Dissemination Report:

Results from Implementation Strength Assessment, Quality of Care Evaluation and Coordinator Survey Evaluating Malawi's National Family Planning Program

August 2019

Working Paper for
Technical Working Group Meeting

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Acronyms

CBDA	Community-based Distribution Agents
DHS	Demographic and Health Survey
DIP	District Implementation Plan
FP	Family Planning
GAC	Global Affairs, Canada
HFW	Health Facility Worker
HSA	Health Surveillance Assistants
IC	Facility In-Charge
IEC	Information, Education and Communication
IIP	Institute for International Programs
ISA	Implementation Strength Assessment
IUD	Intrauterine Device
JHSPH	Johns Hopkins Bloomberg School of Public Health
JHU	Johns Hopkins University
mCPR	Modern Contraceptive Prevalence Rate
MOH	Ministry of Health
NEP	National Evaluation Platform
NSO	National Statistics Office
OCP	Oral Contraceptive Pills
ODK	Open Data Kit
QOC	Quality of Care
RADAR	Real Accountability, Data Analysis for Results
RHD	Reproductive Health Directorate
SDP	Service Delivery Point
SRH	Sexual and Reproductive Health
TFR	Total Fertility Rate
TTT	Technical Task Team
WHO	World Health Organization
YFHS	Youth-Friendly Health Services

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Executive Summary

Background

In 2012, Malawi set a goal of increasing its modern contraceptive prevalence rate (mCPR) from 42 to 60 percent by 2020(1). Almost one-fifth of married women of reproductive age had an unmet need for modern contraception in 2016, with the highest unmet need in married women under 19 years (2). Given that more than half of Malawi's population is under age 18 (3), improving access to contraception for youth is particularly important. Doing so will have broad reaching benefits for the health of Malawi's youth, and for the country's development; with its young population structure, Malawi is poised for continued rapid population growth that can strain resources. Recognizing the importance of focusing on youth, Malawi began implementing youth-friendly health services in 2007 (4), which includes attention to family planning (FP) services.

Continuing to improve the country's mCPR requires an understanding of how family planning services are being implemented, challenges, and opportunities for program strengthening. In response to this need, the Malawi Ministry of Health's (MOH) Reproductive Health Directorate (RHD), Malawi's National Evaluation Platform (a National Statistics Office (NSO)-MOH-Johns Hopkins University collaboration funded by Global Affairs, Canada (GAC)) and Johns Hopkins University's Real Accountability, Data Analysis for Results project (RADAR, funded by GAC) carried out a multi-faceted evaluation of family planning programs between 2016-2018. This report presents findings from three of these studies: an implementation strength assessment, a quality of care study, and a partner mapping survey.

We present overall findings for all three studies first; then we present them in a cross-cutting way, across all three studies for three themes: youth-friendly services, family planning method mix, and associations between study indicators and family planning outcomes. The cross-cutting analysis includes only the six districts that were included in all three studies. We report findings by district, and for the cross-cutting analysis, aggregate and compare the readiness, quality and partner density of high- vs. low-outcome district groups.

Methods

This report details the findings of three different studies that were used to evaluate the strength of Malawi's family planning program:

- **Implementation Strength Assessment (ISA)**: The ISA study was designed to provide a snapshot of the strength of family planning program implementation at the point of service delivery across five domains: accessibility of FP services to youth; provider training; availability and provision of contraceptive methods, supplies, and equipment; demand generation and behavior change; and supervision. To obtain this information, we conducted mobile phone surveys with health facility in-charges (ICs), health facility workers (HFWs), health surveillance assistants (HSAs), and community-based distribution agents (CBDAs) in all districts.

- **Quality of Care** (QoC): This study was designed to generate estimates of the quality of care being delivered in six districts: three that were high-performing for FP outcomes (Chitipa, Dedza and Salima) and three that were low-performing (Machinga, Mangochi, and Nkhata Bay). We compare care estimates between high- and low-performing groups to provide some indication as to whether quality may be affecting outcomes. We collected data using structured interviews and clinical vignette tools; observation and documentation of a FP consultation by an assessor ("direct observation"); client exit interviews; and a simulated client protocol.

- **Coordinator Survey and Partner Mapping**: We surveyed FP and YFHS coordinators in each district to a) gather the perspectives of coordinators on the status of FP program implementation to supplement ISA findings and b) gather coordinator insight into the activities of external partners involved in FP in each district.

Results

Important findings from all three studies include:

- **Implementation Strength Assessment:**
  - About 1 in 2 providers report being trained to provide all contraceptive methods that they are expected to provide during their routine work.
  - Reported levels of training in YFHS is low for the providers across Malawi, especially for HSAs who provide a significant portion of family planning services.
  - Only half of HSAs routinely provides all three methods (condoms, oral contraceptive pills (OCPs) and injectables) and less than 1 in 3 reported having all three. Most CBDAs reported providing condoms and OCPs but less than half had them available.
  - Although supervision levels are high for facilities, less than half of supervision visits focused on the youth-specific services.
  - Most HSAs and CBDAs reported participating in demand generation activities like community meetings, youth events and door-door health talks.

- **Quality of Care:**
  - Over 80% of mystery clients report receiving a family planning method at the facility and 95% of them received the method of their choice.
  - Injectables constitute the predominant method of contraceptive delivered through health facilities. When interviewed about how they would counsel patients, approximately 70% of facility health workers and HSAs correctly mentioned timing and at least one side effect of injectables. When actually observed counseling patients, the number that mentioned side effects decreased to just over 50%. Knowledge and practice of counseling on actions to take for missing a dose was low near 10%.
  - Implant counseling quality practice was higher than reported knowledge. In practice, over 80% of the providers mentioned implant removal date, side effects and told the client to return the clinic should side effects persist. During the

knowledge interviews, less than 70% of providers said they would counsel on side effects for implants. Fewer than half reported they would counsel on removal date and what to do if side effects persist.
    - In practice, almost all providers (greater than 90%) asked the clients their preferred method, treated the clients respectfully, told the clients when to return for follow-up, and most (77%) encouraged questions from clients.
    - Almost all providers observed certain infection control procedures for injectables and implants, like using new / sterilized equipment and proper disposal of sharps, though adherence to other infection control procedures like disinfecting hands was lower.
    - Clients displayed very high knowledge (80% or higher) of correct duration of pregnancy protection from contraceptive methods. Although counseling of HIV protection due to methods was low, client knowledge of HIV protection was high at 85%. High satisfaction levels (80% or higher) were displayed by clients about the services provided at the facilities and their treatment by providers.
    - The quality of care delivered at facilities between high- and low-performing districts (in terms of modern contraceptive use according to DHS 2016) was similar.

- **Coordinator Survey and Partner Mapping**:
    - Nearly all examined family planning partners are conducting some youth-friendly activities.
    - Nearly one-third of YFHS coordinators reported making supervision visits to only 0-25% of facilities in the prior six months.
    - Only four districts reported that 90% or more of their service delivery points (SDPs) were accredited while the rest of the districts reported 56% or less of their SDPs were accredited.

The cross-cutting results indicate that the majority of health workers (nearly 90%) and facilities (nearly 80%) in these six districts reported providing FP services designed to be youth-friendly, but many fewer workers and facilities had the training, supervision or supplies to support this work. Despite this, most youth surveyed were knowledgeable about the methods they received and satisfied with services received. Approximately 90% of health facilities reported providing male condoms, OCPs and injectables, although these methods were actually available at the facility less frequently. Some weaknesses were noted in provider knowledge of correct counseling on these methods. Few differences were found between high- and low-outcome districts, and where differences were statistically significant, low-outcome districts often performed better.

Recommendations for Policies and Programs

Implementation Strength Assessment:

- Reinforce the commodity supply system so that all facilities and workers have a consistent supply of all contraceptive methods.
- Optimize, if possible, the hours of availability for FP services at facilities.
- Make available FP guidelines and IEC materials at all service delivery points
- Review and maintain training records for all healthcare workers providing FP.
- Ensure frequent supportive supervision involving mentoring, coaching and reporting (on service delivery and stocks levels) to improve quality service delivery, especially with focus of youth services.
- Establish special rooms and days for youth activities to provide better FP service access to youth.

Quality of Care[1]:

- Readdress supervision strategy to address gaps, communicate expected level of quality.
- Explore methods for improving use of job aids.
- Assess other strategies for improving counseling.
- Optimize integration of FP services so providers have more time with clients (i.e – more counseling on HIV)
- Method specific counseling.
- Augment use of QI teams to improve adherence to clinic quality procedures.
- Ensure community is aware of how to report poor treatment by providers.
- Increase demand for quality health services.

Coordinator Survey and Partner Mapping: Create a standardized approach for regularly collecting information on partner activities, potentially through a standardized district implementation plan.

- Review accreditation process to better understand why many service delivery points are not accredited.
- Invest in supervision, potentially exploring opportunities for partners to assist with this process.

[1] These preliminary recommendations were developed in a data review meeting among study investigators including RHD, NSO and JHU in May 2019 and the FP subcommittee TWG meeting in July 2019.

Acknowledgements

Wadonda Consult Limited

- Dr. Ephraim Chirwa
- Dr. Peter Mvula
- Mr. Patrick Msukwa
- Data collection team, supervisors and drivers.

Reproductive Health Directorate, Ministry of Health

- Director Fannie Kachale
- Deputy Director Henry Phiri
- Dr. Owen Chikhwaza
- Ms. Mary Phiri
- District Health Offices for Chitipa, Dedza, Machinga, Mangochi, Nkhata Bay and Salima

Quality Management Directorate, Ministry of Health

- Director Andrew Likaka

Johns Hopkins Bloomberg School of Public Health

- Dr. Melissa Marx
- Dr. Diwakar Mohan
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Introduction

In 2012, at the London Summit on Family Planning, Malawi set an objective of reaching a modern contraceptive prevalence rate (mCPR) of 60 percent by 2020 – up from a baseline of 42 percent among married women, and 33 percent among women of childbearing age (1). This commitment was in line with the global community's Family Planning 2020 goals of enabling 120 million additional girls and women to access voluntary family planning (FP) by 2020, and in line with Malawi's development agenda and Malawi's Vision 2020 (1). In declaring this objective, Malawi placed a specific focus on reaching the 15-24 age group.

Unmet need for contraception in Malawi is declining but remains high. As of 2015, almost one-fifth (19 percent) of married women of reproductive age had unmet need for modern methods of contraception – down from 26.1 percent in 2010 (5). Women in the lowest wealth quintile have higher unmet need at 21 percent, and women in rural areas typically have higher need than those in urban areas (1)(5). With one in ten (11 percent) pregnancies unintended, reducing this unmet need is essential (5). The Reproductive Health Directorate (RHD) seeks to reduce unmet need for family planning services and aims to achieve the 2020 mCPR goal by targeting youth and improving the method mix, with an emphasis on long-acting reversible and permanent methods (6).

The particular attention placed on youth, ages 15-24, is critically important, because approximately 51 percent of Malawi's population is under age 18 (1) (3). Married women under 19 years of age have the highest unmet need for contraceptives, and almost forty percent of mothers below 20 years of age express a desire to have their next child at a later time (5). Malawi began implementing youth-friendly health services (YFHS) in 2007 (4); although YFHS services have been established, the government acknowledges that scale-up of high-quality youth-focused services has been challenging (1).

Achieving Malawi's mCPR goal has implications for the country's development. Malawi's population grew by 35 percent between 2008 and 2018, with the 2018 census placing the total population at 17.5 million people. With 51 percent of the population under age 18, the population will continue to grow and is projected to reach 41.7 million by 2050 (7), straining the government's ability to provide services for the population. To achieve a demographic dividend, Malawi needs to reduce its total fertility rate (TFR) to three children per woman, down from levels of 4.4 children per woman as of 2015 and 5.7 in 2010 (1)(5) .

Project Rationale

Recognizing the importance of strengthening family planning programs, particularly those targeting youth, the Malawi National Evaluation Platform (NEP) developed a multi-faceted set of analyses and data collection activities across the impact chain to evaluate FP programs in Malawi. These studies are led by the National Statistical Office (NSO), guided and supported by a high level advisory committee chaired by the Ministry of Health (MoH), and supported by a technical task team (TTT) that includes NSO, MoH and other relevant technical staff members as well as

evaluation and capacity building experts at the Johns Hopkins Bloomberg School of Public Health (JHSPH) ((8) (9). This report describes the methods and results for three of these studies:

- An implementation strength assessment, which was designed to measure how well YFHS and FP programs are being implemented and to identify strengths and weaknesses that MoH can address to improve family program delivery. Data for this study were collected by the NEP and data were analyzed by the TTT.
- A quality of care assessment, which is designed to identify and recommend improvements to aspects of how well care is provided. This study was conducted by Wadonda Consult Limited and analyzed by RADAR/JHU.
- A survey of family planning and YFHS coordinators, which seeks to understand partner contributions to provision of family planning services. This study was conducted and analyzed by NEP.

Other related studies such as the qualitative study and data quality assessment are reported in separate reports and manuscripts (10) (11) (12) (13) .

Implementation Strength Assessment

Background

Health facilities and health workers offer counseling to men and women of reproductive age, contraceptive methods, and community outreach for family planning (FP) services. In order to track the activities carried out as part of FP programs, we looked at the readiness of facilities and the workers in their catchment for each district using a mobile phone survey. Through this "implementation strength assessment", we aimed to see how well the programs were working and provide feedback to the government to make changes to improve FP services.
This study was a partnership between the National Statistics Office (NSO), the Ministry of Health's Reproductive Health Directorate (RHD) in Malawi and the Institute for International Programs (IIP) at Johns Hopkins University (JHU).

The Implementation Strength Assessment (ISA) covered five key domains including training, supervision, equipment and contraceptive supplies, accessibility of services, and demand generation activities. The aim of the ISA study was to assess the "implementation strength" of FP programs in general, and, in particular, services targeting youth (15-24) at health facilities and in the community across all 29 districts of Malawi.

Methods

In order to reach this objective, we designed a cross-sectional study that took a snapshot of how well FP programs were being implemented at the point of delivery, across the five key FP program implementation domains described above. Data were collected from the four cadres of health workers in each district: health facility in-charges (ICs), health facility workers (HFWs), health surveillance assistants (HSAs), and community-based distribution agents (CBDAs). These health workers provided us with data at different levels of the health system. We collected ISA data from these health workers via mobile phone.

The first step was to conduct interviews with the ICs, who supplied the study with the contact information of the HFWs, HSAs, and CBDAs who provide FP for residents in the facility catchment area. Study teams then interviewed these providers over the phone to ask more question on the same topics.

Health workers were excluded from participating in the interview if (1) they were under 18 years of age; (2) they do not provide consent to participate in the study; (3) they do not speak English, or the local languages of Chichewa or Chitumbuka.

The questionnaire had six modules that were completed consecutively with each IC, HFW, HSA, and CBDA. There were some differences in the survey based on the type of health worker. The

modules were:

1. Administration: This module records information about the location and type of health worker being interviewed. It also included careful documentation of the number of times we attempted to call each health worker and the outcome of each attempted call. For the in-charge interviews, we asked for the name and contact information for all of the health workers associated with that facility.
2. Accessibility of FP Services to Youth: This module includes questions about when and how the health workers provide FP services. (This section is not present in the HFW survey because the answers will come from the IC).
3. Provider Training: This module includes questions related to the type and timing of training received by health workers.
4. Availability and Provision of Contraceptive Methods, Supplies, and Equipment: This module includes questions about the contraceptive methods provided by the health facility or health worker, including stockouts of contraceptive methods.
5. Demand Generation and Behavior Change Communication activities: This module includes questions about activities that the health worker may have been involved in that aim to increase the knowledge and change the behavior of people in the community about sexual and reproductive health and contraceptive methods.
6. Supervision: This module includes questions about supervision that the health worker has received for providing family planning services.

Topics from all domains of implementation strength were included in the survey. It was written in English and translated into Chichewa and Chitumbuka before pre-testing. Data were collected on a tablet using Open Data Kit (ODK) software. Responses were entered directly into tablet computers using electronic forms developed on ODK and were uploaded to the secure server when teams had internet access. The data were monitored for quality and completeness throughout the study and identified errors were corrected in real time.

Data collection for the ISA census took about 6 weeks starting in mid-July 2017 after interviewers and supervisors were trained. Twelve interview teams of 5 each, for a total of 60 local interviewers, were trained and conducted the phone interviews at the NSO headquarters in Zomba. Each team was assigned a supervisor and a certain number of total interviews. The supervisor carefully assigned and tracked data collection and consistently checked interviews and data for quality. A maximum of five additional attempts were made to make the first contact with the participant.

The consent for the interview was administered at the beginning of the call. The study was approved by JHSPH Institutional Review Board and the Malawi National Health Science Research Committee.

Results

Background Characteristics

We interviewed health facility IC at 660 of 666 health facilities in Malawi (Fig. 2). Of the facilities participating, 58 did not provide FP services. Most (95%; 55) of these facilities were CHAM facilities, and non-provision of FP was in accordance with their policies. However, 93% (51) of CHAM facility ICs who informed data collectors that they do not provide FP, also responded that HSAs and CBDAs in their catchment areas provided FP. We reached 1662 of 1815 (92%) HFWs, 4048 of 4131 (98%) sampled HSAs, and 3187 of 3430 (93%) CBDAs for interview. Less than 10% of each health worker cadre stated that they did not provide FP and less than one percent of those reached declined to participate.

The median age for health workers interviewed was in the mid-30s (range: 32-38 years) across health worker types (Table 1). More than two thirds of all types of workers reported being non-Catholic Christian. HSAs were more likely to be male (67%) while health facility workers (HFWs) were more likely to be female (68%) and CBDAs were more evenly split between the genders (48% male). HFWs and HSAs had higher levels of education than CBDAs. Compared to CBDAs (47%), a much higher proportion of HFWs (78%) and HSAs (95%) reported having been working in their catchment areas since or before January 2016

Table 1. Background characteristics of health workers reached for interview, by cadre*

	HFW	HSA	CBDA
N (%)	1815 (100%)	4048 (100%)	3187 (100%)
Age (median years)	35	32	38
Male Gender	580 (32.7)	2594 (66.7)	1484 (47.8)
Religion			
Catholic	354 (22.0)	902 (25.6)	680 (23.9)
Non-Catholic Christian	1227 (76.2)	2451 (69.9)	1880 (66.6)
Muslim	29 (1.8)	160 (4.5)	270 (9.5)
Marital status (%)			
Unmarried / Not in Union	450 (27.2)	489 (7.9)	407 (13.7)
Married / In Union	1202 (72.8)	3472 (92.1)	2574 (86.3)
Education level (%)			
Secondary School or Less	119 (16.6)	1701 (44.3)	2485 (82.1)
College Certificate or more	597 (73.4)	2142 (65.7)	541 (17.9)
Worked in area since at least Jan 2016	110 (77.5)	485 (94.7)	55 (47.4)

*included all health workers reached for interview including those HWs that do not provide FP

Training

Just under half of all types of health care workers reported being trained in all methods they are authorized to provide (Table 2). This is similar to the proportion of HFW (43%) and CBDA (51%)

reported having ever been trained in youth friendly health services (YHFS), but higher than the 26% of HSA who reported being trained in it.

Supervision

About half of all respondents reported having received supervision for FP in the prior 3 months and three quarters (76%) of facility staff reported receiving FP supervision from someone external to the facility (e.g. district authority) in the 3 months preceding the survey. But less than half (47%) of facility staff reported having had a supervision visit that focused on youth FP over this time period (Table 2).

Family Planning Methods & Supplies

A large proportion (80%) of health facility IC reported that their health facilities provide all FP methods they are authorized to provide. While 74% of HFWs reported providing all the methods they are authorized to provide, only 62% had these methods available on the day of interview. While 49% of HSAs reported providing all methods they were trained to provide (condoms, OCPs, injectables), only 29% had these methods available on the day of interview. While 87% of CBDAs reported providing their authorized methods (condoms and OCPs), less than half (45%) had these methods available on the day of interview. Figure 1 shows commodity availability by district.

While nearly 80% of respondents of all worker types reporting having both FP guidelines and job aids, a much lower proportion reported having guidelines specific to youth FP (Table 2).

Demand Generation

Respondents were asked if they had organised or assisted with demand generation activities for FP such as youth events, door-door health talks, community meetings on youth accessing HIV and FP counselling, and social marketing past in the prior 3 months (Table 2). About three quarters of HSA and CBDAs said they had. HSAs reported participating in community meetings to promote youth to get HIV testing and FP counselling. More than half of CBDAs (66%) and HSAs (53%) said they had organised or assisted with youth events in the prior 3 months. About the same proportions reported having participated in youth-oriented spaces such as youth clubs or youth centres. Most CBDAs (82%) said they had gone door-to-door in your community to deliver health talks on sexual and reproductive health, HIV prevention, and FP to youth and slightly over half of HSAs (52%) reported these activities.

Accessibility

Figure 2 shows number of FP providers by cadre across all districts and ratio of health workers to women 15-49 years of age. Lilongwe and Blantyre have the highest provider-client ratio with 1:956 and 1:714 ratios respectively. Likoma and Rumphi have the lowest provider-client ratios at 1:132 and 1:151 respectively.

Most health facility staff (81%) reported ensuring privacy during FP consultations, although HSAs (58%) or CBDAs (64%) were less likely to report ensuring privacy. While nearly three quarters of CBDAs stated they have special days for FP, fewer ICs and HSAs reported having them. More HSAs

(62%) reported providing FP the minimum hours per week (at least 12 hours a week) than CBDAs (42%). Less than half of all facilities (49%) reported providing FP the minimum 24 hours per week. Slightly under half (48%) of CBDAs and 60% of both HSAs and facilities (60%) reported participating in outreach clinics that provide family services to hard-to-reach areas since 2016.

Table 2. Implementation Strength by domain and health care worker type

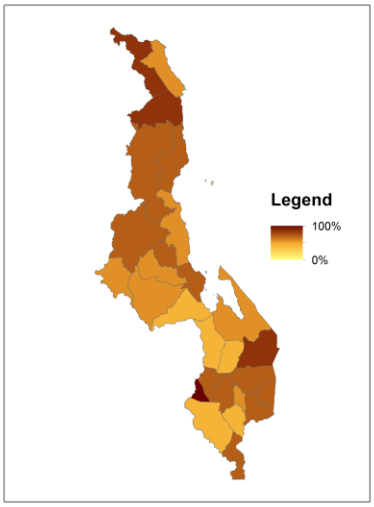
N (%)	Facility Data reported by In-Charge Nurse **660 (100%)**	Health Worker Type		
		HFW 1815 (100%)	**HSA** 4048 (100%)	**CBDA** 3187 (100%)
Training of Health care Workers				
Trained in all methods* in prior 2 years		786 (43.3)	1751 (43.3)	1483 (46.5)
Ever trained in YFHS		787 (43.4)	1065 (26.3)	1631 (51.2)
Supervision				
Has supervision checklist that includes Youth FP	310 (47.1)			
Supervised for FP in prior 3 months**	503 (76.3)	1007 (55.5)	1997 (49.3)	1758 (55.2)
Last supervision covered youth FP topics		753 (41.5)	1576 (38.9)	1903 (59.7)
Contraceptive Methods and Supplies				
Provides all FP methods*	525 (79.5)	1336 (73.6)	1978 (48.9)	2761 (86.6)
All FP methods* available on day of interview	407 (61.7)	1041 (57.4)	1160 (28.7)	1453 (45.6)
Has FP guidelines and job aids	518 (78.6)	1468 (80.9)	3219 (79.5)	2481 (77.8)
Has youth FP guidelines	380 (57.6)	989 (54.5)	1974 (48.8)	2014 (63.2)
Provides FP methods branded with social marketing	290 (44.1)	872 (48.0)	1648 (40.7)	1340 (42.0)
Demand Generation Activities				
Conducted youth event in prior 3 months	272 (41.2)	689 (38.0)	2125 (52.5)	2110 (66.2)
Conducted SRH talks in prior 3 months			2121 (52.4)	2645 (83.0)
Conducted youth spaces in prior 3 months	273 (41.4)	855 (47.1)	1935 (47.8)	2105 (66.0)
Conducted community meetings in prior 3 months	281 (42.6)	610 (33.6)	2924 (72.2)	2617 (82.1)
Facility has peer educators for FP	257 (38.9)			
Accessibility				

	Has special days for youth FP	203 (30.8)		980 (25.1)	1858 (59.5)
	Conducted mobile outreach in prior 6 months	398 (60.3)		2330 (59.8)	1164 (47.8)
	Ensures privacy during FP consultations***	532 (80.6)	1262 (69.5)	2358 (58.3)	2031 (63.7)
	Provides FP the minimum hours per week ****	325 (49.2)		2501 (61.8)	1344 (42.2)

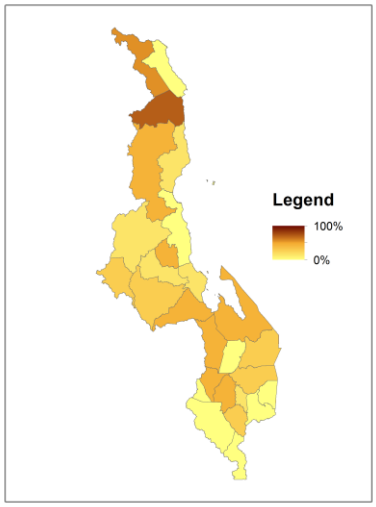
*Appropriate to HW type. HFW: counseling, condoms, OCP, injectables, implants; HSA: counseling, condoms, OCP, injectables; CBDA: counseling, condoms, OCP
**For facilities this is by someone external to the facility
***For facilities, must have a private room
****For facilities: ≥24 hours/week of access. For CBDA/HSA: ≥12 hours/week of access.

