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Building the Evidence: Unique Stockout Challenges of FBO Health Facilities

Acknowledgments

Study Team

- › Hany Abdallah, MHS, Consultant, U3 SystemsWork International, LLC
- › Mona Bormet, MPH, Program Director, Christian Connections for International Health
- › Judith Brown, PhD, Researcher, Consultant, Christian Connections for International Health
- › Amy Metzger, MPH, Researcher, Consultant, Christian Connections for International Health

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Acronyms

CBCHS	Cameroon Baptist Convention Health Services
CCIH	Christian Connections for International Health
CEPCA	Cameroon Council of Protestant Churches
CHA	Christian Health Association
DRC	Democratic Republic of the Congo
EZE	German Protestant Association for Cooperation in Development
FBO	Faith-based Organization
FBSO	Faith-based Supply organization
FP	Family Planning
HZ	Health Zones
IDA	International Dispensary Association
IUD	Intra-uterine Device
IMA/ASSP	IMA World Health/Access to Primary Health Care Project in the DRC
JMS	Joint Medical Stores
MAP	MAP International
MOH	Ministry of Health
NGO	Nongovernmental Organization
PEPFAR	President's Emergency Plan for AIDS Relief
PSI	Population Services International
QA	Quality Assurance
RH	Reproductive Health
RHSC	Reproductive Health Supplies Coalition
STI	Sexually Transmitted Infection
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Executive Summary

Western missionaries providing health care in Africa began in earnest in the middle part of the 19th century.¹ In many low-to-middle income countries, even after colonization ended and despite massive health-systems reconfigurations, faith-based health providers have maintained a strong presence.² FBOs still provide a substantial portion of the health care services in many countries today, 30% to 70% in some nations, according to World Health Organization (WHO) mapping studies.³ Despite the high percentage of health services provided by FBOs, many have struggled to maintain adequate stocks of medicines and supplies, often using cost-sharing approaches to prevent shortages. This research forms the first phase of a project funded under the Reproductive Health Supplies Coalition (RHSC) Reducing Stockouts Initiative to build evidence on the unique supply and supply chain challenges faced by FBOs. The goal of this phase was to identify distinct types of FBO supply chain systems, the performance of the types in terms of stockouts, and the associated challenges these supply chain systems face that contribute to stockouts. The findings from this phase point to possible approaches to addressing challenges these types of supply chain systems face that result in stockouts.

FBOs still provide a substantial portion of the health care services in many countries today, 30% to 70% in some nations, according to World Health Organization mapping studies.

Methods

This study evaluated FBO stockouts and key drivers of commodity security, such as sources of products, facility inventory and storage practices, financing, and more. An initial email survey of 46 facilities in 13 countries gave the study team preliminary results which fed into the design of subsequent phone interviews carried out with supply managers at 16 facilities from six countries. In-country visits in Cameroon and the Democratic Republic of the Congo (DRC) helped to validate an initial proposed typology of supply chain systems and offered clarification and information to advise future supply chain interventions.

¹ Olakanmi, O., & Perry, P.A., (2006). Medical Volunteerism in Africa: An Historical Sketch. *AMA Journal of Ethics*, 8(12), 863-870.

² Olivier, J., Tsimpo, C., Gemignani, R., Shojo, M., Coulombe, H., Dimmock, F., ... Wodon, Q. (2015). Understanding the roles of faith-based health-care providers in Africa: review of the evidence with a focus on magnitude, reach, cost, and satisfaction. *The Lancet*. Available at [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(15\)60251-3/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)60251-3/fulltext)

³ World Health Organization (February 8, 2007). Faith-based organizations play a major role in HIV/AIDS care and treatment in sub-Saharan Africa. Available at: <http://www.who.int/mediacentre/news/notes/2007/np05/en/>

The list of RH products used in this study was developed based on the resource “Essential Medicines for Reproductive Health: Guiding Principles for Their Inclusion on National Medicines Lists.”⁴ A few items were influenced by the faith-based context, such as the addition of CycleBeads[®], and the exclusion of abortion-related medicines (mifepristone). **Appendix 1** includes a list of RH commodities considered in this survey.

Findings

Five FBO facility supply chain types were identified during the study: *Vertically Integrated*, *Public-Sector Reliant*, *Blended*, *Mixed*, and *Ad hoc*. These were broadly organized into two categories, based on whether contraceptives were integrated in or separated from supply chains for other RH commodities.

Typology of FBO Facility Supply Chain

Five Types	Source of Contraceptives	Source of Other RH Commodities	Defining Characteristics	Average % of Tracer Contraceptives & Other RH Products Stocked Out ⁴
Contraceptives integrated in supply chains for other RH commodities				
1. <i>Vertically Integrated</i>	FBSO ¹	FBSO	Contraceptives & other commodities are sourced through FBO-run supply chain.	17% & 13%
2. <i>Public-Sector Reliant</i>	MOH depot	MOH depot	Contraceptives & other commodities sourced through MOH (or public sector) supply chain.	9% & 16%
3. <i>Blended</i>	FBSO/MOH depot	FBSO/MOH depot	Contraceptives & other commodities sourced through both FBSO & MOH supply chains.	34% & 35%
Contraceptives separated from supply chains for other RH commodities				
4. <i>Mixed</i>	MOH depot	Other sources ²	Contraceptives sourced via MOH-sector sources; Other commodities obtained via Other sources (not FBSO, MOH depots, or International sources).	12% & 11%
5. <i>Ad hoc</i>	International sources ³	FBSO/ Other sources	Contraceptives obtained via International sources; Other commodities can be sourced via FBO-run supply chain and Other sources.	23% & 23%

1. FBSO stands for faith-based supply organization and is intended to broadly reference pharmaceutical depots operated by FBOs.

2. “Other sources” here includes in-country sources (e.g., retail pharmacies, wholesalers, social marketing depots), and out-of-country sources (not-for-profit sources, out-of-country FBOs, etc.) as defined in the Methods section of the main report.

3. “International sources” here refers to those defined as international in the Methods section (e.g., international funders, donor-funded projects, and international nongovernmental organizations [NGOs]).

4. Refers to stockouts in the last three months from the time of the email survey. Overall Average % of Tracer Contraceptives & Other RH Commodities: 21% & 23%

⁴ PATH, the World Health Organization, and the United Nations Population Fund. Essential Medicines for Reproductive Health: Guiding Principles for Their Inclusion on National Medicines Lists. Seattle: PATH; 2006. Available at: <http://whqlibdoc.who.int/hq/2006/a91388.pdf?ua=1>

The following key characteristics were associated with the different types:

- › The number of products stocked out tended to be highest in *Blended* and lowest in *Mixed* and *Vertically Integrated* facilities.
- › The number of facilities with stockouts tended to be highest in *Blended* type and lowest in *Public-Sector Reliant* and *Mixed* types.
- › Facility types with lowest stockout rates also charge clients the least for family planning (FP) services.
- › Integrated facilities (*Vertically Integrated*, *Public-Sector Reliant*, and *Blended*) carried more types of RH commodities and were more likely to charge fees for FP services than Separate facilities (*Mixed* and *Ad hoc*).

Five FBO facility supply chain types were identified during the study: Vertically Integrated, Public-Sector Reliant, Blended, Mixed, and Ad hoc. These were broadly organized into two categories, based on whether contraceptives were integrated in or separated from supply chains for other RH commodities.

While 55% of surveyed facilities experienced stockouts of contraceptives in the three months preceding the survey, stockouts were not as severe in terms of numbers and percentages of contraceptive products stocked out in the same period (around 21%). This finding in large part reflects the ingenuity of FBOs to react to stockout situations and to fill gaps by accessing a more diverse set of sources—as is the case in the *Mixed* type for non-contraceptive RH commodities. This approach also presents its limitations, including limits on the range of FP and other RH supplies that can be successfully managed in this way, and the continued relatively higher risk of stockout as identified in the *Ad hoc* type.

In contrast, facilities in the relatively more 'integrated' types—*Vertically Integrated* and *Public-Sector Reliant*—have shown stronger performance in terms of managing a wider range of products, and having relatively lower stockouts. The exception among the 'integrated' types is the *Blended* type, which demonstrated the worst performance overall in terms of stockouts. While a defining characteristic of facilities in the *Blended* type is the existence of a 'coordinated' or 'integrated' platform/depot for serving the RH commodity needs of both FBO and public-sector health facilities (or where facilities can obtain RH products from both FBSO- and Ministry of Health [MOH]-run supply chains), about 80% of the facilities in this type also used a broader variety of sources outside this platform, including both international and Other sources (e.g., social marketing, donor-funded projects, international NGOs, etc.).

In seeking to identify potential factors associated with stockouts, qualitative study findings from phone interviews revealed that expiry and quality issues were relatively infrequent or confined to specific instances or products. The prevalence of quality-assurance (QA) monitoring and reporting mechanisms in most facilities, including the designation of a staff member to be responsible for these issues, was a commendable aspect of FBO facility practices across the different types. Challenges such as facility storage environments, long distances to supply depots, and logistics management capacity issues at facility-level were found to be important but not a dominant priority in addressing stockouts. More salient were issues related to relationships with supply sources, availability of products at levels higher than the FBO facility, and financial models for management of contraceptives and FP services, particularly considering that cost is one of the main barriers to clients accessing RH and FP services in the settings where FBOs operate.

Findings

Key findings included issues involving relationships with supply sources, availability of products at levels higher than the FBO facility, and financial models for management of contraceptives and FP services, particularly considering that cost is one of the main barriers to clients accessing RH and FP services in the settings where FBOs operate.

The study uncovered that African FBOs differ within and among countries in how they access reproductive health (RH) supplies and how they handle stockouts. The two integrated types of FBO supply chains identified—*Vertically Integrated* and *Public-Sector Reliant*—have a wider range of products and relatively lower rate of stockouts than other types. However, the ability of an FBO to change its suppliers and/or practices will depend upon relationships with the suppliers, receiving supplies (distance, transportation), ordering practices, and cost of commodities.

In addition, the challenges faced by FBOs can vary by country, which is explored in the conclusion. To address stockouts, the whole supply chain must be considered, including the role of factors such as demand and logistic bottlenecks, cost recovery, and supply and pipeline management.

As FBOs continue to provide a large proportion of health care services in Africa, they can be major collaborators in reducing RH commodity stockouts and ultimately enhancing the lives of children, women, and families. As a follow-up to this phase, the research will evaluate in one to two countries high-impact interventions that can be more broadly disseminated to address the needs of the FBO sector in reducing stockouts.

Background

In many countries, FBOs provide a substantial portion of the health care, 30% to 70% in some nations, according to WHO mapping studies.⁵ Many faith-based entities have struggled to maintain adequate stocks of medicines and supplies, often using cost-sharing⁶ approaches to prevent shortages.

In recent years, Christian Connections for International Health (CCIH)⁷ has documented FBO systems in many of the countries where its members work and their stockouts of needed RH supplies. During a 2008 survey of its members, 40% of CCIH member groups in Africa identified lack of contraceptive supplies as a major obstacle in achieving desired spacing and number of children in the areas they work.⁸ During a study in 2011, Christian Health Association (CHA) leaders from eight African countries continued to highlight stockouts and difficulties obtaining contraceptive commodities. These aforementioned studies demonstrate that FBOs are underutilized partners in identifying current problems and in designing new solutions to improve RH supplies in Africa. Follow-up surveys and inquiries from members have shown the desire to strengthen contraceptive security.

During a 2008 survey of its members, 40% of CCIH member groups in Africa identified lack of contraceptive supplies as a major obstacle in achieving desired spacing and number of children in the areas they work.

In January 2012, CCIH joined the RHSC, a global partnership of 300 public organizations, private organizations, and NGOs dedicated to ensuring that all people in low- and middle-income countries can access and use affordable, high-quality supplies to ensure their better RH. In 2012, RHSC launched an initiative focused on reducing stockouts of RH supplies. This research forms the first phase of a project funded under the Reducing Stockouts Initiative which aims to build evidence on the performance of various types of FBO supply chain systems and how FBOs can use such systems to address stockout challenges.

⁵ World Health Organization (February 8, 2007). Faith-based organizations play a major role in HIV/AIDS care and treatment in sub-Saharan Africa. