

# Integrating Family Planning Data in Kenya's DHIS 2

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## **MEASURE** Evaluation

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## ABBREVIATIONS

CPR	contraceptive prevalence rate
DQA	data quality audit
EPI	Expanded Program on Immunization
FGD	focus group discussion
FP	family planning
FP2020	Family Planning 2020
HIS	health information system(s)
HMIS	health management information system(s)
KII	key informant interview
KDHS	Kenya Demographic and Health Survey
MFK	Matibabu Foundation-Kenya
M&E	monitoring and evaluation
MOH	Ministry of Health
MNCH	maternal, newborn, and child health
NACC	National AIDS Control Council
NASCOP	National AIDS and STI Control Programme
RH	reproductive health
USAID	United States Agency for International Development
WHO	World Health Organization

# EXECUTIVE SUMMARY

## Background

Kenya's health information system (HIS) for family planning (FP) is fragmented, preventing the integration of data from multiple sources in meaningful information products. This fragmentation limits the accessibility of data for decision making. Although FP is the second most-funded health program in Kenya in terms of money spent on commodities (primarily short-term contraceptive methods), FP funding is not equitably distributed to other components of the health system, such as human resources, infrastructure, and HIS resources and training (including DHIS 2, a web-based health management information system used to monitor health indicators at the county and national levels). With support from MEASURE Evaluation (funded by the United States Agency for International Development [USAID]), this study investigated integration of FP data in DHIS 2, the factors related to lack of integration, and ways to remedy the lack of integration.

## Methods

Study participants were drawn from the facility, subcounty, county, and national levels of the health system. Eight key informant interviews (KIIs) were conducted with Ministry of Health (MOH) officers from Siaya and Kisumu Counties and a representative from the Division of Health Information Systems, at the national level. Four focus group discussions (FGDs) were conducted with clinicians, nurses, health records officers, and information officers from Siaya and Kisumu Counties.

The study design was cross-sectional and employed a knowledge, attitudes, and practices survey to adequately understand DHIS 2. The data collection techniques included document reviews of print and electronic information, FGDs, KIIs, and field visits. Standard data collection instruments developed for the KIIs and FGDs were pilot-tested to assure validity and reliability of questions. Sampling was based on a purposive sample of users and generators of FP data at the various levels—such as partners implementing FP projects; healthcare providers at MOH facilities (including health records information officers and reproductive health coordinators); and subcounty, county, and national teams. Data were analyzed using SPSS (version 22.0) and NVivo (version 8.0).

## Results

The study results point to poor integration of FP data in DHIS 2, especially compared to HIV and immunization data. Health-facility data are not adequately transferred to the national level, owing to a lack of harmonization of data documentation tools. The quality of data in DHIS 2 (tertiary data tool) does not accurately reflect what is in the MOH 711 (secondary data tool), which in turn does not always reflect what is in the source documents or primary data tools (FP registers). Poor integration results from a lack of standard indicators in FP registers and DHIS 2, incomplete data summary in the MOH 711 and data upload in DHIS 2, and inadequate data analysis and dissemination. Secondary factors that contribute to the lack of integration are missing or incomplete data entry, owing to health workers' heavy workloads; restricted user rights for DHIS 2 access; insufficient training on data collection and data entry; lack of designated staff for data management; and heavy reliance on paper-based forms, which are prone to error.

Participants identified the following measures to improve this situation: consider giving reproductive health coordinators and facility in-charges user rights to DHIS 2, training cadres involved in handling FP data, increasing human resource allocation to FP, improving the data collection infrastructure and equipment in health facilities, and involving health workers in developing FP registers and data summary tools.

# INTRODUCTION

Promoting FP in countries with high birth rates has the potential to reduce poverty and hunger and avert up to 32 percent of all maternal deaths and nearly 10 percent of childhood deaths. Family planning also contributes substantially to women's empowerment, achievement of universal primary schooling, and long-term environmental sustainability (Cleland, et al., 2015). For these reasons, FP is one of the cornerstones of USAID's goal of preventing child and maternal deaths (USAID, 2014).

Kenya is one of the 24 countries where USAID is focusing its efforts on preventing child and maternal deaths (USAID, 2014). Kenya's maternal mortality ratio is 488 per 100,000 live births, although some urban slums in Kenya have an estimated maternal mortality rate as high as 706 deaths per 100,000 births (African Population and Health Research Center, Kenya Ministry of Health, Ipas, and Guttmacher Institute, 2013). The maternal mortality ratio for Siaya County is 691 per 100,000 live births; the under-five mortality rate is 159 per 1,000 live births; and the neonatal mortality rate is 39 per 1,000 live births (Population Action International, 2013).

Pregnancies that occur too early, too late, too closely spaced, or too frequently can lead to poor health outcomes for the mother and child. High unintended pregnancy and high fertility are linked to high maternal mortality rates, and 30 percent of maternal deaths are pregnancy-related (World Health Organization [WHO], 2010). Kenya's fertility rate is 4.6 children per woman; the contraceptive prevalence rate (CPR) is 46 percent; and the unmet need for FP is 24 percent. Twenty percent of pregnancies are unintended, and about a quarter (26%) are mistimed (Kenya National Bureau of Statistics, Kenya Ministry of Health, Kenya National AIDS Control Council, Kenya Medical Research Institute, Kenya National Council for Population and Development, and ICF International, 2014).

Successful FP programs can dramatically reduce fertility, unintended pregnancy, and maternal mortality. Effective use of information systems to accurately track FP use and trends is vital to a strong FP program. Bangladesh's FP program achieved success through routine monitoring of the information system using routine data quality audits (DQAs) and adopting key FP indicators. The country's CPR increased nearly eightfold over 36 years, from just eight percent in 1975 to 61 percent in 2011, and the total fertility rate fell from 6.3 to 2.3 lifetime births per woman (NIPORT, Mitra and Associates, and ICF International, 2013).

Correct and timely information can help governments organize their resources to tackle high-priority health problems. In recognition of this, Kenya's Ministry of Health (MOH), guided by the National Health Sector Strategic and Investment Plan 2013–2017 (National Planning, 2012) and the Kenya Health Policy Framework (Ministry of Health, 2015), developed a monitoring & evaluation (M&E) framework with DHIS 2 as a cornerstone. DHIS 2 is free, open-source computer software used to monitor health indicators in a health information system (HIS) at the county and national levels. It connects all county health departments as well as some high-volume health facilities in Kenya.

Despite its good intentions, the M&E system in Kenya is still fragmented, largely reflecting donor priorities rather than actual health needs. The programs given more national attention, such as those for HIV and AIDS, represent most indicators in the monitoring system, and the lower-priority programs, such as FP, lack key indicators in DHIS 2. After Matibabu Foundation-Kenya (MFK)—a nonprofit community health organization—implemented a reproductive health (RH) program, we realized that some indicators required by donors are not available in DHIS 2. Missing indicators include the number of males receiving information on modern contraceptive methods and the number of HIV-positive clients receiving modern contraceptive methods. Existing indicators in DHIS 2 are generally disaggregated by age, FP method, and new and returning clients. The following key indicators are missing from the system—but are required by Family Planning 2020<sup>1</sup> (FP2020) (2015):

- Number of additional users of modern methods of contraception
- CPR for modern methods
- Percentage of women with an unmet need for modern methods of contraception

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<sup>1</sup> A global FP movement that supports the rights of women and girls to decide freely, and for themselves, whether, when, and how many children they want to have

- Percentage of women whose demand is satisfied with a modern method of contraception
- Number of unintended pregnancies
- Number of unintended pregnancies averted due to modern contraceptive use
- Number of unsafe abortions averted due to modern contraceptive use
- Number of maternal deaths averted due to modern contraceptive use
- Couple-years of protection<sup>2</sup>
- Percentage of women using each modern method of contraception

With support from MEASURE Evaluation (which is funded by USAID) MFK examined whether data were available in Kenya's DHIS 2 that corresponded to FP indicators from MEASURE Evaluation's Family Planning and Reproductive Health Indicators Database (MEASURE Evaluation, 2011) and FP 2020 (Track20, n.d.). We also compared the FP and RH M&E framework in Kenya's National Reproductive Health Strategy 2009–2015 (Kenya Ministry of Health, 2009) with the Kenya National M&E Framework for HIV (National AIDS Control Council [NACC], 2009), which comprehensively covers all six components of an HIS recommended by WHO (WHO, 2010). When comparing the Kenya National M&E Framework for HIV and the WHO Health Management Network framework, we found that the Kenya FP and RH M&E framework is still struggling to align with the national M&E framework for health and DHIS 2. Although a few indicators are listed in the Kenya FP and RH M&E framework, several widely available and internationally recognized FP indicators are missing. For example, the following core FP indicators that are recommended in the MEASURE Evaluation database are not part of Kenya's M&E framework:

- FP program effort index
- Couple-years of protection
- Source of supply (by method), contraceptive continuation rates
- Percentage of births that are reported as unintended
- Desire for additional children
- Percentage of women of reproductive age who have heard about at least three methods of FP
- Percentage of the population who know of at least one source of modern contraceptive services and/or supplies

These are not recommended in the Kenya RH Strategy 2009–2015, but some are gathered through the Kenya Demographic and Health Survey, which occurs every five years.

## Study Objectives

MFK, with the support of MEASURE Evaluation, undertook a study between September 2015 and August 2016 to answer the following questions:

What is the status of FP data (using the WHO Health Management Network framework) in DHIS 2?

1. Why is this the case? (What factors are associated with FP data's status in DHIS 2?)
2. How can this situation be remedied? (How can the status of FP data be improved in accord with the WHO framework?)

The knowledge gathered from the study will be used to improve integration of FP data in DHIS 2, specifically advocating prioritization of key FP programmatic indicators at the county and national levels during seminars, conferences, stakeholder meetings, and consultative HIS meetings with stakeholders for revised FP data forms in DHIS 2. MFK plans to harmonize DHIS 2 data with the WHO framework,

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<sup>2</sup> Couple years of protection "is the estimated protection provided by contraceptive methods during a one-year period, based upon the volume of all contraceptives sold or distributed free of charge to clients during that period." Source: <https://www.usaid.gov/what-we-do/global-health/family.../couple-years-protection-cvp>

through health systems strengthening, by involving the MOH's divisions of RH and health informatics and the Siaya County health management team. Additionally, MFK will work with Abt Associates—the designer of the DHIS 2 system in Kenya—to incorporate the new indicators in DHIS 2. This will be done through their Afya Info project, which is being implemented by the University of Nairobi and University of Oslo.

# METHODS

## Study Setting

The study was conducted in Siaya and Nairobi Counties, and the pre-test was done in Kisumu County. These are urban (Nairobi), peri-urban (Kisumu), and rural (Siaya) settings. The interviewees were drawn from both public and private health facilities at all levels, from the primary level to county referral hospitals.

## Study Design

A cross-sectional qualitative evaluation was employed using KIIs and FGDs. The information collected from these was supplemented with a document review and informal observations.

## Sampling

We adopted a purposive sampling approach that was useful in identifying information-rich cases from users and generators of FP data at the various levels, such as partners implementing FP projects; healthcare providers at MOH facilities (including health records information officers and RH coordinators); and subcounty, county, and national teams.

## Data Collection

Semistructured, open-ended, in-depth interview guides and FGD guides were developed with close consultation between the MFK team and research experts and consultants. The interviews were administered in person and through Skype calls and videos. The data collection instruments were pilot-tested to assure validity and reliability of the questions through an iterative process. The interviews were conducted in a language convenient to the respondents—mostly English and Kiswahili. All the interviewers were competent in both languages.

