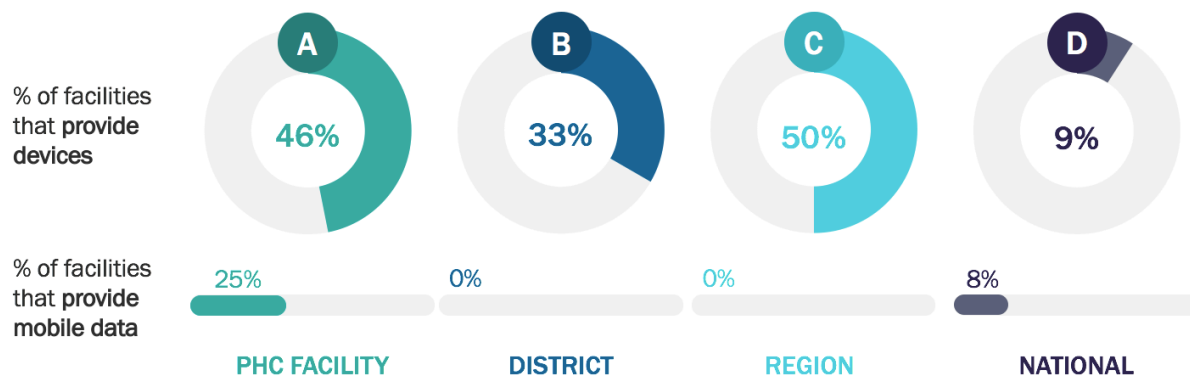
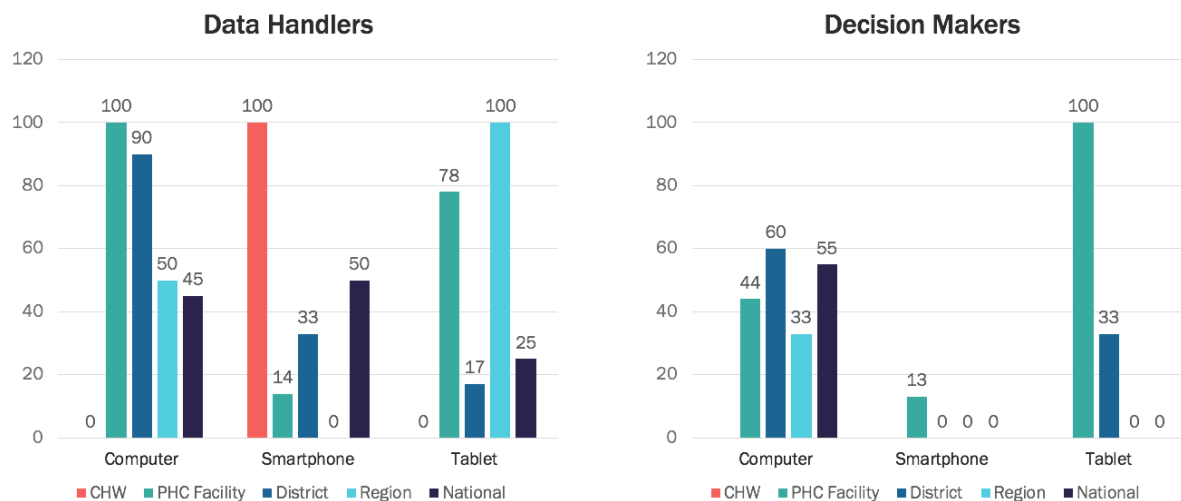


Figure 67 shows the extent of the issue. There is significant variation in who is being provided with data and for which devices. For example, 100% of data handlers at PHC facilities are given data for their computers, but only 13% of decision makers at the PHC facilities are provided data for their smartphones. A similar trend is seen at the regional level where 100% of data handlers have data for tablets, and yet decision makers are not provided data for their smartphones. However, implementing partners provided 100% of reported tablets for data handlers at the regional level, and most likely also provided accompanying data credits.

**FIGURE 67: PERCENTAGE OF FACILITIES BY LEVEL PROVIDED WITH DATA BY DEVICE TYPE**



## RESPONDENTS PROFILES AND OPERATING ENVIRONMENT

An important part of the decisions, elements, sources, and systems that comprise the NHIS is the individual. The DUS takes a user-focused approach that aims to holistically understand the NHIS's users and drivers. Indeed, the system can only function efficiently and effectively if its personnel are skilled, motivated, and capable. To complement the previous sections that focused on the decisions, elements, and sources, the following section looks at who the individuals are that are interacting with the data. It begins with background and demographic information. Then, it explores the operating environment and assesses the resources that the users have access to, ensuring they are able to undertake the tasks that lead to a well-functioning NHIS.

### RESPONDENT PROFILES

The following section provides an overview of the facilities and respondents that participated in the DUS. We surveyed 150 respondents. Respondents were categorized as NHIS decision makers or NHIS data handlers. A total of 75 individuals completed the data handler survey, and 75 individuals completed the decision maker survey. Figure 68 shows the number of data handler and decision maker respondents by facility level and across regions.

FIGURE 68: INDIVIDUALS SURVEYED BY REGION AND FACILITY LEVEL

Individuals Surveyed by Region			
Region	Data Handler	Decision-Maker	Total
Boucle du Mouhoun	12	9	21
Centre	27	37	64
Centre-Ouest	11	10	21
Centre-Sud	13	9	22
Sud-Ouest	12	10	22
<b>Total</b>	<b>75</b>	<b>75</b>	<b>150</b>

Individuals Surveyed by Levels			
Level	Data Handler	Decision-Maker	Total
PHC Facility	23	33	56
Community	15	0	15
International Organization	0	3	3
District	10	10	20
Regional	8	6	14
	19	23	42
<b>Total</b>	<b>75</b>	<b>75</b>	<b>150</b>

Respondents from the Centre region represent 43% of all respondents, as it includes respondents from the community level up to the regional level (as per the other regions) but also all respondents at the national level, based in the capital located in the Centre Region.

However, as the study aims to understand the connection between data elements, sources, and decisions, there is a focus on the PHC facility level as it is where an overwhelming part of the data is generated, which explains why respondents from the PHC level represent 37% of all respondents.





## Respondent Job Titles

This study sought to have a diverse group of respondents in terms of their roles and responsibilities. The following are the job titles of data handler respondents by facility levels:

- **Community:** CHWs
- **PHC Facility:** Nurses and Facility in Charge
- **District:** District Data Officer or CISSE
- **Regional:** Hospital Data Manager, Regional Data Officer, and Regional Finance Officer
- **National:** Data Manager, Internal Monitoring Director, Epidemiology Health Officers, Head of M&E Department, Human Resources Advisor, M&E Officers, Pharmacists and Supply Chain Manager, and Statistician Technical Assistant

The following are the job titles of decision maker respondents by facility levels:

- **International Organization:** Health System Advisor, Nutrition Health Section Head, Senior Economist, and Health Consultant
- **PHC Facility:** Facility in Charge and Nurse
- **District:** District Health Manager
- **Regional:** Hospital Manager, Regional Health Manager, and General Manager
- **National:** Budget Department Head, Coordinator, General Director Representative, Director of Evaluation and Information Systems, Documentation Archiving Department Head, General Manager of Care Delivery, Head of Disease Protection Department, Head of Program for Public Health Development (Programme d'Appui au Développement Sanitaire or PADS) Internal Control, M&E Manager, TB Program Coordinator

## Time Spent in Role

Approximately 70% of PHC facility decision makers have been in their role for two or more years. In contrast, almost 80% of national decision makers have been in their role less than two years, as shown in Figure 69. In general, community and PHC facility-level respondents have spent more time in their roles than those at other levels.

**FIGURE 69: TIME SPENT IN ROLE FOR DATA HANDLERS AND DECISION MAKERS**

DATA HANDLER					
	Community	PHC Facility	District	Region	National
Less than one year	1	4		1	
1-2 Years		7	1	1	9
2-5 Years	11	3	7	3	8
5-10 Years	1	7	2	2	1
Over 10 Years	2	2		1	1

DECISION MAKER					
	PHC Facility	District	Region	National	International Organization
Less than one year	2	6		11	1
1-2 Years	8	1	4	7	1
2-5 Years	13	2	2	3	1
5-10 Years	10	1		1	
Over 10 Years				1	

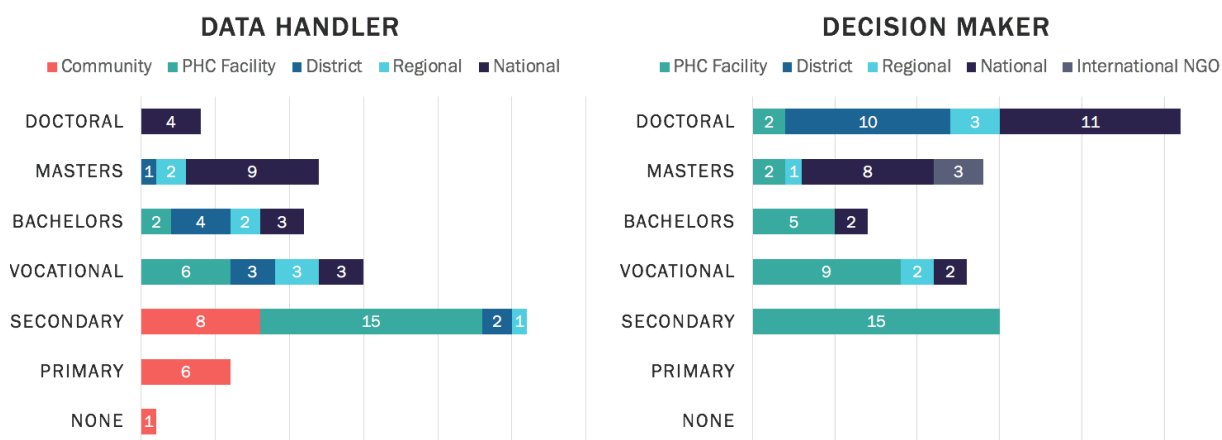


## Education Profile

Figure 70 outlines the education profiles of decision maker and data handler respondents. The majority of data handlers have a secondary education, with vocational training and bachelor's degree holders being common in the cohort. Decision makers generally have higher education attainment; 26 reported having a doctorate compared to only 4 data handlers. CHWs, compared to their counterparts, have significantly less education.

**While all other types of decision makers and data handlers completed at least secondary school, only 53% of CHWs interviewed received a secondary education.**

**FIGURE 70: HIGHEST LEVEL OF EDUCATION OF DATA HANDLERS AND DECISION MAKER RESPONDENTS**



While all other types of decision makers and data handlers completed at least secondary school, only 53% of CHWs interviewed received a secondary education. Approximately 6% reported receiving no education, and the remaining 41% completed primary school. No CHW interviewed attained a diploma or any additional training beyond secondary school. Approximately 53% of decision makers have a master's degree or higher, compared to only 21% of data handlers.

## OPERATING ENVIRONMENT

The following section provides an overview of the NHIS environment in which users (data handlers and decision makers) operate. This section provides information on the user as an individual, with a particular focus on their technological literacy, availability of technology, infrastructure, and data related roles and responsibilities.

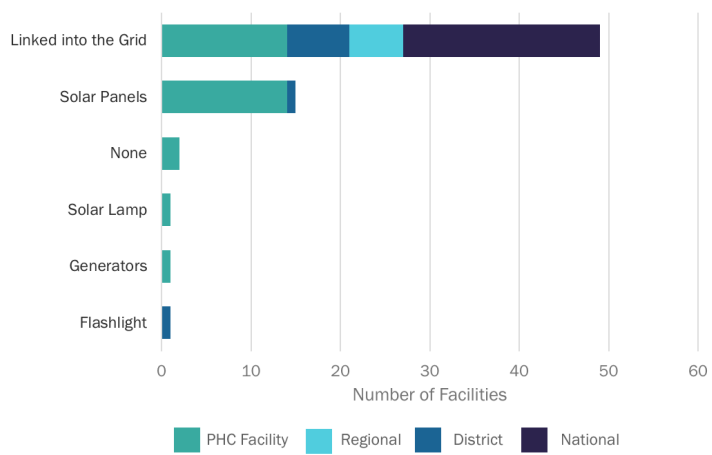
### Infrastructure

Regarding physical infrastructure, there is variation in main power sources. Figures 71 - 72 show the power sources available by facility type and identifies what percentage of facilities have access to a back-up generator.

