The Strongest Motivators for Using Routine Health Information in Family Planning

A Prospective Study in Lagos, Nigeria

Abayomi Joseph Afe, MD, MPH, PhD
Adeola Olatoun, MD, MPH
Timothy Akinmurele, MD, MPH, MBA
Oduola Abimbola, BSc, MPH
Ganiyu Agboola BSc, MSc

December 2017

USAID FROM THE AMERICAN PEOPLE

MEASURE Evaluation

The Strongest Motivators for Using Routine Health Information in Family Planning

A Prospective Study in Lagos, Nigeria

Abayomi Joseph Afe, MD, MPH, PhD
Adeola Olatoun, MD, MPH
Timothy Akinmurele, MD, MPH, MBA
Oduola Abimbola, BSc, MPH
Ganiyu Agboola BSc, MSc

December 2017

ACKNOWLEDGMENTS

CONTENTS

TABLES

ABBREVIATIONS

CBO	community based organization
CPR	contraceptive prevalence rate
EMR	electronic medical record
FP	family planning
HMIS	health management information system
HSC	health service commission
IUD	intrauterine device
M&E	monitoring and evaluation
NDHS	Nigeria Demographic and Health Survey
NHIS	National Health Insurance Scheme
PMTCT	prevention of mother-to-child transmission of HIV
PMV	patent medicine vendor
RH	reproductive health
RHI	routine health information
RHIS	routine health information system
SMOH	State Ministry of Health
WHO	World Health Organization

EXECUTIVE SUMMARY

Background. Health system performance depends on the collection, collation, and use of quality health data and information. One of the primary roles of a routine health information system (RHIS) is generating data within the health system for decision making, policy formulation, and implementation. When data are generated and analyzed, they can provide relevant information to support planning and management of quality healthcare services at the facility, ward, local government, state, and federal levels. Stakeholders, including the government, can monitor performance and provide frameworks for guiding policies by which health services are provided.

This study was conducted to bridge the knowledge gap concerning the motivators behind using routine health information (RHI) in family planning (FP) to improve the use of FP services.

Methods. The study design was a prospective cross-sectional study conducted over a period of 12 months in three local government areas of Lagos state in southwest Nigeria. Twelve key informant interviews (KIIs) were conducted and 425 questionnaires were administered to 105 men and 320 women working in the health sector.

Results: We found that nearly 90 percent of respondents are aware of RHI indicators in FP. The most common indicator (91.7%) is the number of injectables given. The most unfamiliar indicator (2.7%) is the number of referrals for FP services from prevention of mother-to-child transmission of HIV (PMTCT).

The biggest facilitators to using RHI in FP are:

- Crafting policies related to FP and/or reproductive health services (65.4%)
- Integrating FP into other health interventions, such as HIV, immunizations, deliveries, and post abortion care (91.3%)
- Having computers, software, reliable Internet service, and data storage and retrieval systems available

Virtually all respondents (99%) agreed on the importance of effective information technology infrastructure for data collection and use. More than 90 percent agreed that the biggest barriers to using routine FP data are poor-quality data and the lack of financial resources for supporting quality routine data collection.

A review of the current state of RHI in FP at organizations where respondents work shows incomplete availability of data-capturing tools (84%). Most documentation is done using paper-based collection tools, especially at public health facilities; some private health facilities use electronic medical records. Data storage, especially at the state agencies, is done using both paper-based and computer systems. None of the organizations have computer software for data analysis.

Recommendations. We strongly recommend the following:

- Continuous in-service training for people involved in RHI and data use at all levels
- Adequate provision of data-capturing tools/electronic medical records technology
- Timely feedback from higher levels on how data generated has been put to use
- Adequate funding for data generation, transmission, and utilization activities
- Including FP data from the private sector

INTRODUCTION

Background

Improving the provision and use of family planning services is key to improving maternal health. A critical factor in ensuring uptake of FP services is the availability of high-quality RHI by relevant FP stakeholders.

The demand for accurate and complete data to generate information for health planning, management, and decision-making dates to the 18th century (Schaufeli & Salanova, 2007). First, the American College of Surgeons established the Association of Record Librarians of North America to elevate the standard of clinical records in hospitals and other medical institutions. This led to the foundation of the American Health Information Management Association in 1928 and the establishment of the Healthcare Information and Management Systems Society in 1961. The Society has continued to grow globally since then (Sauerborn, 2000). The Declaration of Alma-Ata in 1978 led most developing countries to implement health sector reforms that have made RHI critical for planning, policy formulation, and evidence-based decision making.

Virtually all countries have adopted a health information system that, along with leadership and governance, serves as the foundation of a health system and informs decision making in each of the other five key building blocks of the health care system: service delivery, health workforce, access to essential medicines, stewardship and financing. These affect quality health service delivery and health outcomes globally (Asiimwe, 2015).

By definition, an RHIS entails ongoing data collection of health status, health interventions, and health resources. The RHIS provides information at regular intervals to meet predictable information needs, such as in the following examples:

- Facility-based service statistics (collected daily, weekly, monthly, quarterly, bi-annually, and annually)
- Vital events registration
- Community-based information systems

Health system performance depends on the collection, collation, and use of quality health data and information. This might involve the use of paper-based or electronic health records and facility- and patient-level management information systems.

The primary role of RHIS includes data generation within the health system for evidence-based decision making, policy formulation, and program implementation. The data can then be used to improve services and interventions at the facility, ward, local government, state, and federal levels. Data analysis can provide relevant information to support planning and management of quality healthcare services. The RHIS allows stakeholders to monitor performance and provides a framework to guide policies by which health services are provided.

A family planning RHIS has multiple stakeholders, such as: healthcare providers, patients and their families, taxpayers, policy makers, and the public health community (donors, program implementers, and researchers). Each stakeholder has a unique set of interests and needs. Getting stakeholders' input early in the process allows their needs to be integrated into the FP RHIS and their concerns to be addressed before the system is implemented. Ultimately, getting stakeholders' involvement entails addressing their needs within the FP RHIS in a way that can lead to improved health outcomes, quality, and efficiency.

In Nigeria, motivations for using RHI in FP can be broadly classified into ethical, religious, economic, and social/cultural factors. For example, Catholic and Muslim beliefs do not support modern contraception. In some parts of Nigeria, women are encouraged to have as many children as possible.

The availability of adequate funds to collate, analyze, and disseminate information using routine health data could facilitate using RHI in FP, especially in resource-poor settings.

Motivating factors vary with persons and organizations. Understanding motivations is important in identifying subgroups of the population to target for services. This also helps in identifying the best tools or factors that can be used to engage target groups for improved uptake of FP services in the general population.

A review of previous work done in this regard has revealed the following common perceptions that may explain why RHI is not being used in FP services:

- RHI cannot provide needed information support.
- RHI data collected are irrelevant, under-reported, or over-reported.
- RHI reports are missing and feedback is lacking.
- Data demand is poor or nonexistent.
- Organizational structures don't support data utilization.
- Staff lack motivation, skills, and training roles are unclear.
- Infrastructure (road, communications, technology) is inadequate.
- Funding is inadequate.
- Political interference is a barrier.