The research team conducted four FGDs and eight KIIs focusing on these areas:

- Knowledge of the WHO Health Metrics Network Framework (World Health Organization, 2008) and FP data management system in Kenya
- Attitudes toward FP data management systems and processes
- Practices around FP data management and its relevance

The focus groups comprised healthcare providers from public and private health facilities, RH coordinators, subcounty health records information officers, and subcounty public health nurses. The key informants were professionals from various levels of the county health system and national MOH, donors, and implementing partners.

## Field Visits

The MFK team visited county government officials; subcounty teams; national representatives; nongovernmental organizations; and the county health management teams in Kisumu, Siaya, and Nairobi Counties. Team members met with people at the management level as well as service providers. The researchers took detailed notes and audio-recorded the conversations for later discussion and analysis.

## Document Review

In the initial phase of the assessment, and throughout the study, the team reviewed several background documents. During meetings and interviews, the team requested additional relevant documents from individuals and entities. These documents were also reviewed in detail. The team benefitted from previous assessments, which had already identified many common HIS challenges. In conducting its own assessment, the research team used MFK's support for implementation of DHIS 2 at the county level as an entry point.

## **Data Analysis**

The FGDs, in-depth interviews, and audio-recordings were transcribed verbatim. Transcripts were translated into English, where necessary, for analysis using a meaning-based approach. Thematic data analyses were performed using NVivo version 8.0 (QSR International). All text was read thoroughly by an experienced qualitative data analyst to develop a data-driven codebook. A standard, iterative, qualitative data analysis approach was applied to ensure all relevant text had been coded and that codes were applied consistently. Key concepts that were analytically prominent—based on their recurrence and emphasis by a study participant (i.e., salient concepts)—and co-occurring concepts were examined and organized into broader thematic categories for interpretation and synthesis. The demographic information was summarized using SPSS version 22.0 (IBM Corporation).

## **Ethical Considerations**

The study protocol was reviewed and approved by the Ethical Review Committee of Jaramogi Oginga Odinga Teaching and Referral Hospital. Informed consent was administered to all the study participants. They were told that they could withdraw from the study at any time. The participants did not use their names during the recordings for purposes of anonymity, and the discussions were held in a quiet, private location, without disturbances. All benefits, including the report, have been shared with the participants.

# RESULTS

## Demographic Analysis

Four FGDs were completed with facility-level and subcounty-level officers across five subcounties. An additional eight KIIs were conducted with MOH officers from the subcounty and county and an MOH representative from the National Health Information and Records Office.

Most (59%) FGD participants were clinicians and nurses; about a quarter (24%) were health records and information officers; and the remaining 17 percent were subcounty RH coordinators. Current work experience was lacking, with the majority (88%) of the 36 participants interviewed reporting five years or less work experience in their current positions and 67 percent reporting no or exposure to DHIS 2.

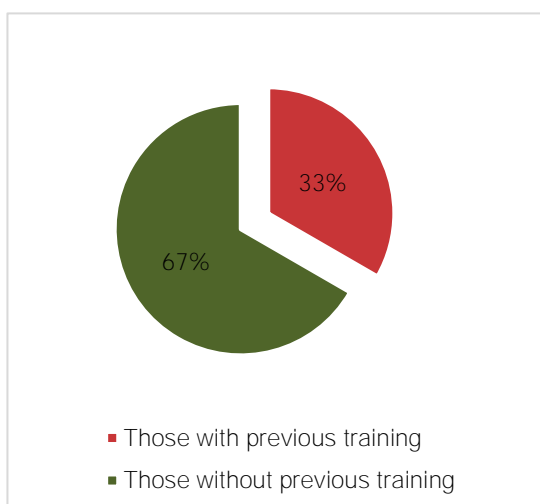
**Table 1. Number of FGD participants, by cadre**

Cadre	Females	Males
Nursing officers	14	1
Clinical officers	0	3
Health records information officers	2	2
Subcounty health records and information officers	0	2
Subcounty RH coordinators	2	3
<b>TOTAL</b>	<b>18</b>	<b>11</b>

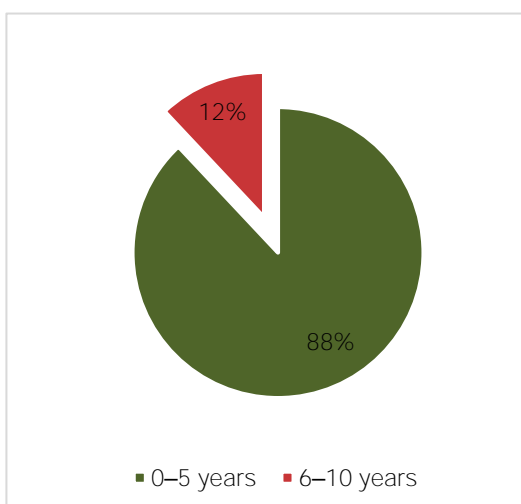
**Table 2. Subcounties represented in the FGDs**

Subcounty	County	Number of people represented
Ugunja	Siaya	7
Gem	Siaya	5
Ugenya	Siaya	2
Alego-Usonga	Siaya	7
Nyando	Kisumu	8
<b>TOTAL</b>		<b>29</b>

**Figure 1. DHIS 2 training**



**Figure 2. Years of work experience**



## Status of FP Data in DHIS 2

### HIS Resources

The interviews revealed that few of the MOH officials, including the records and information officers across different cadres, were aware of the components of the FP data management system or DHIS 2 framework, as recommended in the WHO framework. (Those components include HIS resources, data sources, indicators, data management, information products, and dissemination and use.) However, interviewees did mention some elements relating generally to DHIS 2, and a few referenced the national policy guidelines and strategic plans that support implementation of the HIS in Kenya. The following elements were among those mentioned: staffing, equipment, and policies as elements of the HIS; indicators; daily reporting tools as components of data sources; and monthly aggregate reporting tools and DHIS 2 as elements of data management.