Figure 1. Commodity availability by cadre by district

Percentage of Health facility workers who had condoms, pills, injectables & implants available on day of interview



Percentage of HSAs who had condoms, pills and injectables on the day of the interview



Percentage of CBDAs who had condoms and pills on day of interview

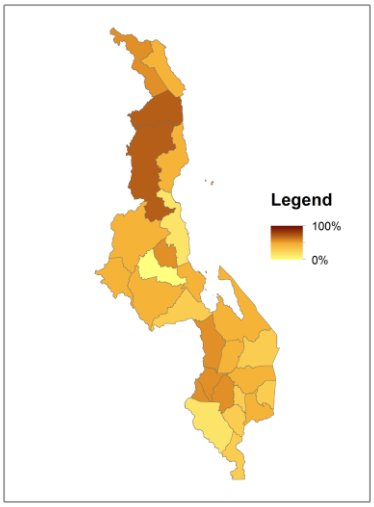
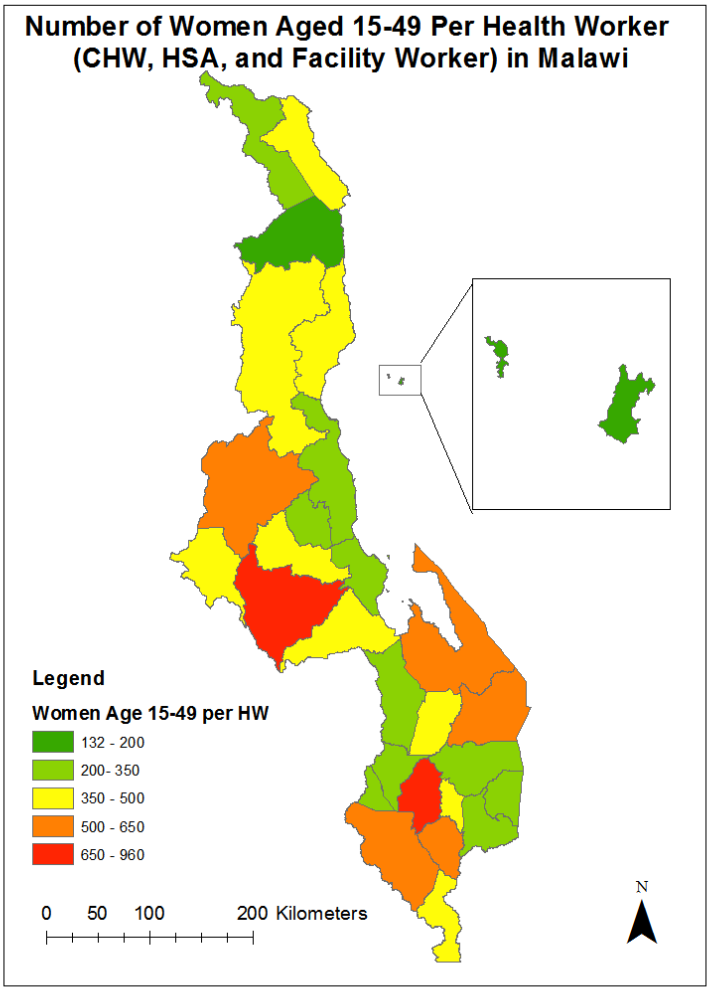


Figure 2. Health worker Density: Number of women aged 15-49 per family planning provider interviewed



Limitations

We aimed to capture implementation strength of major interventions, identified through review of local policies and with input from local leadership in the government, CHAM, and leading NGOs. However, the data may not capture every intervention implemented to improve FP services across Malawi. We were limited in the scope of questions allowed due to mobile phone interviews, which was the data collection method used. For a phone-based survey questions needed to be relatively simple, primarily yes or no, which may have limited our ability to capture program complexities. The duration of the interview was kept to a minimum, hence narrowing the range of questions asked of providers. Providers may exhibit social desirability bias, and certain characteristics like presence of a private room or job aids could not be visually verified. Quality of service provision is not captured by the ISA; for instance, even if a health facility has the necessary readiness to provide FP, its health workers could be providing poor quality care.

Discussion

Our study sample included all health care providers of FP in Malawi, and is one of the largest surveys of its kind. Results include a comprehensive assessment of the implementation strength of the FP services, in general, and targeting of youth, in particular.

About 1 in 4 facility workers and half of the HSAs do not provide all methods they are expected to provide and even fewer had all the methods available on the day of the interview with considerable variation by district. Based on these results, it appears to be difficult for health workers and facilities to stock all required commodities. This was true particularly of the HSA, but also of the other cadres. This may limit the methods women and young girls can choose and result in more frequent switching of methods (14) (15). Women and young girls may experience frustration when they try to access reproductive health services because they are available less often than the minimum hours/week, in particular among CBDAs and facilities.

Less than half of all provider cadres reported received training in FP in the prior two years, and similar proportions of facility workers and CBDA reported ever receiving training on YFHS. Only a quarter of HSA reported having received training on YHFS, suggesting an additional weakness in the youth focus. Given innovations in methods (implants), misconceptions about side effects (12), and the need to address concerns about confidentiality, stigma and societal pressures around contraception (12), plans and support for training of health workers on FP and YFHS should be re-evaluated. As a caveat, it is possible that incentives for attending training coupled with true interest in learning may have biased responses. To address the perverse incentive to underreport training, we recommend that standardized training records be documented in a database to track trainings.

Approximately half of all cadres were supervised for FP every three months, which is the timeline required for supervision per MoH policy. Also, although the majority of CBDAs received supervision on youth topics, it was less common for HSAs and HFWs to receive that support. Handling youth clients may require greater sensitivity and specialized counseling and hence facilities may be seen as unwelcoming by the youth. Improving coverage and quality of supervision and training can improve the capacity of providers and increase effectiveness (16).

Other research has suggested that to reach youth, special days, times and approaches are necessary (17) (18). In this study despite most facilities reporting that they provide youth friendly health services, only half report providing special days for youth. Youth-specific FP guidelines or protocols were available in very few facilities that provide these services, and about only a third of respondents reported having special rooms for youth-focused services. Without appropriate supervision, guidance, specific mentorship focusing on serving youth, and special services for them, it will be hard for Malawi to address their special needs. Many different components of the health system need to work in synchrony for a successful scale up of youth friendly services (19) (20) (21) (22) .

CBDAs are the most connected with the community, handling most of the youth and sexual and reproductive health events and talks but are the least educated and poorly trained. CBDAs report holding special days for youth services but facilities and HFWs seem to rarely offer these services. If youth favor CBDAs because of their ability to offer special services to them, their choices are limited to condoms and pills, missing out on the option to use injectables, implants and other LARCs.

While these results reflect a snapshot captured in mid-2017, it includes all districts and nearly all facilities in the country. While it was not able to evaluate every aspect of the program, and did not address quality of care, topics of the evaluation covered a wide range of supply-side indicators that estimate the readiness of the health systems to provide FP, especially to the youth.

Conclusions

Despite Malawi having made rapid developments in the provision of family planning services, health workers in Malawi face barriers to providing consistent and comprehensive FP services, especially those targeted to youth. This study identified frequent stockouts, lack of training for provider FP and YFHS, and poor supervision as the major barriers. CBDAs are most connected with youth in the community but offer only pills and condoms, limiting access of LARCs among youth.

Recommendations

Recommendations based on the above findings include:

- Reinforce the commodity supply system so that all facilities and workers have a consistent supply of all contraceptive methods.
- Optimize, if possible, the hours of availability for FP services at facilities.
- Make available FP guidelines and IEC materials at all service delivery points
- Review and maintain training records for all healthcare workers providing FP.
- Ensure frequent supportive supervision involving mentoring, coaching and reporting (on service delivery and stocks levels) to improve quality service delivery, especially with focus of youth services.
- Establish special rooms and days for youth activities to provide better FP service access to youth.

Quality of Care Assessment

Background

Quality of care (QoC) assessments measure whether the health system provides sufficient quality care according to standardized guidelines. Program implementers can use information about strengths and gaps to guide scale-up and/or improvement of programs. Access to quality health services increases utilization to health services, improving health outcomes, and is considered a basic human right.

It is generally recognized that quality of FP care can impact outcomes by increasing continuation rates for current users, reducing the number of method failures, and attracting new users through social diffusion processes. Desire for more children is a personal choice but method failure and discontinuation for method-related reasons could be due to quality of care: whether the client received correct information on use and side effects, whether the provider set up a continuity mechanisms like follow-up visits, whether the care was respectful and dignified, and if there was client agency in the choice of methods. If we assume these women still want to limit pregnancy, improving counseling and experiential quality may address this gap in unmet need. Clients satisfied with their reproductive goals may encourage others to seek family planning services.

Using the Donabedian quality framework, QoC is defined as an observation-based assessment of how well health care is being provided (*process*) and client knowledge/satisfaction (*impact*) (23). The structural aspects of quality (training, drug stocks, others) are defined as *readiness*. In general, readiness is considered one component of overall quality as in the World Health Organization (WHO) building blocks model for health systems strengthening (24) and a separate but linked component of the common evaluation framework (25). Service readiness is a prerequisite but does not guarantee quality services and the tools for measuring readiness and QoC "process" are different.

Quality of care "process" refers to the adherence to quality procedures during clinical practice and includes the interpersonal relationship between client and provider (23). Recently this "interpersonal" quality component has been expanded to explicitly include respectful, dignified care (26). Quality of care process is determined by both provider knowledge of quality procedures and the provider actually following those procedures in their practice. This study focused on FP QoC "process" as a distinct component from service readiness (covered in the previous section) and measured client impact of the services received, through client knowledge and satisfaction. Figure 3 shows the relationship between provider knowledge, practice and client impact.

Figure 3. Domains of quality of care, provider levels

Measuring quality of care

QoC for FP can be assessed using a variety of methods, including direct observation of patient-provider interactions, patient exit interviews, simulated client, or provider interviews on their knowledge (Table 3).

Table 3. A description of methods used to measure FP QoC

1. Structured interviews	**Quantitative, structured interview with pre-coded responses.**
2. Clinical vignettes	The interviewers began by reading a short description of a typical client that might seek family planning services with the provider. The respondent was allowed to ask questions to gain more information as they would during an actual counseling session. Given the initial vignettes and information gained during the "consultation", the respondent was asked to formulate and report a management plan. Each clinical vignette had an associated list of "correct" actions appropriate for that vignette that study staff entered via a checklist.
3. Direct observation	The study staff asked to observe the consultation of any clients spontaneously seeking FP services during mobile outreach days. With consent provided by the client, the interviewers then observed the entire consultation, including any clinical procedures and record observations in a checklist.
4. Client exit interview	After the consultation was completed, the client was interviewed about their experiences and knowledge of the management they received.
5. Simulated "mystery" client	A study team member presented themselves as a client using a pre-determined clinical scenario to a selected provider. After the consultation, the simulated client actor was interviewed to document his or her experience. Each actor adopted one clinical vignette and was carefully trained to avoid unmasking by the provider and avoid clinical procedures. This technique has been previously used for family planning quality of care assessments.

Approximately eighty percent of modern contraceptive users in Malawi receive their methods from public sector sources (5). Assessing the QoC provided through the public sector will provide the government of Malawi an evidence base for FP program improvement. In addition, the literature indicates there is no district-level information available about the quality of family planning service delivery in Malawi. So the reasons for the substantial variation in the TFR (total is 4.4 with 3.0 urban and 4.7 rural) and the proportion of women with unmet need (26% in 2010

DHS decreasing to 19% in 2016 DHS) are not fully understood (5). By comparing the quality of care provided between two groups of districts, one with high FP outcomes and one with lower FP outcomes, we can explore whether differences in QoC are driving the differences seen in FP outcomes. This detailed, subnational information can be used to develop quality improvement interventions that will impact family planning outcomes.

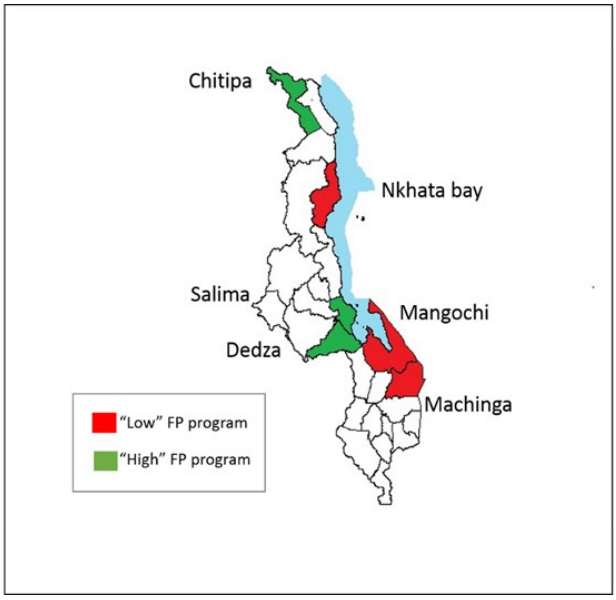
The aim of this study was to estimate the QoC of FP programs in selected districts in Malawi to identify and recommend improvements to aspects of care that are associated with better family planning outcomes.

Specific aims were:

- To describe the quality of family planning care for the public sector based on:
  - Provider ***knowledge*** of quality procedures;
  - Provider ***practice*** of quality procedures; and
  - Provider ***impact*** on client knowledge and satisfaction.
- To compare quality of care between two groups of high and low FP outcome districts.

We achieved the aims by measuring provider knowledge of quality procedures using clinical vignettes and interviews, provision of quality procedures using direct observations and simulated "mystery" client, and the impact of the quality procedures using exit interviews.

Figure 4. Six districts of the QoC study by high-and-low outcome grouping



Methods

Design and protocol/tools

The study was a cross-sectional survey of FP providers working in the formal public health sector in Malawi. A set of high (Chitipa, Dedza and Salima) and-low (Machinga, Mangochi and Nkhata bay) FP outcomes districts (figure 4) were purposively selected based on TFR, modern

contraceptive prevalence rate (mCPR), unmet need, and proportion with demand for FP services satisfied (DFPS) based on data from the 2016 DHS (Appendix 1). To control for confounding due to urban/rural and religion, the districts in the two groups were selected to be similar with regards to proportion of rural households, women's education, religion, number of facilities per population, and poverty. We measured quality of care for FP in both groups and any statistical differences found will be evidence that QoC is driving the discrepancy in FP outcomes. Figure 4 shows the districts selected.

We collected data using structured interviews and clinical vignettes tools, observation and documentation of a FP consultation by an assessor ("direct observation"), client exit interviews and a simulated client protocol. The study included four protocols: (1) simulated client protocol; (2) in person survey protocol; and (3) direct observation. A short description of each protocol is listed below.

Stage 1: Simulated client protocol

Simulated, "mystery" clients adopted a clinical vignette and visited selected health facility based providers seeking family planning services. HSAs and CBDAs were not tested via simulated client protocol. They offer services within relatively small communities and the risk of unmasking the simulated client would be too high. The simulated clients adopted one of two case scenarios. One case scenario is an adult, married woman switching methods from hormonal injectable contraceptives (*injectables*) to hormonal contraceptive pills (*pills*). The other is an adolescent, unmarried woman who has just become sexually active, has never used contraceptives and prefers to use pills. The simulated client staff were trained to avoid all clinical procedures for their own protection including any injections, blood draws, pelvic/vaginal exams, or pregnancy tests. A blood pressure measurement or taking weight measurements was allowed. After the visit, they were interviewed and de-briefed by their supervisor about details of the consultation. Simulated client staff recorded additional text information about the consultations in field notes that were later translated, coded and analyzed.

Stage 2: in-person survey protocol

All selected providers were interviewed using the structured questionnaire on counseling knowledge. We collected background information on the respondents such as education, gender, employment history and others. HSAs, CBDAs and selected facility providers were tested via clinical vignette. The client vignette tool asked providers to report questions they would ask while taking client history, exams/tests recommended and recommended family planning methods (if any) in response to three different case scenarios. The case scenarios included (1) an adult women who wants to switch methods, (2) an adult woman, first time user of modern contraceptives with a complex medical history, and (3) an adolescent woman who is unmarried and a first time user of contraceptives. The details of the case scenarios are in appendix 2.

Stage 3: Direct observation

For providers that see more than 30 FP clients per month, interviewer teams aimed to observe at least one client interaction (maximum of five) and conduct client exit interviews. Clients who were observed receiving care by the study team were asked to complete a client exit interview.

We used audio computer assisted personal interviews (audio-CAPI) with headphone to collect client satisfaction data in order to reduce the likelihood that clients may report better satisfaction than they actually experienced (courtesy bias). Clients were also asked about their knowledge and general background characteristics.

Stage 4: Telephone-based clinical vignettes.
This protocol was used for an embedded study looking at whether clinical vignettes administered by mobile-phone elicit the same responses as those administered in-person. If the mobile-phone based tool produces the same data as those administered in-person, the mobile phone tool is a cheaper, more feasible tool for measuring provider quality knowledge. All providers who completed an in-person clinical vignettes were call for the mobile-phone administration. In this report, we use only the in-person clinical vignette data. A separate report on the mobile-phone reliability study will be distributed for review.

Study population and site

The study site was the six districts selected for inclusion in the project (Fi.g 4). Urban and rural facilities in the selected districts were included in the sampling frame. Private clinics, Banja La Mtsogolo clinics, pharmacies and religious clinics that did not offer contraceptives were excluded. The study population was trained family planning providers including health facility providers, community-based providers and clients seeking care from a study facility (Table 4).

Table 4. Study protocols, aims and respondent type

	Health facility	HSAs	CBDAs	Client
1. Simulated client protocol				
• **Validate CVs, measure quality of care and respectful care**	X			
2. In-person survey protocol				
• **Collect respondent characteristics.**	X	X	X	
• **Interview on knowledge: through structured interview questions and CVs.**	X	X	X	
3. Direct observation of care and exit interviews *(>30 clients per month only)*				
• **Direct observation**	X			
• **Exit interviews**				X

Sample size

The primary indicator for the parent study was overall quality of care based on the method prescribed/received. The indicators of interest were counseling quality, knowledge of correct counseling procedures and quality of clinical procedures, depending on the respondent type. Sample sizes were calculated to detect a difference of twenty percentage points (pp) between the high and low performing district groups (Table 5).

Table 5. Sample size summary

Respondent type	Sample size (n)
Total HF workers	310
Simulated client	112
In-person clinical vignettes	187
Total HSAs/CBDAs	312
Total clients	409
Grand Total	**1031**

Summary of sample:

A. **Health facility providers – simulated client protocol to measure QoC**: We selected only one FP provider in each facility. When listing facilities, we found only 112 public sector facilities that offer FP services in the six districts, so all were included.
B. **HSAs/CBDAs**: The community health workers are assigned to a catchment facility and receive supervision, mentorship and supplies through that facility. The number of community workers varies by health facility. We randomly selected the HSAs and CBDAs to be proportional to the size of the health facility and districts. We included an equal number of HSAs and CBDAs.
C. **Clients**:
    - High utilization facilities (>30 clients per month)
    - With the provider who had previously seen the simulated client
    - Two days max; five clients max; order of arrival
D. **Health facility providers – in-person clinical vignette protocol:** multiple providers were selected per each facility and were different from those selected for the simulated client.

Pretesting

All protocols/tools were pretested in non-study clinics in November 2017. We collected information on the feasibility of tool administration, clarity of the questions and captured any additional responses to questions that could be pre-coded. The case scenarios included in the clinical vignettes and adopted by the SCs were assessed for cultural and clinical appropriateness.

Recruitment of staff

We partnered with Wadonda Consult Limited for the staff recruitment, tool piloting, training, and data collection. Local staff with experience in survey data collection were recruited for the study including coordinators, supervisors and interviewers. All staff were fluent in Chichewa and English. Family planning district coordinators from non-study districts, all clinicians experienced in FP services, conducted the direct observations.

Training

Training took place from January 8th–19th, 2018 in Zomba, Malawi and we trained 40 interviewers and the six District FP coordinators. We hired a consultant with experience in training simulated

clients to conduct a one-day training on client simulation and a senior representative from the Reproductive Health Directorate conducted a half-day training on the Malawi FP program. The training included lectures, practice, role plays and a pilot with non-study FP clinicians.

Data collection

We selected staff for the field data collection for six teams: one supervisor, two simulated clients and two interviewers per team. One District FP coordinator joined each of the six teams to conduct the direct observations. Each of the six teams deployed to the districts. They visited the District Health Offices for orientation and permission for the study. The Offices provided a listing of clinics that offer FP services. The teams then visited each of the clinics for orientation and permission and developed a list of providers that offer FP services at each of the clinics. All selected providers were contacted via mobile phone for recruitment and verbal consent. Shortly afterwards, the field teams deployed to all selected providers who consented to the study for the field-based portion.

One provider at each clinic was visited by two simulated clients on the same day. The two simulated clients were dropped off by the team vehicle away from the clinic. They arrived 10-15 minutes apart or up to an hour apart (depending on the facility patient volume) so it appeared they are traveling independently. The team supervisor was nearby (within 10 minutes travel time) should their support be required. After the consultation, the simulated client actors immediately returned to the supervisor to be interviewed on the consultation using a checklist tool.

After completing the simulated client checklists, the team returned to the clinic for provider interviews and clinical vignettes, direct observation and client exit interviews. As previously described, the direct observation and client exit interviews were done on a subset of high client volume facilities. A maximum of five client consultations were observed per clinic. The team stayed at a clinic for a maximum of two days in order to reach the five client goal. If no clients came for FP services within those two days, the team then moved to the next clinic. Client exit interviews were conducted directly after the consultation near the clinic but with visual and auditory privacy.

In-person clinical vignettes and interviews were done with selected providers at all study clinics, usually in the afternoons when the patient load was lighter. HSAs/CBDAs were asked to meet at the facility for interviews and occasionally the teams met them at their homes or a central location. All providers were invited to use any job aids during the interview and the clinical vignettes.

Ethics

Approval for human subjects research was obtained from the National Health Science Research Committee in Malawi and the Johns Hopkins Bloomberg School of Public Health in the United States**.** All facility based providers in the six districts were called prior to data collection for a verbal consent process. The consent script contained information on the research purpose,

voluntary participation, possible risks and confidentiality. If they agreed to the study, the form stated they would be visited by a masked, simulated client in the next three months, among the other study activities. The community based providers were verbally consented either by mobile phone or in person. Family planning clients were recruited from clinic waiting areas and we used an oral consent form for enrollment.

Analysis

We used Open Data Kit (ODK) for electronic data capture and Android tablets for data entry (27). The data were cleaned in R (28), and analyzed in Stata 14.2 (29). We reported the proportions and 95% confidence intervals, and chi^2 tests were used to detect any statistically significant differences between the two groups of high and low outcome districts.

We conducted a review of quality of family planning care indicators[2] and selected those feasible to measure for this study (30) (31) (32). These indicators are reflective of the Malawi-specific training manuals, guidelines and previous quality of care studies (33) (34) (35) (36). We used the *Malawi Integrated IP, RH and PMTCT for Health Centers* definitions or proxy definitions whenever possible to describe the counseling and clinical quality of the FP consultations.[3]

Results

In this section, we first review the data completeness, and provider and client characteristics. We then organized the findings by (1) provider quality knowledge; (2) provider quality practices; and (3) client impact. In the provider quality knowledge section, we present data from the provider interviews and clinical vignettes. In the quality practice section, we show data from the simulated client and the direct observation protocols. Finally in the client impact section, we present the data from the client exit interviews.

Data completeness

We successfully visited all 112 clinics in the six districts (Fig. 5). For the simulated client protocol, we completed data collection at all clinics but electronic forms for one clinic was lost (99% completed). For the direct observation, we identified 106 clinics that had sufficient client utilization to attempt the protocol. We completed at least one client direct observation/exit interview for 92.5% of the clinics, resulting in 471 clients with completed direct observation/exit interview data, or 4.8 clients per clinic. There were no differences in data completeness between high and low district groups for simulated client or direct observation.

We completed the clinical vignettes for 92.9% of the selected facility-based workers and 97.5% of the selected HSAs/CBDAs. The response rate for facility-based workers was higher for the low outcome district group.