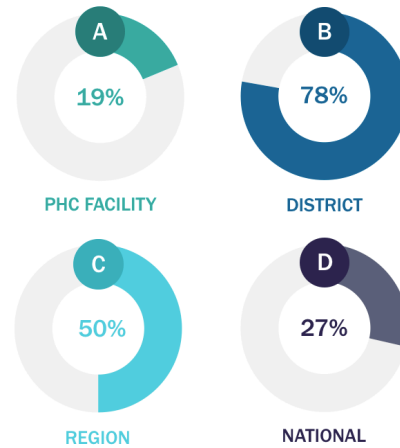
The most common power source at facilities was the grid, which is the main source of power for all national and regional level facilities. The second most common power source is solar panels, which was tied with the grid for number of PHC facilities linked to it (44%). The only facilities reporting no electricity were at the PHC facility level.



**FIGURE 71: POWER SOURCES BY FACILITY TYPES**



**FIGURE 72: PERCENT OF FACILITIES WITH BACK-UP GENERATORS**

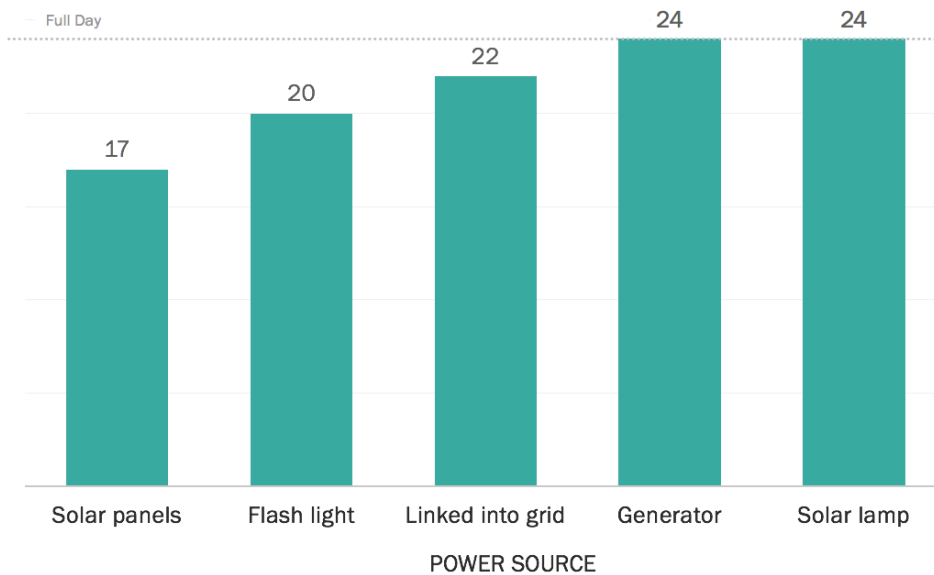


Most district (78%) and regional (50%) facilities have a back-up generator, with only 27% of national facilities having the same. PHC facilities are the least likely to have a backup generator (19% of facilities). The average daily hours of power vary depending on power source (Figure 73).

Solar lamps and generators provide electricity 24 hours per day, the grid 22 hours per day, and flashlights 20 hours per day. Solar panels, the power source most common among PHC facilities, provided the lowest number of hours (17 hours per day). Note that three facilities reporting solar panels as their power source stated having 0 hours of electricity per day. This may point to the need to provide maintenance to the panels or ensure the facilities knows how to use them. Some respondents listed electricity as a challenge in completing data collection and analysis tasks.

These findings have important implications when considering decentralizing data entry to the community and PHC facility levels. These levels first need access to technology in order to enter the data, and then access to internet and power to ensure ability to sync the data with MoH servers. If these necessary resources are lacking, this may severely impede data collection, entry, access, and use.

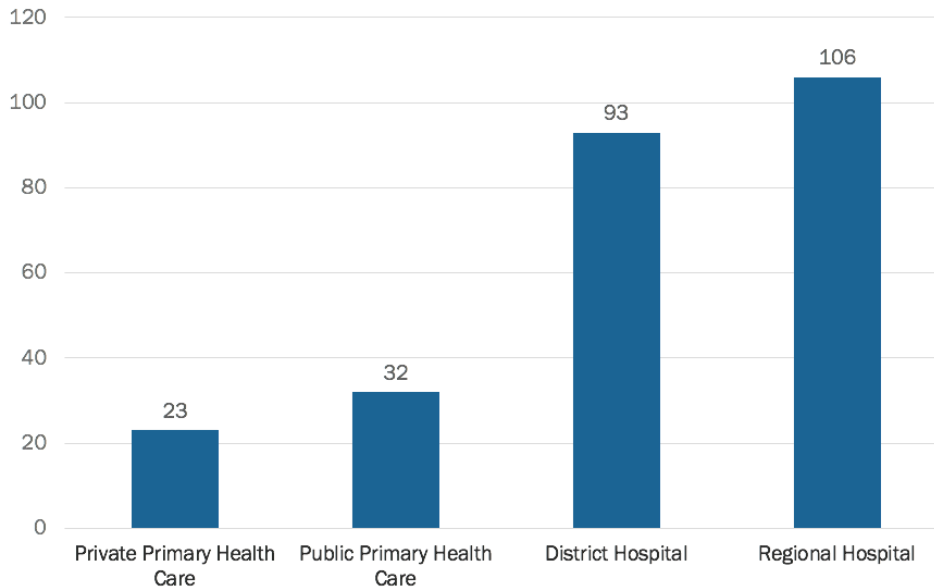
**FIGURE 73: AVERAGE HOURS OF ELECTRICITY PER DAY BY SOURCE**



## Facility Patient Volume & Number of Staff

This section on human capacity and workload provides a snapshot of how the national health system is currently functioning regarding its human resources. The average number of daily patients is highest at hospitals and lowest at PHC facilities (Figure 74).

**FIGURE 74: AVERAGE NUMBER OF DAILY PATIENTS BY LEVEL**



However, as seen in Figure 75, regional and district hospitals also have the highest number of staff, with regional hospitals having about four times as many staff as district hospitals. Though private PHC facilities have the lowest number of staff, they also have the lowest number of patients. When this is aggregated as a ratio (Figure 76), private PHC facilities have the highest number of patients per staff (2.6) followed by public PHC facilities with approximately 2 patients per staff member. Similarly, despite regional hospitals having the highest patient volumes, they have the lowest number of patients per staff (0.233), followed by private medical centers (0.7).

**FIGURE 75: AVERAGE NUMBER OF STAFF BY FACILITY TYPE**

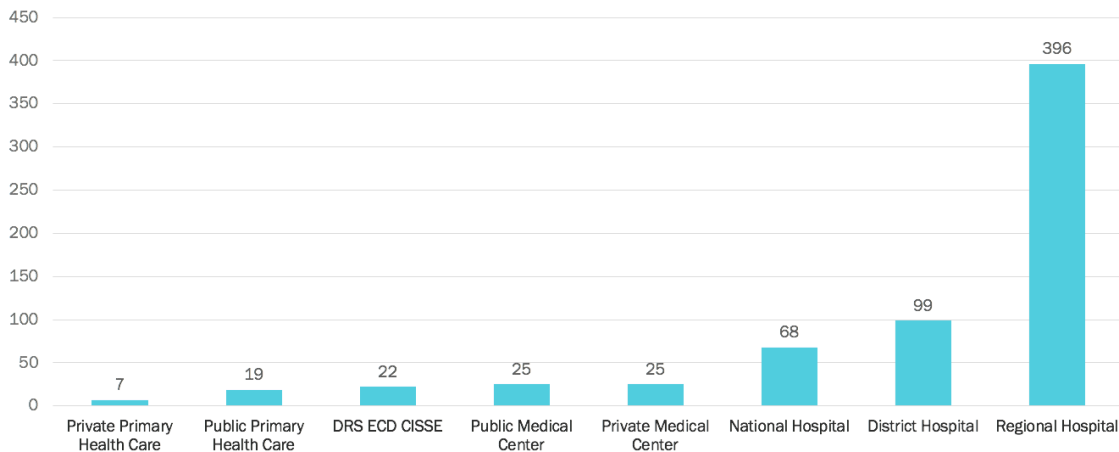
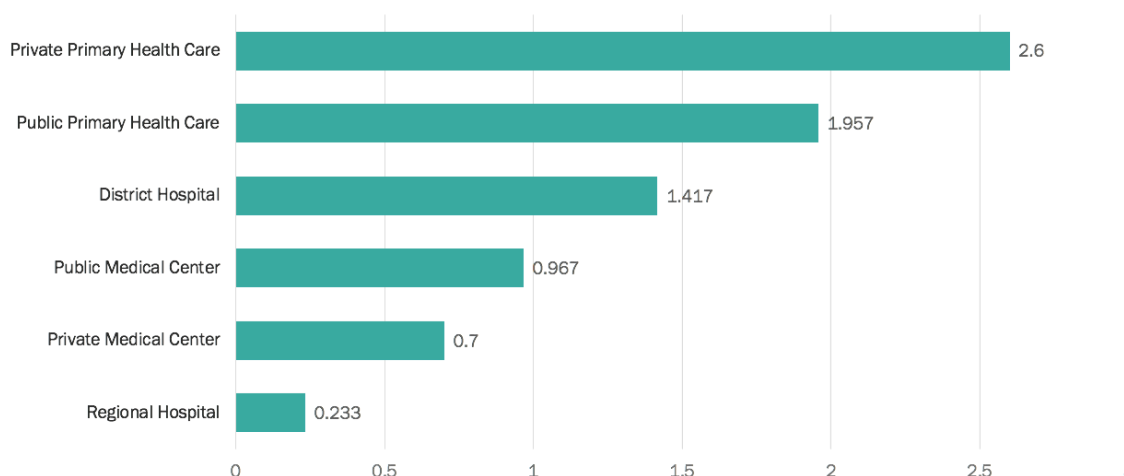


FIGURE 76: RATIO OF PATIENTS TO STAFF BY FACILITY TYPE



## STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND THREATS

Part III has provided a comprehensive overview on the functioning of the NHIS from a user perspective. Key data elements, sources, and systems that are used to make critical decision points were identified. Findings revealed who the data handlers and decision makers are as users, in addition to the environment in which they operate to complete their responsibilities. Based on this, strengths, weaknesses, opportunities, and threats were identified.

### Strengths

- While decision makers would like greater access to raw data, they generally approve of the way that data is currently presented to them.
- Data products are being developed and shared across the health system.
- Power and water are regularly available at most facilities.

### Weaknesses

- CHWs and PHC facility staff have little experience with digital devices.
- Computers, devices, and data analysis software are rarely available at the lowest levels of the health system. Computers and equipment are needed to digitize data collection and ensure timely data entry of high-quality data.
- Most data flows through the NHIS via paper, which is inefficient and decreases accessibility.
- Decision makers identified community data quality as a concern. While registers are mostly available at facilities, CHWs do not regularly have registers available to collect data.

### Opportunities

- **Align data to decision makers' needs.** Streamlining data collection sources, data elements, and ensuring they are aligned to decision makers' needs can prevent bottlenecks and the overproduction of data and shift time away from data collection to data use.



- **Consider electronic data collection and systems, accompanied by clear standards on when to use paper versus electronic systems.** Dependence on paper data collection and manual data analysis processes can be automated to improve efficiency. In Burkina Faso, 70% of respondents use paper systems. This is time consuming and prone to human error, which could affect data quality.
- **Ensure interoperability between databases, applications, and ENDOS-BF to facilitate data sharing between programs and levels of the health system.** Siloed systems and a lack of interoperability hinders decision makers' ability to make the most informed decisions and prevents sharing between programs and levels of the health system. Additionally, ENDOS-BF is not used to its full potential, and decision makers often rely on informal sources for data.
- **Present raw data to decision makers.** Our findings showed that in many cases, data are presented in an aggregated manner on paper format. Providing decision makers with the opportunity to access and explore the raw data that feed into aggregate counts can help increase confidence in the data.
- **Provide training on digital devices before decentralizing data entry.** Respondents at the lower levels of the health system reported low access to technology, data literacy, and attendance to trainings. Trainings on technology and digital devices should be deployed before decentralization of data entry at the community and facility levels takes place.
- **Share data products at all levels of the health system.** Findings reveal data is flowing up to the central level of the health system, but seldom flows back down to the facility or community levels. Given some findings that show a lack of access to technological devices and/or low technology literacy, sharing data products on paper during supportive supervision visits, instead of electronically sharing them, may be the best way to ensure data is flowing down to each level of the system.