Nigerian Context

Nigeria is the most populous sub-Saharan African nation. The fertility rate is about 5.7 children per woman, which translates to about 6 million births per year, according to the *Nigeria Demographic and Health Survey of 2013* (National Population Commission, 2014). Though nearly all adults (85% of women and 95% of men) are aware of at least one form of contraception, only a small percentage practice family planning. The contraceptive prevalence rate (CPR) remains low. Nigeria's CPR is about 16 percent: 11 percent of women who are married or in a partnership use a modern contraceptive and 5 percent use a traditional method (Hennink & Stephenson, 2005).

The CPR increased gradually over more than a decade, rising from 6 percent in 1990 to 12.6 percent in 2003, and has remained fairly stable since then, rising to 15.1 percent by 2013 (World Health Organization, 2008; Gavin, et al., 2014; NPC, 2014; Hennink, et al., 2005; Ikamari, Adewuyi, & Akinlo, 2007). Linked to the relatively stagnant CPR is a downward trend in the use of modern contraceptive methods in Nigeria from 2003–2007 (Ikamari, et al., 2007).

Reasons given for low FP use are poor availability of FP services and consumables, the perception that FP is not affordable, and cultural and religious beliefs that do not support FP (Hennink, et al., 2005).

In a bid to improve FP use, the government launched its first national *Nigeria Family Planning Blueprint* in November 2014 (Federal Ministry of Health, 2014). This landmark strategic plan was developed to refocus efforts towards reaching a CPR of 36 percent by 2018. To achieve this ambitious target, FP services would need to reach 8 million women and girls of reproductive age. Reaching the target would significantly reduce unplanned pregnancies, unsafe abortions, and maternal, infant, and child mortality.

The South West zone of Nigeria has the highest proportion of women currently using FP (38%), followed by the South East zone (29%). The lowest FP use is in the North East (3%). Among the states, Lagos (located in the South West zone) has the highest percent of women (48%) using any contraceptive method (Federal Ministry of Health, 2014)

Lagos state has an estimated 6.5 million women of reproductive age; most (72%) are married or partnered in union. Knowledge of contraception is very high among Lagos residents, with nearly 100 percent of men and women reporting awareness of at least one modern FP method (Federal Ministry of Health,

2014). More than 60 percent of the population in Lagos state seek general health services at private healthcare facilities, yet more than half (58%) of current FP users in the state access FP directly from a pharmacist, chemist, or patent medicine vendor (Lagos State Ministry of Health, 2014).

A growing body of literature shows that stakeholders across Nigeria have limited access to health information (Hennink, et al., 2005; Ikamari, et al., 2007; Nath, 2007; Pope & Counahan, 2005; Wilkins, Nsubuga, Mendlein, Mercer, & Pappaioanou, 2008).

Study Rationale

Information alone will not transform outcomes. Data are simple measures of characteristics of people and things, but raw data alone have little inherent meaning or value. Data analysis enables the identification of patterns, thereby creating information that can be a foundation for understanding and knowledge. Using information to generate recommendations and rules for action signifies the creation of knowledge for making decisions and changing human behavior. The literature on health information systems in FP is replete with complaints of existing information not being used. At the same time, remarkably little is known about how to motivate the use of generated knowledge to improve uptake of FP services, especially in low-income nations like Nigeria. We conducted this study to bridge the gap between FP information, knowledge, and use.

METHODS

Research Questions

The following research questions guided this study

- What factors facilitate, encourage, or strengthen the use of RHI in FP services?
- What factors impede the use of RHI in FP service?
- What is the current state of the collection and use of RHI in FP services?

Study Design

This was a prospective, cross-sectional study, using mixed methods (qualitative and quantitative). Field research was conducted in three local government areas (Ikeja, Shomolu, and Mainland) from the three senatorial districts in Lagos state, located in southwest Nigeria (the area with the highest use of family planning in the country). The study was conducted over a period of 12 months (May 2016–May 2017).

Our research team administered 425 standardized, structured questionnaires and conducted 12 KIIs using semi-structured interview guides. These tools were validated by experts at MEASURE Evaluation at the University of North Carolina at Chapel Hill, and field piloted for improved reliability in another local government area (LGA) beyond the study areas.

Population Sampling

We used a list of existing health facilities (public and private), health management organizations (HMOs), patent medicine vendors (PMVs), and community-based organizations (CBOs) to select respondents by convenient sampling method.

A sample size of 400 (marked up to 425) was determined using an online RAS formula as follows:

Sample size $n = [DEFF*Np(1-p)]/ [(d^2/Z^2_{1-\alpha/2}*(N-1)+p*(1-p)]$ using Open Epi (Version 3)

Confidence limit of 95 percent; margin of error at 5 percent; population size of 20,000; response distribution at 50 percent.

Table 1. Distribution of questionnaires and KIIs among respondents

Organizations/Respondents	Questionnaires	KIIs
Public primary health facilities	69	1
Public secondary health facilities	11	1
Public tertiary health facilities	19	1
Private hospitals/clinics	228	1
Local government authority	5	1
Nongovernment organizations (NGOs)	21	1
Primary Healthcare Development Board (PHCDB)	3	0
Lagos State Health Service Commission (HSC)	1	1
Lagos State Ministry of Health (SMOH)	3	2
Lagos State House of Assembly	2	1
Health maintenance organizations (HMOs)	52	1
National Health Insurance Scheme (NHIS)	3	0
Community pharmacists	8	1
Total	**425**	**12**

The study commenced with entry-level advocacy and sensitization visits to stakeholders at various levels in state government, health facilities, NGOs, and CBOs. Advocacy meetings were held with staff from the reproductive health (RH) and maternal, newborn, and child health units at the State Ministry of Health (SMOH), local government authority, State Health Service Commission (HSC), and National Health Insurance Scheme (NHIS) health maintenance organizations (HMOs). We also engaged key representatives from implementing partner organizations rendering FP services. We met with stakeholders to introduce and seek support for the study, advocate the use of RHI in FP in their practices, and prepare them for the dissemination of findings at the end of the study.

Data Collection and Analysis

Six research assistants (RAs) received training about the study and how to administer the questionnaire. The RAs conducted pre- and post-tests to assess respondents' mastery of knowledge. The RAs started with self-introductions and a brief description of the purpose of the research. Respondents were asked if they fully understood the purpose of the study and would they like clarification. Completed questionnaires were reviewed to ensure all questions were answered completely and recorded correctly.

The KII sessions were conducted by the co-investigators. These sessions were audio-recorded and transcribed into notebooks. The RAs collected completed questionnaires and submitted them weekly to the research team.

Data cleaning, sorting, and coding of both qualitative and quantitative data were carried out weekly to ensure data quality.

