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ASSESSMENT OF THE ROUTINE HEALTH MANAGEMENT INFORMATION SYSTEM IN KEBBI STATE, FEDERAL REPUBLIC OF NIGERIA

September 2012

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ASSESSMENT OF THE ROUTINE HEALTH MANAGEMENT INFORMATION SYSTEM IN KEBBI STATE, FEDERAL REPUBLIC OF NIGERIA

CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS

DHIS	District Health Information System
FMOH	Federal Ministry of Health
HMIS	Health Management Information System
IT	Information Technology
LGA	Local Government Area
M&E	Monitoring and Evaluation
MS	Microsoft
PRISM	Performance for Routine Information System Management
RHIS	Routine Health Information System
SSHDP	State Strategic Health Development Plan
UPS	Uninterrupted Power Supply
USAID	United States Agency for International Development
v2	Version 2

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We would also like to acknowledge MEASURE Evaluation, the developers of the PRISM Framework and tools used in this assessment.

EXECUTIVE SUMMARY

The goal of this assessment was to evaluate the Routine Health Information System (RHIS) in Kebbi state. Objectives were to identify the strengths, weaknesses, threats, and opportunities of the Health Management Information System (HMIS) unit in the state and its local government areas (LGAs) with a view to identifying risks that pose a threat to the implementation of the District Health Information System (DHIS) version two (v2) software in the state. The Federal Ministry of Health (FMOH) previously selected the DHIS v1 as its software of choice for routine health data management but owing to an upgrade of the software, is considering migration of the country to the DHIS v2 platform. Implementation of DHIS v2 is intended to improve the flow of data from the LGAs to the State Ministry of Health (SMOH) and subsequently the FMOH.

Five LGAs – Bunza, Maiyama, Kalgo, Birnin Kebbi, and Jega – were purposively selected after all LGAs were stratified into rural, semi-urban, and urban areas. Questionnaires adapted from the PRISM Tools were administered to selected categories of staff comprising the HMIS officer and other staff of the HMIS unit at the SMOH, monitoring and evaluation (M&E) officers, and directors of LGA health departments.

Findings revealed that the state's RHIS is paper based. The state HMIS office has five functional computers; none of them had DHIS version 1 at the time of the assessment. Internet access is not readily available at the state office, but it did have the requisite basic hardware for Internet connectivity. Though the state HMIS officer claimed that all LGAs submit reports to the office, the proportion of health facilities enrolled in the HMIS that aggregates at the state level is dismally low: 13.4 percent. Also, the findings at the LGA offices did not support the state's claims: we observed that the five LGA offices had more health facilities reporting to them than the 88 that the state claimed had reported to it statewide during the month preceding the assessment.

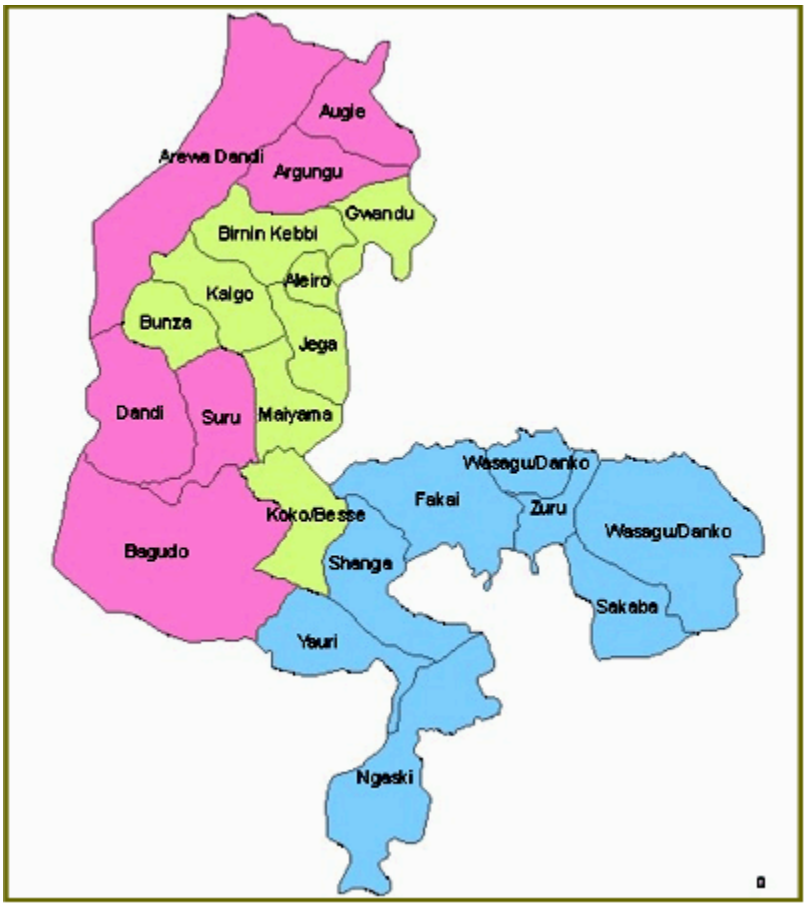
No LGA office surveyed had a functional computer when we visited. Likewise, other information technology (IT) equipment (computers, backup units, and printers) were either nonfunctional or unavailable in these offices. Nevertheless, some LGA HMIS/ monitoring and evaluation officers had been trained on DHIS.