## Threats

- The data firm Xpertis Consulting found that two-thirds of CHWs interviewed in the study had challenges understanding and answering the questionnaire in French, with many asking the questions to be repeated in a local language. This, combined with Burkina Faso's high illiteracy rate (about 59% of persons over 15 years old<sup>17</sup>), and the fact that CHWs have the lowest educational attainment of all respondents, poses important considerations for decentralization. If CHWs will be responsible for collecting and entering data into an electronic system, data collection forms may need to be available in local languages, and training on data collection and use of technology may be beneficial to ensure successful decentralization of data entry.
- Lack of internet connectivity at lower levels can threaten the decentralization of data collection.
- Infrastructure investments require a large upfront expense.

**CHWs have a low-level proficiency in speaking French and have the lowest educational attainment of all respondents, which poses important considerations for decentralization.**

17. [UNESCO Institute for Statistics. 2018.](#)







## CONCLUSION

With information from decision makers, data handlers, and other key users within the NHIS, this study has assessed the success of the NHIS Implementation Strategic Plan (2010-2020) and reported on the functioning of the NHIS as a whole.

This study found that the NHIS Strategic Plan was implemented with some success; areas of missed opportunities that can be addressed in the next strategic plan (2021-2025) were also suggested. Some significant achievements included drafting the required protocols and documents and using survey and census information to inform decision making and programming. There was coordination throughout the implementation, mHealth applications were successfully rolled out, and the National Health Accounts were completed annually. These commendable milestones have considerably improved the NHIS during the Strategic Plan's implementation period.

This study has revealed areas of improvement, both concerning NHIS Strategic Plan objectives that were not met in the last 10 years and difficulties that data handlers and decision makers have faced in their day-to-day roles. Addressing these concerns will not only improve the functioning of the NHIS, but it will also allow for changes that build upon the improvements already made and ensure users have the tools necessary to drive a successful information system. We found that information fails to flow throughout all levels of the system, whether that be action plans, procedural documents, or data products. In addition, engaging the private sector going forward would allow the NHIS to have a comprehensive view of the health system, which it is currently lacking.

With regard to the healthcare system as a whole, we gleaned several insights that if not addressed, could become significant inhibitors. Access to technology (computers, smartphones, tablets) was low, particularly at the CHW and PHC facility levels. This makes data collection, entry, and sharing difficult – a challenge that will be exacerbated should decentralization of data entry to lower levels occur. The ability of those at the community and PHC facility levels to operate these devices also raised questions concerning general literacy and digital literacy. Trainings on technology use, systems, data analysis, and data validation may be needed as findings showed that the minority of those at lower levels received such trainings and a majority were unsure of who validated data. Hence, the challenge is two-fold both in access to technology and the skills needed to operate the technology to fulfil work responsibilities.

When these devices are disseminated, to ensure access and longevity, they should be tracked in a consistent, standardized manner. Currently, findings showed that MoH inventory is tracked in an ad hoc manner. Training dedicated staff to maintain these computers will also decrease the need for external parties being called to address any technological issues. Findings also showed that, because access to

**Information fails to flow throughout all levels of the system, whether that be action plans, procedural documents, or data products.**





technology is low at the CHW and PHC facility levels, some users have resorted to using personal devices. This poses security concerns; moving forward, data security policies should be reviewed to make sure patient information is stored securely.

Inefficiencies in the current system were also identified, including manual data analysis at lower levels. Access to systems, such as Excel, that facilitate these processes and reduce human error need to be increased. As mentioned above, increased access and trainings on how to use data analysis software will ensure that users are able to complete these tasks and share data more accurately and efficiently than through a manual, paper system.

A lack of vital infrastructure, particularly internet connectivity and electricity, were reported. Respondents reiterated that this significantly impeded their ability to complete tasks. Providing data credits is a cheaper and more effective way to ensure data can be uploaded and information is shared through the system. Ensuring that effective methods of electricity are available, such as generators, and facilities understand how to maintain their energy source (such as with solar panels) will ensure that facilities and stakeholders have charged devices.

**Respondents also reported a misalignment when it came to data sources and registers. Data handlers and decision makers do not enter and retrieve, respectively, data from the same sources.**

Respondents also reported a misalignment when it came to data sources and registers. Data handlers and decision makers do not enter and retrieve data from the same sources. Data being over collected or under collected also points to a misalignment; streamlining data elements and registers will allow for both parties to know what information should be collected, and where it should be stored and found.

Finally, standards for supervisory feedback should be established; 25% of respondents reported receiving no feedback from supervisory visits. If data users receive feedback to understand what they do well, and in which areas they can improve, the capacity of the users, and consequently the NHIS, will grow.

While numerous accomplishments were made during the last NHIS Strategic Plan implementation, this study has shed light on areas of improvement that can be addressed in the next five years. These incremental improvements will ensure that users are able to efficiently complete their responsibilities and greatly benefit the system moving forward into the next phase of its progress.



# ANNEXES








## ANNEX I: NATIONAL HEALTH INFORMATION SYSTEM STRATEGIC PLAN SCORECARD


OBJECTIVE	PRIORITY INTERVENTION	SCORE
<b>Objective 1:</b> Strengthen the coordination of the entire SNIS and consultation with partners	<b>1.1:</b> Development of health information management standards and procedures	✓
	<b>1.2:</b> Establishment of a functional mechanism for coordinating subsystems	—
<b>Objective 2:</b> Ensure the implementation, monitoring and evaluation of the SNIS Strategic Plan	<b>2.1:</b> Development and Implementation of Annual SNIS Action Plans	—
	<b>2.2:</b> Monitoring and evaluation of the implementation of the strategic plan	✗
	<b>2.3:</b> Development of the new strategic plan	✗
<b>Objective 3:</b> Strengthen the SNIS in human resources in quality and number	<b>3.1:</b> Advocacy action for capacity building for the benefit of the SNIS	—
	<b>3.2:</b> Realization of continuing and ongoing training	—
<b>Objective 4:</b> Strengthen infrastructures and equipment for the benefit of the SNIS	<b>4.1:</b> Construction of adequate premises for the DGISS	✓
	<b>4.2:</b> Acquisition of equipment for the DGISS	✓
	<b>4.3:</b> Reinforcement of the computer equipment of the structures of the SNIS	—
<b>Objective 5:</b> Develop an integrated communication architecture for health data	<b>5.1:</b> Develop a plan for networking health information management structures	—
	<b>5.2:</b> Strengthening the internet connection of the MOH	✗





OBJECTIVE	PRIORITY INTERVENTION	SCORE
<b>Objective 6:</b> Increase funding for the SNIS	<b>6.1:</b> Advocacy for the financing of the strategic plan	—
<b>Objective 7:</b> Provide survey and census results in time for planning cycles	<b>7.1:</b> Development of consultation with the INSD to have timely data from the census and demographic surveys	✓
	<b>7.2:</b> Strengthening data sources by conducting specific surveys	✓
<b>Objective 8:</b> Harmonize data sources for calculating health indicators at all levels	<b>8.1:</b> Availability at all levels of the system of population data needed to calculate health indicators	✓
	<b>8.2:</b> Updating and Dissemination of the SNIS Metadata	—
<b>Objective 9:</b> Adapting indicators and collection tools to changing health information needs	<b>9.1:</b> Review of the SNIS indicators	—
	<b>9.2:</b> Evaluation and revision every five years of data collection tools	—
	<b>9.3:</b> Regular supply of all structures in support of routine data collection	✓
<b>Objective 10:</b> Improve the processing and archiving of health information at the different levels of the system	<b>10.1:</b> Implementation of an integrated and efficient tool for processing and sharing health information at all levels	—
	<b>10.2:</b> Design of a data processing software for hospitals	✓
	<b>10.3:</b> Development of the master plan of the hospital information system	—
<b>Objective 11:</b> Improve the quality of the data produced by the SNIS	<b>11.1:</b> Realization of specific supervision	—
	<b>11.2:</b> Organization of data validation activities at regional level	✓
	<b>11.3:</b> Realization of the quality control of the data of the SNIS	✓
<b>Objective 12:</b> Improve the completeness of data	<b>12.1:</b> Improving the completeness of data at the level of private and faith-based health facilities	—
	<b>12.2:</b> Development of a data collection system at community level	—



OBJECTIVE	PRIORITY INTERVENTION	SCORE
<b>Objective 13:</b> Strengthen the production and sharing of health information	<b>13.1:</b> Preparation of the main current statistical publications at national level	
	<b>13.2:</b> Strengthening statistical production at regional level	
	<b>13.3:</b> Development of National Health Accounts	
	<b>13.4:</b> Improving the dissemination of health information	
	<b>13.5:</b> Training of local decision makers, opinion leaders, the media etc. the use of health information for decision-making	
<b>Objective 14:</b> Make information available in real time	<b>14.1:</b> Creation of a SNIS website	
	<b>14.2:</b> Putting the data warehouse online	

 Activities fully accomplished

 Activities partially accomplished

 Activities not accomplished



## ANNEX II: DESK ANALYSIS DOCUMENTS

The following is the list of documents reviewed during the desk analysis:

- Annuaire statistique national 2018 du Ministère de la Santé
- Cyberstratégie sectorielle eSanté 2016-2020, Direction des Services Informatiques et de la TéléSanté (DSITS)
- Etat des lieux sur le Système National d'Information Sanitaire (SNIS) du Burkina Faso, ENSEA et HISP-WA, 2019
- Etat des lieux de la e-santé au Burkina Faso et perspectives, Dr Boukary Ouedragogo, 2019
- Evaluation de la performance du système d'information sanitaire de routine (PRISM) au Burkina Faso, Measure Evaluation, Avril 2020
- Evaluation de l'infrastructure informatique des trois ministères concernés par l'approche "Santé Unique" au Burkina Faso, Measure Evaluation, Novembre 2018
- Le Manuel de Procédure de Gestion de l'Information Sanitaire (MPGIS), DSS, 2015
- Les métadonnées des indicateurs du SNIS, DSS, 2015
- Plan d'action 2016-2017-2018-2019 de la DSS
- Plan d'amélioration de la qualité des données sanitaires (PAQDS) 2019-2020, DSS
- Plan National de Développement Economique et Social (PNDES) 2016-2020, Gouvernement du Burkina Faso
- Plan stratégique du NHIS 2010-2020, Ministère de la Santé
- Plan National de Développement Sanitaire (PNDS) 2011-2020, Ministère de la Santé
- Plan National de Développement Sanitaire (PNDS) 2011-2020, Phase 2016-2020, Ministère de la Santé
- Profil sanitaire complet du Burkina Présentation en 4 modules, Ministère de la Santé et Organisation Mondiale de la Santé, 2017
- Rapport d'évaluation du système de gestion et de la qualité des données de Routine du SNIS, DSS, Edition 2018
- Rapport sur l'état des lieux de la cartographie des applications de remontée et d'analyse au Ministère de la Santé (Burkina Faso), HISP-WCA, Janvier-Mars 2018
- Référentiel de mise en place d'un Système d'Information Hospitalier (SIH), DSIS, Janvier 2019
- Réseau de métrologie sanitaire: Evaluation du système d'information sanitaire, Direction des Etudes et de la Planification, 2008
- Stratégie nationale de santé communautaire du Burkina Faso 2019-2023
- Vérification ponctuelle (Spot check) du fonctionnement de l'Entrepôt des Données Sanitaires du Burkina Faso (ENDOS-BF), l'équipe pays du Burkina Faso au Secrétariat du Fonds mondial, Mars 2018



## ANNEX III: PARTICIPATING DISTRICTS / FACILITIES

### Boucle du Mouhoun

- CHR de Dédougou
- DRS Boucle du Mouhoun
- CM de Djibasso
- CMA de Toma
- CME de Nouna
- CSPS de Kera
- CSPS de Sirakoro
- CSPS de Pangogo
- CSPS de Toma

### Centre-Ouest

- CHR de Koudougou
- CMA de Sapoy
- CMA de Tenado
- CSPS de Tenado
- CSPS de Baganapoun
- CSPS de Kinkirsgogo
- CSPS de Koundui
- CSPS de Sapouy
- CSPS de Zaware
- CSPS de Tita
- DRS Centre-Ouest