Completed questionnaires and the transcribed qualitative data were collated weekly by the research monitoring and evaluation (M&E) team. This information was saved into SPSS (version 22) software used for data analysis. Data were reported in the form of frequency tables and charts. Monitoring and evaluation officers conducted data verification to prevent errors. The data quality assessment exercise ensured quality of data during data collection, transfer, compilation, analysis, and storage. Late, missing, and incomplete data were sorted out during this period.

Study investigators conducted regular monitoring and spot-check field visits throughout the duration of the survey to provide supervision of the RAs while they were administering the questionnaires in the field.

Study Outputs and Outcomes

Our study produced the following outputs:

- Demographic characteristics of the respondents
- Experience in FP services in Lagos state
- Experience in RHI in FP services in Lagos state
- Factors enhancing the use of RHI in FP in Lagos state (facilitators)
- Factors preventing the use of RHI in FP in Lagos state (barriers)
- Current state of collecting and using RHI in FP in Lagos state
- Possible strategies to improve the use of RHI in FP in Lagos state

We plan to disseminate our study's outcomes and recommendations to policy makers and stakeholders. The goal is to inform policy changes and improve program interventions for effective use of RHI in FP.

Study Limitations

A major limitation of this study was our inability to generalize the findings to the entire country since the study was confined to Lagos state. We recommend replicating the study in Nigeria's five other geopolitical zones.

Data collection relied primarily on self-reporting, which can raise questions about validity and reliability of information that could be biased by personal behaviors and feelings. We thoroughly trained the interviewers to ensure the elicited responses were as close as possible to the truth.

Ethics Review

Ethical approval was obtained from the Institutional Review Board of the Lagos State University Teaching Hospital. All hard copies of data were numbered, de-identified, and appropriately stored in a lockable compartment in a secured room for confidentiality and security purposes. Soft copies of data were also de-identified and given password protection. During the KIIs and questionnaire administration, respondents were informed of their right to agree to participate or withdraw from the study at any point; verbal consent was sought from each respondent. Respondents were also assured of confidentiality; no names were used to protect their identities.

RESULTS

Demographic Analysis

Table 2 presents the sociodemographic characteristics of questionnaire respondents. The majority of respondents are 31–40 years of age; there are three times as many women as men. Most respondents have a postsecondary education, and more than half have a bachelor's degree/higher national diploma or higher level of education. Most are Christian (87%) and married or living with a partner (77%).

Table 2. Sociodemographic characteristics of respondents

Variable	Frequency/N=425 (Percent)
Age group	
20–30 years	101 (23.1)
31–40 years	173 (40.7)
41–50 years	93 (21.9)
51–60 years	50 (11.8)
61 years and above	8 (1.9)
Sex	
Female	320 (75.3)
Male	105 (24.7)
Religion	
Christian	370 (87.1)
Muslim	53 (12.5)
Mysticism	1 (0.2)
Traditional	1 (0.2)
Marital status	
Single	81 (19.0)
Married or living with partner	328 (77.2)
Divorced/Separated	6 (1.4)
Widowed	10 (2.4)
Highest level of education	
No formal education	1 (0.2)
Primary	0 (0.0)
Secondary	34 (8.0)
Ordinary national diploma	127 (29.9)
Bachelor's degree/Higher national diploma	208 (48.9)
Master's degree	43 (10.1)
Doctoral degree	11 (2.6)
Post-doctorate degree	1 (0.2)

Table 3 presents questionnaire respondents by profession and place of primary assignment. Most are facility providers; many are nurses. More than half work at a private health facility; few work in state government.

Table 3. Respondents by profession and place of primary assignment

Profession	Frequency N=425 (Percent)
Medical doctor	70 (16.5)
Nurse midwife	144 (33.9)
Registered nurse	50 (11.8)
Auxiliary nurse	25 (5.9)
Community health officer	5 (1.2)
Pharmacist	15 (3.5)
Pharmacy technician	7 (1.6)
PMV	23 (5.4)
Lab technician/technologist or scientist	4 (0.9)
M&E officer	11 (2.6)
Medical record clerk	32 (7.5)
Data clerk	5 (1.2)
Data analyst	13 (3.1)
Health attendant	4 (0.9)
Hospital administrator	2 (0.5)
Accountant	4 (0.9)
Other	11 (2.6)
Place of Primary Assignment	**Frequency N=425 (Percent)**
Private health facility	228 (53.6)
Public primary health center	69 (16.2)
Public secondary health facility	11 (2.6)
Public tertiary health facility	19 (4.5)
Community pharmacy store	8 (1.9)
NGO	21 (4.9)
SMOH	3 (0.7)
PHCDB	3 (0.7)
NHIS	3 (0.7)
HMO	52 (12.2)
Health Service Commission	1 (0.2)
State House of Assembly	2 (0.5)

Respondents' Level of Experience in the FP Sector

Most of the 425 questionnaire respondents have experience working in family planning services. One third (33.4%) have up to three years of experience, and nearly a quarter (23.5%) have more than a decade of experience. Fewer than 5 percent have no experience in FP. An M&E/medical record officer reported a lifetime of experience this way:

> "….as a health record officer, of course I am engaged in collecting data from all sources including family, all my life I have been involved doing that. So, I will say 33 years in total."

More than half (57.9%) of the respondents' have FP experience in service provision; about one in five respondents (21.9%) work in M&E/record keeping (21.9%). Only six respondents are involved in FP as policy makers (1.4%) and only eight as program implementers (1.9%).

Those who have experience in FP reported they have engaged in a range of tasks, such as counselling, contraceptive provision, record keeping, supply chain management, data collection, commodity supply, policy making, program design, and implementation. Here are two examples of their activities:

Logistic Officer KII Interview
Q: What type of family planning related activities do you carry out?
A: Monitoring and evaluation and record keeping.
Q: Is that all?
A: Hmmm, then I deal with supply chain too. Supply chain of family planning commodities.

Service Provider Interview
Q: What type of family planning related activities do you carry out?
A: We ask the clients about the type of planning methods she wants; after explaining the procedures to her we then go ahead and carry out the service…We assure her, give her the next appointment, and then we record all the data into our daily summary sheet.

Most of the 425 questionnaire respondents, (about 92%) said they have FP training. Many (43%) have more than one type of FP training. The most common types of FP training reported are pre-service training (31%), on-the-job training (14%), and in-service training (3%). Only one respondent (0.2%) has online training.

Table 4 summarizes respondents' awareness of RHI in FP services. Most respondents (88%) said they are aware of RHI collected in FP services. The most common FP indicators they know of are the number of injectables given (nearly 92%), IUDs inserted (83%), implants inserted (83%), and packets of oral contraceptive pills distributed (69.3%). Other data with relatively high awareness are number of clients counselled (64%), new FP acceptors (65.5%), and male condoms distributed. Level of awareness of female condom distribution (54%) is lower than that of male condom distribution (60%). Fewer than 3 percent are aware of the number of referrals from PMTCT.