We conclude that before DHIS v2 can function effectively in Kebbi state, several other interventions must precede its implementation. IT equipment must be made available at the state and LGA HMIS offices, and the forms that are used at the health facilities must also be made available at that level. DHIS v2 deployment must be properly sequenced to maximize return on investment: having LGA officers trained on DHIS v2 without the necessary infrastructure to use it should not recur, as doing so wastes resources. Furthermore, the various government levels need to work more in tandem in order to improve the health information system performance.

1. BACKGROUND

Kebbi state of the Federal Republic of Nigeria was created in 1991 from the former Sokoto state. Its capital is Birnin-Kebbi. Located in the North-West geopolitical zone, Kebbi is bordered by Sokoto and Niger states, the Republic of Niger, and Benin Republic. Kebbi occupies a land mass of about 36,800 square kilometers. It has 21 local government areas (LGAs) and 225 political wards grouped into four emirate councils (Argungu, Gwandu, Yauri, and Zuru). Figure 1 presents a map of the state.

FIGURE 1: MAP OF KEBBI STATE, FEDERAL REPUBLIC OF NIGERIA



Kebbi was estimated to have a population of 3.2 million by the 2006 population census, and the population was projected to be 3.8 million by 2011 (Federal Republic of Nigeria, 2009). Kebbi's major tribes are Hausa, Fulani, Kabawa, Dakarkari, Fakkawa, Gungawa, and Kambarawa. The predominant economic activities are farming and trading. About 70 percent of the people there are said to be living in poverty. Table 1 presents basic health indicators for Kebbi.

TABLE 1: BASIC HEALTH INDICATORS FOR KEBBI STATE

Indicator	Statistics
Infant mortality rate*	77/1000 live births
Under 5 mortality rate*	157/1000 live births
HIV prevalence**	1.0%
Women who gave birth in past 5 years and who received antenatal care from a skilled provider*	12%

Sources: *NPC and ICF Macro (2009)(zonal level statistics); **Federal Ministry of Health (2010).

2. INTRODUCTION

This assessment of the Health Management Information System (HMIS) of selected states in Nigeria came about as a result of the concerted efforts of the Federal Ministry of Health (FMOH), the United States Agency for International Development (USAID), and Health Systems 20/20 to improve routine disease surveillance in the country. As a result of continuous discussions, the importance of assessing the readiness of the State Ministries of Health (SMOH) and the health departments of LGAs to adopt the District Health Information System (DHIS) v2 software was highlighted. As such, Health Systems 20/20 was asked to carry out this task aimed at identifying the strengths, weaknesses, opportunities, and threats of the deployment.

The FMOH previously selected the DHIS as its platform of choice for the management of the routine health data. At the time of selection in 2006, the developers were deploying the v1 of the software, which was developed on a Microsoft Access background database (Family Health International 2008). DHIS v1 was found, however, to have some limitations that made it difficult to enter data across multiple sites and, as such, it was difficult to compare data across geographical locations. At each point in time, each LGA where the DHIS was deployed could be operating a different instance of the database. Because the databases did not directly speak to one another, huge running costs were assumed to ensure that the databases were continuously synchronized.

Recognizing this significant limitation, developers of the DHIS developed the DHIS v2 on a web-enabled Java-driven platform. This higher version facilitated the deployment of a single database across the country that can be accessed remotely via the Internet thereby eliminating the difficult challenge of comparing data across borders. This single management level also reduces information technology (IT) management cost as this can be minimized to just one level.