### Centre

- Cabinet de Soins Infirmiers
- CM de Baskuy
- Clinique Herema
- Clinique Oasis
- CMA de Boulmiougou
- CSPS Secteur 03 de Ouagadougou
- CORUS
- Clinique privée de Bawomon
- CSPS de Kieme
- Clinique privée Sainte Thérèse de l'enfant Jésus
- DAF
- DFSP
- DGAP
- DGESS
- DGOS
- DGSP
- DSS
- DPSP
- DRH
- DRS Centre
- DSF
- DSIS
- DSPS
- CHU de Yalgado
- INSP
- DPV
- PADS
- PNLP
- PNT
- PSS-LS

### ST-CSUCentre-Sud

- CM de Gon-Boussougou
- CMA de Manga
- CMA de Sapone
- CSPS de Bilbalogo
- CSPS de Kassougou
- CSPS de Yansare
- CSPS de Yezoanga
- CSPS Urbain de Sapone
- DRS Centre-Sud

### Sud-Ouest

- CHR de Gaoua
- CMA de Gaoua
- CMA de Diebougou
- CSPS de Yerefoula
- CSPS Communale de Diebougou
- CSPS de Holly
- CSPS de Loto
- Clinique privée OST
- Clinique privée Cabinet de Soins Infirmiers Poni Solidarité
- DRS Sud-Ouest
- 2016-2017-2018-2019 de la DSS
- Plan d'amélioration de la qualité des données sanitaires (PAQDS) 2019-2020, DSS



## ANNEX IV: LIST OF REGISTERS

#	Register Name	Detail	Category	Facility Use
1	Active Queue Register	monitoring people living with HIV	HIV	CMA, CHR, CHU
2	Active Queue Tracking Register	monitoring people living with HIV	HIV	CMA, CHR, CHU
3	Antenatal Care (ANC) Register	Monitoring of women's antenatal care	MNCH	CSPS, CM, CMA
4	Anti-TB Treatment Sheet	Tuberculosis patient follow-up	TB	CSPS, CM, CMA
5	ASBC Health Training <5 km Register	community data management	Reporting	CSPS
6	ASBC Health Training >5 km Register	community data management	Reporting	CSPS
7	Birth Register	Parturient follow-up	MNCH	CSPS, CM, CMA, CHR, CHU
8	Cervical Cancer Screening and Management Register	Monitoring of women in the screening and management of cervical cancer patients		CHR, CHU
9	Child Card	Monitoring the child's progress	MNCH	CSPS, CM, CMA
10	Child Consultation Register	Monitoring the child's progress	MNCH	CSPS, CM
11	Child HIV Test Results Register	HIV monitoring of children	HIV	CHR, CHU
12	Children born to HIV+ Mothers Register	Monitoring of children born to HIV-positive mothers	HIV	CMA, CHR, CHU
13	CHR/CHU Consultation Register	Follow-up of the consultation in the units	Consultation/ Follow-up	CHR, CHU
14	CHR/CHU Hospital Register	Follow-up of patients hospitalized at CHR / CHU	Hospitalization	CHR, CHU
15	CHR/CHU/Polyclinic Monthly Report	Monthly report on CHR / CHU activities	Reporting	CHR, CHU
16	CHR/Polyclinic/CHU Daily Consultation Register	follow-up of patients seen in consultation	Consultation	CHR, CHU
17	CHR/Polyclinic/CHU Hospitalization Register	follow-up of hospitalized patients	Consultation	CHR, CHU
18	CM/CMA Hospitalization Register	follow-up of hospitalized patients	Consultation	CM, CMA
19	CM/CMA Monthly Report	Monthly assessment of CM / CMA and clinical activities	Reporting	CM, CMA
20	CMA Hospital Register	Follow-up of patients hospitalized at the CMA	Hospitalization	CMA
21	Community Monthly Report	Monthly report on community activities	Reporting	CSPS, CM
22	Community Reference and Counter-reference Sheet	community data management	Follow-up	CSPS
23	Compliance Register	Follow-up of patients kept under observation at the CSPS / CM	Consultation	CSPS, CM
24	Counter-Reference Register	Reporting to patients referred to the lower level	Follow-up	CMA, CHR, CHU
25	Counter-reference Sheet	feedback on referred cases	Follow-up	CMA, CHR, CHU





#	Register Name	Detail	Category	Facility Use
26	CSPS Monthly Activity Report	Monthly report on CSPS activities	Reporting	CSPS, CM
27	CSPS/CM/CMA Daily Consultation Register	follow-up of patients seen in consultation	Consultation	CSPS, CM, CMA
28	CSPS/CMA Daily Consultation Register	Nursing consultation follow-up	Consultation/ Follow-up	CSPS, CM, CMA
29	Diseases with Epidemic Potential Sheet	Notification of diseases with epidemic potential	Epidemiological surveillance	CSPS, CM
30	Doctor/Specialist Consultation Register	Follow-up of patients seen by doctors or specialists	Consultation	CMA, CHR, CHU
31	External Tracking Sheet	patient monitoring	Follow-up	CMA, CHR, CHU
32	Family Planning (FP) Register	Monitoring of women on contraception	MNCH	CSPS, CM, CMA, CHR, CHU
33	Family Planning Sheet	Monitoring of women on contraception	MNCH	CSPS, CM, CMA, CHR
34	Healthy Infant Consultation Register	Monitoring the child's progress	MNCH	CSPS, CM
35	HIV Testing and Counseling Register	Follow-up to counseling during HIV testing	HIV	CSPS, CM, CMA, CHR, CHU
36	Integrated Management of Childhood Illness (IMCI) Register	Child illness monitoring	MNCH (IMCI)	CSPS, CM, CMA
37	Integrated Management of Childhood Illness Sheet	Child illness monitoring	MNCH (IMCI)	CSPS, CM, CMA
38	Inventory Management Sheets	medication monitoring and management	Stock management	CSPS, CM, CMA
39	Malnutrition Management Register	Nutritional recovery of children	Malnutrition	CSPS, CM, CMA
40	Malnutrition Management Register (MAM/SAM)	Nutritional recovery of children	Malnutrition	CSPS, CM, CMA, CHR, CHU
41	MAM/SAM Treatment Sheet	Nutritional recovery of children	Malnutrition	CSPS, CM, CMA
42	Maternal Sheet (ANC)	Monitoring of women's antenatal care	MNCH	CSPS, CM, CMA
43	Mother-Child HIV File	Monitoring of seropositive mothers after delivery and postpartum	HIV	CSPS, CM, CMA, CHR, CHU
44	Operational Report Register	Summary of information relating to the preparatory intervention of patients in the operating room	Hospitalization	CMA, CHR, CHU
45	Partogram	Childbirth monitoring	MNCH	CSPS, CM, CMA, CHR, CHU
46	Patient File	Patient Information Tracking	Follow-up	CMA, CHR, CHU
47	Patient Transfer Sheet	patient monitoring	Follow-up	CMA, CHR, CHU
48	Pediatrics Hospitalization Register	Monitoring of children hospitalized in Pediatrics	Hospitalization	CHR, CHU
49	PLHIV Tracking Book	monitoring people living with HIV	HIV	CSPS, CM
50	Post-abortion Care Register	Monitoring of the management of abortion cases	MNCH	CMA, CHR, CHU



#	Register Name	Detail	Category	Facility Use
51	Postnatal Care (PNC) Register	Follow-up of the woman and the new after delivery	MNCH	CSPS, CM
52	Prevention of Mother to Child Transmission (PMTCT) of HIV/AIDS Register	Monitoring of HIV positive mothers during pregnancy, childbirth and postpartum	HIV	CSPS, CM, CMA, CHR, CHU
53	Reference and Counter-Reference Register	Follow-up of referred patients	Follow-up	CSPS, CM, CMA, CHR, CHU
54	Reference Register	referral of patients to the upper level	Follow-up	CSPS, CM, CMA
55	Reference/Evacuation Sheet	Follow-up of referred or evacuated patients	Follow-up	CSPS, CM, CMA, CHR
56	Resource Management Report	Assessment of the management of material and financial resources	Reporting	CSPS, CM, CMA
57	Sputum Collection Book	Sputum withdrawal monitoring	TB	CSPS, CM
58	Sputum Sample Forms	monitoring and management of sputum samples	TB	CSPS, CM
59	TB Laboratory Register	monitoring the management of laboratory tests related to tuberculosis	TB	CMA, CHR, CHU
60	TB Treatment Register	Monitoring of tuberculosis care	TB	CSPS, CM, CMA, CHR, CHU
61	Transmission Book	patient follow-up document	Follow-up	CSPS, CM, CMA, CHR, CHU
62	Triage, Evaluation, and Emergency Treatment Sheet	childcare	MNCH	CMA, CHR, CHU
63	Vaccination Register	Vaccine and vaccination monitoring	Immunization	CSPS, CM



## ANNEX V: LIST OF IDENTIFIED ACTIVE SYSTEMS AND APPLICATIONS IN THE NHIS

#	Application/System	Software	Organization in charge/ owning the tool	Application use
1	Allolafia	Unknown	Gret	Care delivery
2	Analyse des Goulots d'Etranglement (AGE)	Excel	UNICEF	Surveillance
3	ARBOVIROSE	Excel	DPSP (SE)	Surveillance (Dengue)
4	Base CBM	Excel	ECD	Care delivery
5	Base DDT	Excel	DSF	Care delivery
6	Base de Données de Campagne CPS / Base CPS	Excel	PNLP	Care delivery
7	Base de monitoring	Excel	UNICEF	N/A
8	Base délégation des taches	Excel	DPSP	Care delivery
9	Base Filariose Lymphatique	Excel	DPSP (MTN)	Care delivery
10	BASE IRAS	Epi Info	DPSP (SE)	Surveillance
11	Base PFPP	Access	DSF	RMNCH
12	Base SIMR	Access	DPSP (SE)	Surveillance
13	Base Vitamine A	Excel	DN	Care delivery
14	Base_CHR	Epi Info	CHR	Surveillance
15	BD Fièvre jaune	Epi Info	DPV	Immunization status and suspected cases
16	BD Hib	Epi Info	DPV	Surveillance
17	BD HIV/SIDA	Excel	PSSLS	Care delivery
18	BD Invagination intestinale aigue	Epi Info	DPV	Surveillance
19	BD PEV	DHIS2	DPV	Surveillance
20	BD PFA	Epi Info	DPV	Surveillance
21	BD rotavirus/norovirus	Epi Info	DPV	Surveillance
22	BD rougeole	Epi Info	DPV	Surveillance
23	BD TNN	Epi Info	DPV	Surveillance
24	BDD TIDC / TIDC	Excel	DPSP (MTN)	Care delivery
25	BDIM		DPSP (MTN)	Surveillance



#	Application/System	Software	Organization in charge/ owning the tool	Application use
26	Carte de score	Unknown	DPPO	RMNCH
27	Cartes_ArcGis	ARC GIS	DPSP	Mapping
28	Cartes_QGIS	QGIS	PNLP	Mapping
29	Channel	Unknown	DSF	Pharmacy
30	CORONA DETECT	android	DSIS	Surveillance Covid-19
31	CORONA TRIAGE	android	DSIS	Surveillance Covid-19
32	CORONA VOYAGE	android	DSIS	Surveillance Covid-19
33	DHIS2 - Malaria Data on indoor spraying	DHIS2	PNLP	Malaria Data on indoor spraying
34	DHIS2 - Malaria Routine data	DHIS2	PNLP	Malaria Routine data
35	DHIS2 OOAS	DHIS2	DPSP	RMNCH
36	DHIS2-Covid-19	DHIS2	CORUS	Surveillance and care delivery
37	DHIS2-TB	DHIS2	PNT	TB
38	DVD-MT	Access	DPV	Immunization/surveillance
39	E-Gratuite	DHIS2	ST/CSU	RMNCH
40	e-Meningite	PHP 5.6; Bootstrap CSS3; HTML5 ; JavaS- cript; MANGO DB	CORUS	Surveillance
41	E-SANTE	Unknown	DPSP (SE)	Care delivery and Surveillance
42	End Use Verification	Unknown	PNLP	LMIS
43	ENDOS-BF	DHIS2	DSS	Routine surveillance/ RMNCH
44	ENDOS-BF Capture ( tracker)	DHIS2	DSS	ENDOS-BF
45	ENT*K	Unknown	CHR	Patient register
46	Epi Info_DPSP	Epi Info	DPSP (SE)	RMNCH
47	EPI Info_PNLP	Epi Info	PNLP	Malaria
48	Epi_DS	Epi Info	DPSP	Surveillance
49	ESOPE National	Unknown	CHR	Care delivery
50	ESPEN	ODK (JAP)	DPSP (MTN)	Data collection on 4 NTD (Lymphatic filari- asis, Onchocerciasis, Schistosomiasis and Helminthiasis)
51	Excel_DGAP	Excel	DGAP	Pharmacy