Table 4. Respondents' awareness of RHI in FP services

Awareness of Routine Data Collected for FP Services	Frequency (N=425)	Percent
Aware	374	88.0
Not Aware	51	12.0
Awareness of FP Indicators	**Frequency (N=374)**	**Percent**
Number of clients counselled	239	63.9
New FP acceptors	245	65.5
FP clients accessing HIV counselling and testing	59	15.8
Referral for FP services from antiretroviral therapy	20	5.3
Referral for FP services from HIV counseling and testing	26	7.0
Individual referred for FP services from PMTCT	10	2.7
Females aged 15-49 years using modern contraception	56	15.0
Injectable given	343	91.7
IUDs inserted	310	82.9
Implants inserted	310	82.9
Sterilization procedures performed	86	23.0
Male condoms distributed	226	60.4
Female condoms distributed	201	53.7
Packets of oral contraceptive pills distributed	259	69.3

When asked about the level of interaction with routine FP data, only two respondents (0.4%) said they work with such data on a quarterly basis; 103 (24%) reported interacting daily with such data, 56 (13%)

on a weekly basis, and 94 (22%) on a monthly basis and as the need arises. Fifty-two (12%) have never interacted with FP data at all.

Respondents also were asked about the roles they performed using RHI in FP services. Their responses varied. More than half (53%) reported no involvement in FP data collection, collation, analysis, interpretation, and decision making. While many respondents reported performing one role; nearly 10 percent said they perform two or more roles. The number of respondents who are involved in data collation only (96) is the highest (23%), followed by those in data collection (8%), data interpretation (4%), and data analysis (3%); no one reported being involved in decision making only.

Respondents were asked how they use the routine FP data available to them. About one in five said they do nothing with the data; 19 percent said they store or file the data. Only 4 percent reported that they analyze the data.

Usefulness of RHI in Family Planning

Table 5 summarizes questionnaire respondents' perceptions of the potential usefulness of RHI in FP for a range of functions. The two potential uses respondents cited most often are for crafting policies related to FP/RH services (65.4%) and creating budgets or assigning funding allocations (44%). Respondents also said that RHI in FP could be useful for conducting a gap analysis in health resources/logistics (41%), writing reports (34%), and designing programs, interventions, or services related to FP (31.5%). Table 5 also shows other potential uses cited by fewer respondents.

Table 5. Respondents' perceptions of the usefulness of RHI in FP

Usefulness	Frequency (N = 425)	Percent
Designing trainings or /educational materials or sessions	73	17.2
Making presentations	54	12.7
Writing reports	145	34.1
Building technical or professional skills and competence	58	13.6
Crafting policies related to FP and/or RH	278	65.4
Creating budgets or assigning funding allocations	187	44.0
Creating advocacy messages, tools, or resources related to FP	101	23.8
Designing programs, interventions, or services related to FP	134	31.5
Developing guidelines and standards of practice	87	20.5
Assessing key health indices for a region or country	113	26.6
Conducting a gap analysis in health resources/logistics	174	40.9
Others	3	0.67

Only four respondents (0.9%) out of 425 said that the use of FP data is an ethical practice.

Other common uses or facilitators for RHI mentioned during the KIIs include using routine FP data for research, understanding the level of acceptance of different FP methods, and understanding and predicting trends. One service provider at a tertiary health facility said:

> "One is [for] doing research, because if there is a need for research definitely there would be need for the data, the information that will be gotten from…… yes, you know, there [is] some research that will be done and that will help in different aspect[s], help to profile which method[s] are being used most? and probably why? …You know that's what the use of the health information that is available will bring forward and also possible side effects of those methods and why some methods are discontinued, or preferred over others. Those are things that would

help mainly in research and policy making. …. because family planning issue is a social issue, a social service."

Our study shows that perceptions of the usefulness of RHI in FP vary by profession. For example, many of the doctors, nurses, pharmacists, and data clerks/analysts responding to our questionnaire said the greatest potential use for this information is for crafting policies related to FP and other RH services. All of the chemists and PMVs said the greatest potential use of the data is for conducting a gap analysis in health resources/logistics. Community health workers (CHO, CHEWs) felt that RHI would be most useful for designing programs/interventions and services, or trainings and educational materials or sessions. (See Table 6.)

Table 6. Distribution of key uses of RHI based on respondents' professions

Primary uses	Profession	Percent
Crafting policies related to FP and/or other RH services	Medical doctor (n=14)	19.7
	Auxiliary nurse (n=8)	33.3
	Nurse midwife (n=26)	17.8
	Health attendant (n=1)	25.0
	Medical record officer/assistant (n=5)	15.6
	Pharmacist (n=5)	35.7
	Data analyst (n=2)	15.4
	Data clerk (n=1)	16.7
	Others (n=6)	40.0
Designing programs, intervention, or services related to FP	Registered nurse (n=11)	22.4
	Community health extension worker (n=4)	18.2
	Laboratory technician, technologist or scientist (n=1)	20.0
	M&E officer/assistant (n=1)	33.3
Designing trainings, educational materials or sessions	CHO (n=1)	20.0
Conducting a gap analysis in health resources/logistics	NHIS (N=2)	40.0
	Chemist/PMV (n=1)	100.0

Note: The table shows the highest frequency of key uses in each profession.

Current Status of Collecting and Using RHI in Family Planning Services

Most questionnaire respondents reported daily, weekly, or monthly collection of FP data (87.5%) and availability of data capturing tools (84%). Fewer than half (41.2%) reported having staff trained in data collection; even fewer have staff trained in data analysis (28%). Table 7 summarizes the details.

One medical records/M&E officer said:

"At this level, we collect [data] on monthly basis; of course, there are ad hoc requirements … We have requests that we also attend to. In the hospital setting we have routine data we collect… We have what we called the daily statistical register where we collect the type of family planning commodities, the age-grouping, the sex. All the data relating to family planning…we try to collect and collate them."

Respondents who work at public health facilities noted that data collection is primarily paper-based. When asked if all the FP information is collected in hard copy, one service provider at a tertiary health facility said:

"Yes, at the records unit, hospital information department."

A few private health facilities use electronic data collection which is seen as boosting client interactions. One service provider at a private health facility said:

> "Our EMR [electronic medical records] people have already done it for us ...for family planning, ... once she comes in maybe the client is number one on family planning clinic .... Before she comes in, I have already opened my system, and I have seen her, and I have known her; 'oh, good morning, Mrs. Adeolu'... She will be surprised .... because all information about the clients has been programmed on the system."