Though the DHIS v2 brings the potential benefits of handling the IT challenge, it is still necessary to ensure that the processes for data collection at the states and the LGAs that are expected to furnish data into the DHIS system are optimal. As such, simply assessing the readiness for the deployment of the DHIS v2 software solitarily will not individually help to improve the data quality that the FMOH receives. Thus, Health Systems 20/20 sought to do a comprehensive assessment of the HMIS at the states and the LGAs with a view to assessing holistically the challenges at these points and offering solutions that would ultimately help improve the functioning of the national health information system.

The Performance for Routine Information System Management (PRISM) Assessment tool developed by MEASURE Evaluation and previously used and validated in several countries was adopted as the survey tool of choice for the assessment. It was adapted to the Nigerian context for this purpose.

3. METHODOLOGY

Sampling: Five LGAs were conveniently selected to represent two urban (Birnin Kebbi and Jega), one semi-urban (Bunza), and two rural (Maiyama and Kalgo) LGAs. The LGAs were selected by the survey team in collaboration with the State HMIS officer and the Director of Planning Research and Statistics.

Data collection tool: After adapting the PRISM Framework and tools we grouped them into two parts: a performance assessment component and an organizational and behavioral assessment component. As detailed next, the former targeted technical leads in state and LGA HMIS offices, and the latter targeted every worker in the SMOH HMIS/ Monitoring and Evaluation (M&E) unit and the LGA health departments. We excluded the tool's facility-level pages as the assessment's scope did not include facilities.

- Performance Assessment Component

  This part of the tools targeted technical leads in the SMOH HMIS/ M&E unit and LGA health departments. It had four subcomponents:

  - The Quality of Data Assessment Form assessed the quality of the data reported from the lower level to the higher level (e.g., from an LGA to the state and from a health facility to an LGA).
  - The Use of Information Assessment Form assessed a unit's ability to use information.
  - The Routine Health Information System (RHIS) Management Assessment Form assessed the availability of guidelines and processes for health data management.
  - The Office Equipment Checklist assessed the availability of essential office equipment and other resources necessary for the optimal functioning of DHIS v2.

- Organizational and Behavioral Assessment Component

  This component targeted every staff person of the HMIS unit at the state and LGA levels, including the leads. It assessed the respondent's perspective of the organization's behavior with regard to how decisions were made and the general operations of the HMIS unit.

4. FINDINGS

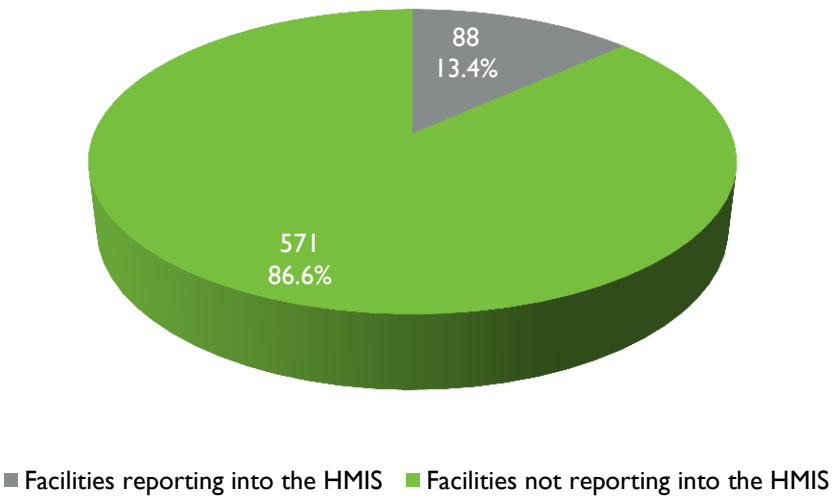
We present our findings first from the state level and then from the LGA level. Within those two sections are four sub-sections presented in the order of the tools in the PRISM tools as described in the methodology section (the same order as the three forms and checklist described above).

4.1 STATE ASSESSMENT

4.1.1 QUALITY OF DATA ASSESSMENT

At the state HMIS unit, we were told that all the LGAs in the state submit their data to the unit. However, the percentage of facilities reporting is alarming: of the 659 health facilities enrolled in the HMIS, only 88 (13.4 percent) of them routinely reported their data (Figure 2). This low proportion renders the data unreliable and not useful for the purpose for which the HMIS was developed. The unit keeps records of the data LGAs sent monthly, which is commendable.