#	Application/System	Software	Organization in charge/ owning the tool	Application use
52	Excel_DGAP_Labo	Excel	DGAP	Pharmacy
53	Excel_DLM (TLOH) / TLOH	Excel	DPSP (SE)	RMNCH
54	Excel_DLM_PNL	Excel	DPSP (SE)	RMNCH (TLOH)
55	EXCEL_DS	Excel	DPSP	Labs/surveillance
56	Excel_DSF	Excel	DSF	HIV/PMTCT
57	Excel_DSF_Pharmacy	Excel	DSF	Stock Pharmacy (region/district)
58	EXCEL/Suivi enfant né mère HIV+	Excel	ECD	HIV/PMTCT
59	GADMI	Unknown	CHR	Patient register
60	GB	Access	CHR	Budget management for hospitals
61	GESDIS	Unknown	CHR	Stock management
62	GESTOCK	Unknown	CHR	Stock management
63	GFC	Unknown	CHR	Stock management
64	Gfour	SQL	CHR	Resource manage- ment
65	GSA	Unknown	CHR	Finance
66	Helpdesk	Excel	ECD	Admin
67	Hmapper	Health mapper	DGESS	Routine
68	HNBCDOOR(BC)	Unknown	CHR	Exhaustive system for the hospital: patient register, drugs management, HR and admin, room manage- ment
69	Integrated NTD database	Access	MTN	Care delivery
70	Line liste (base SIMR)	Access	DLM	Surveillance
71	Liste descriptive (idem que line liste)	Access	DPSP	Surveillance
72	LLIN Distribution	Excel	PNLP	Malaria (MILDA)
73	LogGHR (Logiciel de Gestion des Ressources Humaines)	Unknown	DHR	HR
74	mData	Unknown	ECD	Surveillance
75	Mhealth (Rapidpro)	DHIS2	DSF	RMNCH
76	mMentoring	Unknown	Jhpiego	HR
77	mMentoring	Unknown	PNLP	Data quality and care delivery data on malaria



#	Application/System	Software	Organization in charge/ owning the tool	Application use
78	mMonitoring	Unknown	PNLP	Data quality and care delivery data on malaria
79	Monitoring SONU	Access	DSF	Urgency care for new-born and infants
80	MS_courriel	Maarch	DAD	Admin
81	MTN (surveillance)	Excel	MTN	Surveillance
82	NET SIGL	DHIS2	DGAP	LMIS
83	NGSD_DB	Access	DPSP	Surveillance
84	One Health	DHIS2	CORUS	Surveillance
85	PACS	Unknown	CHR	Patient register
86	PANDA	Unknown	Enfant du Monde	Care delivery
87	QGIS_PNL	QGIS	PNLP	Malaria
88	REC Maternité	CommCare	DSF	MNCH
89	REC-TB	DHIS2	PNT	TB
90	RED-CAP	Unknown	CHR	Care delivery
91	Registre électronique de consultation (REC)	CommCare	DSF	RMNCH
92	RESINA (RESeau Informatique National de l'Administration)	WiMax(Worldwide Interoperability for Microwave Access)	MoH des TIC	Administration
93	RESPIRE	Epi Info	DLM	Surveillance
94	RSLOG	Unknown	DSF	RMNCH
95	SAGE	Unknown	CHR	Stock management
<b>Billing, admin, and finances</b>	Integrated NTD database	Access	MTN	Care delivery
96	SANCOTIC	Unknown	DSF	CHW remote training
97	SAYANA PRESS	Excel	DSF	RMNCH
98	SGPA	Unknown	CHR	HR
99	SIGASPE (Système Intégré de Gestion Administrative et Salariale des Personnels de l'Etat)	Unknown	DHR	HR
100	SIGEP	SQL	CHR	Finance (Hospital)
101	SIGO	Unknown	CHR	Patient register
102	SiHGHR	Unknown	CHR	HR



#	Application/System	Software	Organization in charge/ owning the tool	Application use
103	SMC	Excel	PNLP	Malaria
104	SNPF	Excel	DSF	FP
105	STELAB	PHP 5.6, Bootstrap CSS3, HTML5, JavaScript) and MongoDB, a NoSQL (Big Data) database compatible with MySQL	CHR	Labs/surveillance
106	STELAB	PHP 5.6, Bootstrap CSS3, HTML5, JavaScript) and MongoDB, a NoSQL (Big Data) database compatible with MySQL	DPSP (SE)	Surveillance (MCS)
107	Tableau de bord REC	Excel	Tdh	Care delivery IMCI at the district level.
108	TROPICAL DATA	OPEN ROSA	DPSP (MTN)	Data collection survey trachoma
109	VGS 2000	Access	CHR	Drugs management
110	WINPHARMA	Unknown	CHR	LMIS





# ANNEX VI: SURVEY QUESTIONS

## NHIS STRATEGIC PLAN IMPLEMENTATION SURVEY

### Introduction

1. What is your name?
2. What is your job title?
3. Please describe your 3 primary job duties.
  - a. Are there additional duties that you perform that are not part of your formal job requirements?
4. How long have you been in this position?
  - Less than 1 year
  - 1-2 years
  - 2-5 years
  - 5-10 years
  - 10+
5. What is your highest level of education?
  - Secondary School (High/Grammar School or equivalent)
  - Bachelor's degree or equivalent
  - Master's Degree
  - Doctoral Degree (PhD or equivalent)
  - Vocational/Professional Qualifications
  - Other\_\_\_\_\_ (specify)
6. Please describe any additional formal trainings that you've received (e.g., data analysis, data use, communication, etc.).

### What SNIS Plan objective(s) is/are your role related to?

1. Please describe your role with the SNIS Plan:
  - a. Implementer
  - b. Decision Maker
  - c. M&E
  - d. Strategist
  - e. Other (specify)\_\_\_\_\_
2. Please indicate which SNIS Plan Objective(s) your role focused on (Interviewer Instructions: select all that apply and then ask questions related to the selected objectives):
  - a. Objective 1: Strengthen the coordination of the entire SNIS and consultation with partners
  - b. Objective 2: Ensure the implementation, monitoring and evaluation of the SNIS Strategic Plan
  - c. Objective 3: Strengthen the SNIS in human resources in quality and number
  - d. Objective 4: Strengthen infrastructures and equipment for the benefit of the SNIS
  - e. Objective 5: Develop an integrated communication architecture for health data
  - f. Objective 6: Increase funding for the SNIS
  - g. Objective 7: Provide survey and census results in time for planning cycles
  - h. Objective 8: Harmonize data sources for calculating health indicators at all levels



- i. Objective 9: Adapting indicators and collection tools to changing health information needs
- j. Objective 10: Improve the processing and archiving of health information at the different levels of the system
- k. Objective 11: Improve the quality of the data produced by the SNIS
- l. Objective 12: Improve the completeness of data
- m. Objective 13: Strengthen the production and sharing of health information
- n. Objective 14: Make information available in real time

## Axis #1 – Strengthening Planning, Coordination and Leadership

### Objective 1: Strengthen the coordination of the entire SNIS and consultation with partners

1. Were health information management standards and procedures developed and distributed?
  - a. Yes
  - b. No
    - i. (If yes) How were they validated?
    - ii. (If yes) At what levels were they distributed?
    - iii. (If yes) How were staff trained on the standards?
    - iv. (If yes) How are the different levels implementing these standards and procedures?
    - v. (If no) Please explain why?
2. Within the health information management standards and procedures, is there a policy around data being stored locally vs. in the cloud?
  - a. Yes
  - b. No
    - i. (If yes) What is the policy?
3. Where is the majority of health information currently being stored?
  - a. Filing Cabinet of Physical Space
  - b. Internal (Ministry) Physical Server
  - c. External (Outside MOH) Physical Server
  - d. Internal (Ministry) Cloud Server
  - e. External (Outside MOH) Cloud Server
  - f. Other (specify) \_\_\_\_\_
4. Based on the standards and procedures, how is sensitive, health related data being protected?
5. Are staff at all levels aware of this provision?
  - a. Yes
  - b. No
6. Are staff at all levels trained on this provision?
  - a. Yes
  - b. No
7. Was a consultation meeting held to discuss developing a coordination mechanism?
  - a. Yes
  - b. No



- i. (If no) Why not?
- 8. Was a coordination committee for health information systems created?
  - a. Yes
  - b. No
    - i. (If yes) Was the committee ratified by an administrative act?
      - 1. Yes
      - 2. No
    - ii. (If yes) What committees were established?
      - 1. how often do they each meet?
      - 2. If meetings take place less than semi-annually, please explain why.
    - iii. (If yes) Did any committees establish sub-committees?
      - 1. Yes
      - 2. No
        - a. If yes, which ones?
    - iv. (If yes) What have been the main accomplishments of the committees to date?
    - v. (If no) Why not?
- 9. What lessons were learned in completing the activities?

## Objective 2: Ensure the implementation, monitoring and evaluation of the SNIS Strategic Plan

1. Were SNIS Guidelines for the development of Annual SNIS Action Plans developed?
  - a. Yes
  - b. No
    - i. (If yes) At what levels were they distributed?
    - ii. (If no) Why not?
2. Were Annual SNIS Action Plans developed each year of the SNIS?
  - a. Yes
  - b. No
    - i. (If yes) Who (Interviewer Instructions: probe for role instead of name) validated the action plans?
    - ii. (If no) Why not?
3. In the development of the Annual SNIS Action Plan, are past indicators/data sets referenced?
  - a. Yes
  - b. No
    - i. (If yes) Which ones and what system/s do they come from?
    - ii. (If no) What type of information/data is referenced?
      1. What is their source?
4. Once developed, how are annual plans communicated or disseminated to different levels/partners?
  - a. Are there opportunities to improve this coordination?
5. Was a mid-term evaluation of the SNIS Plan conducted?
  - a. Yes
  - b. No
    - i. (If yes) When was the mid-term evaluation conducted?
    - ii. (If yes) What lessons were learned from the mid-term evaluation?



- iii. (If no) Why not?
- 6. Was a new strategic plan developed based on the mid-term evaluation?
  - a. Yes
  - b. No
    - i. (If yes) When was it developed?
    - ii. (If no) Why not?
- 7. Are there specific data, indicators or systems used to monitor and evaluate the performance of the SNIS Plan?
  - a. Yes
  - b. No
    - i. (If yes) What indicators or data sets are collected? (Interviewer Instructions: Answer questions ii-ix for each response received to this questions)
    - ii. (If yes) How frequently is the indicator monitored?
    - iii. (If yes) What decisions do you make with the data?
    - iv. (If yes) Which data elements/indicators do you use to make this decision?
    - v. (If yes) Where do you access the information to make this decision?
    - vi. (If yes) How often do you access this information?
    - vii. (If yes) How do you use this information?
    - viii. (If yes) How is the quality of data/indicator verified?
    - ix. (If yes) If data is missing or inaccurate, how is it corrected?
    - x. (If no) How do you validate the SNIS Plan activities?
- 10. Were annual SNIS Plan reports produced?
  - a. Yes
  - b. No
    - i. (If yes) Who were they distributed to?
    - ii. (If no) Why not?
- 11. What lessons were learned in completing the activities?