[2] Personal communication, Amani Siyam, World Health Organization Quality of Care indicators, Draft. April 2017

[3] Personal communication, Mary Phiri, Reproductive Health Directorate, June 2019

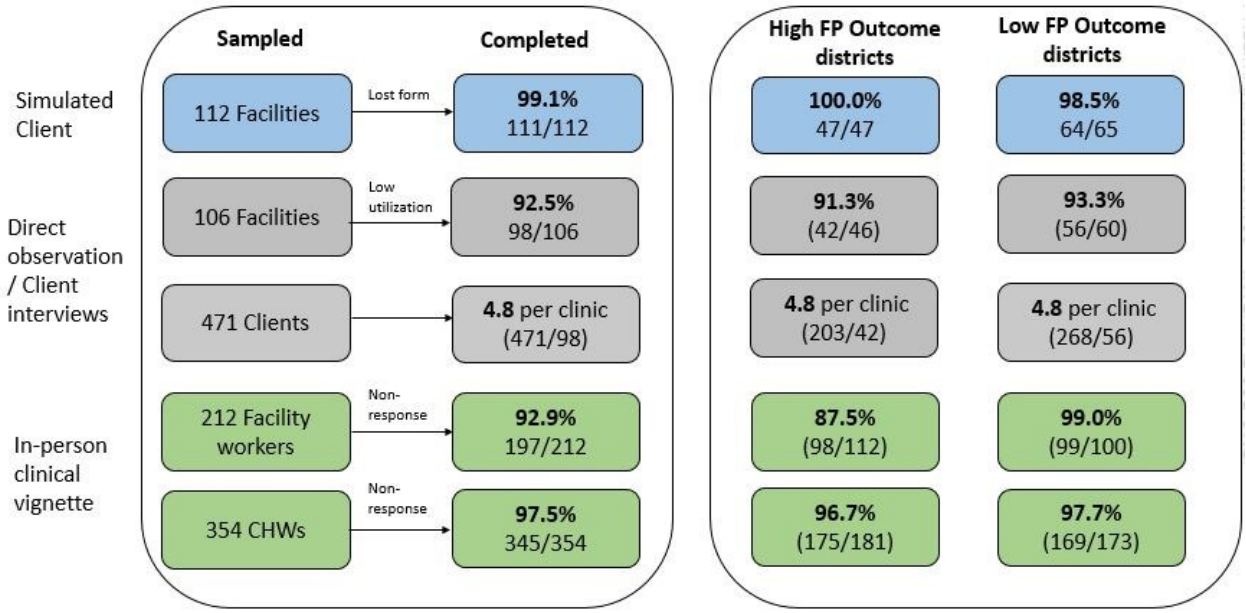


Figure 5. Sample size and response rate for the simulated client, direct observation with client exit interviews and clinical vignette protocols total and by high and low FP outcome district groups

Provider and client characteristics

Table 6 shows the characteristics for providers with complete data for the direct observation and the clinical vignettes. Both provider samples had roughly equal numbers of female and male providers, over half were 30 years or older, and three-quarters were married. For the direct observation sample, 58.8% of the facility-based workers were enrolled nurse/midwives, technician or a community midwife assistants and 28.1% were HSAs. For the clinical vignette sample, most of the facility-based workers (22.3%) were also enrolled nurse/midwives, technician or a community midwife assistants. The sample of community health workers was equally divided between HSAs and CBDAs (Table 6).

Almost half (42.1%) of the providers included in the direct observation had a college diploma and the clinical vignette sample varied by cadre. Both samples were predominantly Non-Catholic Christian (68.4% for direct observation and 61.7% for clinical vignette). Most of the direct observation sample has worked at their position for less than 5 years (63.2%). The clinical vignette sample was split between less than five years (40.6%) and greater than ten years (37.8%).

Table 6. Provider characteristics in direct observation and clinical vignettes

	Direct Observation	Clinical Vignettes
Gender		
Female	50.9 (41.7-60.0)	46.3 (41.7-50.9)
Male	49.1 (40.0-58.3)	53.7 (49.1-58.3)
Age		
20-24	10.5 (6.0-17.8)	8.5 (6.0-11.8)
25-29	27.2 (19.7-36.2)	17.2 (14.3-20.5)
30-34	21.9 (15.2-30.6)	17.9 (14.5-21.9)
>=35	40.4 (31.4-50.0)	56.5 (51.6-61.2)
Marital status		
Married	74.2 (64.2-82.2)	78.4 (74.5-81.9)
Not married	25.8 (17.8-35.8)	21.6 (18.1-25.5)
Title		
Clinical technician, Medical assistant	8.8 (5.0-15.0)	8.7 (6.8-11.0)
Registered nurse-midwife/nurse, Community health nurse	4.4 (1.8-10.3)	5.4 (2.9-9.6)
Enrolled midwife/nurse-midwife/technician, Community midwife assistant	58.8 (49.5-67.5)	22.3 (19.0-26.1)
Health Surveillance Assistants (HSAs)	28.1 (20.7-36.8)	32.3 (28.7-36.1)
CBDAs	n.a.	31.4 (27.1-36.0)
Education		
No Formal School	n.a.	1.7 (0.8-3.3)
Primary School Leaving Certificate	1.8 (0.4-6.9)	8.5 (6.2-11.5)
Secondary School Junior Certificate	8.8 (4.8-15.6)	25.3 (21.5-29.5)
MSCe	17.5 (11.7-25.5)	27.5 (23.9-31.4)
College Certificate	28.1 (20.6-37.0)	15.9 (13.3-18.8)
College Diploma	42.1 (33.3-51.4)	19.2 (15.5-23.5)
College Degree	n.a.	1.5 (0.6-3.6)
Religions		
Catholic Christian	14.9 (9.5-22.7)	19.4 (16.2-23.1)
Non-Catholic Christian	68.4 (60.1-75.7)	61.7 (57.5-65.8)
Muslim	11.4 (6.9-18.2)	17.6 (13.7-22.2)
Time at position		
0-4 years	63.2 (54.0-71.4)	40.6 (35.6-45.8)
5-9 years	19.3 (13.0-27.6)	21.6 (18.3-25.3)
>=10 years	17.5 (11.6-25.6)	37.8 (32.5-43.4)

Table 7 shows the client characteristics with complete data for the direct observation/exit interview. All clients were female. Almost all were 20 years or older (93.2%), most were returning users (76.9%), and married (92.7%). Most of the clients (67.6%) reported having some primary schooling. There were no statistically significant differences between the high and low performance district groups for age, FP status, marital status or education. Clients in the low performance district group were statistically significantly more likely to be Muslim (50.3 95% CI: 40.9-59.6) compared to the high performance district group (12.5 95% CI: 6.2-23.8).

Table 7. Client characteristics in exit interview by high/low performance group

	High Performance Group (N=162)	Low Performance Group (N=309)	Total (N=471)
Age			
<20	5.3 (2.3-11.5)	7.6 (4.1-13.7)	6.8 (4.1-11.0)
20-24	43.3 (32.6-54.5)	27.0 (19.3-36.3)	32.6 (25.3-40.7)
25-29	22.3 (14.1-33.4)	22.4 (15.1-31.9)	22.4 (16.6-29.4)
30-34	14.2 (7.5-25.5)	23.1 (14.5-34.7)	20.0 (13.4-28.9)
>=35	14.9 (10.0-21.7)	19.9 (14.0-27.5)	18.2 (13.7-23.7)
Family planning status			
New user (<6 months)	30.5 (19.4-44.5)	17.1 (10.8-26.0)	21.7 (15.3-29.9)
Returning user	69.1 (55.2-80.2)	81.0 (70.8-88.2)	76.9 (68.2-83.7)
Stop using	0.4 (0.1-1.9)	1.9 (0.7-5.0)	1.4 (0.6-3.4)
Marital status			
Married	97.1 (92.7-98.9)	90.5 (84.8-94.2)	92.7 (88.7-95.4)
Not married	2.9 (1.1-7.3)	9.5 (5.8-15.2)	7.3 (4.6-11.3)
Education			
No formal school	8.9 (5.2-14.6)	15.5 (9.4-24.6)	13.2 (8.7-19.7)
Some primary school	67.4 (59.5-74.4)	67.7 (58.7-75.5)	67.6 (61.2-73.4)
Primary completed or higher	23.8 (15.4-34.9)	16.8 (9.1-29.1)	19.2 (12.7-28.0)
Religions			
Catholic	20.8 (13.3-31.1)	6.7 (3.6-12.1)	11.6 (7.8-16.9)
Christian	51.0 (37.9-64.0)	28.0 (22.2-34.6)	35.9 (29.3-43.1)
Muslim	12.5 (6.2-23.8)	50.3 (40.9-59.6)	37.3 (29.6-45.8)
Other	15.6 (9.1-25.5)	15.0 (11.5-19.5)	15.2 (11.8-19.4)

Provider knowledge of quality procedures

We assessed provider knowledge of side effects, method contraindications and complete counseling. Each provider was only asked about method they directly give or prescribe. Table 8 shows the knowledge of side effects for pills (for all providers), injectables (for facility-based workers and HSAs), and implants and IUD (facility-based workers only). For pills, the most common side effects mentioned was menstrual spotting (51.9%), followed by headache (44.3%) and nausea (40.8%). Almost all facility-based providers and HSAs mentioned heavy menstrual bleeding as a side effects of injectables (90.3%). Other changes in menstrual patterns were commonly mentioned as side effects including spotting/light bleeding (61.6%) and amenorrhea (48.4%). Most providers mentioned changes in menstrual patterns as a side effects of implants (87.3%) followed by headache (47.2%) and weight change (25.4%). Less than half of the providers mentioned heavy menstruation (45.7%) and additional cramping/pain during menstruation (42.1%) as side effects of IUDs.

Table 8. Proportion of providers who mentioned each side effects for pills, injectables, implant and IUD

Knowledge of side effects for PILLS	
% providers that mentioned the following side effects	**%(n=542 HFs/HSAs/CBDAs)**
Menstrual spotting	51.9
Headaches	44.3
Nausea/loss of appetite	40.8
Dizziness	34.9
Amenorrhea	26.9
High blood pressure	11.4
Weight gain	8.7
Breast tenderness	5.9
Reduced sex drive	3.0
Mood Change	1.3
Knowledge of side effects for INJECTABLES	
% providers that mentioned the following side effects	**% (n=372 HFs/HSAs)**
Heavy menstrual bleeding	90.3
Spotting and light bleeding	61.6
Amenorrhea	48.4
Headaches	33.9
Weight gain	29.8
Abdominal bloating	18.8
Nausea/loss of appetite	15.3
Reduced sex drive	10.2
Mood changes	2.7
Breast tenderness	1.3
Knowledge of side effects for IMPLANTS	
% providers that mentioned the following side effects	**% (n=197 HFs)**
Changes in menstrual bleeding patterns	87.3
Headaches	47.2
Weight change	25.4
Abdominal pain	23.4
Dizziness	23.4
Nausea/loss of appetite	17.3
Acne (can improve or worsen)	4.6
Breast tenderness	3.6
Mood changes	3.1
Knowledge of side effects for IUD	
% providers that mentioned the following side effects	**% (n=197 HFs)**
Prolonged and heavy menstruation	45.7
More cramps and pain during menstruation (compared to without)	42.1
Uterine infection	30.5
Irregular bleeding	26.9

During the provider interviews, we asked providers to list all the contraindications and eligibility criteria they knew for each method they prescribe. Table 9 shows the frequency of the responses, including false contraindications/eligibility criteria. For these questions, we encountered a larger proportion of "other" responses compared to the other questions. We coded and included any response that was mentioned by 10% or more of the providers in table 9. For pills, almost half of the respondents mentioned high blood pressure as a contraindication, followed by client unable to remember to take pills daily (21.8%) and client pregnancy (21.8%). High blood pressure was also the most commonly mentioned contraindication for injectables (59.1%), followed by unexplained vaginal bleeding (30.4%) and client pregnancy (24.5%). Again for implants, high blood pressure was mentioned most commonly (50.3%) then followed by treatment for HIV (36.0%) and unexplained vaginal bleeding (26.4%). Genital cancer was the most common contraindication mentioned by providers for IUDs (42.1%), the second most common was current infection with a sexually transmitted disease (30.5%), and unexplained vaginal bleeding (25.4%).

Table 9. Proportion of providers who mentioned contraindications/eligibility for pills, injectables, implant and IUD

PILLS	
% providers that mentioned the following:	**%(N=542HFs/HSAs/CBDAs)**
High blood pressure *(current or history)*	43.5
Cannot/unable to remember to take pills daily	21.8
Suspected/confirmed pregnancy	21.8
Breast cancer *(current or history)*	17.9
Currently breastfeeding, less than 6 weeks after delivery	16.6
Epilepsy *(mentioned as "other" response)*	12.0
Heart disease *(current or history)*	10.7
Current tuberculosis treatment	10.0
INJECTABLES	
% providers that mentioned the following:	**% (N=372 HFs/HSAs)**
High blood pressure *(current or history)*	59.1
Unexplained, unusual vaginal bleeding	30.4
Suspected/confirmed pregnancy	24.5
Breast cancer *(current or history)*	18.8
No permission from husband/partner	11.8
IMPLANTS	
% providers that mentioned the following:	**% (N= 197 HFs)**
High blood pressure *(current or history)*	50.3
Current HIV treatment	36.0
Unexplained, unusual vaginal bleeding	26.4
Suspected/confirmed pregnancy	24.9
HIV positive	21.3
Breast cancer *(current or history)*	21.3
Liver disease *(current or history)*	11.2
Obesity *(mentioned as "other" response)*	10.7
Current tuberculosis treatment *(mentioned as "other" response)*	10.7

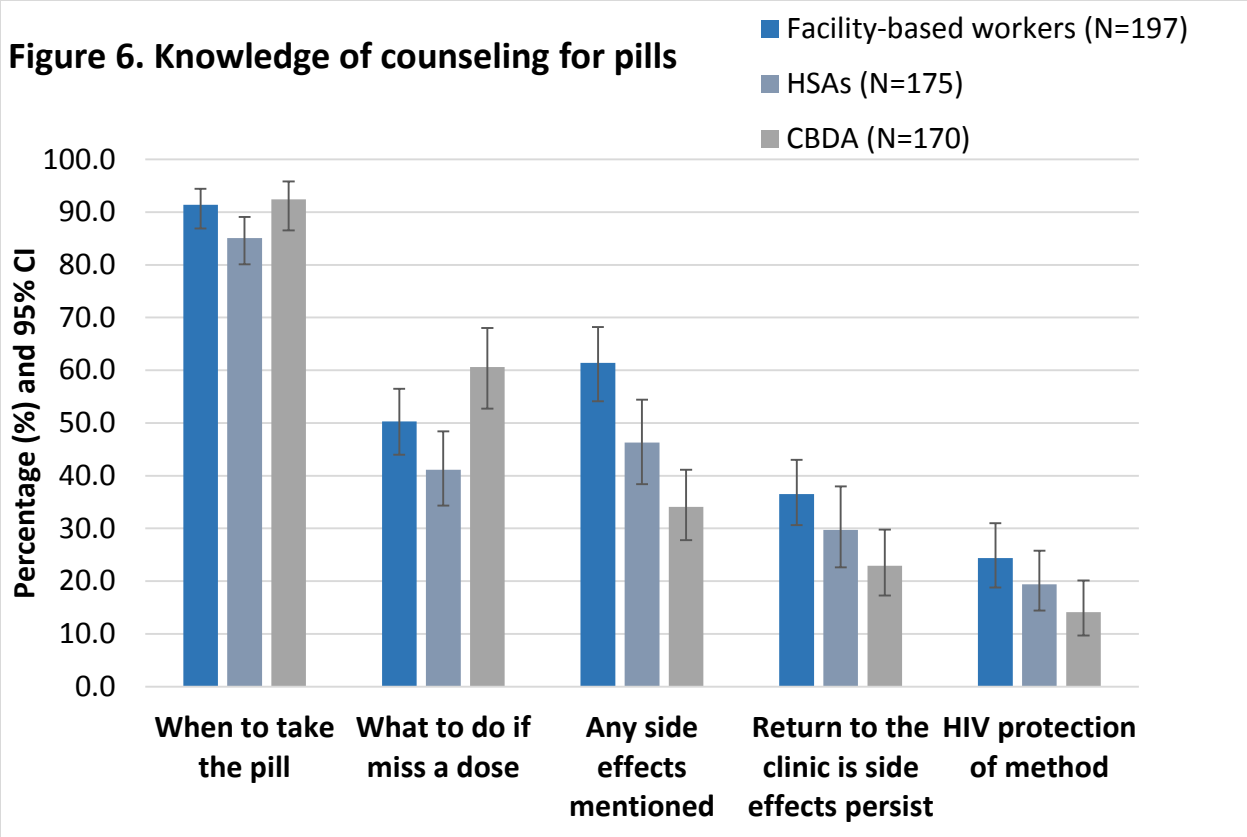
IUDs	
% providers that mentioned the following:	**% (N= 197 HFs)**
Genital cancer *(current or history)*	42.1
Current sexually transmitted disease	30.5
Unexplained, unusual vaginal bleeding	25.4
Fibroids	22.8
Nulliparous	17.8
Suspected/confirmed pregnancy	17.3
Young age	14.2

Note: Contraindications/eligibility mentioned in the "other" category by 10% or more of the respondents are included in this table.

Finally, during the interview, we asked providers to mention specific information they would counsel clients when giving or prescribing each method. For pills, the most common counseling component mentioned was when to take the pill (daily) (89.7%) and the least common was reminding the client that pills do not protect against sexually transmitted infections such as HIV (19.6%) (Table 10). There was no difference by cadre (Fig. 6) except for mentioning what to do if a dose of pills was missed. HSAs were statistically significantly less likely to mention that compared to CBDAs.

Table 10. Knowledge of counseling for pills (n=542)

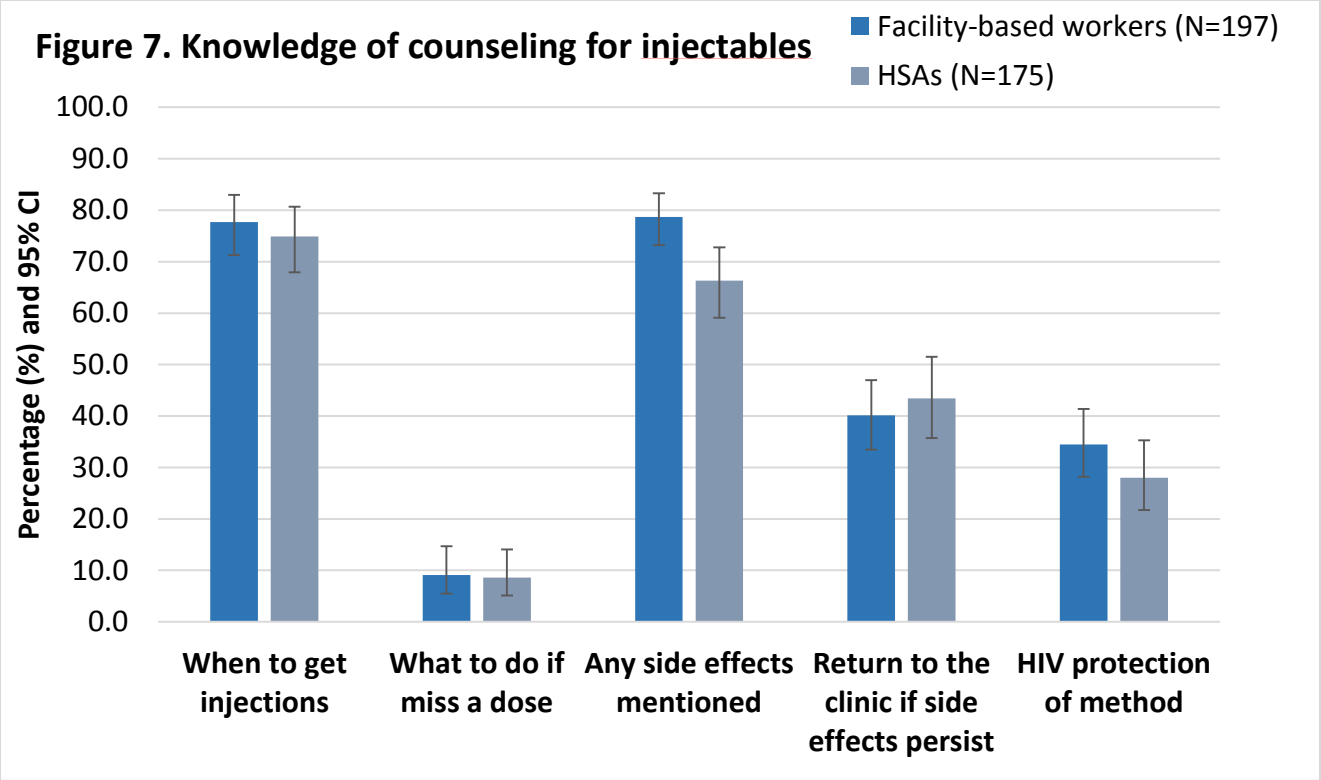
Counseling components	% (95% CI)
When to take the pill	89.7 (86.8-92.0)
What to do if miss a dose	50.6 (46.2-54.9)
Any side effects mentioned	48.0 (43.7-52.3)
Return to the clinic if side effects persist	30.1 (26.3-34.2)
HIV protection of method	19.6 (16.5-23.0)



Knowledge of counseling for injectables was asked only for facility-based workers and HSAs (Table 11). The most common components mentioned were counseling what how often the injectable is given (76.3%) and side effects (72.8%). The least common mentioned was telling the client what to do if she missed a dose of the injectables (8.9%). Facility-based providers were statistically significantly more likely to mention counseling on side effects compared to HSAs (Fig. 7) and there were no other differences by cadre.

Table 11. Knowledge of counseling for injectables (n=372)

Counseling components	% (95% CI)
When to get injections	76.3 (71.7-80.5)
What to do if miss a dose	8.9 (6.1-12.8)
Any side effects mentioned	72.8 (68.5-76.8)
Return to the clinic if side effects persist	41.7 (36.3-47.2)
HIV protection of method	31.5 (27.0-36.3)



Facility-based providers were asked about counseling for implants and IUDs (Table 12). For implants, the most common counseling component mentioned was side effects (71.6%) all other counseling components were mentioned by less than half of the interviewed providers. For IUDs, the most commonly mentioned was that the device protected against pregnancy for up to ten years (57.4%) and all others were mentioned by less than half of the providers.

Table 12. Knowledge of counseling for implants and intrauterine devices (n=197)

Counseling components	% (95% CI)
Implants	
Good for 5 years	32.0 (25.9-38.7)
Any side effects mentioned	71.6 (64.8-77.5)
Return to the clinic if side effects persist	43.1 (36.1-50.5)
HIV protection of method	27.4 (21.7-34.0)
Intrauterine devices (IUD)	
Good for 10 years	57.4 (49.5-64.9)
Check strings after menstruation	40.6 (32.7-49.1)
Any side effects mentioned	46.2 (39.1-53.5)
Return to the clinic if side effects persist	29.9 (23.5-37.3)
HIV protection of method	26.9 (20.1-34.9)

Finally, we assessed the client history questions, tests/exams recommended and the family planning methods (if any) reported by providers in response to three different client case scenarios. The details of the case scenarios are in appendix 2. The frequency of questions, test and method recommended in response to each of the three case scenarios is presented in appendix 3. All three case scenarios preferred to use pills and about half of the interviewed providers mentioned they would recommend pills as a FP method (appendix 3).

Summary: Knowledge of side effects, contraindications and counseling components by method

Side effects:

- Changes in menstrual patterns was the most commonly mentioned side effect (ranging from >90% for injectables to 45.7% for IUDs).
- Overall, knowledge was lower for pills and IUDs compared to injectables and implants.

Contraindications:

- High blood pressure was most commonly mentioned for pills, injectables and implants (ranging 59.1% for injectables to 43.5% for pills, few others were mentioned (prevalence <36%).

Counseling:

- When to take medications was high for pills (89.7%) and injectables (76.3%).
- What to do if a dose is missed was low for injectables (8.9%).
- Side effects mentioned was high for both injectables (72.8%) and implants (71.6%). It was <50% for IUD and pills.
- Return to the clinic if side effects persist was low across all methods (range 29.9% for IUD to 43.1% for implants)
- Many providers mentioned length of pregnancy protection for IUD (57.4%) but all others were low for IUD (ranging from 40.6% - 26.9%)
- HIV protection of method was low for all (range 19.6% for pills to 31.5% for injectables)

Clinical vignette (preferred method recommended):

- 60.7% - 42.1% of the clients in the 3 case scenarios received their preferred method.

Provider practice of quality procedures

We assessed provider quality practices through simulated clients and direct observation of actual client consultations.

Through the simulated client protocol, we measured access to FP services and respectful treatment of clients. In approximately 20% of the consultations, the simulated client actors were not given any family planning methods. In 5% of the consultations, the clinic had a stock-out of pills, although the clients were still seen and counseled by the providers. In 1.8% of the

consultations, the clinic was closed or not providing FP services during normal operating hours. We consider this structural or clinic-level factors.

In other cases, the simulated clients were told they could not have a FP method by the provider. In 8.1% of the consultations, the simulated clients were told they would not be given FP services unless they agreed to a HIV test and in 1.8% of the consultations they were turned away for not agreeing to a tetanus toxoid (TT) vaccination (Table 13). In about 3% of the consultations the clients were refused service because they did not agree to a pregnancy test, vaginal exam, was not menstruating or had a high measured blood pressure. The refusal of FP services for not agreeing to a HIV test was concentrated in one district.

The simulated clients recorded descriptions of these events in their field notes and selected excerpts are presented below.