FIGURE 2: DISTRIBUTION OF HEALTH FACILITIES REPORTING AND NOT REPORTING INTO THE HMIS



The state unit has a deadline of the second week of each month to receive data from the LGAs. For the two months preceding the assessment, the 88 facilities that had submitted their data had done so before the deadline. The unit lacks DHIS v1 or any other application that could be used to archive data and/ or prepare reports, so all calculations are done manually, making this a cumbersome task with a high probability of error. Although lacking the DHIS software, the state HMIS officer felt the software was user-friendly: he had been recently trained in its use.

4.1.2 USE OF INFORMATION

The state HMIS office collects and compiles summary routine health information reports from the LGAs. Only the state summary report, which is required for transmission to the national HMIS office, is generated from the data received. The office does not display any graphs, charts, or tables showing any

health indicators. Likewise, no map of the state's catchment area was available. Although the office had the practice of acknowledging receipt of HMIS reports from LGAs, it did not provide feedback to LGAs with guidance/ recommendations to help them use the information they generated and/or improve data quality.

The SMOH had institutionalized a monthly management meeting where managerial and administrative issues were discussed. This meeting was held consistently during the three months preceding the survey (March, April, and May 2012) and aired issues about management of RHIS, such as data quality and reporting upward.

4.1.3 OFFICE EQUIPMENT CHECKLIST

The state HMIS office had five computers and, all of them were functional. They were networked for Internet connectivity via a router, but no Internet service was available as no funds were available to pay for it. The HMIS officer commented that though the computers were functional, they lacked the capacity to run DHIS software. We could not ascertain whether the inability to run DHIS resulted from the not having MS Access installed or because the computers could not handle the software's memory demands. Constant electricity supply was also an issue: power interruption was said to occur daily. However, the office did have backup generators and functional uninterrupted power supply (UPS) units to handle the transition from public to generated power.

4.1.4 RHIS MANAGEMENT ASSESSMENT

The HMIS office did not display an RHIS mission statement, had no management structure for addressing RHIS strategic and policy decisions, and did not maintain a distribution list or any documentation of past meeting reports. Other than the State Strategic Health Development Plan (SSHDP 2010–2015), there was no annual work plan or a situation analysis report specifically related to HMIS. The SSHDP, however, highlights key strategies needed to improve HMIS in the state.

The office does not publish any newsletter or report showing the use of data. However, information from the RHIS in the state is used generally to monitor progress in immunization and for disease surveillance. Though there was a supervisory checklist that the officer used to assess LGAs, no schedule was on hand indicating when activities would be done or reports to show that these activities were actually carried out.

4.2 LOCAL GOVERNMENT ASSESSMENT

4.2.1 DATA QUALITY ASSESSMENT

All LGA HMIS offices maintained files with copies of monthly reports from the health facilities. A total of 184 health facilities in the five LGAs were expected to submit reports monthly to their LGA HMIS office. Of these, only 97 (53 percent) had done so. Figure 3 shows the proportion of health facilities that had and had not reported, by LGA. Birnin Kebbi was doing very poorly: 90 percent of its enrolled health facilities were not routinely reporting their data, while Kalgo LGA was doing pretty well, with 88 percent of health facilities having submitted their reports, the best proportional performance. Table 2 presents the data across the LGAs. Although some LGA HMIS officers had been trained on DHIS v1, it was not in use at any LGA office. Data are processed manually with calculators as needed in all LGAs.