Access to DHIS 2 is restricted based on the type of user rights assigned to an individual (data entry and editing rights, data entry rights only, and viewing rights only). Most participants do not have user rights. Consequently, most facility-level staff are unable to enter data directly in DHIS 2. The lack of user rights was cited as the main hindrance to using DHIS 2. Data entry and editing rights are restricted to the subcounty health records and information officers, only. The interviews revealed a lack of clear criteria to guide how access is granted to DHIS 2 user privileges.

*Within the facility or wards, they are managed by the nurses, people who come close to the patients, then at the end of the months, the nurses summarize the data, then hand over to HRO [health records officer], who have the rights to enter this data to the system. We are moving towards that. . . . We are giving user rights to various facility in-charges and nurses so that they are able to summarize and enter this data by themselves. (KII with a health official)*

*Maybe to add on what my fellows have said, we are underutilizing DHIS 2. . . . Do you realize the number of health workers who cannot access DHIS 2, because they do not have user rights? But for us who have access, we may have better understanding on which intervention appropriate are based on the indicators. This data can also be used for planning, and of course you cannot change the data in DHIS 2; it's only the DHRIO [district health records and information officers] who have the rights to make the changes. It's important for facilities to understand how to use DHIS 2, because if they have DHIS 2, they would be able to check what has been entered from the facility with what is in the reporting tools. (FGD with healthcare providers)*

### Indicators

The respondents expressed mixed feelings regarding the adequacy of the FP indicators in DHIS 2. Most participants reported that the indicators are adequate but have some limitations—that is, they only capture output and input levels.

In addition, a lot of service delivery information does not get into DHIS 2, such as the number of clients tested for HIV at FP clinics, FP method discontinuation, changing methods, and reasons for change. Because of these inadequacies, DHIS 2 does not accurately represent what is happening on the ground. Incomplete, inconsistent, or poor-quality data cannot be used as a reliable source for secondary data analysis, and therefore cannot inform decisions beyond the output level.

*The registers do not provide information on how you can trace and follow up clients, and so the register should have things like phone numbers, real homestead, and the name of the home, for easy tracing and follow-up of clients. There are some inadequacies in the comprehensiveness of information that need to be captured within DHIS 2 as pertains to family planning; like, if we want to know how many youths are using family planning, that data might not be gotten from DHIS 2. (KII with a health official)*

In terms of data quality, nearly all participants pointed to poor-quality FP data in DHIS 2, with inconsistent quarterly DQAs.

*Data quality issues is a major concern of the county, and there's need to have regular data quality audit and supervision as one of the activities done at the facility, by comparing primary and secondary sources, and even comparison with DHIS 2, and come up with report. (KII with a health official)*

Some of the FP indicators are incorrectly tracked at the facility level, such as the number of clients using condoms. Providers count the number of pieces distributed, instead of the number of clients provided with condoms, thereby rendering the data inoperative.

*We have family planning registers or daily activity registers, where all clients seen are recorded, which I think is well done, though there may be areas like completeness, areas that are not completed; and I would not want to elaborate so much, but there are things we don't capture, like when it comes to reporting, like how many people are using condoms for family planning. It is usually a challenge. That is, now, from my experience, it is so difficult to get how many people are using condoms for family planning as a method in family planning; so, our data is really not up to date, but we try. (FGD with healthcare providers)*

## Data Sources and Management

Routine data that are collected at the point of service delivery in health facilities, such as FP method, age of client, and total commodities used, are entered manually in a daily activity register. At the end of the month, all the data from the registers at public health facilities throughout the country are manually aggregated, and the information is entered in a paper-based MOH summary tool, known as the MOH 711. The MOH 711 also contains aggregated data from the commodities consumption report. The MOH 711 tool is used as a template to transfer data to DHIS 2. Though it is the sole responsibility of the subcounty health records and information officers to transfer the data from the MOH 711 to DHIS 2, a few facilities—especially high-volume facilities—reportedly enter their own data at the facility level.

Nearly all healthcare providers involved in the FGDs mentioned that health facilities do not designate an accessible, fixed location for safekeeping of the FP registers. This makes consistent data entry difficult for healthcare providers, who, in nearly all cases, are responsible for recording FP data, in addition to their primary responsibility of offering FP services.

## Data Use

Most study participants used data for decision making and analyzed the data in their raw form to make decisions. They obtained the data directly from the paper-based reports. Those with DHIS 2 user rights accessed the data directly from the site. Most participants used the FP data for performance management and to track stocks of FP commodities.

*When I treat, I should fill the register, but some people treat and fill the register later. I have seen a situation which the health provider has gone on an outreach and have taken the data on a piece of paper, and, going back to the facility, they find that they have lost the paper. (FGD with facility in-charges)*

*There is some inadequacy somehow with the comprehensiveness of the information that needs to be captured within DHIS 2 as pertaining to family planning, because, I believe, right now, if we want to know how many youths are using family planning, that data may not be gotten within DHIS 2. (FGD with a county chief nursing officer)*

## Factors Associated with the State of FP Data in DHIS 2

### HIS Resources

Legislative policies and priorities influence what data are captured and reported on in DHIS 2. Results of the interviews showed that maternal, newborn, and child health (MNCH) is the top county and country health priority, with skilled birth attendance and immunization being the key MNCH focus areas. A few participants referred to Kenya's health policy as the guiding document on prioritization of health areas.

*That system was developed, and it sticks on the mind of the healthcare provider. And the first thing when you are employed as a service provider, when you go to a health facility, I think the first thing, the first orientation you will be given, you will be taken to the MCH (Maternal and Child Health). And specifically, you will be talked to about imm . . . ? (Chorus response from the rest of participants: immunization). Therefore, as you run the facility, your mind will . . . actually if you look at data management, you will find that data management for facilities is very good. They can do badly in every other thing, but just go to data for immunization: very good! (FGD with a subcounty RH coordinator)*

Siaya County also prioritizes HIV and malaria, because of the burden of these diseases in the county. A few participants pointed to the global prioritization of HIV and immunization. Family planning, according to most participants, is not given the priority it deserves, because it is considered an “opt-in, opt-out” service, unlike immunization, for example, which is used as an indicator of a population’s health status. Some participants also pointed to controversies surrounding certain FP indicators, such as provision of FP services to adolescents, and personal biases and attitudes on the part of healthcare providers that restrict service provision to this age group.