Table 7. Availability of RHI resources at respondents' organizations

Current RHI Resources at Respondents' Organizations	Available N=425 (percent)	Not Available
Daily, weekly, or monthly collection of FP data	372 (87.5)	53 (12.5)
Up-to-date routine FP data	373 (87.8)	52 (12.2)
Data capturing tools	357 (84.0)	68 (16.0)
Functional computer system for entering and saving data	158 (37.2)	267 (62.8)
Reliable data storage and retrieval system	368 (86.6)	57 (13.4)
Staff trained in data collection and computer data entry	175 (41.2)	250 (58.8)
Staff trained in data analysis	119 (28.0)	306 (72.0)
Data analysis software	108 (25.4)	317 (74.6)
M&E unit dedicated for FP	149 (35.1)	274 (64.5)
FP M&E plan	144 (33.9)	281 (66.1)
Regular M&E meetings to discuss FP data	151 (35.5)	274 (64.5)

Respondents mentioned several types of routinely collected FP data such as client's socio-demographics, medical history, and family history, and hospital's number of clients, number of commodities in stock and out of stock, new acceptors, and revisits. Here are a few respondent comments:

> "Okay, monthly, is the facilities, they collate the numbers [of] women like uptake for family planning and also collate the numbers of the contraceptives, if there was stock out or no stock out, stock balance and also, they record information like complaints or issues that patients give."

> –M&E officer

> "We collect new acceptors and revisit on monthly basis and we also do data per method depending on the usage. I think basically that is what we do."   –Service provider, NGO

> "The family history, the name, address, the age, the sex, and health issues because that is what we have in the gazette [register]. We also ask for the menstrual cycle, then how many days takes them, and the last menses, I mean the last menstrual period, the number of children they have gotten, and where and how did they hear about family planning." –Service provider, LGA Secretariat

Factors Encouraging the Use of RHI in Family Planning Services

Participants in the KIIs discussed possible factors that could strengthen and encourage the use of RHI data for FP, such as the availability of appropriate tools, education on the importance of collecting quality data, and training on data collection tools. It was noted that the availability of reliable quality data will encourage data use by service providers as well as policy makers. One service provider at an NGO said:

> "It all bothers around the same things, because if use continuous education and provision of the tools and you know, linking the connection between data collection and data use lets them (data

collectors) see the importance and then they have to the tools on ground because if they don't have the tools there is nothing you can do."

Nearly all questionnaire respondents agree on a set of factors that would encourage the use of RHI in FP, such as: staff skilled in M&E and record keeping, management or supervisors interested in data quality and use, regular feedback on reports sent up with collected FP data, regular meetings about data collection and/or service statistics, complete FP M&E plan, integration of FP into other health interventions, and inclusion of RHI in FP in the national HMIS database. Respondents also agree that using RHI in FP would help develop evidence-based FP policies/programs, allocate resources strategically, and guide advocacy messages and other communications. (See Table 8.)

Table 8. Respondents' perceptions of factors that may encourage use of RHI in FP (N=425)

Factors that encourage use of RHI in FP	Agree N (%)	Disagree N (%)	No opinion N (%)
Availability of staff skilled in M&E	395 (92.9)	21 (4.9)	9 (2.1)
Availability of staff skilled in record keeping	403 (94.8)	14 (3.3)	8 (1.6)
Management or supervisors interested in data quality and use	394 (92.7)	17 (4.0)	14 (3.3)
Regular feedback from higher levels on reports sent with collected FP data	399 (93.9)	7 (1.6)	919 (4.5)
Regular meetings where data collection and/or service statistics are discussed	386 (90.8)	21 (4.9)	18 (4.3)
Availability of a complete and up-to-date FP M&E plan at all facilities where routine FP data are collected	391 (92.0)	18 (4.2)	1 6 (3.8)
Integration of FP into other health interventions, such as HIV, immunizations, deliveries, and post-abortion care	388 (91.3)	26 (6.1)	11 (2.6)
Inclusion of RHI for FP in the national HMIS database	378 (88.9)	11 (2.6)	36 (8.5)
Value/benefits of using RHI in FP data			
Developing FP policies/programs based on evidence or data	400 (94.1)	4 (0.9)	21 (4.9)
Determining resource allocations	375 (88.2)	21 (5.0)	29 (6.8)
Formulating policy	381 (89.7)	12 (2.8)	32 (7.5)
Guiding advocacy messages and communication	387 (91.1)	10 (2.4)	28 (6.5)

Factors Hindering the Use of RHI in Family Planning Services

During the questionnaire interview respondents mentioned several factors that hinder the use of RHI data for FP, such as insufficient funds and staffing, poor data quality, and lack of political will and policy maker involvement. In addition, here are a few comments from the KIIs:

"One of the major gaps is funding at the LGA level at the primary health facility level because the providers and the LGA managers do not have the impress(funds) for them to actually go about collecting this data when due. Then we also have the problem of manpower shortage because they are not actually enough. At times their data is not ready on time because it is just one person that would be at the facility offering the services doing so many other things and at the same time we have to capture all the data and collate all these data." –Logistic Officer, SMOH

"The factors mitigating against the use of these routine data are incomplete reporting. You understand? Incomplete rendition of data when you have some facilities who do not render their data… one. Then untimely rendition, data rendition, you see we [are] supposed to have a deadline for data submission but in a case where you have some facilities not meeting up the deadline, so eventually you have a case of incomplete data rendition and if all the facilities can

actually render their data when due as in the time limit then you would be able to analyse all the data together. Then you know that the data you have is representative of the whole state." – Logistic Officer, SMOH

"First and the foremost if there is no political will because if you have the data and you don't have the political will to support (you know) then there is nothing you can do with the data…Another factor that can prevent me is like if I am over burden with too many responsibilities so I won't have time to actually (you know) sit down look at the data, make something meaningful out of it and be able to apply it accordingly, use it." –M&E Officer, HSC

When asked to mention the biggest barrier, participants in KIIs mentioned lack of financial support to sustain effective data collection as the largest barrier to using routine FP data, followed by religious beliefs, non-involvement of policy makers in data collection, and lack of supportive policies encouraging the use of FP data. Poor-quality and incomplete data were considered only by 17 (4.0%) and 22 (5.2%) respondents, respectively. Respondents interviewed with questionnaires gave a similar list of top common barriers to using RHI in FP, as shown in Table 9.

Table 9. Respondents' perceptions of barriers to using RHI in FP services

Factors	Agree N (%)	Disagree N (%)	No opinion N (%)
Cost/Finances (*lack of financial support to support effective data collection*)	388 (86.6)	52 (12.2)	4 (0.9)
Religious beliefs (*belief that unmarried women should not be seeking FP*)	313 (73.6)	100 (23.5)	11 (2.6)
Socio-cultural practices (*poor attitudes towards data collection; cultural norms that do not favor evidence-based decisions*)	316 (74.4)	88 (20.7)	17 (4.0)
Lack of supportive policies encouraging the use of routine FP data	379 (89.2)	29 (6.8)	17 (4.0)
Poor-quality data	396 (93.2)	17 (4.0)	11 (2.6)
Incomplete data	399 (93.9)	15 (3.5)	10 (2.4)
Non-involvement of policy makers in data collection	391 (92.0)	16 (3.8)	17 (4.0)
Burdensome data collection forms that create challenges for data quality and data analysis	284 (66.8)	91 (21.4)	49 (11.5)
Lack of feedback from higher levels on what is done with the data or what it is used for	398 (93.6)	15 (3.5)	11 (2.6)
Time lag (delay) between when the data is aggregated and sent off to when it is analyzed and shared with decision makers	346 (81.6)	47 (11.1)	31 (7.3)