FIGURE 3: PROPORTION OF HEALTH FACILITIES REPORTING AND NOT REPORTING HMIS DATA TO THEIR LGA

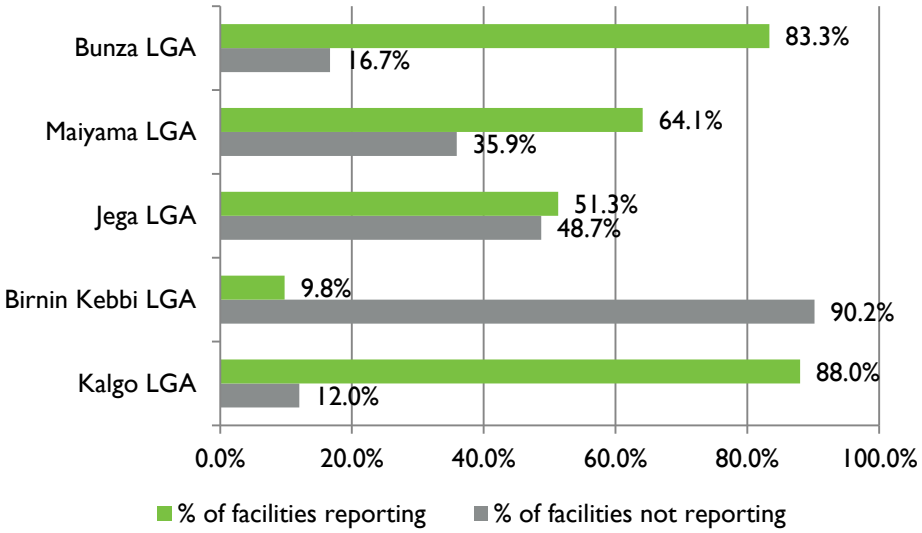


TABLE 2: HEALTH FACILITIES EXPECTED TO REPORT TO THEIR LGA AND NUMBER THAT DID, BY LGA

LGAs	Number of facilities expected to report	Number of facilities that did report
Bunza	30	25
Jega	39	20
Kalgo	25	22
Maiyama	39	25
Birnin Kebbi	51	5
Total	184	97

We also analyzed the proportion of health facilities that had submitted their data timely in the two months preceding the assessment. Of the 97 facilities that had been remitting HMIS reports, 72 (74 percent) and 69 (71 percent) submitted data in the two months before the survey (March and April 2012, respectively). However, only Kalgo LGA kept a record of the dates when it received these reports from the facilities. In this LGA, all the facilities that had been reporting to the LGA submitted their data before the deadline. All LGA officers agreed that information system design provides a comprehensive picture of health system performance and that the RHIS had information that was used in different, independent information systems. Three of them indicated that the RHIS procedure manual was user-friendly.

4.2.2 USE OF INFORMATION

All five LGAs compiled RHIS data from the facilities. Kalgo, Maiyama, and Jega issued reports with those data. No LGA provided feedback to the facilities except when an aberration occurred. In such case, the state epidemiologist would be informed and subsequent specific investigative steps triggered. Maiyama, Jega, and Birnin Kebbi HMIS offices displayed charts and/ or graphs showing data on at least

one health indicator. All LGA HMIS offices had catchment area maps showing the geographic area they covered, but none displayed its demographic profile.

4.2.3 OFFICE EQUIPMENT CHECKLIST

Only two LGAs had office equipment. Birnin-Kebbi had a nonfunctional computer and calculator. Bunza had a computer, printer, generator, and calculator, but only the calculator worked. No LGA had steady electricity, and all reported daily power interruptions. No LGA had Internet connectivity, a backup generator, or functional UPS unit.

4.2.4 RHIS MANAGEMENT ASSESSMENT

Although three LGAs had mission statements, they were neither prominently placed nor specific to RHIS. Three LGAs had organizational charts that identified the position of the LGA HMIS officer within the LGA health department. Two LGAs had health management organizational charts that had been updated within the last year.

No LGA kept copies of past reports (they claimed that the reports had been sent to the state office), so we could not verify that the reports had been done. Also, no LGA had a five-year plan. One LGA had a training manual for HMIS officers but no specific data collection guidelines were available. The data officer only collected data requested on the data collection forms; no records for supervisory visits to health facilities were available.

4.3 ORGANIZATIONAL AND BEHAVIORAL ASSESSMENT

The results of the Organizational and Behavioral Assessment will assist in developing interventions for improving information systems and the use of information. Findings are presented in Table 3, which shows responses from eight respondents in the state and LGA HMIS offices. Each of the following paragraphs presents data from each of the sections in the table, in the same order.

Kebbi HMIS staff believed that health department decisions were based on political interference (88 percent), but also on health needs and considerations of 1) costs and 2) comparisons of data and health objectives (both 75 percent).

Three of the eight staff held very positive views of health department superiors, except only a third of them thought supervisors "[sought] feedback from concerned persons." Two-thirds of them thought superiors "[provided] regular feedback to their staff through regular report based on evidence." Greater proportions agreed with other positive statements about health department superiors, with 100 percent agreeing that superiors "[checked] data quality at the facility and higher levels regularly."

HMIS staff believed health department staff were punctual, documented their activities and kept records, felt committed to the population's health status, used HMIS data daily for management purposes, and were made accountable for poor performance. However, only one felt health department staff were rewarded for good work. At least 75 percent agreed with the following statements about health department staff: "display data for monitoring their set target," "can gather data to find the root causes of problems," "can develop appropriate criteria for selecting interventions for a given problem," and "can evaluate whether the targets or outcomes have been achieved." The other statements about department staff received fair (P4, P5, and P11) and poor (P13, and P14) scores.

These staff reported generally favorable attitudes toward collecting information. Everyone agreed that "collecting information which is not used for decision making discourages me" and "collecting information gives me the feeling that data is needed for monitoring facility performance." Six of them (75 percent) felt that "collecting information is meaningful for me" and five (63 percent) that "collecting

information is appreciated by co-workers and superiors." Fewer found collecting information boring (50 percent) or forced on them (63 percent).

TABLE 3: RESPONDENTS' (N=8) RESPONSES TO THE ORGANIZATIONAL AND BEHAVIORAL ASSESSMENT

Question ID	Question	Agree		Disagree		Neutral		No
	In health department, decisions are based on:	**N**	**(%)**	**N**	**(%)**	**N**	**(%)**	**N (%)**
D1	Personal liking	2	(25%)	4	(50%)	2	(25%)	0
D2	Superior's directive	1	(13%)	7	(88%)	0	(0%)	0
D3	Evidence/facts	3	(37.5 %)	4	(50 %)	0	(0%)	1 (13%)
D4	Political interference	7	(88%)	1	(13%)	0	(0%)	0
D5	Comparing data with strategic health objectives	6	(75%)	0	(0%)	1	(13%)	1 (13%)
D6	Health needs	7	(88%)	1	(13%)	0	(0%)	0
D7	Considering costs	6	(75%)	2	(25%)	0	(0%)	0
	In health departments, superiors:							
S1	Seek feedback from concerned persons	3	(38%)	5	(63%)	0	(0%)	0
S2	Emphasize data quality in monthly reports	7	(88%)	1	(13%)	0	(0%)	0
S3	Discuss conflicts openly to resolve them	6	(75%)	1	(13%)	1	(13%)	0
S4	Seek feedback from concerned community	6	(75%)	1	(13%)	1	(13%)	0
S5	Use HMIS data for setting targets and monitoring	6	(75%)	2	(25%)	0	(0%)	0
S6	Check data quality at the facility and higher levels regularly	8	(100%)	0	(0%)	0	(0%)	0
S7	Provide regular feedback to their staff through regular report based on	5	(63%)	3	(38%)	0	(0%)	0
S8	Report on data accuracy regularly	7	(88%)	1	(13%)	0	(0%)	0
	In health department, staff:							
P1	Are punctual	8	(100%)		(0%)		(0%)	0
P2	Document their activities and keep records	8	(100%)		(0%)		(0%)	0
P3	Feel committed in improving health status of the target population	8	(100%)		(0%)		(0%)	0
P4	Set appropriate and doable target of their performance	4	(50%)	4	(50%)		(0%)	0
P5	Feel guilty for not accomplishing the set target/performance	5	(63%)	1	(13%)	2	(25%)	0
P6	Are rewarded for good work	1	(13%)	7	(88%)		(0%)	0