Programs, such as HIV, that are prioritized at the global and national levels are well-funded, and they have well-established and well-managed systems for all aspects, such as commodities and logistics, service delivery, and data management. Immunization, though not considered well-funded by most participants, is well-managed, owing to the grave health consequences that accompany non-adherence to the required vaccinations. Conversely, FP is prioritized neither at the policy nor HIS levels; therefore, facilities place less emphasis on recording FP data.

*If you look at FP, everything in FP is not a must. I must not pick pills, I must not pick this. . . . Yes, it is optional . . . but if you go to immunization, that child must get all the immunization in sequence, as they are needed. And it is pumped into your head and bum, believe me not, everyone coming to your facility will look at your immunization data. And there’s even a chart on the wall, you see how that program was developed, even now when there’s no funding; starting from acquisition of commodities to use and reporting, the system was very clear and very strict, “what did you do, and why is this fridge like this?” . . . And that is how it is pumped into your head. . . . The system detects you. (FGD with sub-county RH coordinators)*

*The best practice is to make something important, make FP (an) important unit and advocate for yourself to manage it so, . . . you will realize that NASCOP [the National AIDS and STI Control Programme] was housed in the Office of the President. (KII with a national health official)*

Most participants stressed the importance of equipping health facilities with requisite tools and equipment, including paper-based tools, computers, Internet connectivity, and software for data capture and reporting. Where the supply of FP registers is inadequate, health providers are forced to improvise.

## Data Quality

The use of nonstandard and non-comprehensive data-capture tools was reported as a contributing factor to inaccurate and incomplete FP data in DHIS 2. The respondents reported that, not only do the versions of the registers change frequently, but also health workers are hardly consulted or trained on the subsequent adjusted versions or the key components of the tools. Inconsistent data collection and transmission procedures were reportedly rampant, resulting in discrepancies between figures in DHIS 2 and facility-level data. In some cases, participants mentioned overreporting and underreporting as data quality challenges, including a few cases of overlapping or conflated indicators.

*What I know is that with family planning, we are offering this service up to community level, which we have community-based distributors of the contraceptives, so we have data being collected from the community level; and even under*

*community strategy, they have the tool which they use to collect some basic information on FP. And some community units are actively doing distribution of contraceptives, so data are being collected at that level. Then, at facility level, we have the registers, consumption tools, and then the reporting tools, which summarize the consumption tools at different level. I know there is no specific one [tool] for family planning that is really standard for all, but very different cases, we have the support of the program coming up with a tool at community level that helps them collect information maybe on the condoms and the pills. (KII with a health official)*

Parallel reporting systems and competing interests from different MOH divisions and partners, using varying, nonstandard tools, reportedly created an impediment to the centralization and harmonization of data systems within DHIS 2. The data capture sometimes happens in real time, immediately after offering a service, or, in many cases, the providers opt to wait until the end of the day before entering the data in the register of choice. In some cases, the data capture was done by a provider different from the one who offered the services.

*The task sometimes overwhelm the staffs, who would end up with forgetfulness. The notion of I'll tally tomorrow, and again, tomorrow comes—I'll tally the next day. So, it is continuous. When you come back tallying at the end of the month, you end up tallying wrong information. Your addition might not be right, so you find discrepancies in data; DHIS 2 is not the same as data in the facility. This has happened several times. We even have this report last week, during review meeting, and underreporting—to mean what we have on the ground is not what we have at DHIS 2. It's either due to shortage of staffs, or somebody is not able to fill in data at the right time. The ideal is, one should give the service and then tally real time, then give the document by the end of the day tally. . . . Or is it the monthly reporting is a challenge, since we have to compete with the deadline? (FGD with health facility in-charges)*

*[Verifying data] immediately is usually a big challenge . . . to check data on delivery as he is saying, unless you do have primary tools [source documents] there, [in many instances] unless you see grievous mistake, like somebody has reported yellow fever vaccine, then you can just start thinking that we don't give yellow fever vaccine in this region. . . . But just counterchecking is usually difficult. He is talking of DQA. The requirement is that we should do it quarterly, but do we have those funds? I'm very sure the whole of this year, we have gone two quarters without doing DQA. Actually, we have a very big problem with data as of now, because we were just thinking aloud; how are we sure that these things we are reporting are the actual data on the ground? (FGD with subcounty health records and information officers)*

## DISCUSSION

In September 2011, Kenya deployed a completely online national HIS—the first country in sub-Saharan Africa to do so. All districts and selected health facilities connect to the DHIS 2 national server using mobile Internet (bundles and universal serial bus [USB] modems) on their computers. After one year of countrywide use, the national reporting rates for the major monthly forms were stable, at above 90 percent. Approximately 2,000 users were entering data and employing the data analytics features in DHIS 2 to improve management of health districts and other administrative areas. The Kenya MOH allows self-registration of personal user accounts, so people are free to log in and have a look (DHIS 2, 2014).

Kenya's health programs (e.g., HIV, FP, and malaria) are at different stages of integration in DHIS 2. Although FP data are available in DHIS 2, they are not as well-integrated as data on HIV or on the Expanded Program on Immunization (EPI).<sup>3</sup> Participants identified these programs as having the best data management systems in DHIS 2. These programs are prioritized at the national and even global level, which leads to a streamlined and efficient system for service delivery, data management, and resource management.

In the context of health systems, the purpose of data integration is to consolidate data, from primary to tertiary levels. Our findings revealed that this consolidation is incomplete, because some components of the FP registers are not captured in DHIS 2—components such as referrals and community-based distribution of contraceptives, as well as other RH services, such as counseling and testing for HIV and cervical cancer screening. The MOH 711 includes FP methods that are recorded in neither FP registers nor in DHIS 2. These methods are modern contraceptive methods, such as injections, implants, intrauterine devices, or pills; permanent methods, such as bilateral tubal ligation or vasectomy; and natural methods. This lack of integration in the HIS calls for a review, to harmonize the data sets from different sources and achieve completeness and accuracy.

Most facilities have poor infrastructure for data management, lacking basic tools and equipment to support effective data capture, transfer, integration, and the interoperability of different data sets on the DHIS 2 platform. Standard tools for data collection, with clearly defined indicators that have distinct and concise parameters, are paramount to improving FP data quality and management within DHIS 2. Deploying these tools should be a top priority. Harmonizing the MOH national, county, and inter-division policies and priorities; synchronizing indicators; and developing standard definitions are equally crucial steps to eliminate ambiguities in the system.

The interviews revealed that FP data, like other forms of MOH data, are predominantly captured and transmitted manually. This mode of data capture and transfer poses significant ramifications regarding timeliness, safety, and the overall integrity of the data. The staff tasked with collecting these data receive no prior training on the data collection and reporting tools or the indicators of interest. Continuous capacity building has the potential to boost staff morale, improve performance, educate staff on the importance of high-quality data, and minimize indifference, particularly apathy regarding data quality.

There is an urgent need for task shifting, starting with the identification and recruiting of relevant data personnel at the facility level to alleviate the unreasonable data management workload on providers who are already overloaded with the important business of curative services. Having a focal person responsible for data capture and transfer daily will be enhance accountability and responsiveness.

Health programs all over the world rely on real-time, evidence-based information generated through HIS to provide accurate, relevant, and timely health services. The research findings have revealed shortages of infrastructure, trained staff, and tools and technologies that the WHO framework denotes as necessary inputs in any system. Policymakers and health system managers must address these identified gaps to ensure complete and accurate FP data integration. As exemplified by Bangladesh's experience (National Institute of Population Research and Training, 2005), FP data integration may help the country achieve its ambitious CPR target of 80 percent by 2017, thereby reducing unintended pregnancies and maternal deaths and

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<sup>3</sup> This program was established in 1980 to coordinate immunization services targeting 6 killer childhood illnesses but presently has incorporated new vaccines and a vaccination program for women.

contributing to the achievement of the United Nations' Sustainable Development Goals (United Nations, 2015).

Additionally, the data emphasize the need to issue user-access privileges to DHIS 2 at the facility level based on standard, nonbiased criteria. This should be followed by basic training on the DHIS 2 platform. Implementing this approach will enhance ownership of the system, improve user confidence and competence, and improve the quality of data capture and transmission at the FP clients' point of contact. Making DHIS 2 more accessible will go a long way toward creating the larger pool of local expertise that will be necessary for complete data and a sustainable system.

Finally, the interviews reveal an important and urgent need to develop local data quality control and assurance systems. DQAs must be developed through a consultative stakeholder involvement process to ensure operability and sustainability. These systems will minimize cases of over- and under-reporting of data, missing data, and overlapping indicators, and they will strengthen FP data in the DHIS 2 system.

## **Limitations and Strengths of the Study**

Because this research relied on self-reported data, recall bias, attribution, and social desirability bias are possible. Our study primarily employed purposive sampling techniques to recruit participants; therefore, our findings may not be generalizable to the wider population of DHIS 2 stakeholders. In-depth perspectives of the frontline collectors and users of data provided unique insights into the nuances of FP data integration issues.

## **Recommendations and Next Steps**

Although integration of FP data in DHIS 2 is problematic, study participants repeatedly pointed out that integration cannot be expected when some very basic requirements have not been met. Strengthening the health system is therefore a prerequisite to successful integration of FP data in DHIS 2. This is a resource-intensive endeavor that cannot be completed in the short term; it requires long-term planning, management, and funding. To specifically address the lack of integration of FP data in DHIS 2, we have developed several recommendations.

### **Prioritization of the FP Program**

A few participants stressed the need for FP to stand on its own, like the HIV and AIDS program and the EPI. As with HIV reporting, FP reporting should be detached from the RH program and moved from the community to the national level, with officers focusing on specific FP indicators at each level. Advocating a greater focus on FP is essential to achieving disaggregation. Advocacy is needed at the highest levels of government, and internationally, for full integration of FP data to occur in health M&E systems, such as DHIS 2. Resources for FP M&E systems are just as integral to an effective HIS as those for EPI and HIV programs.

### **Staffing**

Participants acknowledged that facility data management is an important and full-time job. Therefore, the task must be assigned to specific people whose sole duty is data management (data officers). Our recommendation is to hire necessary staff, such as data entry clerks and health records information officers, for data collection. An alternative is to train staff members who are already handling data (implement task-shifting) to ensure that the necessary data are collected and used. In addition, we recommend improving user access to the DHIS 2 platform to enhance data ownership and use.

### **Training**

Most participants emphasized the need to conduct capacity building and regular trainings on data collection procedures, DHIS 2 modules, information flow, and DHIS 2 operation. These trainings should be followed by regular, systematic, and supportive supervision. Some reiterated the need to sensitize users on the importance of ensuring data integrity and collecting high-quality data.

### **Consultative Approach**

Participants suggested a consultative approach to including new indicators in updated FP data collection modules. A consultative approach would entail a shared understanding of the meaning and relevance of the

indicators, as opposed to a top-down approach, where tools are developed without the input of the users. Just as important, all indicators must be carefully and concisely defined.

### Infrastructural Upgrade

Participants noted the obvious lack of equipment and tools necessary for centralizing storage of FP data and enhancing the quality of data across the MOH's data management system, particularly in primary healthcare facilities. Participants emphasized the need to harmonize registers across MOH divisions and partners. We recommend providing standard tools and equipment to staff for FP data capture, upload, analysis, feedback, and use.