## Axis #2 – Strengthening Human, Financial, Equipment and Infrastructure Resources

### Objective 3: Strengthen the SNIS in human resources in quality and number

- 1. Were the positions, profiles and staffing requirements of the SNIS defined?
  - a. Yes
  - b. No
    - i. (If yes) How were they defined and documented?
    - ii. (If no) Why not?
    - iii. (If no) How were the staffing requirements determined?
- 2. Did the SNIS have sufficient human resources to complete the activities?
  - a. Yes
  - b. No
- 3. Were additional people hired to carry out activities within the SNIS?
  - a. Yes



- b. No
  - i. (If yes) How many?
  - ii. (If yes) Were the positions permanent or temporary?
- 4. What is the average education level of staff?
- 5. On average how many years of experience do staff have?
- 6. On average, how many people were hired to carry out the SNIS?
- 7. What type of trainings are available to staff when first hired?
- 8. On average, what % of staff participate in the trainings?
- 9. What types of trainings are available to staff on an ongoing basis?
- 10. What % of staff take advantage of ongoing trainings?
- 11. Was a SNIS Plan training plan developed?
  - a. Yes
  - b. No
    - i. (If yes) Who validated the training plan?
    - ii. (If no) Why not?
- 12. Did at least five people receive short courses in epidemiology, statistics or computer science each year?
  - a. Yes
  - b. No
    - i. (If yes) What type of staff were selected for the training?
    - ii. (If yes) How were the participants selected?
    - iii. (If no) Why not?
- 13. Did at least two people receive long-term training in epidemiology, statistics or computer science each year?
  - a. Yes
  - b. No
    - i. (If yes) What type of staff were selected for the training?
    - ii. (If yes) How were the participants selected?
    - iii. (If no) Why not?
- 14. Was training curricula related to the SNIS Plan developed or reviewed in vocational schools?
  - a. Yes
  - b. No
    - i. (If yes) What schools have SNIS training curricula?
    - ii. (If no) Why not?
- 15. What lessons were learned in completing the activities?

#### **Objective 4: Strengthen infrastructures and equipment for the benefit of the SNIS**

- 1. Was construction completed on the DGISS?
  - a. Yes
  - b. No
    - i. (If yes) What technical studies were conducted on building the DGISS?
    - ii. (If no) Why not?
- 2. Was equipment purchased for the DGISS?
  - a. Yes



- b. No
  - i. (If yes) What type of equipment was purchased for the DGISS (Interviewer Instructions: probe for hardware/software, computers, furniture, etc.)?
  - ii. (If no) Why not?
- 3. Was any equipment procured for facility/district levels in conjunction with the DGISS construction?
  - a. Yes
  - b. No
    - i. (If yes) What and where?
- 4. Are servers located on the premise of the DGISS?
  - a. Yes
  - b. No
- 5. Were vehicles acquired for the DGISS?
  - a. Yes
  - b. No
    - i. (If yes) How many were acquired?
    - ii. (If no) Why not?
- 6. Was a computer equipment plan developed?
  - a. Yes
  - b. No
- 7. Are computers available at the DGISS?
  - a. Yes
  - b. No
- 8. What percentage of regions have working computers available?
- 9. What percentage of hospitals have working computers available?
- 10. What percentage of districts have working computers available?
- 11. Were equipment standards developed and disseminated across the different levels of the health system?
  - a. Yes
  - b. No
    - i. (If no) Why not?
- 12. Was a computer maintenance guide developed and disseminated across the different levels of the health system?
  - a. Yes
  - b. No
    - i. (If no) Why not?
- 13. Were SIEM, CISSE and SIE managers trained in the preventive and first-level maintenance of computer equipment?
  - a. Yes
  - b. No
    - i. (If yes) When did this training take place?
    - ii. (If no) Why not?
- 14. Who do managers go to for other computer equipment maintenance needs?
- 15. Were all SNIS structures provided archival furniture (Interviewer Instructions: this includes filing cabinets, shelving, etc.)?



- a. Yes
  - b. No
    - i. (If no) Why not?
    - ii. (If no) What percentage of structures received archival storage?
16. What lessons were learned in completing the activities?

### Objective 5: Develop an integrated communication architecture for health data

1. Was a study conducted on networking health information management structures?
  - a. Yes
  - b. No
    - i. (If yes) When was it conducted?
    - ii. (If yes) What were the main findings?
    - iii. (If no) Why not?
2. Was a plan developed for networking health information management structures?
  - a. Yes
  - b. No
    - i. (If yes) How has that plan been implemented?
    - ii. (If yes) Was a team developed to oversee the networking process?
      1. Yes
      2. No
        - a. (If yes) How is the team structured?
    - iii. (If no) Why not?
3. Are health information management structures networked?
  - a. Yes
  - b. No
    - i. (If yes) How?
    - ii. (If yes) Is it compatible with the warehouse?
4. What percentage of districts and facilities have access to the internet?
  - a. (If internet is available) How many hours a day do facilities have access to the internet?
  - b. (If internet is not available) How does information flow into the system?
5. What lessons were learned in completing the activities?

### Objective 6: Increase funding for the SNIS

1. What role do you have in contributing to the budget execution rate?
2. What budget information do you provide to others (Interviewer Instructions: Others can include MOH, MOF, partners, etc.)?
3. How do you provide that information?
4. Who do you provide budget information to?
5. What do you think they do with the budget information?
6. Was a round table of technical and financial partners organized for financing of the strategic plan?
  - a. Yes
  - b. No





- i. (If yes) How often does this take place?
  - ii. (If yes) What types of partners participate?
  - iii. (If yes) Have additional partners been identified as a result of the round table?
  - iv. (If no) Why not?
- 7. How was the SNIS budget developed?
  - a. Which data or key decision makers influenced the budget development?
  - b. Who approved the final budget?
- 8. How much is allocated to the SNIS (on average, annually) and what percent is partner vs. donor vs. government funding?
- 9. How are actual expenditures tracked?
  - a. What system is used to track expenditures?
  - b. What process is used to compare actual versus budgeted expenditures?
- 10. Can you provide a comprehensive list of expenditure subcategories that are tracked?
- 11. If possible, please provide last year's budget & actual expenditures.
- 12. What type of advocacy activities take place for increasing the SNIS budget?
  - a. What type of advocacy activities have been most effective for increasing the SNIS budget?
  - b. If none take place, why not?
- 13. What lessons were learned in completing the activities?

### Axis #3 – Improving the Production, Management and Quality of Health Data

#### Objective 7: Provide survey and census results in time for planning cycles

1. What key surveys were completed during the SNIS Plan implementation?
  - DHS
  - National Survey on the Prevalence of TB
  - National Survey on Vaccination Coverage
  - National Survey on Nutrition (every 2 years)
  - National Malaria Survey (every two years)
  - Supply Care Mapping Survey
2. For each survey completed, please answer the following:
  - a. When was the survey completed?
  - b. Who funded the survey?
  - c. How were the results used?
  - d. Were the surveys completed according to the timeline?
  - e. How were the survey results integrated into the Ministry of Health planning process?
3. If any surveys were not completed, please explain why?
4. Did the INSD provide population data to the SNIS?
  - a. Yes
  - b. No
    - i. (If no) Why not?
5. What lessons were learned in completing the activities?



## Objective 8: Harmonize data sources for calculating health indicators at all levels

1. Did the SNIS develop standardized population data?
  - a. Yes
  - b. No
    - i. (If yes) At what levels was it distributed?
    - ii. (If no) Why not?
2. Was guidance developed for target population numbers needed to calculate NHIS indicators?
  - a. Yes
  - b. No
    - i. (If yes) At what levels was it distributed?
    - ii. (If no) Why not?
3. Was SNIS metadata validated
  - a. Yes
  - b. No
    - i. (If yes) How was the metadata validated?
    - ii. (If no) Why not?
4. Was the SNIS metadata documented and disseminated?
  - a. Yes
  - b. No
    - i. (If yes) At what levels was it distributed?
    - ii. (If no) Why not?
5. Was a regional CISSE leadership training workshop on SNIS metadata held?
  - a. Yes
  - b. No
    - i. (If yes) When did the training take place?
    - ii. (If yes) Who participated (Interviewer Instruction: focus on roles instead of names)?
    - iii. (If no) Why not?
6. What lessons were learned in completing the activities?

## Objective 9: Adapting indicators and collection tools to changing health information needs

1. Was a survey on health information needs conducted?
  - a. Yes
  - b. No
    - i. (If yes) When was it conducted?
    - ii. (If yes) What were the main findings?
    - iii. (If no) Why not?
2. Was a SNIS indicators review workshop conducted?
  - a. Yes
  - b. No
    - i. (If yes) When was it conducted?
    - ii. (If yes) Who participated (Interviewer Instructions: focus on role instead of names)?
    - iii. (If no) Why not?



3. Was a study conducted on integrated data collection tools?
  - a. Yes
  - b. No
    - i. (If no) Why not?
4. Was an integrated data collection tool development workshop organized?
  - a. Yes
  - b. No
    - i. (If yes) When did it take place?
    - ii. (If yes) Who participated (Interviewer Instructions: focus on role instead of names)?
    - iii. (If no) Why not?
5. Were new data collection tools developed?
  - a. Yes
  - b. No
    - i. (If yes) Which data collection tools were updated and when?
    - ii. (If yes) How were the tools tested?
    - iii. (If yes) When were the tools developed?
    - iv. (If no) Why not?
6. Were CISSE Managers of DRS, DS and SIH trained on using harmonized and integrated tools?
  - a. Yes
  - b. No
    - i. (If yes) When did this training take place?
    - ii. (If no) Why not?
7. Were facility staff trained on using harmonized and integrated tools?
  - a. Yes
  - b. No
    - i. (If yes) When did this training take place?
    - ii. (If no) Why not?
8. Were the new data collection tools distributed to all health facilities?
  - a. Yes
  - b. No
    - i. (If yes) How do facilities request additional data collection tools if they run out?
    - ii. (If no) Why not?
9. What lessons were learned in completing the activities?

**Objective 10: Improve the processing and archiving of health information at the different levels of the system**

1. Were the specifications for the integrated data warehouse with web interface documented?
  - a. Yes
  - b. No
    - i. (If no) Why not?
2. Was the integrated data warehouse with web interface designed and developed?
  - a. Yes
  - b. No



- i. (If yes) Where was it tested?
  - ii. (If yes) Who has access to the web interface?
  - iii. (if yes) What levels is it available at?
  - iv. (If no) Why not?
- 3. Was the functionality of the data warehouse tested in three pilot regions?
  - a. Yes
  - b. No
    - i. (If yes) In what regions?
    - ii. (If no) Why not?
- 4. Was the integrated data warehouse deployed at all levels (e.g., district, region and central)?
  - a. Yes
  - b. No
    - i. (If no) Why not?
- 5. Were users trained on the data warehouse across all levels (district, region and central)?
  - a. Yes
  - b. No
    - i. (If no) Why not?
- 6. Were the specifications for the hospital data processing software compatible with the data warehouse documented?
  - a. Yes
  - b. No
    - i. (If no) Why not?
- 7. Was a hospital data processing software designed and developed?
  - a. Yes
  - b. No
    - i. (If yes) Was the hospital software tested in at least 2 CHUs and 3 CHRs?
      - 1. Yes
      - 2. No
        - a. (If yes) What CHUs and CHRs tested the functionality?
        - b. (If no) Why not?
    - ii. (If yes) At what hospitals was the software deployed?
    - iii. (If yes) Were users (SIH, CUS, SUS and SUT) trained on the software? When?
    - iv. (If no) Why not?
- 8. Was a master plan for the hospital information system developed?
  - a. Yes
  - b. No
    - i. (If yes) How is it being implemented?
    - ii. (If yes) How is progress being measured?
    - iii. (If no) Why not?
- 9. What lessons were learned in completing the activities?

**Objective 11: Improve the quality of the data produced by the SNIS**

- 1. How often is supportive supervision performed at the regional level? At hospitals?



2. Were supportive supervision guidelines developed?
  - a. Yes
  - b. No
    - i. (If yes) Who were these distributed to?
    - ii. (If yes) Does supportive supervision adhere to the guidelines?
    - iii. (If no) Why not?
3. How is feedback on data collection, reporting and quality provided?
4. Who provides this feedback and to whom?
5. Was an integrated data validation guide for the SNIS developed?
  - a. Oui
  - b. Non
    - i. (If yes) What levels was it distributed to?
    - ii. (If yes) How was it validated?
    - iii. (If no) Why not?
6. Do you perform any analysis of the data?
  - a. Yes
  - b. No
    - i. (If yes) how, which ones and how frequently?
7. How is SNIS data validated?
8. How often is SNIS data validated?
  - a. Daily
  - b. Weekly
  - c. Monthly
  - d. Quarterly
  - e. Bi-annually
  - f. Annually
9. By whom?
10. Was a data quality survey manual for the NHIS developed?
  - a. Yes
  - b. No
    - i. (If no) Why not?
11. Was a data quality audit conducted for the SNIS?
  - a. Yes
  - b. No
    - i. (If yes) How often is the DQA conducted?
    - ii. (If yes) When were the DQAs conducted?
    - iii. (If no) Why not?
12. What lessons were learned in completing the activities?