Stock-outs:

> *"Arrived at the health center around 8:00 am. No counselling. They sent us back because they don't have pills"* – Adolescent SC

Clinic closed:

> *"Was told to come back another day because the provider was going away. So I came back without any method."* – Adolescent SC

Refusal due to HIV testing:

> *She did not give me any counselling and did not prescribe me for any method. She stated that as per the facility rule, it's a must for all family planning seekers to go for compulsory testing before receiving the method, therefore she referred me to the VCT room"* – Adult SC

Table 13. Reason simulated client was not given/prescribed a FP method

	222 consultations (2 per clinic)
Structural: % (n)	
The clinic had a stock out of preferred method (pills) ➢ *SCs were still seen and counseled by providers.*	5.0% (11)
The FP clinic was not open (clients arrived during open hours)	1.8 % (4)
Provider level: % (n)	
Client refused to get HIV test	8.1% (18)
Client refused TT vaccination	1.8% (4)
Client refused pregnancy test or vaginal exam	1.8% (4)
Client was not menstruating	0.5% (1)
Client referred due to high blood pressure	0.5% (1)
Total % (n)	19.4% (43)

The simulated clients reported and documented any disrespectful care encountered when accessing the facility, defined as being yelling at, threatened, scolded or being insulted. They reporting this in 17.6% of the total consultations. In 5.4% of the adolescent simulated client consultations, the staff reported judgmental or scolding comments about their age and access of FP services (Table 14). In 5% of the total consultations, the providers or staff expressed anger with the simulated clients for not complying with clinic procedures such as HIV testing or TT vaccinations. In 6.3% of the consultations, a provider or clinic staff person raised their voice or yelled at the simulated clients.

Table 14. Indicators of poor treatment

% of consultations where the SCs experienced humiliating treatment such as yelling, threatening, scolding, or being insulted at the clinic.	17.6%
Judgmental comments about young age and FP access (among adolescent consultations only)	5.4%
Anger - Refusal to comply with clinic procedures	5.0%
Raised voice/yelled	6.3%

Example excerpts from the field notes, documented by the simulated clients are presented below.

Young age and access of FP services:

> "[Provider] *counseled me to abstain not trusting my boyfriend in order to finish school properly. I was given pills and condoms for backup if my boyfriend insists to have sex before 7 days and the provider said that am young and should not be thinking of relationships."* – Adolescent SC

Anger at refusing tests:

> *"*[Provider working at NGO] *stationed at the Health Centre forced me to go for an HIV test, I refused. She raised her voice at me for refusing to get tested. Nevertheless, we had both group counseling and individual counseling."* – Adult SC

General disrespectful care:

> *"One of the health surveillance assistant who was also assisting FP clients was proposing me for a relationship. [He was saying…] 'Give me your number. Let us meet somewhere away from the facility for where we can discuss. Where do you live? Please, be serious. I am serious. You can flash me on this number' "* - Adolescent SC

We assessed counseling and clinical quality by direct observation, using the *Malawi Integrated IP, RH and PMTCT for Health Centers* definitions whenever possible. In most consultations, the clients were respectfully greeted (94%), treated respectfully and free from judgement (98.3%), and encouraged to ask questions (77.7%) (Table 15). Full counseling on the effectiveness, mode of action, side effects, dual protection and advantages/disadvantages of the available methods

was low (<5% for all methods (Table 15). However it should be noted these data include all clients, even returning ones. It may be less critical to counsel returning clients on all methods.

In less than 10% of the consultations, the provider verbally assured the clients of confidentiality. Almost all (94.9%) asked the clients what their preferred method was and less than a quarter (20.1%) asked about fertility plans. For new clients who received implants or injectables, providers ruled out pregnancy or conducted a pregnancy test in 20.8% of the consultations. The QoC survey did not collect information specifically about history of tuberculosis infection, but in half the consultations (53.1%) the provider asked the clients whether they had any chronic illnesses. The survey also collected limited data on sexually transmitted injections (STIs), including HIV but in less than 15% of the consultations, the provider asked the clients about the STI status (11.8%) or number of current sexual partners (7.7%).

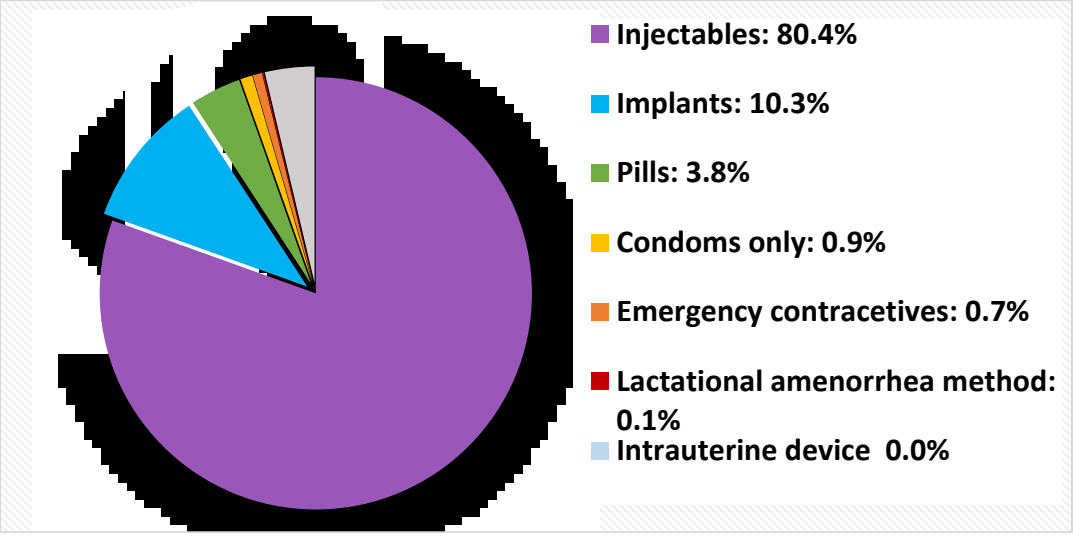
Table 15: Additional indicators in the Malawi Integrated IP, RH and PMTCT for Health Centers standard guidelines for client relationship, education and history.

Verification	Quality of care indicator	% (95% CI)	N
The provider gives group education according to National Guidelines:			
Greets the participants and makes self- introduction	Proportion of consultations were the provider greeted the client respectfully.	94.0 (86.3 – 97.4)	471
Explains the effectiveness, mode of action, side effects, dual protection, advantages and disadvantages on each method	Pills:	2.7 (1.1 – 6.6)	471
	Injectables:	4.6 (2.2 – 9.6)	471
	Implants:	1.0 (0.2 – 4.4)	471
	IUD:	0.2 (0.0 – 0.9)	471
Encourages participants to ask questions and addresses them with an easy-to-understand language	Proportion of consultations were the provider asked if the clients had any questions.	77.7 (68.5 -84.8)	471
	Proportion of consultations were the provider answered all client questions. (if there were any questions)	95.4 (90.2 – 98.0)	136
The provider establishes a cordial relationship with the client			
Treats the client respectfully.	Proportion of the consultations were the provider made no judgmental comments, did not yell/raise their voice at client, did not use disparaging terms about the client or did not do anything else considered disrespectful.	98.3 (96.5 – 99.1)	471
Assures client of confidentiality	Proportion of the consultations where the provider verbally assure the client of confidentiality.	9.4 (3.5 – 23.1)	471
Asks the client her/his reproductive goals and needs for contraception	Proportion of consultations where the provider ask the client her preferred contraceptive method.	94.9 (87.3 – 98.1)	471

	Proportion of consultations where the provider either asked the client whether she wants more children or timing of future births.	20.1 (11.8 – 32.1)	471
Client history			
The provider rules out a current pregnancy	Proportion of consultations with previous non-users of contraceptives where the provider ruled out pregnancy or conducted pregnancy test prior to procedure (injectables and implants only)	37.1 (23.8 – 52.8)	49
The Provider rules out TB infection	Proportion of consultation where the provider asks whether client has any chronic illnesses.	46.9 (34.4 – 59.7)	471
Rules out risk for sexually transmitted infections, including HIV	Proportion of consultation where the provider asks about client's STI status.	11.8 (5.4 – 24.1)	471
	Proportion of consultation where the provider asks about client's number of sexual partners.	7.7 (4.6 – 12.5)	471

Almost all of the clients who were observed received injectables (80.4%), followed by implant insertion or removal (10.3%) and pills (3.8) (Fig. 8). All other methods were observed in less than 1% of the client sample. We present counseling quality for injectables, implants and pills and the frequency of clinical quality procedures for injectables and implants. Counseling quality is also report by the method information index (MII).

Figure 8. Method mix from the direct observation



Most providers observed told the clients how often to receive injections (Fig. 9), few counseled on what to do if a dose was missed. In over 80 percent of the consultations with implant insertion, providers counseled on implant removal date, side effects and told clients to return to the clinic should side effects persist (Fig. 10). Counseling on pills ranged from 76.6% for when to

take the pill to 47.5% for telling the client to return to the clinic if side effects from the pills persists, although the confidence intervals are wide due to the small sample size (Fig. 11).

Figure 9. Practice: counseling on injectables (direct observation)

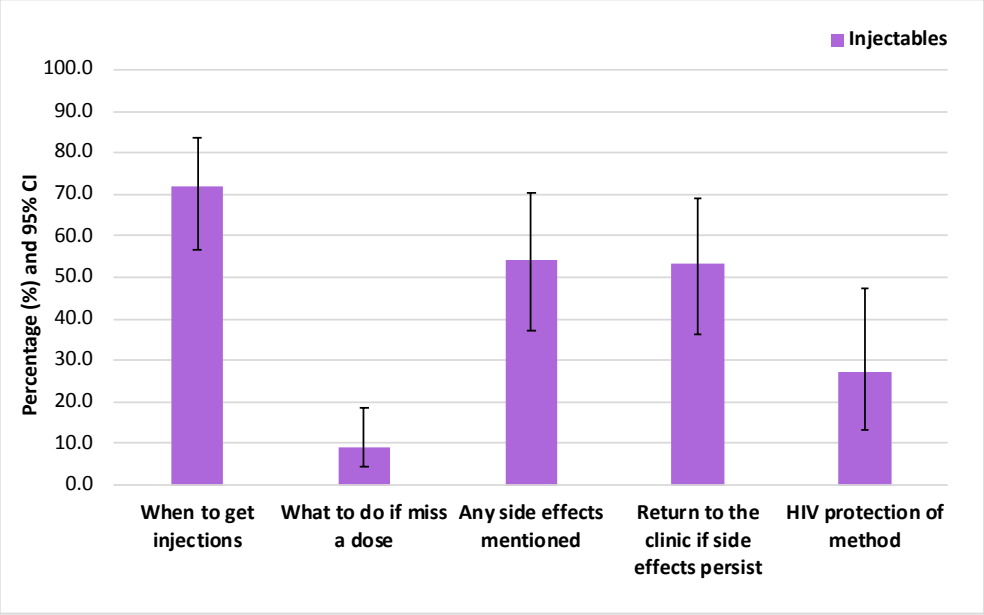


Figure 10. Practice: counseling on implants (direct observation)

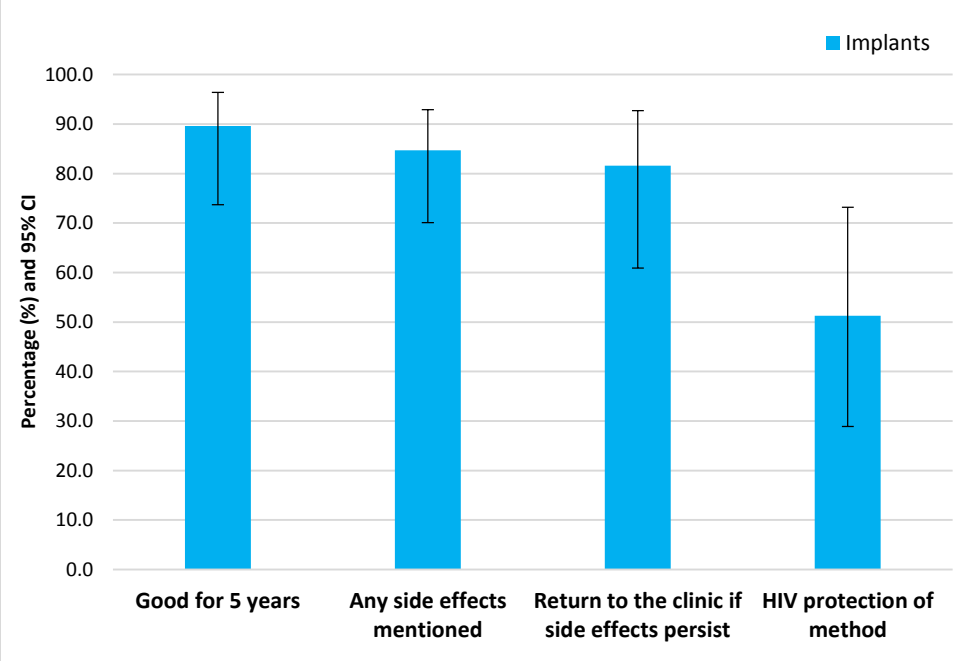


Figure 11. Practice: counseling on pills (direct observation)

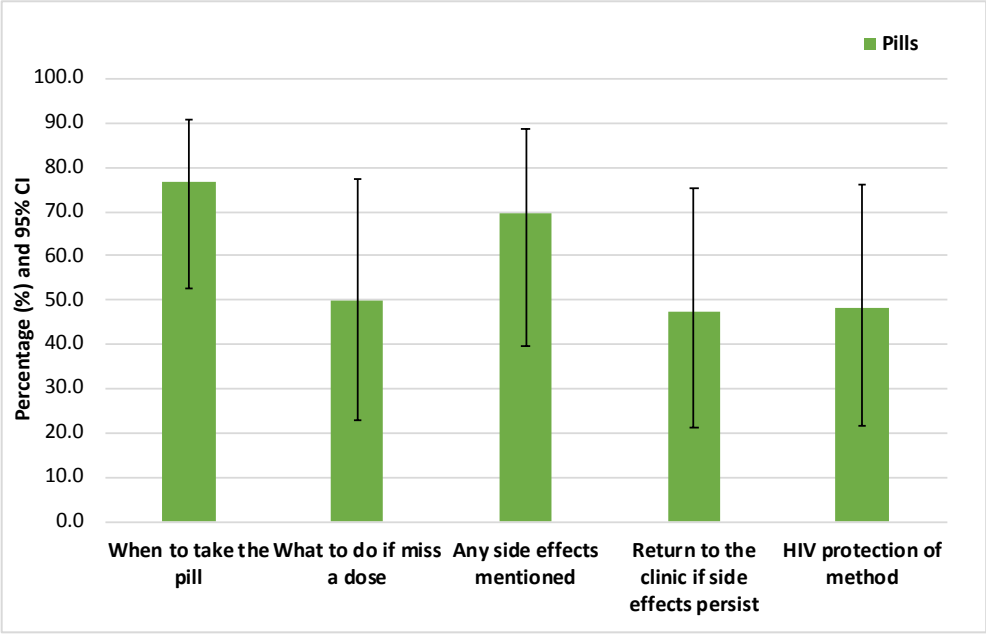


Table 16 presents additional counseling information according to the *Malawi Integrated IP, RH and PMTCT for Health Centers* standards. Among those clients who already had a method in mind, side effects was most commonly mentioned (65.3%) and use of method was least commonly mentioned (32.8%). For the clients who were given or prescribed pills (combined oral contraceptives or "COC"), a third (33.1%) of the providers counseling on the effectiveness and half (52.6%) mentioned the advantages/disadvantages. In 68.9% of the consultations where the clients received or were prescribed pills the providers used some form of visual aids, including flipcharts. Counseling on injectables (DEPO) ranged from 100% for timing of the next dose to 21.3% on their effectiveness in preventing pregnancy (Table 16). Implant counseling had a similar pattern. The correct timing to remove implant was the most frequently mentioned at 95.2% and implant effectiveness was least mentioned (27.0%). Almost all clients who were given/prescribed pills, injectables and implants were provided information on when to return to the clinic for follow-up (99.5%).

Table 16: Additional indicators in the Malawi Integrated IP, RH and PMTCT for Health Centers standard guidelines for counseling quality.

Verification	Quality of care indicator	% (95% CI)	N
Provider targets information-giving to the client's interest and needs if the client has a method/or several methods in mind:			
If client is medically eligible, supports the client's choice and discusses how to use method and how to cope with any side effects	Proportion of consultations where the provider counseling on use for the method given (condoms, pills, injectables or implants) for clients with method already in mind.	32.8 (19.6 – 49.6)	125
	Proportion of consultations where the provider counseling on any side effects for	65.3 (53.6 – 75.5)	123

	the method given (pills, injectables or implants) for clients with method already in mind.		
	Proportion of consultations where the provider counseling what to do if the side effects persist for the method given (pills, injectables or implants) for clients with method already in mind.	58.4 (46.9 – 69.1)	123
The provider gives specific and relevant information about COC.			
Explains the effectiveness of COC.	Proportion of consultations where the client was given/prescribed pills where the provider mentioned the effectiveness in preventing pregnancy.	33.1 (13.2 – 61.7)	18
Explains advantages/disadvantages of COC.	Proportion of consultations where the client was given/prescribed pills where the provider mentioned the benefits/risks of the method.	52.6 (27.2 – 76.8)	18
Explains and shows in a flipchart or drawing how the pill prevents pregnancy.	Proportion of consultations where the client was given/prescribed pills where the provider any visual aids.	68.9 (43.1 – 86.7)	18
The provider gives specific and relevant information about DEPO.			
Explains the effectiveness of DEPO	Proportion of consultations where the client was given/prescribed injectables where the provider mentioned the effectiveness in preventing pregnancy.	21.3 (12.1 – 34.7)	379
Explains advantages/disadvantages of DEPO.	Proportion of consultations where the client was given/prescribed injectables where the provider mentioned the benefits/risks of the method.	50.9 (33.8 – 67.8)	379
Explains the mode of action of DEPO	Proportion of consultations where the client was given/prescribed injectables where the provider mentioned the mode of action.	48.1 (30.9 – 65.7)	379
Explains the dosage and follow up DEPO.	Proportion of consultations where the client was given/prescribed injectables where the provider mentioned client should use a backup method after starting method (new users only)	30.9 (14.3 – 54.7)	36
	Proportion of consultations where the client was given/prescribed injectables where the provider mentioned when to have the injections or when to return to the clinic for follow-up.	100.0	379
The provider gives specific and relevant information about Implant.			
Explains Implant is highly effective (99%) immediately after the insertion	Proportion of consultations where the client was given/prescribed implants where the provider mentioned the effectiveness in preventing pregnancy.	27.0 (26.8 – 75.5)	49
Explains	Proportion of consultations where the client	69.2	49

advantages/disadvantages of the implants.	was given/prescribed implants where the provider mentioned the benefits/risks of the method.	(44.0 – 86.5)	
Explains the mode of action of Implant	Proportion of consultations where the client was given/prescribed implants where the provider mentioned the mode of action.	55.4 (31.3 – 77.2)	49
Explains the use and follow up Implant.	Proportion of consultations where the client was given/prescribed implants where the provider mentioned how long the implant was good for or when to return to the clinic for follow-up.	95.2 (81.4 – 98.9)	49
The provider gives instructions about the return and/or follow-up visits.			
Instructs client on importance of follow up according to the selected method	Proportion of consultations where the client was given/prescribed pills, injectables or implant where the provider told the client when to return for follow-up.	99.5 (98.0 – 99.9)	445

Table 15 shows the method information index for clients who received injectables, implants or pills during the direct observation. A third of providers (1) mentioned at least one other method than what the client received; (2) mentioned any side effects of the method received; and (3) told the client to return to the clinic if the side effects persist. There was no statistically significant difference in MII among new clients, returning clients, or clients receiving either injectables or implants (Table 15).

Table 17. Method Information Index, direct observation

	% (95% CI)	N
New client*	38.8 (25.5-54.0)	96
Returning client	36.3 (19.8-56.7)	345
Injectables only	35.8 (20.2-55.3)	379
Implants only	47.6 (28.1-67.8)	49
Total	37.3 (23.6-53.5)	445

* Adopter or switched methods

During clinical procedures, the observers documented all actions taken by the provider such as sterile technique and client privacy during the procedure. Figures 12 and 13 show this for injectables and implants respectively. In both procedures, all providers (100%) used a new/sterile needle when giving the hormonal injection (Fig. 12) or numbing in the implant incision site (Fig. 13). Correct disposal of sharps was high for both procedures as well. Few providers disinfected their hands by either washing them or using sanitizer prior to injecting the hormonal injectables (12.8%). Hand disinfection was higher for implants, in 70.3% of the implant procedures, the provider disinfected their hands prior to procedure or wore latex gloves. Only 15.5% of the providers cleaned contaminated surfaces after the implant procedure was complete. The proportion of providers who cleaned and air-dried the site for injectables was 58.1%.

Figure 12. Quality clinical practices for injectables, direct observation (n=379)

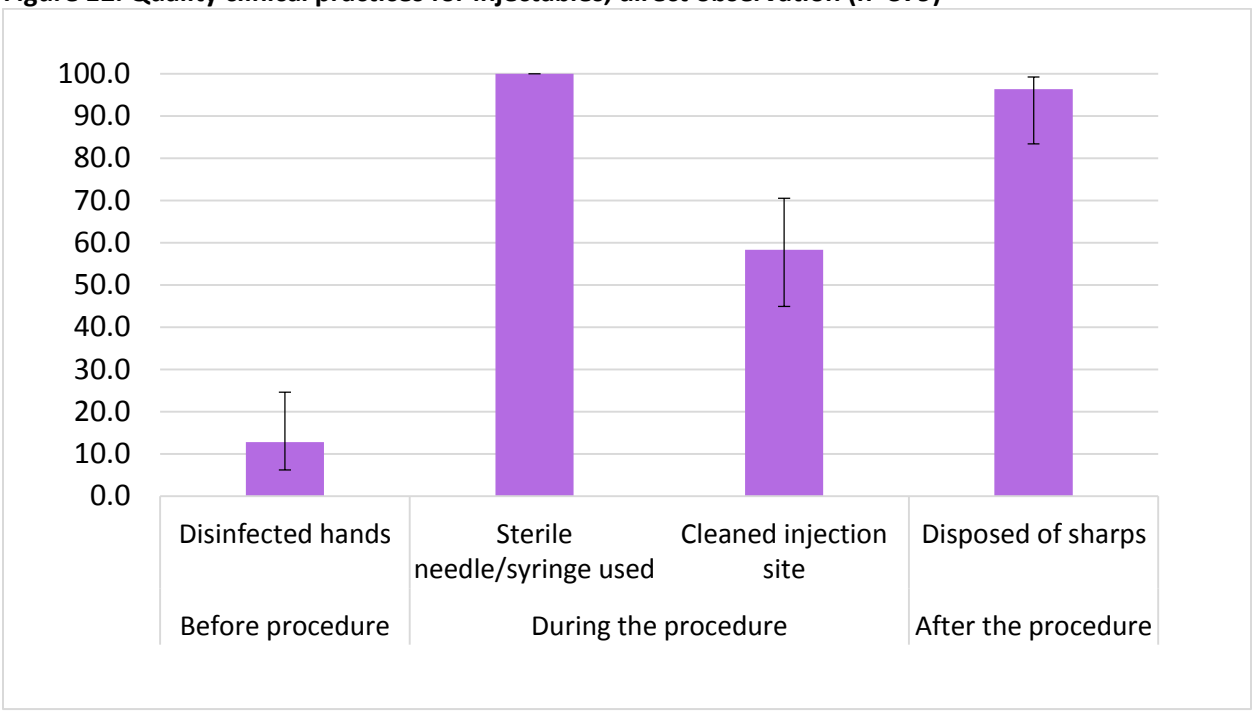


Figure 13. Quality clinical practices for implants, direct observation (n=49)

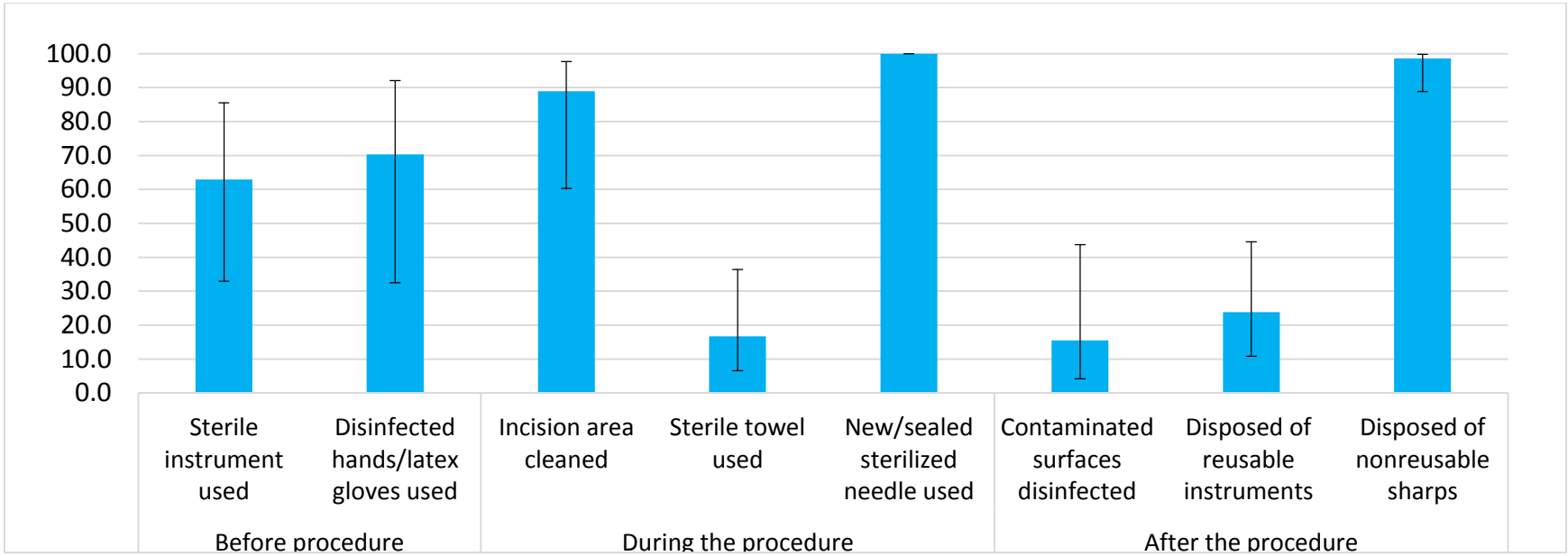


Table 18 presents clinical quality data according to the *Malawi Integrated IP, RH and PMTCT for Health Centers* standards available from the QoC survey in additional to what was presented in figures 12 & 13. For injectables (DEPO), the additional clinical quality indicators were very high, greater than 85% of the consultations followed these procedures. Although the survey did not record whether the provider wrote down information specifically about the injection in the health passport, 99.5% of the providers wrote down information once the consultation was complete.