### Data Quality

The quality of FP data needs improvement. Collected data must be accurate, complete, and timely. Once FP data have been integrated in DHIS 2, they must be reliable in order to be useful.

### Evaluation

A mixed-methods survey evaluation with a larger sample size, including qualitative and quantitative data elements, should be done to substantiate the findings of this study. A prospective or longitudinal study could be instituted to assess the effects of FP data integration on CPR and other relevant FP2020 indicators.

## CONCLUSION

The findings of this evaluation point to an important intervention gap regarding DHIS 2 mainstreaming in the MOH data system. The findings also reveal useful insights on data collection, management, and an integration issue in Kenya's HIS, including the DHIS 2 platform. We found a lack of integration of FP data in DHIS 2, which the study participants confirmed, and inadequate integration of the WHO framework in DHIS 2. Some of the following factors contribute to this lack of integration: rampant lack of knowledge and access to DHIS 2; competing interests among intergovernmental agencies, leading to lack of focus on FP data collation and use; inadequate preparation in building the infrastructure for integrating FP data, which has led to low usage of DHIS 2; and ill-trained and ill-prepared staff who are not able to use DHIS 2. However, with minor improvements in these areas, the necessary data can be integrated in DHIS 2 to address the needs of stakeholders and become "one unified and integrated, country-owned, country-led, national health information system" (USAID/Namibia, 2012).

## REFERENCES

- African Population and Health Research Center, Kenya Ministry of Health, Ipas, and Guttmacher Institute. (2013). Incidence and complications of unsafe abortion in Kenya: Key findings of a national study. Nairobi, Kenya: African Population and Health Research Center, Kenya Ministry of Health, Ipas, and Guttmacher Institute. Retrieved from <http://aphrc.org/wp-content/uploads/2013/11/Incidence-and-Complications-of-Unsafe-Abortion-in-Kenya-Key-Findings-of-a-National-Study.pdf>
- Blumhagen, D., Khan, T., Ndung'u, M., & Settim, S. (2010). *USAID/Kenya: Assessment of national monitoring and evaluation and health management information systems*. Washington, DC, USA: United States Agency for International Development. Retrieved from <http://ghpro.dexisonline.com/resource/usaidkenya-assessment-national-monitoring-and-evaluation-and-health-management-information>
- Cleland, J., Bernstein, S., Ezeh, A., Faundes, A., Glasier, A., & Innis, J. (2006). Family planning: The unfinished agenda. *The Lancet*, 368((9549)) 1810–1827 Retrieved from [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(06\)69480-4/abstract](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(06)69480-4/abstract)
- DHIS 2. (2014). DHIS 2 in action. Retrieved from <https://www.dhis2.org/inaction>
- Family Planning 2020 (FP2020). (2015) FP2020 core indicators. Track 20 monitoring progress in family planning [web document]. Retrieved from [http://track20.org/pages/data\\_indicators.php](http://track20.org/pages/data_indicators.php)
- Kenya Ministry of Health (MOH). (2009). *National Reproductive Health Strategy 2009–2015*. Nairobi, Kenya: MOH. Retrieved from <https://www.k4health.org/toolkits/kenya-health/national-reproductive-health-strategy-2009-2015>
- Kenya National AIDS Control Council (NACC). (2009). *Kenya National AIDS Control Council 2009/2010–2012/2013*. Nairobi, Kenya: National AIDS Control Council (NACC).
- Kenya National Bureau of Statistics, Kenya Ministry of Health, Kenya National AIDS Control Council, Kenya Medical Research Institute, Kenya National Council for Population and Development, and ICF International. (2015). Kenya demographic and health survey 2014. Retrieved from <http://dhsprogram.com/publications/publication-fr308-dhs-final-reports.cfm>
- MEASURE Evaluation. (n.d.). *Family planning and reproductive health indicators database*. Chapel Hill, NC, USA: MEASURE Evaluation, Population and Reproductive Health Project, University of North Carolina. Retrieved from [https://www.measureevaluation.org/prh/rh\\_indicators](https://www.measureevaluation.org/prh/rh_indicators)
- Ministry of Health. (2014). Kenya Health Policy 2014–2030. Nairobi: Ministry of Health. Retrieved from <http://publications.universalhealth2030.org/ref/d6e32af10e5c515876d34f801774aa9a>
- Ministry of Public Health and Sanitation (2012). Health sector strategic and investment plan (KHSSP) July 2013–June 2017. Nairobi: Ministry of Public Health and Sanitation. Retrieved from [http://www.nationalplanningcycles.org/sites/default/files/country\\_docs/Kenya/draft\\_khssp\\_-\\_14\\_november\\_5\\_.pdf](http://www.nationalplanningcycles.org/sites/default/files/country_docs/Kenya/draft_khssp_-_14_november_5_.pdf)
- National Institute of Population Research and Training (NIPORT), Mitra and Associates, and ICF International. (2016). *Bangladesh demographic and health survey 2014*. Dhaka, Bangladesh and Claverton,

Maryland: NIPORT, Mitra and Associates, and ICF International. Retrieved from <https://dhsprogram.com/pubs/pdf/FR311/FR311.pdf>

Population Action International (PAI). (2013). *Siaya County*. Washington, DC, USA: PAI.

USAID/Namibia. (May 2012). *Assessment Of National Health Information Systems*. Washington, DC: Global Health Technical Assistance Bridge Project.

United Nations. (2015). Transforming our world: The 2030 agenda for sustainable development. Retrieved from [http://www.un.org/ga/search/view\\_doc.asp?symbol=A/RES/70/1&Lang=E](http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E)

United States Agency for International Development (USAID). (2014). Acting on the call. Ending preventable child and maternal deaths. Washington, DC: USAID. Retrieved from [https://www.usaid.gov/sites/default/files/documents/1864/USAID\\_ActingOnTheCall\\_2014.pdf](https://www.usaid.gov/sites/default/files/documents/1864/USAID_ActingOnTheCall_2014.pdf)

World Health Organization (WHO). (2008). Framework and standards for country health information systems. Geneva, Switzerland: Health Metrics Network, WHO. Retrieved from [http://apps.who.int/iris/bitstream/10665/43872/1/9789241595940\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/43872/1/9789241595940_eng.pdf)

World Health Organization (WHO). (2010). Key components of well functioning health systems. Geneva, Switzerland: WHO Press. Retrieved from [http://www.who.int/healthsystems/publications/hss\\_key/en/](http://www.who.int/healthsystems/publications/hss_key/en/)

# APPENDIX A. KEY INFORMANT INTERVIEW GUIDE

*Indicate National/County/Sub-county:* .....