### Objective 12: Improve the completeness of data

1. Is data collected at private and religious health facilities in Ouagadougou and Bobo-Dioulasso?
  - a. Yes
  - b. No



- i. (If yes) Which data is collected?
  - ii. (If yes) How does the data flow through the system?
  - iii. (If yes) Where is the data stored?
  - iv. (If no) Why not?
2. Is the national directory of private health facilities updated and available?
  - a. Yes
  - b. No
    - i. (If yes) Who is it available to?
    - ii. (If no) Why not?
3. When was the last census of private and faith-based health facilities conducted?
4. Was a workshop on the community-based subsystem organized and held?
  - a. Yes
  - b. No
    - i. (If yes) When was it held?
    - ii. (If yes) What lessons learned were identified?
    - iii. (If no) Why not?
5. Were integrated data collection tools developed for the community level?
  - a. Yes
  - b. No
    - i. (If yes) What tools were developed?
    - ii. (If yes) Were communities trained on the data collection? When?
    - iii. (If no) Why not?
6. Were the new data collection tools distributed to all communities?
  - a. Yes
  - b. No
    - i. (if yes) How do communities request additional data collection tools if they run out?
    - ii. (If no) Why not?
7. Is data collected on NGOs -RENCAP and OBCE?
  - a. Yes
  - b. No
    - i. (If yes) Which data is collected?
    - ii. (If yes) Were the NGOs trained on data collection? When?
    - iii. (If yes) Where is it stored?
    - iv. (If yes) How is the data processed?
    - v. (If yes) Was a tool developed to process the data?
      1. Yes
      2. No
        - a. (If no) Why not?
    - vi. (If no) Why not?
8. Was CISSE trained on the data collection tools for NGO-RENCAP?
  - a. Yes
  - b. No
    - i. (If no) Why not?
9. What lessons were learned in completing the activities?



## Axis #4 – Improving the Production, Dissemination and Use of Health Data

### Objective 13: Strengthen the production and sharing of health information

1. What statistical documents are produced each year at the national level and how often? (Interviewer Instructions: Select all that apply and ask to see the documents. If documents are not available, please indicate)?
  - a. Annual report
  - b. Health newsletters
  - c. Dashboard
  - d. Other (specify) \_\_\_\_\_
2. Who are the documents shared with? How are they shared?
3. Was a regional directory developed?
  - a. Yes
  - b. No
    - i. (If yes) Did it include all 13 regions?
      1. Yes
      2. No
        - a. (If no) Why not?
        - b. (if no) How many regions were included?
    - ii. (If yes) Was it disseminated to local decision makers and facilities?
    - iii. (If no) Why not?
4. Was an IT tool for managing health financing data developed?
  - a. Yes
  - b. No
    - i. (If yes) What is the tool?
    - ii. (If yes) When was it deployed?
    - iii. (If yes) Who is using the tool?
    - iv. (If not) Why not?
5. How often are the National Health Accounts completed?
  - a. Annually
  - b. Every two years
  - c. Every three years
  - d. Every four years
  - e. Every five years or longer
    - i. If not completed annually, please explain why.
6. When was the last NHA completed?
7. Were the following sub-accounts included in the last NHA?
  - a. Malaria
  - b. TB
  - c. HIV/SIDA
  - d. Reproductive Health
8. Was a manual developed to provide guidance on presenting and disseminating health information?





- a. Yes
  - b. NO
    - i. (If yes) Who participated in the development of the manual?
    - ii. (If yes) Was a validation workshop held?
    - iii. (If yes) Who was it distributed to?
    - iv. (If yes) How is it being implemented?
    - v. (If no) Why not?
9. Were health statistic days organized?
- a. Yes
  - b. No
    - i. (If yes) How often were they held?
    - ii. (If yes) At what level were they held?
    - iii. (If no) Why not?
10. What trainings were provided to stakeholders in the use of health information for decision making?
- a. What materials were used?
  - b. What stakeholders were trained?
  - c. When did the training take place?
  - d. If no trainings took place, please explain why.
11. What lessons were learned in completing the activities?

#### Objective 14: Make information available in real time

1. Was a SNIS website created?
- a. Yes
  - b. No
    - i. (If yes) Is SNIS data available on the website?
      - 1. Yes
      - 2. No
    - ii. (If yes) What other data is available on the website?
    - iii. (If yes) Where is this data stored?
    - iv. (If no) Why not?
2. How do people access the data?
3. Which data visualizations are available?
4. Is the data warehouse connected to the internet with access rights & security?
- a. Yes
  - b. No
    - i. (If no) Why not?
5. Do functionalities exist to produce online health information coupled with geographical information systems?
- a. Yes
  - b. No
    - i. (If no) Why not?
6. What lessons were learned in completing the activities?



# NHIS EVALUATION FACILITY PROFILE

## Part I: General Facility Questions

- 1.01 Collect GPS location [Interviewer Instructions – collect on device if possible]
- 1.02 What is the typical outpatient department patient volume at this clinic per day?
- 1.03 Is this facility within city limits?
- Yes
  - No
- 1.04 How many staff are at this facility? \_\_\_\_\_
- 1.05 Check all of the staff that are based primarily at this facility and record the number:
- Administration Staff \_\_\_\_\_
  - MD/Medical Doctor \_\_\_\_\_
  - Clinical Officers \_\_\_\_\_
  - Nurse/Nurse in Charge/Nurse Midwife Technician \_\_\_\_\_
  - Medical Assistants \_\_\_\_\_
  - HMIS Officer \_\_\_\_\_
  - Data Clerk \_\_\_\_\_
  - HSA \_\_\_\_\_
  - Cleaner \_\_\_\_\_
  - Community Health Workers \_\_\_\_\_
  - Other (specify) \_\_\_\_\_
- 1.06 How often does supportive supervision take place at this facility?
- Monthly
  - Quarterly
  - Semi-Annually
  - Annually
  - Never
  - Don't Know
- 1.07 What is the estimated number of hours spent aggregating data and submitting reports at this facility each: Week \_\_\_\_\_? Month \_\_\_\_\_? Quarter \_\_\_\_\_

## Part 2 : Infrastructure & Resources

- 2.01 Does this facility have archival furniture (e.g., filing cabinet, shelving, etc.)?
- Yes
  - No
- 2.02 Does this facility have internet access?
- Yes
  - No



2.03 Does this facility have a back-up generator?

- Yes
- No

2.04 Does this facility have solar panels? Y/N

- Yes
- No

2.04a What is the main source of power for this facility?

- Linked into the grid (ESCOM Power)
- Generators
- Solar Panels
- Other (specify) \_\_\_\_\_
- This facility has no power

2.04b on average, how many hours a day is the power available (Interviewer Instructions – estimate is fine)?

2.05 What is the main source of water for this facility?

- Linked into the Water Board
- Borehole
- This facility has no water
- Other (specify) \_\_\_\_\_

2.06 Is this facility network connected to other facilities or regional offices?

- Yes (specify which ones) \_\_\_\_\_
- No

2.07 (If visiting the DGISS) What equipment and furniture is available?

2.08 (If visiting the DGISS) How many vehicles are available?

### Part 3 : Available Technology

3.01.a Does this facility have a computer?

- Yes
- No

3.01.b If so, how many computers? \_\_\_\_\_

3.01.c Who purchased the computers?

- Government
- Implementing Partner
- Personal Computer

3.02 Is anyone at the facility trained to maintain computer equipment?

- Yes
- No

3.02a If no, who maintains the computers if there is an issue?



- 3.03 Are any staff provided with smartphones/tablets?
- Yes
  - No
- 3.03a If yes, who (Interviewer instructions – ask for the role) and what percentage?
- 3.04 Do team members at this facility use their own smartphones/tablets for their job?
- Yes
  - No
- 3.04a If yes, what are the smartphones/tablets being used for?
- 3.04b If yes, what percentage of staff use their own smartphones/tablets?
- 3.04c If smartphones/tablets are used, do staff use their own data or is it provided?
- Data is provided
  - Personal data is used
- 3.05 How is equipment belonging to the MOH being tracked?
- 3.06 Check all software that this facility has available on the computer(s):
- Microsoft Excel
  - Microsoft Access
  - DHIS2
  - C-stock
  - iHRIS
  - Other (specify) \_\_\_\_\_
- 3.07 (If this is a hospital) Check all the systems that this facility uses:
- SIH
  - CUS
  - SUS
  - SUT
  - Other (specify) \_\_\_\_\_
- 3.07a Were staff trained on the system?
- Yes
  - No
- 3.07b If yes, when?
- 3.07c Which staff were trained on the system (interviewer note – focus on the staff role)?
- 3.08 Do any of the current systems talk to each other (are integrated) or standalone?

## Part 4: Available Registers and Documents

**[Interviewer note: Physically go to the registries and list out information below. Fill out questions 4.01 – 4.04 for each register identified]**

- 4.01 Register name
- 4.02 Date of issue
- 4.03 Date of last update/new version of register



4.04 Is the register available consistently?

- Yes
- No

4.04a If not, how often is it unavailable and why?

4.04b How do you request for new registers?

4.05 Does this facility have the following documents available?

- Health information standards and procedures
- Population Reference Document
- Supportive Supervision Guidelines
- Integrated SNIS data validation guide
- SNIS Metadata document
- Health information presentation and dissemination manual
- Regional Directory
- National Directory of Private Health Facilities
- Annual Statistical Yearbook
- Periodic Health Bulletins
- Annual Dashboard



# NHIS EVALUATION DATA HANDLER SURVEY

## Introduction

1. What is your job title?
2. Please describe your 3 primary job duties.
  - a. Are there additional duties that you perform that are not part of your formal job requirements?
3. How long have you been in this position?
  - Less than 1 year
  - 1-2 years
  - 2-5 years
  - 5-10 years
  - 10+
4. What is your highest level of education?
  - Secondary School (High/Grammar School or equivalent)
  - Bachelor's degree or equivalent
  - Master's Degree
  - Doctoral Degree (PhD or equivalent)
  - Vocational/Professional Qualifications
  - Other\_\_\_\_\_ (specify)
5. Please describe any additional formal trainings that you've received (e.g., data analysis, data use, communication, etc.).
6. Please describe any Ministry of Health sponsored courses and trainings you have taken (e.g., epidemiology, stats, computer science) and when?
7. (If the data handler works in a hospital) Were you trained on the hospital data processing software (SIH, CUS, SUS and SUT)?
  - b. Yes
  - c. No
    - i. If yes, when were you trained?

## Which data tools do you use?

1. As part of your job, Which data applications or platforms do you use (Interviewer Instructions: Complete question 2 for each platform identified)?
  - a. Paper forms
  - b. Microsoft Excel
  - c. National Health Management Information System (ENDOS-BF)
  - d. Registre Electronique de Consultation (REC)
  - e. Outil mHealth
  - f. Other (please include the name)
2. How do you access these systems?
  - a. Paper
  - b. Computer
  - c. Smartphone
  - d. Tablet



3. Do you have access to a computer, smartphone or tablet?
  - a. Yes
  - b. No
    - i. If yes, is it personal or government issued?
      1. Personal
      2. Government Issued
      3. Implementing partner issued
    - ii. If yes, do you access information through them?
      1. Yes
      2. No
    - iii. If yes, do you use facility provided or personal data?
      1. Facility provided data
      2. Personal data
4. How frequently do you access them?
  - a. Daily
  - b. Weekly
  - c. Bi-weekly
  - d. Monthly
  - e. Quarterly
  - f. Semi-Annually
  - g. Annually
  - h. Never
5. What challenges do you face in using these applications or platforms?
  - a. How often do you face these challenges?
    - i. Daily
    - ii. Weekly
    - iii. Bi-weekly
    - iv. Monthly
    - v. Quarterly
    - vi. Semi-Annually
    - vii. Annually
6. What would you like to change?