Additional standards indicators for the implant procedure were also very high. Almost all providers allowed time for the anesthetic to take effect and documented information in the health passport. Most (76.8%) explained the procedure to the clients before beginning. More than half the consultations where the client received injectables (67.4%) and implants (54.2%) had both visual and auditory privacy (Table 18).

Table 18 Additional indicators in the Malawi Integrated IP, RH and PMTCT for Health Centers standard guidelines for clinical quality.

Verification	Quality of care indicator	% (95% CI)	N
The provider correctly administers DEPO:			
Administers DEPO using correct procedures.	Proportion of consultations where the client was given injectables where the provider stirred or mixed the bottle gently (appropriately) before drawing dose	86.2 (74.7 – 93.0)	374
	Proportion of consultations where the client was given injectables where the provider allowed dose to self-disperse (instead of massaging the site).	85.4 (73.6 – 92.5)	374
Records DEPO injection in client chart.	Proportion of consultations where the client was given/prescribed injectables where the provider wrote on health passport after consultation	99.5 (98.1 – 99.9)	379
Assures necessary privacy during the visit.	Proportion of consultations where injectables were given with both visual and auditory privacy.	66.4 (47.4 – 81.3)	379
The provider correctly Inserts Implant			
Prepares the client for the procedure.	Proportion of consultations where the client was given implants where the provider explained the procedure to client before starting.	76.8 (53.0–90.7)	42
Inserts Implant using correct procedures.	Proportion of consultations where the client was given implants where the provider allowed time for local anesthetic to take effect prior to making incision.	98.9 (89.8 – 99.9)	42
Records Implant insertion in client chart.	Proportion of consultations where the client was given/prescribed implants where the provider wrote on health passport after	98.1 (90.8 – 99.6)	49

	consultation.		
Assures necessary privacy during the visit.	Proportion of consultations where implants were either inserted or removed with both visual and auditory privacy.	54.2 (27.8 – 78.4)	47

Summary: Access of FP services, respectful treatment, counseling practices and clinical procedures

Access to FP services:

- Approximately 20% of the simulated client consultations did not receive a family planning method after accessing services.
- In ~10% of the simulated client consultations, the client was turned away because they refused HIV testing and/or tetanus vaccination.

Respectful care**:**

- Simulated clients reported poor treatment in 17.6% of the consultations.

Counseling (direct observation)*:*

- *When to take medications* was high for injectables (72.0%).
- *What to do if a dose is missed* was low for injectables (9.2%).
- Over half of providers mentioned *side effects* (54.1%) and when to return to the clinic if side effects persist (53.2%) for injectables.
- Over 80% of the providers mentioned *implant removal date* (89.6%) *, side effects* (84.7%) and when to return to the clinic if side effects persist (81.6%) for implants.
- *HIV protection of method* was mixed. (51.3% for implants and 27.3% for injectables).
- Method information index was low (37.3%) even among new clients (38.8%).
- Almost all providers treated the clients respectfully (98.3%) and encouraged questions (77.7%). Most clients were asked their preferred method (94.9%).
- Half the providers asked clients about chronic illnesses (53.1%) and only 20.1% ruled out pregnancy before giving an implant or injectable to a new client.
- Counseling on when to return to the clinic for the next dose of injectable was 100% and to have implant removed was (95.2%).
- The effectiveness of injectables and implants was mentioned in only 21.3% and 27.0% of the consultations respectively.

Clinical procedures (direct observation):

- Injectables: High sterile technique (100% new/sterile needle use) and sharps management (96.3% properly disposed). Lower hand hygiene (12.8% disinfected hands before procedure).
- Implants: High sterile technique (100% new/sterile needle use) and sharps management (98.6% properly disposed). Lower use of sterile towels (16.7%) and disinfection of surfaces after procedure (15.5%).
- Visual privacy for both procedure implants and injectables was around 60%.

- In 76.8% of the implant procedures, the provider explained the procedure to the client prior to beginning.
- Almost all (>99%) providers appeared to document the injectable or implant in the client's health passport.

Client Impact

Table 19 shows the client knowledge for each of the three methods received. Generally, client knowledge of how to use the method was high, ranging from 94.2% for pills to 89.8% for implants. Most clients (84.9%) correctly answered that the method they received (either injectables, implants or pills) does not protect against sexually transmitted infections including HIV. There was no statistically significant differences in knowledge between new and returning clients.

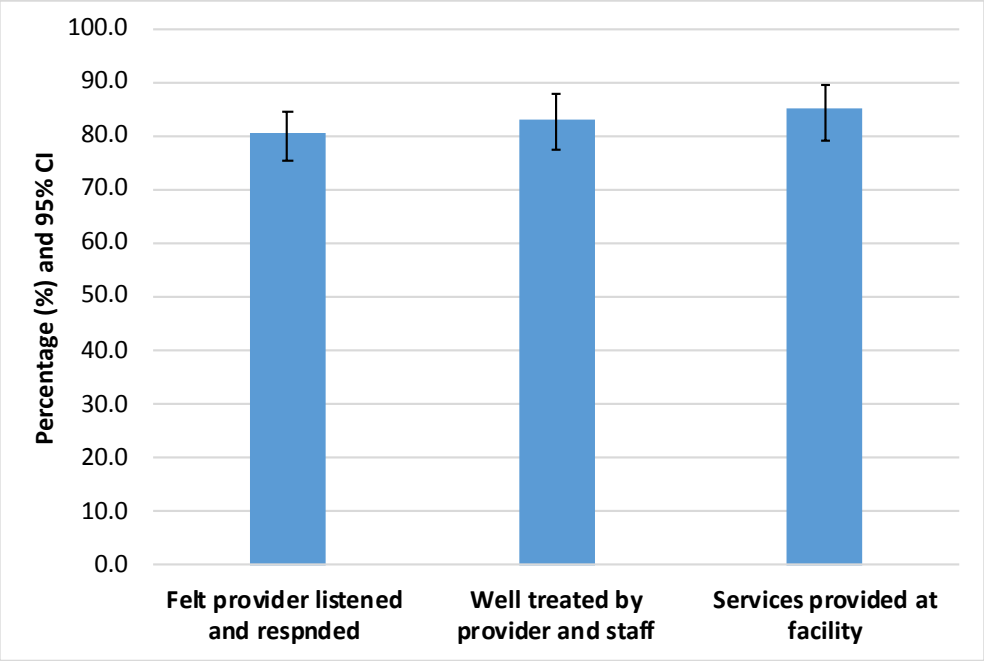
Figure 14 shows that reported client satisfaction was high. Over 80% of the clients reported they were well satisfied with the services provided at the facility including communication and treatment by providers.

Table 19. Correct client knowledge about the method they received, exit interviews

Indicator	Total % (N) 95% CI	New clients* % (N) 95% CI	Returning clients % (N) 95% CI
Injectables: Proportion of clients who know correct duration of pregnancy protection from injectables	91.7 (379) (86.7-94.9)	84.1 (50) (68.6-92.7)	92.8 (329) (87.2-96.1)
Implants: Proportion of clients who know correct duration of pregnancy protection from implants	89.8 (49) (75.6-96.1)	n/a**	n/a**
Pills: Proportion of clients who know pills are taken daily.	94.2 (18) (86.7-94.9)	n/a**	n/a**
Knowledge whether method received protects against HIV	84.9 (449) (79.0-89.4)	82.2 (98) (71.3-89.5)	86.0 (347) (79.2-90.8)

*Adopter or switched methods; ** Insufficient sample size

Figure 14. Client satisfaction with services, exit interviews (n=471)



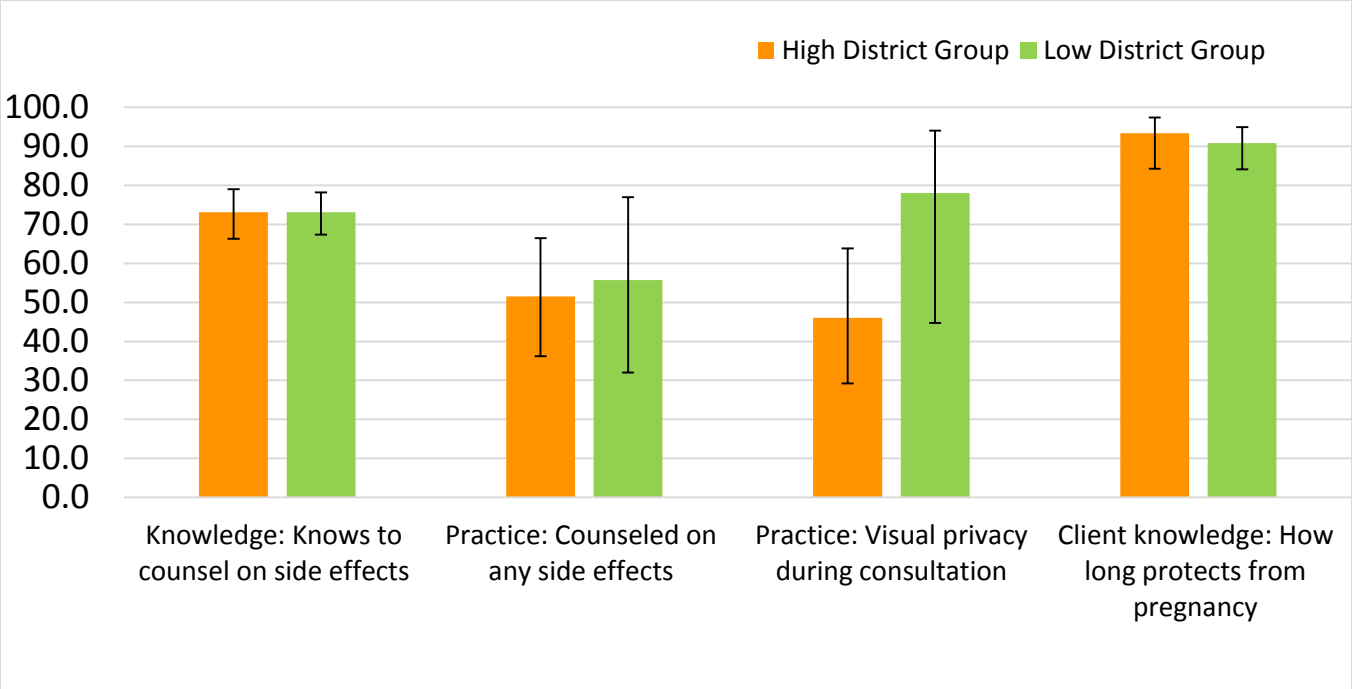
Summary: client knowledge and satisfaction

- Overall, almost 9 in 10 clients demonstrated correct knowledge about method received
- More than 80% of clients had correct HIV protection knowledge
- More than 80% were satisfied with their quality of care

Differences between high and low FP outcome district groups

We compared provider knowledge of counseling, counseling practice, clinical procedure and client impact for injectables, the most commonly used contraceptive in Malawi, for the two district groups. We found no statistically significant differences between the two groups.

Figure 15. Knowledge, Practice and Impact for injectables by high and low district group



Limitations

This study has some important limitations with the simulated client protocols, clinical vignettes, direct observations and clients exit interviews.

Simulated client protocol

The simulated clients may have difficulty remembering the details of the consultation especially as the fieldwork progressed and they visited more clinics. We did not consider it feasible due to logistical and financial reasons to audio record the consultation for later review. The field notes were helpful to elucidate the events reported but having audio-recordings of the consultations would have been ideal to reduce reporting errors. Additionally, the field notes were an ad-hoc data collection method and the notes were of varying quality.

In order to adhere to ethical standards, the providers were informed a few days prior that a masked simulated client would visit them to evaluate their practice. It is possible the providers detected the simulated clients and provided them with higher quality of care than their normal practice. The simulated clients could only accept pills and condoms for their own protection. As shown in figure 8, less than 5% of clients are getting condoms and pills at these facilities. This may have allowed them to be more easily detected by the providers.

Provider interviews and clinical vignettes

The main limitation of the provider interviews and clinical vignettes is that they may not accurately capture all actions a provider knows in a clinical situation. A recent study (still unpublished) showed that providers did several quality actions with a simulated client that they

did not report doing during a knowledge interview.[4] The clinic setting or being presented with an actual client may stimulate the providers to perform, sub-consciously, multiple items considered as quality procedures. Although we invited the providers to use job aids, many choose not to use them. Because they were in a testing situation and knew their quality knowledge was being assessed, they may have opted not to use the job aids so to appear more knowledgeable.

Direct observation and client exit interviews

The major limitation for direct observation is that the providers know they are being assessed and may change their behaviors from their normal practice. Also family planning counseling occurs in different areas (i.e. group education in waiting area versus with provider) and it is possible the assessors may have missed some counseling components. Finally clients may not accurately report satisfaction with care if they are concerned the providers might overhear the interview or if their expectations for quality care is low.

In many cases the confidence intervals of the point estimates are wide and this uncertainty needs to be taken into account when interpreting the findings.

Discussion

This quality of care study assesses the national family planning program in Malawi for six districts, examining provider knowledge, practice, and client impact. It aims to determine whether there is any measurable difference in the quality of care delivered at facilities in the two groups of high- and low-FP outcome districts. Additionally, it provides district level information on FP quality of care and estimates of knowledge of family planning for community-based health workers.

Counseling

There were important gaps in provider counseling. Most providers counseled clients on side effects particularly for injectables and implants which are the most commonly used contraceptives. Implant counseling was more comprehensive compared to injectables. This is likely because clients return to the clinic every three months for injectables and providers may assume they are already knowledgeable about the side effects and use. Almost all providers told the client when to return for their next injection but very few told her what to do if she missed a dose, important information since a missed dose puts the woman at risk of pregnancy. For both injectables and implants, a minority of providers explained the mode of action to the client.

Knowledge of counseling on side effects was lower for pills and IUD, however these are less commonly used contraceptives. We had very little observations to measure counseling practice for pills and no clients to observe IUD insertion/removal. During the knowledge interviews, a statistically smaller portion of CBDAs mentioned counseling on side effects for pills compared to facility-based providers. CBDAs provide pills in the community and are an important source of information for users outside the clinic.

[4] Personal communication, Elizabeth Hazel, Johns Hopkins Bloomberg School of Public Health, June 2019

Counseling on the HIV protection of the method was lowest overall among all methods assessed but client knowledge of whether their prescribed method protects against HIV was very high. In this study we found a very low proportion of providers asked the client her HIV status, however if the woman has been tested, HIV status is in her health passport. Providers may not have asked if they already had the information in the passport. Lack of HIV counseling may be indicative of poor integration of family planning with other health services including HIV.[5]

Client treatment

Almost all treated the clients respectfully during the observation, asked the client her preferred method choice and most encouraged questions from clients. This study also measured quality practices through simulated clients, where the provider does not know they are being assessed. In this protocol, we found some clients are being turned away from FP services because they did not agree to HTC or TTV, although this is concentrated in one district. We also measured a higher proportion of clients being treated poorly than was measured through the observations.

In general, the adolescent simulated clients received more complete counseling compared to the adult simulated clients. The adolescent simulated clients were assigned the case scenario of a first-time user and the adult was assigned as switching contraceptive methods. Providers may be giving more complete counseling either because of the simulated client's age or because it was their first time considering contraceptives, or both.

Only about 60% of the clients had both visual and auditory privacy for administration of injectables or implant insertion/removal. Lack of privacy may be an issue with integration of health services. The FP district coordinators, also the assessors for direct observation noted that often a curtain would be available but the providers did not use it.[6] Most providers explained the procedure for injectables or implants to the client before beginning, among those clients who have not used contraceptives in the previous six months.

In the client exit interviews, almost all clients reported they were satisfied with the services they received although expectations of quality may be low.

Clinical practices

Sterile needle use and sharps disposal was high, almost all providers followed these protocols during the observation for administration of injectables or implant insertion/removal. We did find lower hand hygiene, lower use of sterile towels and less disinfection of surfaces after the procedures. Only about half of the providers cleaned the injection site before administration of injectables. We did note the standards tell providers to *"Wash the injection site with soap and water, only if visibly soiled"* so it is likely that just under half of the clients did not have visually soiled injection areas.

[5] As noted in July 2019 FP subcommittee TWG meeting

[6] Same as above

Conclusions

This study found important gaps in counseling quality for both knowledge and practice, particularly around side effects and what to do if a dose of injectables is missed. Counseling for HIV was low but clients displayed a high level of HIV prevention knowledge. Injectables were most commonly observed during the study followed by implant insertion/removal. We found high levels of safe infection control practices during clinical procedures but client privacy was suboptimal. This study found no difference in QoC between high and low FP outcome district groups. This is evidence that other factors besides QoC are driving the difference in FP outcomes in Malawi

Recommendations[7]

- The supervision strategy should be reassessed, particularly coaching/mentorship of FP providers to address gaps including
    - More emphasis on quality counseling, particularly counseling on side effects.
    - Explicitly mention respectful care.
    - Emphasize importance of method mix.
- Job aids are available in clinics but low use was noted and significant counseling knowledge gaps were measured in the QoC study. A multi-faceted approach for improving counseling quality may be explored such as mHealth options for both providers and clients, and strategies for increasing use of job aids. Current mHealth options for improving quality should be promoted to increase use.
- One reason for poor counseling could be lack of time with the client due to integration of FP services with other health services. More work is needed to study how to effectively integrate high-quality FP services in Malawi.
- Explore method-specific counseling to increase counseling quality while still ensuring clients are educated on the full constellation of FP methods.
- Augment use of QI teams to ensure adherence to clinical quality procedures (i.e handwashing, sterile procedures, etc).
- Ensure that the community and clients are aware of how they can report poor treatment by providers.
- Encourage demand for quality FP services among population, raise expectations of government services, not just health but education, transportation and other sectors.

[7] These preliminary recommendations were developed in a data review meeting among study investigators including RHD, NSO and JHU in May 2019 and the FP subcommittee TWG meeting in July 2019.

Coordinator Survey and Partner Mapping

Background and Study Rationale

Many of the activities evaluated in the above implementation strength assessment and quality of care studies are overseen by the FP and YFHS coordinators in each health district. As such, coordinators have important oversight of and insight into how programs are implemented and why.

Importantly, coordinators also have insight into the activities of partner organizations operating in each district. The implementation strength assessment and quality of care studies discussed above evaluated the government's national family program; the government's work is complemented by the work of partner organizations that deliver and/or support delivery of a range of family planning services across the country. Evaluating the state of family planning programs in Malawi requires an understanding of where these partner organizations operate, the services they provide, and how their efforts align with and complement the government's programs.

The aim of this third study was to describe the contributions of partners to family planning activities.

Methods

Data Collection

In partnership with the National Statistics Office, we administered a mobile phone survey to the YFHS and FP coordinators from each of the 29 health districts. Separate but similar surveys were conducted with YFHS and FP coordinators. Interview questions covered YFHS program and FP partner activities across the domains of implementation strength, including training, supervision, methods and supplies, demand generation, and management. Topics were selected to corroborate and/or support the ISA study. Individuals from the Reproductive Health Directorate, NSO, select YFHS/FP coordinators, and Johns Hopkins University reviewed and pilot tested the survey. An electronic platform was used to create the surveys and record responses on tablets. Answers were given verbally by the respondents via mobile phone interview and entered into a tablet by the interviewers. Ten local interviewers were selected from the ISA study and trained on all procedures for administering the instrument with an emphasis on collecting quality data.

Data Analysis

Data were summarized, displayed, and compared responses across districts and regions (Northern, Central and Southern) using Stata statistical software (37). Data from the two surveys (FP coordinator and YFHS coordinator) were analyzed separately but some results are shown side-by-side. Data from the 2011 and 2016 Malawi Demographic and Health Survey (DHS) regarding fertility and contraceptive prevalence were also examined at district and regional level to compare partner activity with reproductive health outcomes and impact.

Ethics

Institutional Review Board approval was obtained.

Results

Participants

We conducted interviews with both the FP coordinator and the YFHS coordinator in each of the 29 health districts, totaling 58 interviews completed between August 25 and September 3, 2017. The average length of interview was 78.9 minutes, with an average of 3.6 call attempts per respondent to reach and complete the interview. All coordinators agreed to participate (100% response rate). However, data from one district FP coordinator were excluded from the analysis because conflicting data were provided during multiple attempts to reach the coordinator. The results are organized by the domains used in the survey design.

Partner Presence by District

Nearly every district responded that at least one partner supports "youth-friendly family planning activities" in their district. We found a median of five family planning partners reported per district and six YFHS partners reported per district (Table 20). We created a measure of partners per 100,000 population aged 15-24 to compare the density of partners relative to the number of youth. Using this measure, there is greater diversity in the density of partners involved in FP and YFHS than using raw numbers of partners. Notably the districts with the smallest population size (Likoma, Mwanza, and Neno) appear to have the highest partner densities for both YFHS and FP partners. Across all three regions, there was a greater range of YFHS partners than FP partners by number but by density there was no association

Table 20. Family Planning and YFHS Partners by District

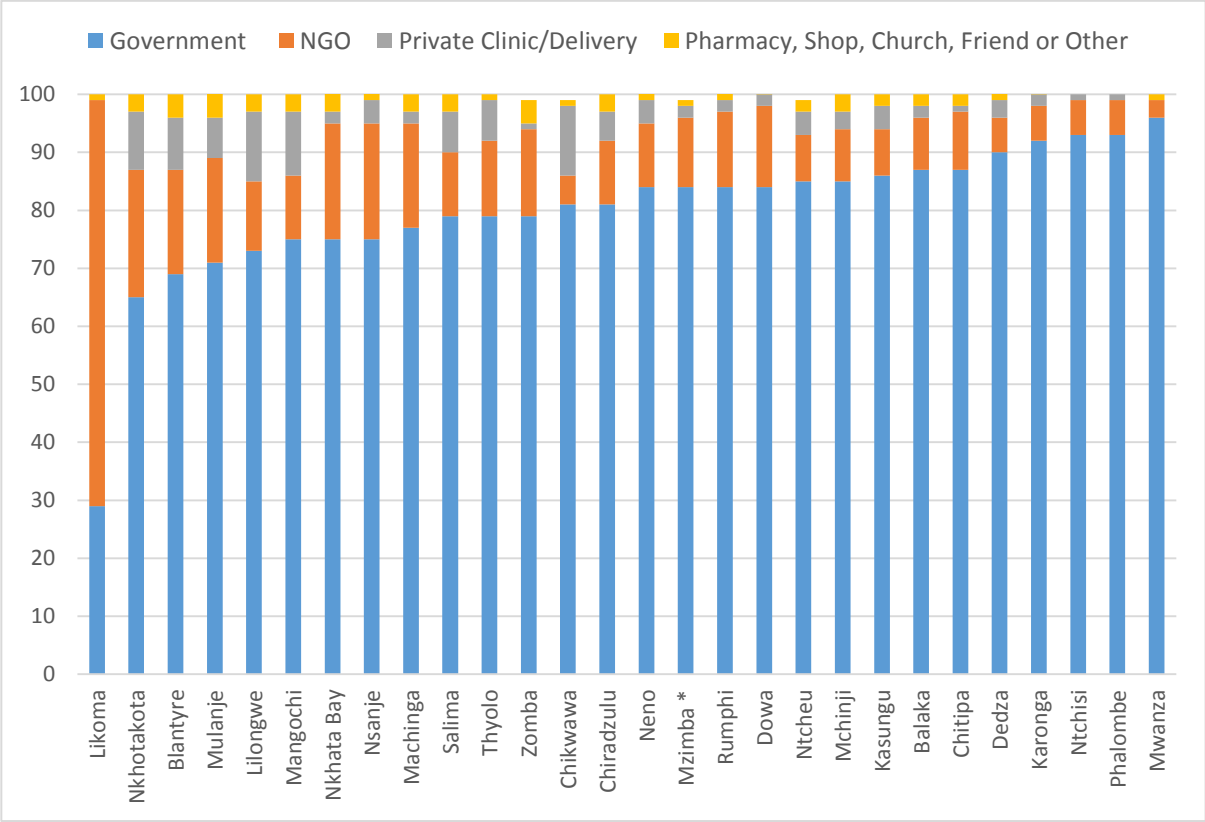
	District Name	**Family Planning Partners**		**YFHS Partners**	
		Number	Partners Per 100,000 Population Aged 15-24	Number	Partners Per 100,000 Population Aged 15-24
Northern	Chitipa	5	14	3	8
	Karonga	7	13	5	10
	Likoma	2	91	2	91
	Mzimba North	6	6	3	3
	Mzimba South	5	8	8	12
	Nkhata Bay	8	19	4	9
	Rumphi	6	17	9	26
	Total (Median) [IQR]	**39 (6) [2]**	**(14) [11]**	**34 (4) [5]**	**(10) [18]**
Central	Dedza	6	5	6	5
	Dowa	4	4	5	5
	Kasungu	9	7	7	6
	Lilongwe	7	3	12	5
	Mchinji	7	8	8	9
	Nkhotakota	2	4	1	2

	Ntcheu	6	7	5	6
	Ntchisi	5	11	9	20
	Salima	4	6	4	6
	Total (Median) [IQR]	**50 (6) [3]**	**(6) [4]**	**57 (6) [3]**	**(6) [1]**
Southern	Balaka	2	3	6	10
	Blantyre	*	*	6	3
	Chikwawa	3	4	5	6
	Chiradzulu	1	2	4	7
	Machinga	7	8	14	16
	Mangochi	4	3	14	9
	Mulanje	13	14	7	7
	Mwanza	4	22	5	28
	Neno	5	25	9	45
	Nsanje	2	5	6	14
	Phalombe	6	11	4	7
	Thyolo	6	6	8	7
	Zomba	8	8	15	14
	Total (Median) [IQR]	**61 (4) [4]**	**(7) [9]**	**103 (6) [4]**	**(9) [7]**
	Total (Median) [IQR]	**150 (5) [3]**	**(8) [9]**	**194 (6) [4]**	**(9) [8]**

*Data were excluding from Blantyre FP survey due to conflicting responses received

The number of individuals age 15-49 years that relied on NGOs as their last (i.e., more recent) source of modern contraception varied by district. In Likoma, a district with a very high partner density for FP and YFHS partners, 70% of users reported an NGO as their last source of modern contraception as compared to 29% that reported the government as their last source (Fig. 16). The last source of modern contraception (government, NGO, private clinic, or other) for each district may be associated with the partner density of that district.