Question ID	Question	Agree		Disagree		Neutral		No
P7	Use HMIS data for day to day management of the facility and LGA/State	8	(100%)		(0%)		(0%)	0
P8	Display data for monitoring their set target	7	(88%)	1	(13%)		(0%)	0
P9	Can gather data to find the root causes of problems	7	(88%)		(0%)	1	(13%)	0
P10	Can develop appropriate criteria for selecting interventions for a given	6	(75%)	1	(13%)	1	(13%)	0
P11	Can develop appropriate outcomes for a particular intervention	4	(50%)	3	(38%)	1	(13%)	0
P12	Can evaluate whether the targets or outcomes have been achieved	7	(88%)	1	(13%)		(0%)	0
P13	Are empowered to make decisions	2	(25%)	6	(75%)		(0%)	0
P14	Able to say no to superiors and colleagues for demand/decisions not	2	(25%)	6	(75%)		(0%)	0
P15	Are made accountable for poor performance	8	(100%)		(0%)		(0%)	0
P16	Use HMIS data for community education and mobilization	7	(88%)	1	(13%)		(0%)	0
P17	Admit mistakes for taking corrective actions	7	(88%)	1	(13%)		(0%)	0
	Personal attitudes of respondent							0
BC1	Collecting information which is not used for decision making discourages	8	(100%)		(0%)		(0%)	0
BC2	Collecting information makes me bored	4	(50%)	4	(50%)		(0%)	0
BC3	Collecting information is meaningful for me	6	(75%)	1	(13%)		(0%)	1 (13%)
BC4	Collecting information gives me the feeling that data is needed for	8	(100%)		(0%)		(0%)	0
BC5	Collecting information gives me the feeling that it is forced on me	5	(63%)	3	(38%)		(0%)	0
BC6	Collecting information is appreciated by co-workers and superiors	7	(88%)		(0%)	1	(13%)	0

5. CHALLENGES

The Kebbi state RHIS has a number of challenges that need to be addressed if it is to serve its purpose: providing data to inform decision making, monitoring progress, and improving overall performance of the state health system. Some of the challenges are:

INFRASTRUCTURE

All LGA HMIS offices lack functional computers and other accessories necessary for quality capture, analysis, reporting, and dissemination of routine health information. The offices are not adequately furnished and lack Internet access, a necessary requirement for DHIS v2.

POLICY

The state lacks a policy that promotes the use of data. Such policy would promote compliance by the LGAs and also guide the SMOH in the use of its data.

FUNDING

The SMOH lacks a dedicated budget for strengthening the RHIS. This explains the poor infrastructure at all levels as well as the inability of HMIS officers at the LGAs to submit their data to the state HMIS routinely.

6. CONCLUSION AND RECOMMENDATION

The assessment found that for the LGAs surveyed, the RHIS is paper based. Information technology is used neither for archiving nor analyzing data. Also, RHIS data that are used are largely limited to immunization and disease surveillance reporting.

The state should have an HMIS policy/guideline along with a standardized management structure and operational manual. Adequate funding must be made available to the HMIS offices at all levels to equip the offices, train personnel, and ensure the timely capture, reporting, and dissemination of HMIS data. Development and implementation of an awareness-raising strategy will be important in getting buy-in from policy makers and field staff for an HMIS strategy.

Adopted by the FMOH in 2006, DHIS v1 was not available at any LGA; this finding raises concern, as DHIS v2 may suffer a similar fate. The state's poor reporting percentage by health facilities requires urgent action aimed at improving their reporting rates. The observed high level of facility reporting at LGAs and contrasting low level when aggregated at the state necessitates more coordination to ensure adequate information management. Health department staff should advocate for policies that will define roles and responsibilities of the different government levels. Processes should be established to ensure data received/ transferred can be audited at a later date. The policies should include accountability for staff who fail to meet requirements.

For DHIS v2 to function optimally, the LGAs need to be equipped such that they can comply with collection and reporting requirements via a web-enabled system. Functional computers and Internet connectivity are required, and HMIS officers need to be trained on computer use. Improved human resource processes that support the engagement and retention of highly skilled staff should be embraced. We also advocate better funding support for the HMIS overall at both the SMOH and LGA level, as many of the challenges we observed stemmed from budgetary limitations.

7. REFERENCES

FHI (Family Health International). 2008. Supporting Nigeria's Efforts to Transform Data Management [web page]. http://www.fhi360.org/en/CountryProfiles/Nigeria/res_DHIS.htm/.

Federal Republic of Nigeria Official Gazette. 2009. Legal Notice of on Publication of 2006 Census Final Results. Official Gazette 96(2). February.

Kebbi State Ministry of Health. 2010. *Kebbi State Strategic Health Development Plan (2010-2015)*. Abuja: Kebbi Ministry of Health.

NPC (National Population Commission) and ICF Macro. 2008. *Nigeria Demographic and Health Survey*. Abuja: NPC and ICF Macro.

MEASURE Evaluation. 2011. *Performance of Routine Information System Management (PRISM) Tools*. University of North Carolina at Chapel Hill, Carolina Population Center. Available at http://www.cpc.unc.edu/measure/publications/ms-11-46d/.