### Which data do you handle?

1. Please indicate which type of data you handle:
  - a. Infrastructure
  - b. Human resources
  - c. Pharmaceuticals
  - d. Financial resources
  - e. Completeness of reports
  - f. Malaria
  - g. Maternal and Child Health (Interviewer Instructions: this includes reproductive, maternal, newborn, child and adolescent health and nutrition)





- h. Vaccinations
  - i. HIV/AIDS
  - j. TB
2. Based on your responses above, please indicate the following (Interviewer Instructions: please answer 2b-2j for each data that is handled):
- a. Which data do you handle (Interviewer Instructions: Please list out each data element collected related to each response to question 1)?
  - b. How is the data collected?
    - i. Paper
    - ii. Electronic
  - c. If electronic, how is it captured?
    - i. Online
    - ii. Offline
    - iii. Both
  - d. Are you responsible for collecting the data?
    - i. Yes
    - ii. No
    - iii. If not, who is?
  - e. Where is this data element/indicator stored/kept?
  - f. How is the data transferred to where it is stored? (interviewer instruction: Please probe based on where the data is stored – if it is stored on a server, probe about how the data is entered electronically. If it is stored in a filing cabinet, probe how the paper files get transferred to the filing cabinet)
  - g. How frequently do you handle this data?
    - i. Daily
    - ii. Weekly
    - iii. Bi-weekly
    - iv. Monthly
    - v. Quarterly
    - vi. Semi-Annually
    - vii. Annually
  - h. How do you use this information?
    - i. How do you think others use this information? If you collect data, how does the data go from the facility to the district / region (paper versus digital)?
    - j. How often is the data sent to the district / region?
      - i. Daily
      - ii. Weekly
      - iii. Bi-weekly
      - iv. Monthly
      - v. Quarterly
      - vi. Semi-Annually
      - vii. Annually
      - viii. Never
3. What registers do you use to collect data?



4. When were the registers last updated?
  - a. If registers have been updated, were you able to test the new registers?
  - b. If registers have been updated, was your feedback incorporated into the final version?
5. Are the registers regularly available for you to collect data?
  - a. Yes
  - b. No
    - i. If no, how often and which registers are not available?
6. How do you request additional registers if you run out?

## Data Validation and Analysis

1. Do you perform any analysis of the data?
  - a) Yes
  - b) No
    - i) If so, how, which ones?
    - ii) How frequently?
      - i. Daily
      - ii. Weekly
      - iii. Monthly
      - iv. Quarterly
      - v. Semi-Annually
      - vi. Annually
      - vii. Never
2. If you have to calculate indicators, how do you calculate them?
  - a) Manually
  - b) In a system
  - c) If in a system, which system?
3. For any analysis that is performed or indicators calculated, did you receive any formal training?
  - a) Yes
  - b) No
    - i) If yes, what type of on the job training was received?
4. Do you have access to a reference document on indicator definitions and calculations?
  - a) Yes
  - b) No
    - i) If yes, how often do you use this document?
      - (1) Daily
      - (2) Weekly
      - (3) Monthly
      - (4) Quarterly
      - (5) Semi-Annually
      - (6) Annually
      - (7) Never



5. Do you attend the indicator review workshop?
  - a) Yes
  - b) No
    - i) If no, why not? Does anyone else at the facility attend?
6. Do you have access to a reference document on target populations?
  - a) Yes
  - b) No
    - i) If yes, how do you use this document?
7. How is data validated?
8. How often is data validated?
  - a) Daily
  - b) Weekly
  - c) Monthly
  - d) Quarterly
  - e) Semi-Annually
  - f) Annually
  - g) Other:
9. Who validates the data?
10. What happens if data is invalid or missing?
11. How is incorrect data corrected?
12. Do you collect SNIS specific indicators?
  - a) Yes
  - b) No
    - i) If yes, how is that data validated?
    - ii) If yes, how often is the SNIS specific data validated?
      - (1) Daily
      - (2) Weekly
      - (3) Monthly
      - (4) Quarterly
      - (5) Semi-Annually
      - (6) Annually
      - (7) Other:
13. If you need help for health data-related tasks,
  - a) to whom or where do you go?
  - b) How could this be improved?
14. What feedback do you receive about data collection or your program's performance?

### Data Presentation Questions

15. Who do you present data to or who presents data to you?
  - a) Which data is presented?
  - b) How is the data presented?



- c) How frequently is the data presented?
- i) Daily
  - ii) Weekly
  - iii) Monthly
  - iv) Quarterly
  - v) Semi-Annually
  - vi) Annually
  - vii) Never
16. How would you improve the way that data is presented to you? [visually - graphs/charts; other data sources that would be useful; frequency? More or less?]
17. What health data/statistics information do you receive from the national level?
18. How do you use that information?
19. Which of the following statistical reports have you seen in the last year and when was the last time you saw each one?
- Health newsletters \_\_\_\_\_
  - National health data dashboards \_\_\_\_\_
  - Annual Statistics Report \_\_\_\_\_

### [Optional] Budget Questions

20. What role do you have in contributing to the budget execution rate?
21. What budget information do you provide to others?
22. How do you provide that information?
23. Who do you provide budget information to?
24. What do you think they do with the budget information?

### Additional Questions

25. Each week, how much time do you spend on health data-related activities?
26. Have you participated in a health statistics day?
- a) Yes
  - b) No
    - i) If yes, what was your role?
    - ii) If yes, when did the last one take place?
    - iii) If no, do you know if a colleague has participated in a health statistics day?
27. Do you have any additional questions, feedback or thoughts?



# NHIS EVALUATION DECISION MAKER SURVEY

## Introduction

1. What is your job title?
2. Please describe your 3 primary job duties.
  - a. Are there additional duties that you perform that are not part of your formal job requirements?
3. How long have you been in this position?
  - Less than 1 year
  - 1-2 years
  - 2-5 years
  - 5-10 years
  - 10+
4. What is your highest level of education?
  - Secondary School (High/Grammar School or equivalent)
  - Bachelor's degree or equivalent
  - Master's Degree
  - Doctoral Degree (PhD or equivalent)
  - Vocational/Professional Qualifications
  - Other\_\_\_\_\_ (specify)
5. Please describe any additional formal trainings that you've received (e.g., data analysis, data use, communication, etc.).
6. Please describe any Ministry of Health sponsored courses and trainings you have taken (e.g., epidemiology, statistics, computer science)?

## Which data tools do you use?

7. As part of your job, Which data applications or platforms do you use (Interviewer Instructions: Complete question 2 for each platform identified)?
  - a. Paper forms
  - b. Microsoft Excel
  - c. ENDOS-BF (DHIS2)
  - d. Registre Electronique de Consultation (REC)
  - e. Outil mHealth
  - f. Other (please include the name)
8. How do you access these applications or platforms?
  - g. Paper
  - h. Computer
  - i. Smartphone
  - j. Tablet
9. Do you have access to a:
  - k. Computer
    - i. Yes
    - ii. No
  - l. Smartphone:



- i. Yes
- ii. No
- m. tablet
  - i. Yes
  - ii. No
    - 1. If yes, is it personal or government issued?
      - a. Personal
      - b. Government Issued
      - c. Implementing partner issued
    - 2. If yes, do you access information through them?
      - a. Yes
      - b. No
    - 3. If yes, do you use facility provided or personal data?
      - a. Facility provided data
      - b. Personal data
- 10. How frequently do you access them?
  - n. Daily
  - o. Weekly
  - p. Monthly
  - q. Quarterly
  - r. Semi-Annually
  - s. Annually
  - t. Never
- 11. What challenges do you face in using these applications or platforms?
  - u. How often do you face these challenges?
    - i. Daily
    - ii. Weekly
    - iii. Monthly
    - iv. Quarterly
    - v. Semi-Annually
    - vi. Annually
- 12. What would you like to change?

### How do you make decisions about Data?

- 13. Please indicate (if any) which SNIS Plan related decisions you make:
  - a. Strengthen the coordination of the entire SNIS and consultation with partners
  - b. Implementation, monitoring and evaluation of the SNIS strategic plan
  - c. Human resources
  - d. Strengthening infrastructure and equipment for the benefit of SNIS
  - e. Development of integrated communication architecture for health data
  - f. Funding for the SNIS
  - g. Survey census results in time for planning cycles
  - h. Harmonizing data sources for calculating health indicators at all levels



- i. Adapting indicators and collection tools to exchanging health information needs
  - j. Improving the processing and archiving of health information at the different levels of the system
  - k. Improving the quality of data produced by the SNIS
  - l. Improving the completeness of data
  - m. Strengthening the production and sharing of health information
  - n. Making information available in real time
14. Please indicate which data-related decisions you make:
- o. Pharmaceuticals
  - p. Financial resources
  - q. Malaria
  - r. Nutrition
  - s. Human Resources
  - t. Maternal and child health
  - u. Vaccinations
  - v. HIV/AIDS
  - w. TB
  - x. Other (Specify)
15. Based on your responses above, please indicate the following: (Interviewer Instructions: please answer 9a-9h for each decision that is made):
- y. What decisions do you make with the data?
  - z. Which data elements/indicators do you use to make this decision?
  - aa. Are these readily available indicators or do you have to perform calculations?
    - i. Available indicators
    - ii. Perform calculations
      - 1. If you have to perform calculations, are they manually done or within a system?
        - a. Manually
        - b. System
          - i. If in a system, which system?
  - bb. Where do you access the information to make this decision?
  - cc. How often do you access this information?
    - i. Daily
    - ii. Weekly
    - iii. Monthly
    - iv. Quarterly
    - v. Semi-Annually
    - vi. Annually
    - vii. Never
  - dd. How often is the information updated?
    - i. Daily
    - ii. Weekly
    - iii. Monthly
    - iv. Quarterly
    - v. Semi-Annually



- vi. Annually
- vii. Never
- ee. How do you use this information?
- ff. Is there additional information you would like to have/leverage to make decisions easier?

## Data Analysis and Presentation Questions

16. Do you perform any analysis of the data?
  - a) Yes
  - b) No
    - i) If yes, how do you perform analysis of the data?
    - ii) If yes, which data do you perform analysis on?
    - iii) If yes, how frequently do you perform analysis of the data?
      - (1) Daily
      - (2) Weekly
      - (3) Monthly
      - (4) Quarterly
      - (5) Semi-Annually
      - (6) Annually
      - (7) Never
17. Which data is presented to you?
  - a. How is it presented to you?
  - b. Who presents data to you?
  - c. Which data is presented to you?
  - d. How frequently is it presented to you?
    - a. Daily
    - b. Weekly
    - c. Monthly
    - d. Quarterly
    - e. Semi-Annually
    - f. Annually
    - g. Never
18. Are any systems used to visualize the data? (e.g., DHIS, Excel)
  - c) Yes
  - d) No
    - i) If yes, which one(s)?
19. What do you like or not like about the way data is presented to you in making a decision? How could this be improved?
20. Do you present data?
  - e) Yes
  - f) No
    - i) If yes, to whom?
    - ii) If yes, which data do you present?
    - iii) If yes, how frequently do you present the data?





- (1) Daily
  - (2) Weekly
  - (3) Monthly
  - (4) Quarterly
  - (5) Semi-Annually
  - (6) Annually
  - (7) Never
21. Do you have data quality control processes in place? Can you describe them?
- g) Yes
  - h) No
    - i) If yes, can you describe them
22. How is data validated?
23. How often is data validation completed?
- i) Daily
  - j) Weekly
  - k) Monthly
  - l) Quarterly
  - m) Semi-Annually
  - n) Annually
  - o) Never
24. Who validates the data?
25. Do you attend the indicator review workshop?
- p) Yes
  - q) No
    - i) If no, why not? Does anyone else at the facility attend?
26. What health data/statistics information do you receive from the national level?
27. Which of the following statistical reports have you seen? How often do you see them?
- Health newsletters
  - National health data dashboards
  - Annual Statistics Report
    - i) For each report seen, do you share the reports?
      - (1) Yes
      - (2) No
        - (a) If yes, who do you share them with?
28. What feedback do you receive about your program's performance?
29. How do you ask for help?
30. Where do you go for help?
31. How could this be improved?

## Budget Questions

32. What role do you have in contributing to the budget execution rate?
33. What budget information do you provide to others?
34. How often do you provide budget information to others ?



- r) Daily
  - s) Weekly
  - t) Monthly
  - u) Quarterly
  - v) Semi-Annually
  - w) Annually
35. How do you provide that information?
36. What do you provide?
37. Who do you provide budget information to?
38. What do you think they do with the budget information?
39. Do you participate in completing the National Health Accounts?
- x) Yes
  - y) No
- i) If yes, which of the following do you help with?
    - (1) Malaria
    - (2) TB
    - (3) HIV/SIDA
    - (4) Reproductive Health
  - ii) If yes, have you provided information each year?

### Additional Questions

40. Have you participated in a health statistics day?
- a) Yes
  - b) No
    - If yes, what was your role?
    - If yes, when did the last one take place?
    - If no, have other colleagues participated in a health statistics day?
      - a. Yes
      - b. No
41. Do you have any additional questions, feedback or thoughts?