Figure 16. Last Source for Users of Modern Contraception Ages 15-49 Years in Each District (5)



Training and Accreditation

There was a median of two partners conducting training of health workers for YFHS in each district and a median of three family planning partners conducting training of health workers generally. In Mangochi, there were seven partners conducting YFHS training for health workers, which is an outlier, but only four conducting training of health workers for general FP, which is closer to the median.

We also asked coordinators for information about the existence and accreditation of government- and non-government-operated service delivery points providing YFHS in their districts. Table 21 presents the number of service delivery points (SDP) that are accredited in each district and the percent of SDPs that are accredited out of the total number of SDPs reported to be providing YFHS services. Accreditation indicates that the SDP has been assessed using a standard tool for the implementation of five YFHS standards of delivery created by the MOH (38) (39). There is a great deal of variation by district in the percent of SDPs that have received accreditation and the types of facilities that are accredited. On average, 31% of service delivery points providing YFHS are accredited, with a median of 17% and IQR of 44%. The number of SDPs reported to be providing YFHS in each district ranges from four in the smallest districts of Likoma and Mwanza to 89 in Chikwawa. While 100% of the SDPs in Likoma and Mwanza are accredited,

only 6% of the SDPs in Chikwawa have been accredited. The Central region has the least accredited SDPs with a median of 8% and IQR of 18%.

Table 21. Facilities Providing YFHS and Accreditation by District

	District Name	Number of Service Delivery Points* Accredited for YFHS	Number of Service Delivery* Points Providing YFHS	Percent of Service Delivery Points Providing YFHS that are Accredited for YFHS (%)
Northern	Chitipa	2	5	40
	Karonga	0	23	0
	Likoma	4	4	100
	Mzimba North	14	26	54
	Mzimba South	11	35	31
	Nkhata Bay	22	39	56
	Rumphi	4	24	17
	Total(Median)[IQR]	**57 (4) [12]**	**156 (22)[30]**	**(40)[40]**
Central	Dedza	2	53	4
	Dowa	1	12	8
	Kasungu	7	30	23
	Lilongwe	3	49	6
	Mchinji	2	36	6
	Nkhotakota	0	29	0
	Ntcheu	5	10	50
	Ntchisi	2	12	17
	Salima	8	17	47
	Total(Median)[IQR]	**30 (2) [3]**	**248 (29)[24]**	**(8)[18]**
Southern	Balaka	4	27	15
	Blantyre	1	14	7
	Chikwawa	5	89	6
	Chiradzulu	1	26	4
	Machinga	11	27	41
	Mangochi	3	49	6
	Mulanje	5	32	16
	Mwanza	4	4	100
	Neno	15	28	54
	Nsanje	15	16	94
	Phalombe	12	13	92
	Thyolo	0	13	0
	Zomba	0	22	0
	Total(Median)[IQR]	**76 (4)[10]**	**360 (26)[24]**	**(15)[48]**
	Total(Median)[IQR]	**163 (4)[6]**	**764 (26) [19]**	**(17)[44]**

*Service delivery points include: central hospitals, district hospitals, rural hospitals, government health centers, private facilities, CHAM facilities, NGO facilities, tertiary institution clinics, youth drop-in centers, dispensaries, outreach clinics, and other

Supervision

We asked coordinators about supervision frequency and challenges to providing supportive supervision. We found that 24% (7) of YFHS coordinators and 29% (7) of FP coordinators were able to conduct supervision visits to at least three-quarters of the facilities in their district in the prior six months. Only 8% (2) of FP coordinators reported that they were able to conduct supervision in less than a quarter of facilities in the last six months as compared to 31% (9) of YFHS coordinators. Supervisors were asked to select as many as apply from a list of challenges experienced by coordinators in providing this supervision, as shown in Table 22. The most frequently reported challenges by both types of coordinators were lack of transportation and lack of budget. There was an average of 3.8 challenges reported by YFHS coordinators and 2.3 challenges reported by FP coordinators in providing supportive supervision in their districts.

Table 22. Supervision Challenges Reported by YFHS and FP Coordinators

Challenges to Supervision	YFHS Coordinators % (N)	FP Coordinators % (N)
Lack of budget	79 (23)	57 (16)
Limited human resources	59 (17)	32 (9)
Lack of transportation	93 (27)	82 (23)
Difficulty finding/supervising health workers in the field (such as HSAs and CBDAs)	66 (19)	29 (8)
YFHS coordinator is also a family planning provider	35 (10)	Not asked
Supervision is a facility responsibility	28 (8)	Not asked
Supervision is a low priority	Not asked	14 (4)
Other	21 (6)	11 (3)

Method and Supplies

We found that 72% of district YFHS coordinators reported that YFHS family planning guidelines are given to health workers and 52% reported that YFHS job aids are given to health workers. Ninety-three percent of FP coordinators reported that there is a process for reporting stock-outs of family planning commodities in their district and three-quarters of FP coordinators reported that there were stock-outs of family planning commodities (condoms, pills, injectables, implants, and IUDs) in one or more facilities in their district between January 1 and June 30, 2017. When asked to choose all reasons for stock-outs that are relevant to their district, 32% of FP coordinators responded that the central level had insufficient funds to replenish stocks and 36% responded that commodities were not delivered by the central level on time. Only 18% of coordinators reported that commodities were not ordered on time by the facility from the central level.

Demand Generation

We measured demand generation by the number of information, education, and communications (IEC) activities conducted, as displayed in Table 23. The number of districts with each activity type is shown, as is the cumulative number of activities conducted in all districts from January 2016 until the time of the survey in August 2017. In both the Northern and Central regions there was a median of 8 [IQR: 5,2] types of IEC activities happening, while in the Southern region there was a median of 5 [IQR: 5] types of activities. Nearly all districts (97%) reported having youth clubs, youth organizations, adolescent clubs, or non-formal education settings and 72% of districts had meetings with community members or youth fairs, youth mega-shows, social weekends, community dramas, or open days.

Table 23. Presence of Information, Education and Communication (IEC) Activities in Malawi

IEC Activity	Districts with Activity % (N)	Number of Select Activities Since January 1, 2016 in All Districts	
Door-to-door health talks	28 (8)	312	
Meetings with community members such as religious leaders, parents, village chiefs	72 (21)	138	
Meetings with political and administrative leaders	55 (16)		
Youth clubs, youth organizations, adolescent clubs, or non-formal education settings	97 (28)	Youth Clubs	2139
		Youth Organizations	78
		Non-formal education settings	23
Youth fairs, youth mega-shows, social weekends, community dramas, or open days	72 (21)	Youth Fairs	23
		Youth Mega-Shows	22
		Social Weekends	24
		Community Dramas	170
		Open Days	55
Girls clubs	59 (17)	240	
Workshops or camps for adolescents	52 (15)		
Mentorship program for youth sexual reproductive health (SRH)	59 (17)		
Drop-in centers or one-stop centers	41(12)	28	
Youth corners	69 (20)	191	
Social marketing of family planning (such as branding of family planning products to market to consumers)	38 (11)		
Champions to engage mother groups, traditional leaders, and community committees	52 (15)		
Other	14 (4)		

Program Initiation and Overall Challenges

While YFHS has been implemented with the oversight of RHD since 2007, coordinators reported initiating YFHS activities as early as 1998 and as late as 2016. The variation in reported start times is presented in Figure 17 below. We asked coordinators to respond to a list of challenges based on their experiences implementing YFHS and family planning programs (Table 24). Common challenges were "lack of consistent supervision of health facilities and workers" (reported by 97% of YFHS coordinators and 71% of FP coordinators), "lack of funding or resources for FP activities in the district" (reported by 90% of YFHS coordinators and 89% of FP coordinators), and "lack of support for YFHS/FP at health facilities" (reported by 90% of YFHS coordinators and 50% of FP coordinators). A smaller percentage of coordinators (12% or less) reported that "lack of contraceptive method supply" and "low prioritization of family planning issues at the facility level" were barriers to implementing their programs than most other challenges.

Figure 17. Reported Start Year for Youth-Friendly Health Services (YFHS) in Districts of Malawi

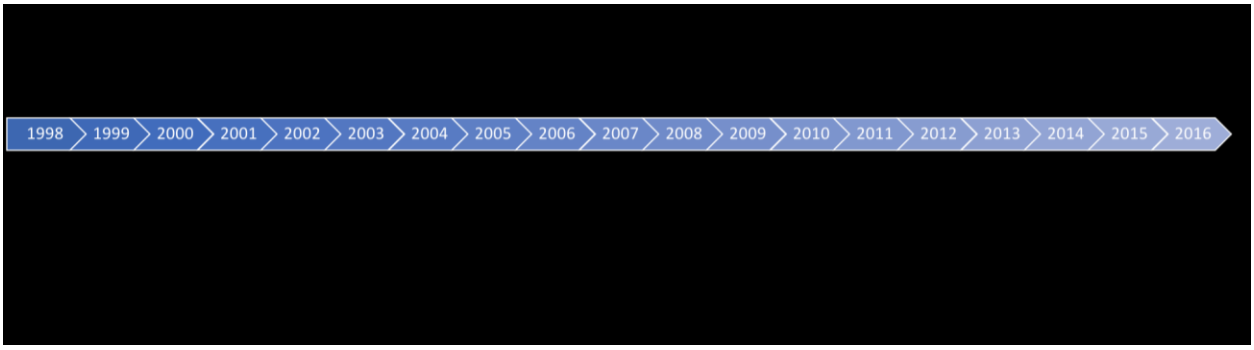


Table 24. Challenges Reported by Coordinators to Implementing YFHS and Family Planning Programs

Challenges	YFHS Coordinators % (N)	FP Coordinators % (N)
Lack of YFHS/FP providers at health facilities	76 (22)	32 (9)
Lack of consistent supervision of health facilities and workers	97 (28)	71 (20)
Lack of contraceptive method supply	35 (10)	43 (12)
Lack of support for YFHS/FP at health facilities	90 (26)	50 (14)
Lack of funding or resources for family planning activities in the district	90 (26)	89 (25)
Poor coordination between government and partners at the district level	79 (23)	36 (10)
Low prioritization of family planning issues at the health facility level	28 (8)	32 (9)
Fast growing demand for family planning in the district	41 (12)	50 (14)
Other challenges	35 (10)	7 (2)

Limitations

There are several limitations to this study. Reporting of partner activities is not standardized across districts; we reviewed several District Implementation Plans (DIPs), and found they contained varying information about partners. Coordinators relied on their own records and recollections to answer the interview questions, and reported their perceptions of partner activities. These perceptions and recollections may not reflect the actual organizational goals and work of each partner. Likewise, when answering questions about non-partner activities, coordinators may not have had time to check their records before reporting answers or may have had difficulty recalling which activities did or did not occur over a specific time frame (e.g., supervision visits in last six months).

We used the measure of "partners per 100,000 population aged 15-24" to compare partner presence across districts. Using this measure, the three smallest districts by population, Likoma, Mwanza, and Neno, had very high partner densities. Considering that about 85% of people in Malawi live in rural areas (40), calculating the density of partners per square foot may clarify the apparent higher presence of partners in areas with smaller populations. In rural areas in particular, this high density may not reflect accessibility of services if partners are located far away. It's also important to note that the presence and coverage of partners does not describe the frequency or quality of the services provided.

Conclusions

Partners are present supporting family planning activities across the country, and nearly all examined family planning partners are conducting some youth-friendly activities. The activities most commonly reported by family planning partners were "distribution of contraception methods" and "training of health workers." Most districts were involved in several types of youth-specific demand generation activities, though reach is unknown.

Coordinator responses indicated areas for improvement. Nearly one-third of YFHS coordinators reported making supervision visits to only 0-25% of facilities in the prior six months. Lack of funding and lack of transportation were commonly reported as challenges to YFHS supervision visits. In addition, three-quarters of FP coordinators reported stock-outs of commodities in a recent six-month period, though they did not report this as a top challenge in implementation of YFHS and FP programs. Only four districts reported that 90% or more of their service delivery points (SDPs) were accredited while the rest of the districts reported 56% or less of their SDPs were accredited. It is not apparent why so many facilities are not accredited-- if they did not apply, were turned down, or the MOH has not yet done an accreditation visit.

Recommendations

- Create a standardized approach for regularly collecting information on partner activities, potentially through a standardized DIP.
- Review accreditation process to better understand why many SDPs are not accredited.
- Invest in supervision, potentially exploring opportunities for partners to assist with this process.

Cross-Cutting Results

In the following three sections, we summarize relevant findings from all three surveys with respect to three themes: youth, FP method mix, and association with FP outcomes. While the implementation strength assessment and coordinator survey covered all districts, the quality of care study only covered six: Chitipa, Dedza, Machinga, Mangochi, Nkhata Bay and Salima. The tables below summarize results for these six districts only, to allow us look at patterns across all three surveys. The themes explored in this section were selected based on RHD's stated emphasis on "reaching a CPR of 60 per cent by year 2020 through targeting youths and the use of improved method mix especially the long acting reversible and permanent methods" (6). We also included a preliminary assessment of association with FP outcomes, in order to provide clues as to the relationship between indicator performance and the state of FP outcomes in these six districts.

Methods

To assess the themes noted above, we examined youth-specific and method-mix-specific indicators included within all three studies. As described earlier in the report, the six districts included in the quality of care survey were selected because three were high-performing for FP outcomes (Chitipa, Dedza and Salima) and three were low-performing (Machinga, Mangochi and Nkhata Bay). The high- and low- outcome districts were selected based on their total fertility rate (TFR), modern contraceptive prevalence rate (mCPR), unmet need, and proportion with demand for FP services satisfied based on 2016 Demographic and Health Survey (DHS) data. The tables below include data for each district individually, as well as aggregate responses for the high-outcome group of districts and the low-outcome group of districts. These two groups are compared using a chi-squared test.

Youth-Friendly Family Planning Services

Results

Implementation Strength Assessment Indicators

Training and Supervision

Across all six districts, 56.6 percent of health workers and 50.4 percent of health facilities reported supervision visits covered youth family planning topics. Machinga was the only district where more than 60 percent of health workers and health facilities reported receiving supervision visits. An average of 24.8 percent of health workers were trained in youth-friendly health services (YFHS) in the past two years in all six districts. Machinga reported the highest percentage, with 31.6 percent of health workers trained in YFHS in the past two years. Comparing high- versus low-outcome districts, low-outcome districts had a statistically significantly higher percentage of health workers trained than low-outcome districts (29.1 versus 20.5 percent).

Availability and Provision of Contraceptive Methods and Supplies

Health workers and in-charges at health facilities were asked if they provided family planning services that were designed to be youth or teen friendly, meaning designed with the specific aim of encouraging youth or teen utilization. The majority of respondents reported that they did.

Across all six districts, an average of 88.8 percent of health workers reported that they personally provided youth friendly services, and 79.9 percent of health facility in-charges reported that their facilities provided youth-friendly services.

Health workers and in-charges were also asked about the availability of other supplies that would support provision of youth services. Less than half (48.7 percent) of health facility workers had job aids for providing contraceptive services to youth, and just over half (55.3 percent) of health workers in all six districts reported having guidelines or protocols specific to providing FP to youth. The percentage of health workers with youth-specific guidelines or protocols was statistically significantly higher in low-outcome districts compared to high-outcome districts (60.7 percent and 49.9 percent, respectively). A higher percentage of facilities (64 percent) reported having guidelines or protocols for providing services to youth.

Accessibility

Less than half of all facilities and health workers reported having special days to provide services to youth (41.7 and 47.8, respectively). In both cases, this number was statistically significantly higher in low-outcome districts: 54.4 percent of health facilities had special days for youth compared to 25.0 percent in high-outcome districts; 58.5 percent of health workers had special days in low-outcome districts, compared to 37.3 percent in high-outcome districts. A significantly higher percentage of health workers in low-outcome districts (68.2 versus 53.1 percent) also reported having special strategies in terms of locations in the community for targeting youth.

Demand Generation

Across all six districts, 63.0 percent of health workers reported conducting youth events, 67.8 percent reported going door-to-door to deliver health talks to youth, 73.8 percent conducted or assisted with community meetings to discuss FP for youth, and 60.4 percent conducted or assisted with youth-oriented or alternative spaces in the prior three months. In all cases where the difference between high- and low-outcome districts was statistically significant, low-outcome districts reported higher numbers. Dedza was the only district where more than 80 percent of health workers reported conducting any of the activities listed above.

Health facilities reported slightly lower proportions for the same activities: 48.2 percent offered or participated in youth events, 53.2 percent participated in community meetings, and 48.2 percent offered or participated in youth-oriented or alternative spaces in the prior three months. Less than half of facilities reported working with peer educators or youth CBDAs. In low-outcome districts, this number rose to 54.4 percent working with youth or peer educators, and in high-outcome districts it dropped to 33.3 percent. Of all six districts, Machinga reported the highest percentage of facilities participating in community meetings (73.7 percent), offering youth-oriented or alternative spaces (68.4 percent) or working with youth CBDAs or peer educators (73.7 percent).

Less than half of facilities and health workers reported receiving contraceptive products with packaging designed to target youth. Machinga was the only district where this percentage surpassed 60 percent for either health workers or health facilities: it reported that 71.9 percent

of health workers and 78.9 percent of health facilities had received specially design contraceptive products.

Quality of Care Indicators

Client Knowledge

Youth knowledge of FP methods was assessed by asking youth questions during a client exist interview. Youth were asked specifically about the method they received during a directly observed visit earlier in the day. Youth knowledge of FP methods was above 70 percent in all six districts. Youth knowledge was 100 percent among those assessed in both Machinga and Salima. The percentage was lowest in Mangochi at 70.3 percent.

Client Satisfaction

During client exit interviews, clients were also asked about their level of satisfaction with communication, treatment and services during their visit. Interviews took place near the clinic but out where clients could not be observed by providers. Youth satisfaction with communication, treatment and services was above 70 percent in all districts except Mangochi and Salima. In Mangochi, satisfaction with communication as 58.3 percent, satisfaction with treatment was 69.0 percent, and satisfaction with services was 69.2 percent. In Salima, satisfaction with communication and services were both above 70 percent, but satisfaction with treatment dropped to 57.9 percent.

Coordinator Survey and Partner Mapping Indicators

Accreditation and Partner Density

Across all six districts, 25.3 percent of service delivery points providing YFHS are accredited for YFHS. This percentage is significantly higher in low-oucome districts than high-outcome districts (31.3 versus 16.0 percent). Nkhata Bay reported the highest percentage of accredited YFHS points at 56.4 percent; Dedza and Mangochi were both below ten percent at 3.8 and 6.1 percent, respectively.

The average number of YFHS partners per 100,000 youth (ages 15-24) was 11.3 in low-outcome districts ant 6.3 in high-outcome districts. Machinga had the highest partner density at 16, while Dedza had the lowest at 5 partners per 100,000 youth.