Table. 10. Distribution of barriers to RHI in FP based on respondents' professions

Biggest Barriers	Profession	Frequency (%)
Cost/Finances	Medical doctor (n=27)	38.0
	Auxiliary nurse (n=7)	29.2
	Registered Nurse (n=15)	30.6
	Nurse midwife (n=35)	24.0
	Medical record officers/assistants (n=6)	18.8
	M&E officer/assistants (n=3)	25.0
	Data analysts (n=5)	38.5
	Data clerks (n=3)	50.0
	NHIS (n=2)	40.0
	Others (n=8)	53.3
Lack of feedback from higher level on what is done with the data or what it is used for	Health attendants (n=2)	50.0
	Pharmacists (n=3)	21.4
	Chemist/PMV (n=1)	20.0
Lack of supportive policies that encourage use of routine FP data	CHO (n=3)	60.0
Religious beliefs	CHEW (n=5)	22.7
Non-involvement of policy makers in data collection	Laboratory technician, technologist, or scientist (n=2)	40.0

Note: The table shows the barriers with the highest frequency in each profession.

DISCUSSION

Characteristics of Respondents

The study participants' characteristics match the demographics of Lagos state, with most being Christian and highly literate. The state has more Christian churches than any state in the federation and more places of worship for Christians than for any other religion.

As expected, more than half of our questionnaire respondents indicated a private health facility as their primary place of work. This is representative of the health workforce in Lagos state, where the private sector provides healthcare services to more than 60 percent of the state's population (Lagos SMOH, 2014). Moreover, about 70 percent of women access FP through nongovernment sources (NPC, 2014). Lagos has more private health facilities than public health institutions.

Lagos residents enjoy among the highest socioeconomic levels in the country; their high purchasing capacity makes it possible for many to afford out-of-pocket expenses for healthcare at private health facilities.

However, the poor level of on-the-job training and in-service training points to a gap in continuous professional development for workers on the job. This reflects the low premium workers and employers in this part of the world place on such capacity building activities. Moreover, few professional associations require continuous professional development (CPD), a form of in-service training, for renewal of practicing licenses. Apart from medical, nursing, and pharmacy professionals, most other healthcare professionals (such as M&E officers, data clerks, and data analysts) are not required to have annual CPD scores.

Our data show a high level of awareness about RHI in FP. Respondents are most aware of these routine FP data: injectable given, IUD inserted, packets of oral contraceptive pills distributed, clients counselled, and new FP acceptors. Those with a low level of awareness thought the following RHI were collected for FP: FP clients accessing HIV counselling and testing, referrals for FP services from HIV counselling and testing, individuals referred for FP services from PMTCT, females aged 15-49 years using modern contraception, and sterilization procedures performed. The few that claimed no awareness of RHI in FP were still able to identify the FP indicators in the RHIS, implying that their unfamiliarity is with classifying them as components of RHI in FP. The fact that most of the indicators are self-explanatory made it easy for the respondents to identify them as RHI in FP upon prompting by the questionnaire interviewer.

Benefits of Using RHI in Family Planning

Our respondents found that using RHI in FP would be most useful for informing policies and designing programs. Medical doctors, auxiliary nurses, nurse midwives, health attendants, medical record staff, pharmacists, data analysts, and data clerks agree that using FP data to craft policies related to FP and other RH is the biggest motivator for using RHI in FP. This is not surprising as most health workers in this group belong to the senior category of staff where decision making is part of their responsibility.

More than 90 percent of respondents said the following factors could encourage using RHI in FP:
- Integration of FP into other health interventions
- Availability of staff skilled in record keeping
- Management/supervisor's interest in data quality and data use
- Feedback from higher levels on reports generated with FP data

The M&E system practiced at most health settings in the country is a one-way process, whereby data collectors in the field are often not given feedback about how the data they submitted have been used.

This reduces the field staff's sense of the importance of data quality and of how carefully data are collected and transmitted.

Barriers to Using RHI in Family Planning

Many factors can discourage the routine use of FP data, such as: poor-quality data, incomplete data, non-involvement of policy makers in data collection, and lack of feedback on how data are used. However, the barrier most often cited by many of our respondents is the lack of financial support to sustain effective data collection. This was identified as a primary barrier by the medical doctors, nurses, medical record staff, data analysts, data clerks, M&E staff, and NHIS staff who answered our questionnaire. Budgets for data collection and transmission are either abysmally low or non-existent; on the rare occasion where support is given for data-related activities, it usually comes from donors.

Despite the availability of data capturing tools in most respondents' work places, fewer than half reported having staff trained in data collection, entering, and analysis. Thus, most of collected data are either left on the shelves or transmitted in their raw form, reducing their usefulness. Moreover, most of the documentation is done using paper-based data collection tools; none of our respondents have access at work to computer software for data analysis. Very few are aware of data analysis software packages such as SPSS, STATA, and Epi-Info, and none have a working knowledge of these packages. The most common computer-based analysis being conducted relies on the Microsoft excel spreadsheet

Relationship between Respondents' Characteristics and Their Perceptions of Factors Encouraging Use of RHI in Family Planning

Our study shows that respondents' place of primary work assignment is associated with their perceptions that FP data is useful when writing reports, making presentations, assessing key health indices, and conducting a gap analysis in health resources/logistics. However, respondents' educational level, profession, and primary work location are not significantly associated with the belief that using FP data in designing training and educational materials could encourage the use of RHI in FP. Similarly, respondents' educational level and profession are not significantly associated with the belief that referencing current FP data when writing reports could encourage its use (better FP data collection and analysis). Respondents' place of work is associated somewhat with this belief: Two-thirds (60.0%) of those working in secondary/tertiary facilities and 62.5 percent of those working in community pharmacy stores share this opinion, compared to fewer than half of those working in other sectors.

We found that the place of primary work assignment is significantly associated with the opinion that using FP data for presentations could facilitate the use of FP data in RHIS (p=0.031). The percent of private facility health workers (32.5%) and policy makers (45.5%) who feel that using FP data in assessing key health indices is a key factor to facilitating the use of FP data in RHIS is significantly higher than healthcare workers in other facilities and sectors (p=0.025). Sixty percent of those working in tertiary/secondary health facilities and 63.6 percent of policy makers believe that using FP data for gap analysis would facilitate the use of FP data in RHIS, compared to only 14.3 percent of NGO staff.

Respondents' interaction with the FP sector, their level of engagement in FP activities, and the type of training attended are also significantly associated with the belief that using FP data in making presentation encourages use of RHI in FP (p=0.053, p=0.002 and p =0.001, respectively).

We also found that respondents' belief that routine FP data are useful in building technical and professional skills is significantly related to their interactions, experience, and engagement in the FP sector. Such respondents also believe that competence in FP activities is a factor facilitating RHI in FP (p=0.042, 0.030 and 0.009 respectively).