*Date:* ..... *Participant ID:* .....

*Interview type (FGD/KI):* ..... *Interviewer ID:* .....

## Introduction

Hello, my name is \_\_\_\_\_. I want to thank you for agreeing to take part in this interview today. You are being asked to take part in an interview conducted by Matibabu Foundation. The purpose of this interview is getting your input on the FP data framework as outlined in DHIS 2. This is not a test but an activity to help us identify the areas for improving the efficiency of FP information systems.

The interview will take about an hour. Because there will be a lot of information that I will not be able to remember or write down, I would like to audio record this interview. Your name will not be used. You may ask me to turn off the recorder at any time if you want to share information, but would not like it tape recorded. I will turn the recorder back on after this information has been shared.

I would like you to be as honest as you are comfortable being so that we can get the best information possible. There will be time after the interview to address any questions or comments that you might have.

Do I have your permission to tape record this discussion?

## (TURN ON TAPE RECORDER)

### FP Data

1. What are the country/county's health priorities in this financial year?
2. In Kenya and around the world, there are continuous discussions on a unified HMIS, in your observation, what do you think about this unification? How far have we reached as a country in achieving that unification?
3. *WHO Framework*
  - a. Are you familiar with the WHO Health Information System (HIS) Framework?
  - b. Probe for what components of the system they are familiar with (*and why*)?
  - c. In your assessment, how would you compare the FP HMIS to that WHO system?
4. Family Planning Data Management System:
  - a. Tell us what you know about FP data management system in Kenya (probe for some of the components)
  - b. What are your thoughts regarding family planning data management system in Kenya?
  - c. What is your role in the FP data management system at your place of work? (Probe for their experience as they undertake their roles – enablers/challenges).
5. Tell me your thoughts regarding FP data management system as outlined in DHIS 2:
  - a. Tell us what you know about DHIS 2 (probe for some of the components)
  - b. What are your thoughts regarding DHIS 2 in Kenya?
  - c. Thinking about your role as:

- i. (For government KIs): a key decision maker in the sub-county/county/country), what are your thoughts regarding the relevance of the FP data management system as outlined in DHIS 2 to your work?
  - ii. (For partner KIs): a key partner in the county/country, what are your thoughts regarding the relevance of the FP data management system as outlined in DHIS 2 to your work?
- 6. Are there any lessons learnt with implementing the FP data management system as outlined in DHIS 2? (Probe for challenges/barriers and facilitators).
- 7. What are some of the best practices or lessons learned for integration that you think we can emulate from other successful programs in/outside the country.
- 8. Are there any other thought on alternative ways of ensuring successful implementation of the FP DHIS 2 data management system?

Thank you for your thoughtful responses. I have no further questions, so this marks the end of the discussion. Is there anything that we have not talked about that you would like to share with me?

# APPENDIX B. FOCUS GROUP DISCUSSION

Indicate National/County/Sub-county: .....

Date: ..... Participant ID: .....

Interview type (FGD/KI): ..... Interviewer ID: .....

## Introduction

Hello, my name is \_\_\_\_\_. I want to thank you for agreeing to take part in this interview today. You are being asked to take part in an interview conducted by Matibabu Foundation. The purpose of this interview is getting your input on the FP data framework as outlined in DHIS 2. This is not a test but an activity to help us identify the areas for improving the efficiency of FP information systems.

The interview will take about an hour. Because there will be a lot of information that I will not be able to remember or write down, I would like to audio record this interview. Your name will not be used. You may ask me to turn off the recorder at any time if you want to share information, but would not like it tape recorded. I will turn the recorder back on after this information has been shared.

I would like you to be as honest as you are comfortable being so that we can get the best information possible. There will be time after the interview to address any questions or comments that you might have.

Do I have your permission to tape record this discussion?

(TURN ON TAPE RECORDER)

## FP Data

### 1. Health Priorities:

- a. What are the county's top 5 health priorities this year?
- b. Probe: In your opinion, do you consider those as the priorities?

### 2. What comes to your mind when you hear about family planning?

### 3. Family Planning Data Management System:

- a. Tell us what you know about FP data management system in Kenya (probe for some of the components)
- b. What are your thoughts regarding family planning data management system in Kenya?
- c. What is your role in the FP data management system at your place of work?

### 4. DHIS 2:

- a. Tell us what you know about DHIS 2 (probe for some of the components)
- b. What are your thoughts regarding DHIS 2 in Kenya?
- d. What is your role in DHIS 2 at your place of work?

### 5. What are your observations regarding FP data management system relative to other health programs that also channel their data through DHIS 2? (probe for differences and similarities)

- a. Thinking about your work, what are your thoughts regarding the relevance of the FP data sets as outlined in DHIS 2?

6. Thinking about the work that you and your colleagues do, could you share with us the lessons learnt with implementing the FP data management system as outlined in DHIS 2? (Probe for challenges/barriers and facilitators)
7. (For challenges, ask for :) How best do you think these challenges can be addressed?
8. Thinking about the work that you and your colleagues do, what are some of the opportunities that can enhance the implementation of the FP data management system as outlined in DHIS 2? And why?
9. Are there any other thoughts on alternative ways of ensuring successful implementation of the FP DHIS 2 data management system?

Thank you for your thoughtful responses. I have no further questions, so this marks the end of the discussion. Is there anything that we have not talked about that you would like to share with me?



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