Table 25. Youth-specific training, supervision, availability, accessibility and demand generation activities for family planning in six districts and categorized as high and low-performing, Malawi, 2017

	Chitipa	Dedza	Machinga	Mangochi	Nkhata Bay	Salima	Low-Outcome Districts*	High-Outcome Districts **	p-value ***
CBDAs (N)	113	108	113	202	49	76	364	297	-
HSAs (N)	61	227	127	183	62	162	372	450	-
HFWs (N)	44	40	49	53	43	55	145	139	-
Facilities (N)	12	31	19	40	20	17	79	60	-
Training									
HFWs trained in all methods[b] in prior 2 years	20.5 (9)	17.5 (7)	30.6 (15)	37.7 (20)	27.9 (12)	18.2 (10)	32.4 (47)	18.7 (26)	0.01
HSAs trained in all methods[b] in prior 2 years	29.5 (18)	14.5 (33)	13.4 (17)	6.6 (12)	8.1 (5)	1.2 (2)	9.1 (34)	11.8 (53)	0.27
CBDAs trained in all methods[b] in prior 2 years	31.0 (35)	8.3 (9)	54.9 (62)	23.8 (48)	40.8 (20)	11.8 (9)	35.7 (130)	17.8 (53)	<0.01
Health workers[a] received training for providing condoms in the last 2 years	36.6 (79)	56.9 (205)	50.5 (138)	28.7 (121)	34.5 (50)	19.5 (54)	36.8 (309)	39.6 (338)	0.26
Health workers received training for providing OCPs in the last 2 years	37.5 (81)	59.4 (218)	52.0 (146)	28.5 (117)	38.8 (47)	21.5 (55)	38.1 (310)	42.2 (354)	0.10
HFWs and HSAs received training for providing injectables (e.g. Depo Provera) in the last 2 years	30.8 (32)	60.4 (157)	33.9 (57)	22.7 (51)	32.4 (34)	16.1 (33)	28.5 (142)	39.0 (222)	<0.01
HFWs received training for providing implants (e.g Jadele) in the last 2 years	36.4 (16)	58.1 (18)	46.7 (21)	64.0 (32)	51.3 (20)	45.8 (22)	54.5 (73)	45.5 (56)	0.19
Contraceptive Methods and Supplies									
HFWs provide all FP methods[b]	90.9 (40)	77.5 (31)	79.6 (39)	92.5 (49)	79.1 (34)	74.5 (41)	84.1 (122)	80.6 (112)	0.53
HSAs provide all FP methods[b]	73.8 (45)	76.2 (173)	61.4 (78)	60.1 (110)	25.8 (16)	36.4 (59)	54.8 (204)	61.6 (277)	0.06
CBDAs provide all FP methods[b]	85.8 (97)	97.2 (105)	88.5 (100)	93.1 (188)	73.5 (36)	89.5 (68)	89.0 (324)	90.9 (270)	0.50
HFWs report all FP methods[b] available on day of interview	79.5 (35)	55.0 (22)	67.3 (33)	83.0 (44)	65.1 (28)	63.6 (35)	72.4 (105)	66.2 (92)	0.31
HSAs report all FP methods[b] available on day of interview	54.1 (33)	41.9 (95)	33.9 (43)	38.3 (70)	17.7 (11)	19.8 (32)	33.3 (124)	35.6 (160)	0.55
CBDAs report all FP methods[b] available on day of interview	60.2 (68)	26.9 (29)	37.2 (42)	38.1 (77)	46.9 (23)	38.2 (29)	39.0 (142)	42.4 (126)	0.42
Male Condoms									

Health workers provide male condoms to youth	97.7 (213)	96.0 (360)	92.4 (266)	93.4 (409)	96.8 (149)	90.4 (265)	93.6 (824)	94.6 (838)	0.46
Health workers had male condoms available on day of interview	81.7 (178)	57.6 (216)	62.8 (181)	67.1 (294)	71.4 (110)	64.2 (188)	66.5 (585)	65.7 (582)	0.76
Health workers had stockouts of male condoms in previous 3 months	46.3 (101)	49.9 (187)	45.8 (132)	40.0 (175)	32.5 (50)	37.2 (109)	40.6 (357)	44.8 (397)	0.08
Health facility provides male condoms	91.7 (11)	96.8 (30)	94.7 (18)	77.5 (31)	100 (20)	94.1 (16)	87.3 (69)	95.0 (57)	0.21
Health facility had male condoms available on day of interview	91.7 (11)	93.5 (29)	94.7 (18)	75.0 (30)	80.0 (16)	88.2 (15)	81.0 (64)	91.7 (55)	0.13
Health facility had stockout of male condoms in previous 3 months	16.7 (2)	35.5 (11)	42.1 (8)	27.5 (11)	45.0 (9)	35.3 (6)	35.4 (28)	31.7 (19)	0.78
Oral Contraceptive Pills									
Health workers provide OCPs to youth	85.8 (187)	87.2 (327)	77.8 (224)	80.8 (354)	59.7 (92)	65.5 (192)	76.1 (670)	79.7 (706)	0.08
Health workers had OCPs available on day of interview	75.2 (164)	53.1 (199)	60.4 (174)	58.0 (254)	53.9 (83)	56.3 (165)	58.1 (511)	59.6 (528)	0.55
Health workers had stockouts of OCPs in previous 3 months	33.0 (72)	50.9 (191)	27.4 (79)	31.7 (139)	16.2 (25)	18.4 (54)	27.6 (243)	35.8 (317)	<0.01
Health facility provides OCPs	91.7 (11)	96.8 (30)	94.7 (18)	77.5 (31)	100 (20)	94.1 (16)	87.3 (69)	95.0 (57)	0.21
Health facility had OCPs available on day of interview	83.3 (10)	77.4 (24)	84.2 (16)	70.0 (28)	100 (20)	94.1 (16)	81.0 (64)	83.3 (50)	0.90
Health facility had stockout of OCPs in previous 3 months	8.3 (1)	51.6 (16)	21.1 (4)	27.5 (11)	15.0 (3)	17.6 (3)	22.8 (18)	33.3 (20)	0.23
Injectables									
HFWs and HSAs provide injectables to youth	91.4 (96)	93.3 (249)	88.0 (154)	90.3 (213)	89.5 (94)	79.7 (173)	89.3 (461)	87.9 (518)	0.53
HFWs and HSAs had injectables available on day of interview	88.6 (93)	74.9 (200)	78.9 (138)	86.9 (205)	85.7 (90)	75.1 (163)	83.9 (433)	77.4 (456)	0.01
HFWs and HSAs had stockouts of injectables in previous 3 months	16.2 (17)	40.1 (107)	24.0 (42)	9.7 (23)	9.5 (10)	13.8 (30)	14.5 (75)	26.1 (154)	<0.01
Health facility provides injectables	91.7 (11)	96.8 (30)	94.7 (18)	77.5 (31)	100 (20)	94.1 (16)	87.3 (69)	95.0 (57)	0.21
Health facility had injectables available on day of interview	91.7 (11)	80.6 (25)	94.7 (18)	72.5 (29)	95.0 (19)	94.1 (16)	83.5 (66)	86.7 (52)	0.79
Health facility had stockout of injectables in previous 3 months	8.3 (1)	58.1 (18)	26.3 (5)	20.0 (8)	15.0 (3)	23.5 (4)	20.3 (16)	38.3 (23)	0.03
Implants									

HFWs provide implants to youth	91.3 (42)	73.8 (31)	61.5 (40)	71.4 (50)	76.1 (35)	56.8 (42)	69.1 (125)	71.0 (115)	0.79
HFWs had implants available on day of interview	87.0 (40)	64.3 (27)	61.5 (40)	67.1 (47)	76.1 (35)	48.6 (36)	67.4 (122)	63.6 (103)	0.53
HFWs had stockouts of implants in previous 3 months	10.9 (5)	16.7 (7)	16.9 (11)	8.6 (6)	4.3 (2)	6.8 (5)	10.5 (19)	10.5 (17)	1.00
Health facility provides implants	83.3 (10)	61.3 (19)	89.5 (17)	70 (28)	100 (20)	76.5 (13)	82.3 (65)	70.0 (42)	0.13
Health facility had implants available on day of interview	83.3 (10)	54.8 (17)	84.2 (16)	57.5 (23)	100 (20)	64.7 (11)	74.7 (59)	63.3 (38)	0.21
Health facility had stockout of implants in previous 3 months	16.7 (2)	22.6 (7)	36.8 (7)	12.5 (5)	5.0 (1)	35.3 (6)	16.5 (13)	25.0 (15)	0.30
IUDs									
Health facility provides IUDs	16.7 (2)	22.6 (7)	26.3 (5)	25 (10)	15.0 (3)	35.3 (6)	22.8 (18)	25.0 (15)	0.92
Health facility had IUDs available on day of interview	16.7 (2)	16.1 (5)	26.3 (5)	17.5 (7)	10.0 (2)	35.3 (6)	17.7 (14)	21.7 (13)	0.71
Health facility had stockout of IUDs in previous 3 months	0.0 (0)	6.5 (2)	0.0 (0)	5.0 (2)	5.0 (1)	0.0 (0)	3.8 (3)	3.3 (2)	>0.99

<=60.0%	60.1-79.9	>=80.%

* Low-outcome districts: Machinga, Mangochi, Nkhata Bay

** High-outcome districts: Chitipa, Dedza, Salima

*** p-value from chi-squared test comparing low- and high-outcome groups

a “Health workers” includes CBDAs, HSAs, HFWs

b “Community health workers” includes CBDAs and HSAs

c Meetings may occur with parents, village chiefs, or religious leaders in your community specifically about youth in their communities getting counseling on family planning or HIV prevention

Table 26. Youth knowledge of family planning methods and satisfaction with family planning services in six districts and categorized as high and low-performing, Malawi, 2017

	Chitipa	Dedza	Machinga	Mangochi	Nkhata Bay	Salima	High-Outcome Districts **	Low-Outcome Districts*	p-value ***
Self-reported knowledge									
Number of Youth respondents (for knowledge indicator) (n)	14	28	46	34	21	30	72	101	-
Number of Youth respondents (for satisfaction indicator) (n)	18	30	49	37	21	31	79	107	-
Knowledge									
Youth knowledge of FP method	75.1 (11)	93.1 (26)	100 (46)	70.3 (24)	95.8 (20)	100 (30)	92.4 (66)	89.1 (90)	0.57
Impact on Client									
Client satisfaction on communication	78.0 (14)	87.6 (26)	85.1 (42)	58.3 (22)	79.1 (17)	79.1 (24)	82.1 (64)	74.7 (80)	0.32
Client satisfaction on treatment	95.3 (17)	91.3 (27)	85.5 (42)	69.0 (25)	84.9 (18)	57.9 (18)	79.3 (62)	79.7 (85)	0.97
Client satisfaction on services	78.0 (14)	89.4 (27)	97.5 (48)	69.2 (26)	81.1 (17)	75.4 (23)	81.3 (64)	84.5 (90)	0.59

<=60.0%	60.1-79.9	>=80.%

* Low-outcome districts: Machinga, Mangochi, Nkhata Bay
** High-outcome districts: Chitipa, Dedza, Salima
*** p-value from chi-squared test comparing low- and high-outcome groups

Table 27. Youth-friendly health service accreditation and partner density in six districts and categorized as high and low-performing, Malawi, 2017

	Chitipa	Dedza	Machinga	Mangochi	Nkhata Bay	Salima	High-Outcome Districts **	Low-Outcome Districts*	p-value ***
Percent of service delivery points providing YFHS that are accredited for YFHS, % (n)	40.0 (5)	3.8 (53)	40.7 (27)	6.1 (49)	56.4 (39)	47.1 (17)	16.0 (75)	31.3 (115)	0.03
YFHS partners per 100,000 population aged 15-24, n	8	5	16	9	9	6	6.3	11.3	-

<=60.0%	60.1-79.9	>=80.%

* Low-outcome districts: Machinga, Mangochi, Nkhata Bay
** High-outcome districts: Chitipa, Dedza, Salima
*** p-value from chi-squared test comparing low- and high-outcome groups

Discussion

The majority of health workers and health facilities reported providing FP services designed to be youth-friendly, but many fewer workers and facilities had the training, supervision or supplies to support this work. Nearly 90 percent of facilities and workers provided youth-friendly services, but less than a quarter of providers had been trained in how to provide those services in the past two years and only approximately half had supervisory visits that covered youth services. When asked about specific demand generation activities like holding community events, approximately half of facilities and 60-70 percent of health workers reported engaging.

Despite this, youth knowledge of FP methods and youth satisfaction with the services, treatment, and communication from providers was high. More than 90 percent of youth had accurate knowledge of FP methods across all six districts. Of note, analysis of the quality of care results found that adolescent, first time contraceptive users did receive significantly higher levels of complete counseling that adult, method switchers, though in approximately five percent of consultations, providers or health staff made judgmental comments about the adolescent's age and use of FP services. The quality of youth counseling and levels of youth satisfaction are evidence of success of the YFHS program, though the judgmental comments – though infrequent – may be harmful to the program as youth discuss among their networks.

When considering measurements of implementation strength (such as training, supervision and demand generation activities), low-outcome districts consistently performed better than high-outcome districts whenever the difference between the two groups was statistically significant. Low-outcome districts also had a significantly higher percent of accredited YFHS delivery points and higher partner density, per findings from the coordinator survey and partner mapping. This pattern did not hold when considering measures of care quality: high-income groups reported higher client satisfaction with communication, though this difference was not significant.

Family Planning Method Mix

Results

Implementation Strength Assessment Indicators

Training

On average, less than one-third of all health workers had been trained in all appropriate methods (i.e., counseling, condoms and OCPs for CBDAs; counseling, condoms, OCPs and injectables for HSAs; and counseling, condoms, OCPs, injectables and implants for HFWs) in the last two years. Training for HSAs was the lowest, with only 10.6 percent of HSAs trained on average. This ranged from a low of 1.2 percent in Salima to 29.5 percent in Chitipa. Training in each specific method was above 15 percent in Salima, but training in counseling was low.

By method type, average levels of training across all six districts was highest for OCPs, with 40.2 percent of HFWs, HSAs and CBDAs trained in providing OCPs. Dedza and Mangochi were the only districts to exceed 60 percent of appropriate health workers trained in any of the methods, with 60.4 percent of HFWs and HSAs trained in providing injectables in Dedza, and 64.0 percent of HFWs trained in providing implants in Mangochi in the last two years.

Differences in training between low- and high-outcome groups were statistically significant in three areas. Low-outcome groups had a higher percentage of HFWs trained in appropriate methods in the prior two years (32.4 versus 18.7 percent), and a higher percentage of CBDAs trained in appropriate methods (35.7 versus 17.8 percent). In contrast, high-outcome districts had a significantly higher percentage of health workers (HSAs and HFWs) trained in injectables in the past two years (39.0 in high-outcome versus 28.5 in low-outcome).

Contraceptive Methods and Supplies

Health workers and health facility in-charges were asked if they provided each of the FP methods, and then asked if they had those methods available on the day of the interview. The percentage of health workers that reported providing all appropriate methods and had those methods available on the day of the interview was lowest among HSAs. Across all six districts, 89.9 percent of CBDAs, 82.4 percent of HFWs and 58.5 percent of HSAs indicated that they provided appropriate methods (as defined above). For each type of health worker, the percentage that actually had these methods available on the day of the interview was lower. On average, 40.5 percent of CBDAs, 68.4 percent of HFWs and 34.5 percent of HSAs had all appropriate methods available that day.

Condoms

By method, male condoms were provided by the greatest number of health workers on average. Across all six districts, 94.1 percent of health workers reported that they provide condoms to youth, and this number was above 90 percent in all districts. Among health facilities, 90.6 percent provided male condoms. This percentage ranged from 100 percent in Nkhata Bay to 77.5 percent in Mangochi. Actual availability of male condoms on the day of the interview was lower for both

health workers and facilities. An average of 66.1 percent of health workers reported having condoms available, ranging from a low of 57.6 percent in Dedza to a high of 81.7 percent in Chitipa. Among health facilities, 85.6 percent had condoms available the day of the interview, ranging from 75.0 percent in Mangochi to 84.7 percent in Machinga.

Oral Contraceptive Pills

OCPs were provided to youth by the lowest percentage of health workers out of all methods included in the study. An average of 77.9 percent of health workers provided OCPs to youth, ranging from 59.7 percent in Nkhata Bay to 87.2 percent in Dedza. An average of 90.6 percent of health facilities provided OCPs – the same percentage as provided male condoms. The percent of facilities providing OCPs ranged from a low of 77.5 percent in Mangochi to 100 percent in Nkhata Bay. As with male condoms, a lower percentage of health workers and facilities actually had OCPs available on the day of the interview. An average of 58.8 percent of health workers had OCPs available, ranging from 53.1 percent in Dedza to 75.2 percent in Chitipa. Among health facilities, 82.0 percent had OCPs available, ranging from 70 percent in Mangochi to 100 percent in Nkhata Bay.

Injectables

Most health workers able to provide injectables (HSAs and HFWs) did report providing injectables to youth: an average of 88.6 reported doing so across all districts. Only one district dipped below 80 percent: Salima, which reported 79.7 percent. Again, 90.6 percent of facilities provided injectables. Actual availability of injectables on the day of the interview was slightly lower in both cases: 80.5 percent of health workers reported having them available, ranging from 74.9 percent in Dedza to 88.6 percent in Chitipa. The percent of health workers with injectables available was significantly higher in low-outcome districts compared to high-outcome districts (83.9 versus 77.4 percent). Among health facilities, 84.9 percent of health facilities reported having them available on average, ranging from 72.5 percent in Mangochi to 95.0 percent in Nkhata Bay.

Implants

Across districts, 70.0 percent of health workers (HFWs) reported that they provide implants to youth, and 65.6 percent had implants available on the day of the interview. Only one district (Salima) reported less than 60 percent of HFWs providing implants. Unlike for the other methods, 77.0 percent of facilities reported providing implants, and 69.8 percent had them available on the day of the interview. Dedza had the lowest percent of facilities with implants available (54.8 percent), and Nkhata Bay had the highest (100 percent).

IUDs

The percent of facilities that provide IUDs to youth was far lower than for other methods: 23.7 percent overall, ranging from 15.0 percent in Nkhata Bay to 35.3 percent in Salima. On average, 19.4 percent of facilities had IUDs available on the day of the interview.

<u>Quality of Care Indicators</u>

Provider Knowledge

A select group of providers were surveyed using a structured questionnaire on counseling knowledge. Provider knowledge of correct counseling on when to take pills was above 80 percent in all districts, but knowledge of counseling on use of pills, what to do if a dose of pills is missed, side effects, when to return, and counseling on HIV protection with respect to pills were all below 60 percent in all districts.

For injectables, knowledge of when to get injections ranged from 71.8 in Nkhata Bay to 80.0 percent in Chitipa, and knowledge on counseling of side effects ranged from 62.1 in Machinga to 92.3 percent in Nkhata Bay. Correct knowledge on counseling of use of injectables and correct knowledge of what to do if a dose is missed were below 20 percent in all districts. Correct knowledge of when to return ranged from 24.1 to 53.8 percent, and correct knowledge for counseling on HIV protection ranged from 18.5 percent in Dedza to 48.9 percent in Chitipa.

For implants, correct knowledge of use, knowledge of when to return, and knowledge of HIV protection was below 60 percent in all districts. In three districts (Machinga, Nkhata Bay and Salima), correct knowledge of counseling on side effects exceeded 80 percent.

Client Knowledge

Interviewer teams directly observed interactions between a sampling of clients and providers who saw more than 30 FP clients per month. Clients were interviewed at the end of their visit to assess their knowledge and satisfaction with services. Client knowledge of FP methods exceeded 75 percent in all six districts and ranged from 77.1 percent in Mangochi to 95.6 percent in Machinga.

Table 28. Training, supervision, commodity availability for different family planning methods in six districts categorized as high and low-performing, Malawi, 2017

	Chitipa	Dedza	Machinga	Mangochi	Nkhata Bay	Salima	Low-Outcome Districts*	High-Outcome Districts **	p-value ***
CBDAs (N)	113	108	113	202	49	76	364	297	-
HSAs (N)	61	227	127	183	62	162	372	450	-
HFWs (N)	44	40	49	53	43	55	145	139	-
Facilities (N)	12	31	19	40	20	17	79	60	-
Training									
HFWs trained in all methods[b] in prior 2 years	20.5 (9)	17.5 (7)	30.6 (15)	37.7 (20)	27.9 (12)	18.2 (10)	32.4 (47)	18.7 (26)	0.01
HSAs trained in all methods[b] in prior 2 years	29.5 (18)	14.5 (33)	13.4 (17)	6.6 (12)	8.1 (5)	1.2 (2)	9.1 (34)	11.8 (53)	0.27
CBDAs trained in all methods[b] in prior 2 years	31.0 (35)	8.3 (9)	54.9 (62)	23.8 (48)	40.8 (20)	11.8 (9)	35.7 (130)	17.8 (53)	<0.01
Health workers[a] received training for providing condoms in the last 2 years	36.6 (79)	56.9 (205)	50.5 (138)	28.7 (121)	34.5 (50)	19.5 (54)	36.8 (309)	39.6 (338)	0.26

Health workers received training for providing OCPs in the last 2 years	37.5 (81)	59.4 (218)	52.0 (146)	28.5 (117)	38.8 (47)	21.5 (55)	38.1 (310)	42.2 (354)	0.10
HFWs and HSAs received training for providing injectables (e.g. Depo Provera) in the last 2 years	30.8 (32)	60.4 (157)	33.9 (57)	22.7 (51)	32.4 (34)	16.1 (33)	28.5 (142)	39.0 (222)	<0.01
HFWs received training for providing implants (e.g Jadele) in the last 2 years	36.4 (16)	58.1 (18)	46.7 (21)	64.0 (32)	51.3 (20)	45.8 (22)	54.5 (73)	45.5 (56)	0.19
Contraceptive Methods and Supplies									
HFWs provide all FP methods[b]	90.9 (40)	77.5 (31)	79.6 (39)	92.5 (49)	79.1 (34)	74.5 (41)	84.1 (122)	80.6 (112)	0.53
HSAs provide all FP methods[b]	73.8 (45)	76.2 (173)	61.4 (78)	60.1 (110)	25.8 (16)	36.4 (59)	54.8 (204)	61.6 (277)	0.06
CBDAs provide all FP methods[b]	85.8 (97)	97.2 (105)	88.5 (100)	93.1 (188)	73.5 (36)	89.5 (68)	89.0 (324)	90.9 (270)	0.50
HFWs report all FP methods[b] available on day of interview	79.5 (35)	55.0 (22)	67.3 (33)	83.0 (44)	65.1 (28)	63.6 (35)	72.4 (105)	66.2 (92)	0.31
HSAs report all FP methods[b] available on day of interview	54.1 (33)	41.9 (95)	33.9 (43)	38.3 (70)	17.7 (11)	19.8 (32)	33.3 (124)	35.6 (160)	0.55
CBDAs report all FP methods[b] available on day of interview	60.2 (68)	26.9 (29)	37.2 (42)	38.1 (77)	46.9 (23)	38.2 (29)	39.0 (142)	42.4 (126)	0.42
Male Condoms									
Health workers provide male condoms to youth	97.7 (213)	96.0 (360)	92.4 (266)	93.4 (409)	96.8 (149)	90.4 (265)	93.6 (824)	94.6 (838)	0.46
Health workers had male condoms available on day of interview	81.7 (178)	57.6 (216)	62.8 (181)	67.1 (294)	71.4 (110)	64.2 (188)	66.5 (585)	65.7 (582)	0.76
Health workers had stockouts of male condoms in previous 3 months	46.3 (101)	49.9 (187)	45.8 (132)	40.0 (175)	32.5 (50)	37.2 (109)	40.6 (357)	44.8 (397)	0.08
Health facility provides male condoms	91.7 (11)	96.8 (30)	94.7 (18)	77.5 (31)	100 (20)	94.1 (16)	87.3 (69)	95.0 (57)	0.21
Health facility had male condoms available on day of interview	91.7 (11)	93.5 (29)	94.7 (18)	75.0 (30)	80.0 (16)	88.2 (15)	81.0 (64)	91.7 (55)	0.13
Health facility had stockout of male condoms in previous 3 months	16.7 (2)	35.5 (11)	42.1 (8)	27.5 (11)	45.0 (9)	35.3 (6)	35.4 (28)	31.7 (19)	0.78
Oral Contraceptive Pills									
Health workers provide OCPs to youth	85.8 (187)	87.2 (327)	77.8 (224)	80.8 (354)	59.7 (92)	65.5 (192)	76.1 (670)	79.7 (706)	0.08
Health workers had OCPs available on day of interview	75.2 (164)	53.1 (199)	60.4 (174)	58.0 (254)	53.9 (83)	56.3 (165)	58.1 (511)	59.6 (528)	0.55

Health workers had stockouts of OCPs in previous 3 months	33.0 (72)	50.9 (191)	27.4 (79)	31.7 (139)	16.2 (25)	18.4 (54)	27.6 (243)	35.8 (317)	<0.01
Health facility provides OCPs	91.7 (11)	96.8 (30)	94.7 (18)	77.5 (31)	100 (20)	94.1 (16)	87.3 (69)	95.0 (57)	0.21
Health facility had OCPs available on day of interview	83.3 (10)	77.4 (24)	84.2 (16)	70.0 (28)	100 (20)	94.1 (16)	81.0 (64)	83.3 (50)	0.90
Health facility had stockout of OCPs in previous 3 months	8.3 (1)	51.6 (16)	21.1 (4)	27.5 (11)	15.0 (3)	17.6 (3)	22.8 (18)	33.3 (20)	0.23
Injectables									
HFWs and HSAs provide injectables to youth	91.4 (96)	93.3 (249)	88.0 (154)	90.3 (213)	89.5 (94)	79.7 (173)	89.3 (461)	87.9 (518)	0.53
HFWs and HSAs had injectables available on day of interview	88.6 (93)	74.9 (200)	78.9 (138)	86.9 (205)	85.7 (90)	75.1 (163)	83.9 (433)	77.4 (456)	0.01
HFWs and HSAs had stockouts of injectables in previous 3 months	16.2 (17)	40.1 (107)	24.0 (42)	9.7 (23)	9.5 (10)	13.8 (30)	14.5 (75)	26.1 (154)	<0.01
Health facility provides injectables	91.7 (11)	96.8 (30)	94.7 (18)	77.5 (31)	100 (20)	94.1 (16)	87.3 (69)	95.0 (57)	0.21
Health facility had injectables available on day of interview	91.7 (11)	80.6 (25)	94.7 (18)	72.5 (29)	95.0 (19)	94.1 (16)	83.5 (66)	86.7 (52)	0.79
Health facility had stockout of injectables in previous 3 months	8.3 (1)	58.1 (18)	26.3 (5)	20.0 (8)	15.0 (3)	23.5 (4)	20.3 (16)	38.3 (23)	0.03
Implants									
HFWs provide implants to youth	91.3 (42)	73.8 (31)	61.5 (40)	71.4 (50)	76.1 (35)	56.8 (42)	69.1 (125)	71.0 (115)	0.79
HFWs had implants available on day of interview	87.0 (40)	64.3 (27)	61.5 (40)	67.1 (47)	76.1 (35)	48.6 (36)	67.4 (122)	63.6 (103)	0.53
HFWs had stockouts of implants in previous 3 months	10.9 (5)	16.7 (7)	16.9 (11)	8.6 (6)	4.3 (2)	6.8 (5)	10.5 (19)	10.5 (17)	1.00
Health facility provides implants	83.3 (10)	61.3 (19)	89.5 (17)	70 (28)	100 (20)	76.5 (13)	82.3 (65)	70.0 (42)	0.13
Health facility had implants available on day of interview	83.3 (10)	54.8 (17)	84.2 (16)	57.5 (23)	100 (20)	64.7 (11)	74.7 (59)	63.3 (38)	0.21
Health facility had stockout of implants in previous 3 months	16.7 (2)	22.6 (7)	36.8 (7)	12.5 (5)	5.0 (1)	35.3 (6)	16.5 (13)	25.0 (15)	0.30
IUDs									
Health facility provides IUDs	16.7 (2)	22.6 (7)	26.3 (5)	25 (10)	15.0 (3)	35.3 (6)	22.8 (18)	25.0 (15)	0.92
Health facility had IUDs available on day of interview	16.7 (2)	16.1 (5)	26.3 (5)	17.5 (7)	10.0 (2)	35.3 (6)	17.7 (14)	21.7 (13)	0.71
Health facility had stockout of IUDs in previous 3 months	0.0 (0)	6.5 (2)	0.0 (0)	5.0 (2)	5.0 (1)	0.0 (0)	3.8 (3)	3.3 (2)	>0.99