About two-thirds of respondents with both in-service and on-the-job training disagree that using FP data when writing reports encourages its use in RHI (p=0.015). This may reflect the poor quality of trainings in data management available to most of these respondents. It could also be due to the reporting formats which do not demand the inclusion of FP data.

Nevertheless, in general, training positively influenced respondents' perception of the usefulness of FP data. Respondents' participation in training and the type of training were found to be associated with their perception that FP data are useful in designing programs, interventions, and services (p=0.002 and 0.001, respectively). The majority of those who had no training believe that using FP data in designing programs has no effect on using such data in RHIS. This emphasizes the importance of trainings in improving data utilization among the respondents.

More people who had been trained in FP-related activities than those who had not been trained said using FP data in developing guidelines and standards of practice encourages use of RHI in FP (p=0.0199). More than 40 percent who had received one or more forms of training in FP-related activities saw that using FP data for conducting a gap analysis of resources could encourage the use of RHI in FP (p=0.004).

More than half of respondents did not share the opinion that using FP data in creating advocacy messages would facilitate its use in RHIS, regardless of their interaction, engagement, experience, and training in the FP sector.

We found a positive relationship between respondents' level of involvement in managing FP data, using routine data in FP to conduct a gap analysis, and making presentations. Most such respondents are decision makers (ministry of health officials and senior healthcare workers), who manage, analyze, and summarize collected data, and make forecasts for supplies and consumables. They are required to prepare presentations for discussion at meetings where they either represent their unit or hand over such presentations to a more senior person.

The proportion of respondents who are aware of RHI in FP and consider FP data useful in building technical/professional skills (15%) is significantly higher than those who are not aware of RHI in FP (about 4%). Awareness of RHI in FP is associated with respondents' perception of the use of RHI in designing programs, interventions, or services as a facilitating factor to the use of RHI in FP (p= 0.033). Similarly, the proportion of respondents who said that using routine FP data in conducting a gap analysis is a facilitating factor to using RHI in FP is significantly higher among those who are aware of RHI in FP (nearly 43%) than among those who are not (27.5%).

About a quarter of respondents with no engagement in RHI in FP and nearly three quarters of those involved in data analysis believe the use of FP data in designing programs, interventions, and services could encourage the use of RHI in FP.

About 70 percent of respondents involved in the dissemination of findings and 44 percent involved in data analysis believe that using FP data in designing programs, interventions, and services in FP could encourage the use of RHI in FP. While only about a quarter of those with no involvement in data analysis, those who store/file data, and those who submit data share that belief.

The majority of respondents, regardless of their experience in RHI in FP, do not share the view that using FP data as an ethical practice could facilitate the use of FP data in RHIS.

Factors Strengthening the Use of RHI in Family Planning Services

Nearly all respondents (99.3%) believe that the availability of data infrastructure (computers, software, Internet service, and storage retrieval systems) and user-friendly data capturing tools would strengthen the

use of RHI in FP. Respondents consider training more staff in data use more important for strengthening the use of RHI in FP than hiring more data officers or data analysts.

Likewise, making more funds available for data collection, analysis, and use is a priority for more respondents than making more money available for staff development on M&E. More respondents consider providing financial incentives to use data for decision making a stronger facilitating factor than appreciating that data could improve programs and services. This reflects a culture of poor data use where people do not see the inherent value of using data as a resource or for evidence-based decision making.

Nearly two-thirds (63%) of policy makers (such as legislators and staff from state coordinating agencies) said that hiring more data officers or data analysts is important for strengthening RHI. Less than one-third (30%) of health workers from secondary and tertiary facilities share that view. About three-fourths of workers at secondary health facilities (73%) and those working in community pharmacy stores and private health care facilities (75%) said additional money to collect data would strengthen using FP data. Only about 38 percent of NGO workers shared that view.

Respondents' profession is significantly associated with the opinion that appreciating data as a resource for improving programs and services would strengthen the use of FP data in RHIS. Nearly 60 percent of pharmacists and lab technicians/hospital administrators share this belief, compared with 23 percent of data managers.

Our study found that those who interpret and analyze data (about 90% and 82%) are much more likely to believe that using routine data in policy making would facilitate RHI in FP, than those involved in data collection (61%), data collation (62.5%), dissemination of findings (50%), and data storing/filing (57%), and those with no role in FP data (55%).

The proportion of respondents involved in managing FP data who think that training more staff in data use could strengthen the use of RHI in FP (93%) is significantly higher than those who are not involved in the management of FP data (84%) and those involved in data dissemination. Most respondents involved in data interpretation (89%) perceive that providing more money for staff development on M&E would strengthen the use of RHI in FP, while only 45.5 percent of those who collect data share that view.

RECOMMENDATIONS

Based on our study results, we make the following recommendations:

- **Conduct continuous training for people involved in RHIS and data use at all levels.** Family planning service providers in public and private health facilities (including patent medicine vendors and providers in pharmacy stores) should be trained regularly on data demand and use, the data capturing tool, and the importance of complete and accurate data reporting. This will enhance the quality of routine data in FP services and thus promote data use. Policy makers and stakeholders at the ministry level should be properly trained on data demand and use and the importance of having accurate and complete data to make evidence-based decisions and policies.
- **Ensure proper transfer of responsibilities to new staff, with full orientation on RHI in FP.** Frequent staff turnover due to transfers or retirement is a barrier to consistently capturing quality data. The responsibilities of departing staff are not properly transferred to new staff. The new staff are not well-trained in data capturing tools and the importance of routine data reporting. Hence, an efficient mechanism to ensure proper transfer of responsibilities and orientation of new staff should be put in place to ensure continuous collection of accurate data.

- **Synchronize related sectors' data capturing tools.** Data capturing tools for related health care services (such as maternal and child health and RH) should be synchronized to avoid unnecessary duplication of effort for already burdened health workers and enhance efficient data capturing for improved data quality.
- **Enforce strict data submission deadlines.** Some factors hindering the use of RHI in FP are poor data quality and incomplete data caused by delays in completing data capturing forms and data collation. The responsible government agency should enforce a strict data submission deadline with consequences for lateness and rewards for timely collation and reporting of quality data.
- **Include data from the private sector**. To ensure availability of complete RHI in FP, data capturing tools should allow data reporting from all FP service providers in the private health sector (such as staff at private hospitals, pharmacy store workers, and PMVs).
- **Prioritize adequate staffing.** Understaffing is a barrier to quality routine data in FP, especially at the service delivery level. This saddles FP workers with too many responsibilities, making it difficult for them to fill out routine data capturing forms. More trained staff are essential to encourage proper and adequate data capturing and record keeping.
- **Increase funding for data capturing tools and improvements in technology.** Some facilities do not have data capturing tools, such as client intake forms and other forms, possibly due to inadequate funding of FP RHIS. Shortages of data capturing tools at any level will result in incomplete poor-quality data. The government and other development partners should improve funding for data capturing tools and more efficient communication technology. Data analysis software and information should be provided with training to encourage routine data use especially at the state agency levels.
- **Involve all stakeholders in decision making.** To ensure the effective use of routine data in FP, all FP service providers and stakeholders, must be involved and represented in relevant decision making.
- **Make routine FP data part of the key performance indicators.** This could increase the commitment of stakeholders to collect and use routine, high quality FP data.
- **Provide timely feedback from higher levels on how data generated are being used.** Policy makers and regulatory agency officials need to let data collectors from lower levels know how much they value and use their data. This will help staff appreciate the importance of their work and make them strive to improve data quality.
- **Involve policy makers in data collection.** Engaging policy makers in the data collection process, especially at the facility and service levels, will foster more appreciation for the data and provide valuable insight for devising practical, relevant policies.
- **Allocate funding for regular health data meetings.** The Lagos SMOH organized quarterly health data committee meetings, which have met sporadically due to lack of sponsorship. The forum allows M&E staff from public health facilities and development partners to discuss data issues in person and make recommendations. Regular meetings will greatly encourage the use of RHI data.

CONCLUSION

Relevant stakeholders are aware of RHI in FP in three Lagos state LGAs: Ikeja, Shomolu, and Mainland. However, stakeholder use of RHI in FP-related services is very low: More than half of the respondents have no role with RHI in FP; more than 20 percent are not involved in FP data management, and more than 10 percent have never interacted with FP data. Moreover, stakeholders are poorly trained in data collection, analysis, and use.

None of the respondents' places of work provide the necessary conditions for effective FP data collection and analysis, which reflects the poor state of infrastructure for FP data collection and use. Accordingly, most respondents consider the availability of technology (computers, data collection and analysis software, reliable Internet service, and data storage and retrieval systems) as the most significant facilitating factor to using RHI in FP. Other key facilitating factors are more staff training in data use and allocating more funds for data collection, analysis, and use.

Respondents believe RHI in FP could be useful for crafting policies related to FP and RH interventions, creating budgets, and assigning funding allocations.

They frequently cited inadequate funding for effective data collection as a major barrier to RHI in FP. Other barriers are incomplete and poor-quality data, lack of feedback from higher levels on how data are used, and non-involvement of policy makers in data collection.

We found several significant relationships between respondents' sociodemographic characteristics and their perceptions about facilitating factors for using RHI in FP. For example, respondents' profession is significantly related to their perception that creating advocacy messages, tools, and resources related to FP is a facilitating factor. Their level of FP training is related to the belief that seeking FP data in developing guidelines and standards of practice contributes to FP data use. Moreover, their level of interaction with FP data and years of experience are related to their view that FP data are useful for making presentations and building technical or professional skills and competence.

Based on our findings, we recommend continuous in-service training for people involved in RHI and data use at all levels; adequate provision of data capturing tools/electronic medical records technology; timely feedback from higher levels on how data generated has been used; adequate funding for data generation, transmission and utilization activities; and including FP data from the private sector.

REFERENCES

Asiimwe, A.K. (2015). *Determinants of effective utilization of routine health information within private health facilities in Kampala-Uganda.* A proposal submitted to the School of Business Management in partial fulfillment of the requirements for the award of Masters in Project Monitoring and Evaluation of Uganda Technology and Management University (UTAMU). Retrieved from http://utamu.ac.ug/docs/research/studentresearch/masters/proposals/DETERMINANTS%20OF%20EFFECTIVE%20UTILIZATION%20OF%20ROUTINE%20HEALTH%20INFORMATION%20WITHIN%20PRIVATE%20HEALTH%20FACILITIES%20IN.pdf

Federal Ministry of Health. (2014). *Nigeria family planning blueprint (scale-up plan), October 2014.* Abuja, Nigeria: FMOH, Federal Government of Nigeria. Retrieved from https://www.healthpolicyproject.com/ns/docs/CIP_Nigeria.pdf

Gavin, L., Moskosky, S., Carter, M., Curtis, K., Glass, E., Godfrey, E., . . . Centers for Disease Control and Prevention. (2014). Providing quality family planning services: Recommendations of CDC and the U.S. Office of Population Affairs. *MMWR Recommendations and Reports*, 63 (RR-04), 1–54. Retrieved from: https://www.ncbi.nlm.nih.gov/pubmed/24759690

Hennink, M., & Stephenson, R. (2005). Using research to inform health policy: Barriers and strategies in developing countries. *Journal of Health Communication,* 10(2), 163–180. Retrieved from: https://www.ncbi.nlm.nih.gov/pubmed/15804906

Ikamari, L., Adewuyi, A.A., & Akinlo, A. (2007). *Decision maker perceptions in Kenya and Nigeria: An assessment of data use constraints.* Chapel Hill, NC: MEASURE Evaluation. Retrieved from https://www.measureevaluation.org/resources/publications/tr-07-44?searchterm=Ikamari

Lagos State Ministry of Health (SMOH). (2014). *Lagos state family planning situational analysis.* December 2014. Lagos, Nigeria: SMOH.

Lagos State Government. (2011). *Lagos state literacy survey 2011.* Lagos Bureau of Statistics and Lagos State Agency for Mass Education. Retrieved from http://mepb.lagosstate.gov.ng/wp-content/uploads/sites/29/2017/01/LITERACY-SURVEY-2011.pdf

National Population Commission [Nigeria]. (2014). *Nigeria demographic and health survey 2013.* Abuja, Nigeria, and Rockville, MD: NPC and ICF International. Retrieved from https://dhsprogram.com/pubs/pdf/FR293/FR293.pdf

Nath, S. (2007). *Supplementary report, case studies: Getting research into policy and practice (GRIPP).* Washington, DC: Population Council and U.S. AID. Retrieved from http://pdf.usaid.gov/pdf_docs/Pnadk002.pdf

Pope, J., & Counahan, M. (2005). Evaluating the utility of surveillance data to decision makers in Victoria, Australia. *Sexual Health, 2*(2), 97–102. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/16335746

Sauerborn R. (2000). Using information to make decisions. In Lippeveld, T., Sauerborn, R., & Bodart, C. (Eds.), *Design and implementation of health information systems* (pp.33–48). Geneva: World Health Organization.

Schaufeli, W.B., & Salanova, M. (2007). Work engagement: An emerging psychological concept and its implications for organizations. In Gilliland, S.W., Steiner, D.C., & Skarlick, D.P. (Eds.), *Research in social issues in management, volume 5* (135–177). Greenwich, UK: Information Age Publishers.

World Health Organization. (2008) *Family planning.* Video. Retrieved from http://www.who.int/topics/family_planning/en/

Wilkins, K., Nsubuga, P., Mendlein, J., Mercer, D., & Pappaioanou, M. (2008). The data for decision making project: Assessment of surveillance systems in developing countries to improve access to public

health information. *Public Health*, 122(9), 914–922. Retrieved from
http://www.sciencedirect.com/science/article/pii/S0033350607003563

WORKING PAPER