For general indicators:	<=60.0%	60.1-79.9%	>=80.%

For stockout indicators:	>=40.0%	20.1-39.9%	<=20.0%

* Low-outcome districts: Machinga, Mangochi, Nkhata Bay
** High-outcome districts: Chitipa, Dedza, Salima
*** p-value from chi-squared test comparing low- and high-outcome groups
a "Health workers" includes CBDAs, HSAs, HFWs
b Appropriate methods: CBDA: male condoms, OCPs; HSA: male condoms, OCPs, injectables; HFW: male condoms, OCPs, injectables, implants

Table 29. Provider and client knowledge for different family planning methods in six districts categorized as high and low-performing, Malawi, 2017

	Chitipa	Dedza	Machinga	Mangochi	Nkhata Bay	Salima	Low-Outcome Districts*	High-Outcome Districts**	p-value ***
Provider Knowledge									
Oral Contraceptive Pills									
Providers (N)	81	114	85	134	50	78	269	273	-
Correct knowledge of FP counseling: Pills	7.4 (6)	0 (0)	8.2 (7)	4.5 (6)	4 (2)	5.1 (4)	5.6 (15)	3.7 (10)	0.26
Correct knowledge of FP counseling on when to take pills	91.4 (74)	84.2 (96)	91.8 (78)	89.6 (120)	92 (46)	92.3 (72)	90.7 (244)	88.6 (242)	0.42
Correct knowledge of FP counseling on what to do if miss a dose of pill	59.3 (48)	43.9 (50)	51.8 (44)	46.3 (62)	50.0 (25)	57.7 (45)	48.7 (131)	52.4 (143)	0.40
Correct knowledge of FP counseling on side effects: Pills	39.5 (32)	51.8 (59)	48.2 (41)	46.3 (62)	40.0 (20)	59.0 (46)	45.7 (123)	50.2 (137)	0.31
Correct knowledge of FP counseling on when to return: Pills	32.1 (26)	25.4 (29)	31.8 (27)	31.3 (42)	30.0 (15)	30.8 (24)	31.2 (84)	28.9 (79)	0.57
Correct knowledge of FP counseling on HIV protection: Pills	19.8 (16)	8.8 (10)	28.2 (24)	25.4 (34)	12.0 (6)	20.5 (16)	23.8 (64)	15.4 (42)	0.01
Injectables									
Providers (N)	45	81	58	89	39	60	186	186	-
Correct knowledge of FP counseling: Injectables (facility and HSA only)	0 (0)	1.2 (1)	1.7 (1)	2.2 (2)	0 (0)	1.7 (1)	1.6 (3)	1.1 (2)	0.65
Correct knowledge of FP counseling on when to get injections	80.0 (36)	76.5 (62)	77.6 (45)	77.5 (69)	71.8 (28)	73.3 (44)	76.3 (142)	76.3 (142)	>0.99
Correct knowledge of FP counseling on what to do if miss a dose of injection	2.2 (1)	9.9 (8)	6.9 (4)	7.9 (7)	5.1 (2)	18.3 (11)	7.0 (13)	10.8 (20	0.24
Correct knowledge of FP counseling on side effects: Injectables	64.4 (29)	76.5 (62)	62.1 (36)	70.8 (63)	92.3 (36)	75.0 (45)	72.6 (135)	73.1 (136)	0.90

Correct knowledge of FP counseling on when to return: Injectables	40.0 (18)	42.0 (34)	24.1 (14)	46.1 (41)	53.8 (21)	45.0 (27)	40.9 (76)	42.5 (79)	0.77
Correct knowledge of FP counseling on HIV protection: Injectables	48.9 (22)	18.5 (15)	29.3 (17)	36.0 (32)	30.8 (12)	31.7 (19)	32.8 (61)	30.1 (56)	0.57
Implants									
Providers (N)	29	36	32	43	24	33	99	98	-
Correct knowledge of FP counseling: Implants (HF only)	3.4 (1)	2.8 (1)	6.2 (2)	4.7 (2)	16.7 (4)	9.1 (3)	8.1 (8)	5.1 (5)	0.38
Correct knowledge of FP counseling on use: Implants (HF only)	51.7 (15)	25.0 (9)	25.0 (8)	27.9 (12)	41.7 (10)	27.3 (9)	30.3 (30)	33.7 (33)	0.60
Correct knowledge of FP counseling on side effects: Implants (HF only)	58.6 (17)	69.4 (25)	84.4 (27)	53.5 (23)	87.5 (21)	84.8 (28)	71.7 (71)	71.4 (70)	0.96
Correct knowledge of FP counseling on when to return: Implants (HF only)	27.6 (8)	55.6 (20)	40.6 (13)	37.2 (16)	45.8 (11)	51.5 (17)	40.4 (40)	45.9 (45)	0.46
Correct knowledge of FP counseling on HIV protection: Implants (HF only)	27.6 (8)	19.4 (7)	34.4 (11)	20.9 (9)	33.3 (8)	33.3 (11)	28.3 (28)	26.5 (26)	0.78
IUDs									
Providers (N)	29	36	32	43	24	33	99	98	-
Correct knowledge of FP counseling: IUDs (HF only)	3.4 (1)	0 (0)	9.4 (3)	2.3 (1)	4.2 (1)	6.1 (2)	5.1 (5)	3.1 (3)	0.55
Correct knowledge of FP counseling on good for 10 years: IUDs (HF only)	55.2 (16)	66.7 (24)	65.6 (21)	58.1 (25)	54.2 (13)	42.4 (14)	59.6 (59)	55.1 (54)	0.57
Correct knowledge of FP counseling on check strings after menstruation: IUDs (HF only)	55.2 (16)	25.0 (9)	31.2 (10)	58.1 (25)	54.2 (13)	21.2 (7)	48.5 (48)	32.7 (32)	0.08
Correct knowledge of FP counseling on side effects: IUDs (HF only)	48.3 (14)	30.6 (11)	43.8 (14)	53.5 (23)	50.0 (12)	51.5 (17)	49.5 (49)	42.9 (42)	0.37
Correct knowledge of FP counseling on when to return: IUDs (HF only)	34.5 (10)	16.7 (6)	31.2 (10)	27.9 (12)	37.5 (9)	36.4 (12)	31.3 (31)	28.6 (28)	0.69
Correct knowledge of FP counseling on HIV protection: IUDs (HF only)	37.9 (11)	8.3 (3)	46.9 (15)	20.9 (9)	33.3 (8)	21.2 (7)	32.3 (32)	21.4 (21)	0.14
Client Knowledge									
Client knowledge of FP method	83.7 (22)	95.5 (75)	95.6 (184)	77.1 (80)	94.3 (32)	95.5 (53)	90.4 (295)	93.8 (150)	

For general indicators:	<=60.0%	60.1-79.9%	>=80.%
For stockout indicators:	>=40.0%	20.1-39.9%	<=20.0%

* Low-outcome districts: Machinga, Mangochi, Nkhata Bay
** High-outcome districts: Chitipa, Dedza, Salima
*** p-value from chi-squared test comparing low- and high-outcome groups
a "Health workers" includes CBDAs, HSAs, HFWs
b Appropriate methods: CBDA: male condoms, OCPs; HSA: male condoms, OCPs, injectables; HFW: male condoms, OCPs, injectables, implants

Discussion

Health facilities were consistent in their provision of male condoms, oral contraceptive pills and injectables; 90.6 percent of facilities provided each method. There were differences in the percent of facilities that actually had these methods available on the day of the interview, though the cross-district average stayed between 82 and 86 percent. Implants and particularly IUDs were provided and available at lower rates.

In most cases, differences between high- and low-outcome districts were not statistically significant when considering the provision and availability of different methods. In the one instance where there was a significant difference, low-outcome districts performed better than high-outcome districts.

Provider knowledge about methods was generally low, with the notable exception of when to take pills, which more than 80 percent of providers knew in all districts. Knowledge of when to get injections and injection side effects was also above 60 percent in all districts. Given that injectables constitute 77.7 percent of the method mix among youth and 82.1 percent of the mix among non-youth, improving provider knowledge of correct counseling on injectables should be a priority.

Family Planning Outcomes

Results

When considering only the youth-related implementation strength assessment indicators included in the tables and discussed above, differences between the high- and low-outcome groups were significant 50 percent of the time (for 11 out of 22 indicators). In each one of these instances, low-outcome districts performed better than high-outcome districts.

When considering implementation strength indicators related to method mix included in the tables and discussed above, differences between high- and low-outcome groups were significant only 18 percent of the time (for 7 out of 40 indicators). Of these seven instances where differences were significant, three were related to stockouts, and in each case the high-outcome districts exhibited more favorable performance than low-outcome districts. Three instances of significant differences were related to training; of these, high-outcome districts performed better for the number of health workers (HSAs and HFWs) trained in providing injectables in the last

two years, but low-outcome districts performed better for the number of HFWs and CBDAs trained in appropriate methods in the last two years. In addition, low-outcome districts had a significantly higher portion of health-workers reporting that injectables were available on the day of the interview.

Looking beyond these six districts, the table below includes information from the coordinator survey on outcomes and partner density for the three regions of Malawi. YFHS partner density per youth population was highest in the northern region, which also had the highest age-specific fertility rate for women ages 20-24 and the second highest age-specific fertility rate for women ages 15-19. The central region had the lowest partner density per youth population and the lowest age-specific fertility rates for women ages 15-19 and ages 20-24.

Table 30. DHS Fertility and Contraceptive Factors Compared with Partner Density by Region(2) (41)

Region	**Total Fertility Rate (TFR)**		**Age-Specific Fertility Rate (ASFR) per 1,000 women for ages 15-19**		**Age-Specific Fertility Rate (ASFR) per 1,000 women for ages 20-24**		**Modern Contraceptive Use of Married Women (%)**		**Unmet Need of Married Women (%)**		**FP Partners Per 100,000 Youth (Median) [IQR]**	**YFHS Partners Per 100,000 Youth (Median) [IQR]**
	2010	*2016*	*2010*	*2016*	*2010*	*2016*	*2010*	*2016*	*2010*	*2016*	*2017*	*2017*
Northern	5.7	4.2		138		227	39	54	24	23	14 [11]	10 [18]
Central	5.8	4.4		124		214	44	63	27	16	6 [4]	6 [1]
Southern	5.6	4.6		147		216	41	54	26	20	7 [9]	9 [7]
Total	5.7	4.4	152	136	269	216	42	58	26	19	8 [9]	9 [8]

*Mzimba is divided into North and South districts only for health district organization. DHS data is not available at this level.

Discussion

Patterns between low- and high-outcome districts may be a consequence of using 2016 DHS data to define high- and low-outcome districts. Partners and government alike may have invested more heavily in districts with lower outcomes following the 2016 DHS, resulting in higher percentages of trained health workers or supervisory visits, for example, in these districts by the time the implementation strength assessment was conducted in 2017. Measure of care quality did not consistently show higher performance in low-income districts – possibly a consequence of the time required for investments in services to translate into improvements in quality.

Appendix

Appendix 1. Indicators that define high and low performing (DHS 2015-2016)

Indicators that define high and low performing (DHS 2015-2016)

District	TFR - 2010	TFR - 2015	Prop. diff	mCPR (married/union)	Unmet need (married/union)	% of demand satisfied (modern & married/union)	Adolescent pregnancy[1]
High FP Outcome districts							
Chitipa	6.2	4.6	0.26	64.2%	11.2%	82.0%	22.2%
Dedza	5.8	4.4	0.24	59.2%	17.2%	76.0%	23.2%
Salima	6.6	5.4	0.18	54.6%	20.7%	70.4%	24.6%
Low FP Outcome districts							
Machinga	6.9	6.5	0.06	45.2%	22.1%	62.5%	42.5%
Mangochi	7.0	5.6	0.20	29.7%	28.0%	48.7%	38.6%
Nkhatabay	4.9	4.3	0.12	40.7%	29.3%	54.0%	27.6%

1. Percentage of women age 15-19 who had a live birth or who are pregnant with their first child, and percentage who have begun childbearing

Confounders

District	Any education (WM)[2]	% Rural HHs[3]	No. hosp/HC[4]	% HH in wealth Q1[3]	% Muslim women [3]	Population[5]	Facilities per 100000 population
High FP Outcome districts							
Chitipa	93.8	89.5%	11	8.8%	0.1%	228,732	4.8
Dedza	79.6	97.1%	29	37.7%	9.1%	770,108	3.8
Salima	78.9	92.8%	16	30.3%	42.4%	445,031	3.6
Low FP Outcome districts							
Machinga	74.3	95.0%	19	30.2%	67.6%	647,401	2.9
Mangochi	74.2	95.1%	39	27.4%	68.8%	1,091,666	3.6
Nkhatabay	84.9	93.7%	20	11.1%	0.8%	286,956	7.0

2. DHS 2015-2016 Report Table A-3.2.1; 3. DHS 2015-2016; 4. MoH records from ISA study ("Master list free health service facilities in Malawi.xls"; 5. Census district projection for 2017

Appendix 2. Description of three case scenarios included in the clinical vignette tool[8]

1: Married Adult with uncomplicated medical history case scenario description

The client is a woman who would like to switch family planning methods. The women appears to be in her late twenties. What questions would you ask this woman during a FP consultation?

Contraceptive history

She began using Depo-Provera for the first time 6 weeks after the birth of her youngest child. She has heavy menstrual bleeding for the past six months. She went to clinic and got pills to treat it. But the heavy bleeding still continues. She went back to the clinic and got different pills to treat it but the bleeding still continues. She would like to stop taking the injections and change to a different method.

Ask about the client's choice of method

She does not want to have an implant because her sister became pregnant due to a faulty implant. She is interested in learning about **intrauterine devices** but concerned about the side effects. She would like to take pills because she took them a long time ago and had no side effects.

Last delivery date / age of youngest child

Her youngest child was born seven and half months ago.

Number of children

She has three children

Whether the client is still breastfeeding.

She is breastfeeding some but has introduced solid foods to her child.

Last menstrual period

Her last period was 1 week ago.

Regularity of menstrual cycle.

Her cycle is regular.

Desire for more children

She does not want more children

Partner status

She is married

Partner attitude towards FP

Her husband less supportive of her contraceptive use and would like more children.

How many sexual partners she has

She is not sexually active outside her marriage. And believes that she has no risk for sexually transmitted infections.

Smoking status

She does not smoke.

STI status

She does not know her STI status. She has never been tested for sexually transmitted infections.

Chronic illness (example: diabetes, heart disease, others)

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[8] Case scenarios were developed based on training materials used from JHPIEGO

She is otherwise healthy.

Her age

She is 29

Clinical exam results: blood pressure

Her blood pressure is normal

Clinical exam results: weight

She is within normal range of weight for her age and height.

Clinical exam results: Pregnancy test

The pregnancy test is negative

Clinical exam results: Check for anemia

Exam shows no signs of anemia

Any other exam is mentioned

All other findings are normal

2: Married Adult with complex medical history case scenario description

The client is a woman who would like to begin using contraceptives. The woman appears to be in her early thirties. What questions would you ask this woman during a FP consultation?

Contraceptive history

She has never used modern birth control. She practices the withdrawal method.

Ask about the client's choice of method

She is frightened of injections and her husband does not like to use condoms. She has heard that pills are easy to use and effective; she'd like to give them a try.

Last delivery date / age of youngest child

Her youngest child was born two years ago

Number of children

She has three children.

Whether the client is still breastfeeding.

She is no longer breastfeeding.

Last menstrual period

Her last period was two weeks ago

Regularity of menstrual cycle.

Her period is regular.

Desire for more children

While she is not certain that she has all the children she wants, she does know that she is not interested in having another child for at least several years.

Partner status

She is married

Partner attitude towards FP

Her husband does not want her to use contraceptives because he thinks there is a risk of sterility.

How many sexual partners she has

She is not sexually active outside her marriage. She was diagnosed as HIV positive two years ago.

Smoking status

She does not smoke.

STI status

She was diagnosed as HIV positive two years ago.

Chronic illness (example: diabetes, heart disease, others)

She was diagnosed with tuberculosis 8 months ago and she tested positive for HIV two years ago. She is on ART and TB medication. Her HIV and TB infections are well controlled.

Her age

She is 31.

Clinical exam results: blood pressure

Her blood pressure is 165/90

Clinical exam results: weight

She is within normal range of weight for her age and height.

Clinical exam results: Pregnancy test

Pregnancy test is negative.

Clinical exam results: Check for anemia

Exam shows no signs of anemia

Any other exam is mentioned

All other findings are normal

3: Unmarried adolescent case scenario description

The client is a woman who would like to begin using contraceptives. The woman appears to be in her late teens. What questions would you ask this woman during a FP consultation?

Contraceptive history

She has never used any form of birth control.

Ask about the client's choice of method

Several of her friends are using oral contraceptives, and they haven't gotten pregnant yet, even though they sometimes forget to take the pills. She thinks pills would be good for her too, but she is worried about forgetting to take the pills. She is also nervous about her parents finding her pills and knowing she is sexually active.

Last delivery date / age of youngest child

She has no prior pregnancies

Number of children

She's had no prior pregnancies

Whether the client is still breastfeeding.

She's had no prior pregnancies

Last menstrual period

Her last period was 1 week ago.

Regularity of menstrual cycle.

Her period is regular.

Desire for more children

She would like to have children but wants to wait until she has completed school. She is afraid of getting pregnant.

Partner status

She is unmarried but sexually active with one partner (boyfriend).

Partner attitude towards FP

She and her boyfriend recently became sexually active. Her boyfriend doesn't like to use male condoms and neither really know how to use them.

How many sexual partners she has

She is not sexually active outside her relationship. And believes that she has no risk for sexually transmitted infections.

Smoking status

She does not smoke.

STI status

She does not know her STI status. She has never been tested.

Chronic illness (example: diabetes, heart disease, others)

She is otherwise healthy.

Her age

She is 17.

Clinical exam results: blood pressure

Her blood pressure is normal

Clinical exam results: weight

She is within normal range of weight for her age and height.

Clinical exam results: Pregnancy test

Pregnancy test is negative.

Clinical exam results: Check for anemia

Exam shows no signs of anemia

Any other exam is mentioned

All other findings are normal

Appendix 3. Additional Quality of Care results

Clinical vignettes: Case A: 29 year-old woman	
% of providers who asked the following during client history	**%**
Contraceptive history	96.9
Method choice	51.5
Number of children	29.0
Chronic illnesses	28.4
Age of youngest child	19.6
Age of the woman	18.6
STI status	17.3
More children wanted	13.8
Last menstrual period	11.4
Regularity of menstrual cycle	11.1
Partner/marital status	9.2
Partner attitude	8.7
Still breastfeeding	5.2
No. of partners	2.4
% of providers reported they would conduct the following tests:	
Any exam	78.2
Blood pressure	54.8
Weight	18.0
Check for anemia	28.0
Pregnancy test	26.3
Method(s) recommended	
Hormonal pills (woman's preferred choice)	60.7
Condom	44.3
Implants	26.0
IUD	32.3
Sterilization	13.8
Injectable	6.8
Modern natural methods	6.3
No Method recommended (Would refer for heavy bleeding)	3.5

Clinical vignettes: Case B: 31 year-old woman	
% of providers who asked the following during client history	**%**
Number of children	75.6
Contraceptive history	70.8
Method choice	55.2
Chronic illnesses	41.0
Age of the woman	38.4
More children wanted	32.1
STI status	25.3
Age of youngest child	24.2
Last menstrual period	18.8
Partner/marital status	17.3
Partner attitude	13.8
Regularity of menstrual cycle	6.8
Still breastfeeding	5.0
No. of partners	2.6
% of providers reported they would conduct the following tests:	
Any exam	81.2
Blood pressure	66.1
Weight	24.2
Check for anemia	13.4
Pregnancy test	45.4
Method recommended	
Condom	47.2
Hormonal pills (woman's preferred method)	42.1
Implants	33.6
Injectable	29.5
IUD	28.4
Sterilization	24.2
Modern natural methods	7.4
No Method recommended	2.4

Clinical vignettes: Case C: 17 year-old woman	
% of providers who asked the following during client history	**%**
Method choice	60.3
Partner/marital status	57.7
Number of children	45.2
Contraceptive history	41.3
Age of the woman	39.5
STI status	33.0
Chronic illnesses	29.3
Last menstrual period	29.2
More children wanted	24.9
Partner attitude	21.6
Regularity of menstrual cycle	11.8
Age of youngest child	11.1
Still breastfeeding	5.2
No. of partners	5.0
% of providers reported they would conduct the following tests:	
Any exam	81.2
Blood pressure	62.4
Weight	23.1
Check for anemia	13.2
Pregnancy test	50.0
Method recommended	
Condom	57.7
Injectable	51.1
Hormonal pills (woman's preferred method)	47.0
Implants	39.1
IUD	16.1
Modern natural methods	9.7
Sterilization	1.9
No Method recommended	0.4

Appendix 4. Additional Partner Mapping Results

The number of partners conducting specific family planning activities in each district (Table 1) and the types of activities each partner is conducting (Table 2) show two further descriptions of partner presence. By activity, "distribution of contraceptive methods" and "training of health workers" were the most commonly reported specific family planning activities. Looking at individual partners, most partners support youth friendly activities in a high percentage of districts in which they operate.

Table A1. Number of Partners Conducting Specific Family Planning Activities by District

	District Name	Training of Health Workers	Supervision of Health Workers	Monitoring and Evaluation	Family Planning Education	Distribution of Contraceptive Methods	Other Technical Support	Other Funding
Northern	Chitipa	2	2	4	4	3	3	4
	Karonga	4	5	5	5	5	1	4
	Likoma	1	1	0	1	1	1	0
	Mzimba North	3	0	1	1	4	3	1
	Mzimba South	4	3	2	2	3	2	2
	Nkhata Bay	5	4	4	4	4	1	1
	Rumphi	1	1	0	1	4	1	0
	Total (Median)	**20 (3.0)**	**16 (2.0)**	**16 (2.0)**	**18 (2.0)**	**24 (4.0)**	**12 (1.0)**	**12 (1.0)**
Central	Dedza	3	3	4	5	5	4	4
	Dowa	1	1	0	2	2	0	0
	Kasungu	2	2	3	3	6	4	1
	Lilongwe	4	6	4	4	4	3	3
	Mchinji	2	2	4	2	5	1	2
	Nkhotakota	1	2	2	2	1	0	1
	Ntcheu	3	3	0	3	3	0	1
	Ntchisi	4	3	3	3	2	2	1
	Salima	1	1	0	0	3	2	1
	Total (Median)	**21 (2.0)**	**23 (2.0)**	**20 (3.0)**	**24 (3.0)**	**31 (3.0)**	**16 (2.0)**	**14 (1.0)**
Southern	Balaka	0	0	0	2	1	0	0
	Blantyre	-	-	-	-	-	-	-
	Chikwawa	0	1	0	2	2	1	0
	Chiradzulu	1	1	1	1	1	0	1
	Machinga	3	2	2	2	4	1	2
	Mangochi	4	0	0	0	4	1	0
	Mulanje	4	1	1	5	4	4	2
	Mwanza	4	3	3	4	1	0	1
	Neno	2	1	3	1	4	3	0
	Nsanje	0	0	0	2	2	0	0
	Phalombe	5	3	2	3	3	3	2
	Thyolo	5	4	3	2	5	2	2
	Zomba	6	3	5	2	3	3	4

	Total (Median)	**34 (3.5)**	**19 (1.0)**	**20 (1.5)**	**26 (2.0)**	**34 (3.0)**	**18 (1.0)**	**14 (1.0)**
	Total (Median)	**75 (3.0)**	**58 (2.0)**	**56 (2.0)**	**68 (2.0)**	**89 (3.0)**	**46 (1.0)**	**40 (1.0)**

Table A2. Types of Family Planning Activities by Partner

		Number of Districts Reporting Each Family Planning Activity for this Partner							
Partner Name	Districts with this Partner	Training of HW	Supervision of HW	M&E	FP Education	Distribution of Contraceptive Methods	Other Technical Support	Other Funding	Percent of Districts with this Partner where they Support YF Activities (%)
BLM	26	8	4	6	14	23	4	0	73.1
CHAI	8	6	4	4	2	2	4	4	37.5
CHAM	17	9	8	7	5	9	3	2	70.6
PSI	17	9	5	7	12	16	5	3	70.6
ONSE	13	6	7	6	6	4	6	6	61.5
PLAN Malawi	5	3	2	2	1	3	3	2	100.0
FPAM	14	2	2	5	7	11	2	1	85.7
Save the Children	12	11	10	9	8	6	4	4	83.3
DFID	1	0	0	0	0	1	0	0	0
UNFPA	12	12	9	5	3	6	6	9	50.0

As an estimate of coverage of a partner's work in the district, Table 3 indicates the number of districts in which each partner was considered to work in "all health facilities", "some health facilities", or "not at the facility level". Three partners were reported as working in "all health facilities" in nine districts. One partner, was reported as working in "all health facilities" in four districts.

Table A3. Number of Districts Where a Partner Operates at All Health Facilities, Some Health Facilities, and Not at the Facility Level

Partner Name	All Health Facilities	Some Health Facilities	Partner Does Not Operate at the Facility Level
BLM	9	17	0
CHAI	1	5	2
CHAM	2	11	4
PSI	3	12	1
ONSE	9	4	0
PLAN Malawi	3	2	0
FPAM	2	9	3
Save the Children	4	8	0
DFID	1	0	0
UNFPA	9	0	3

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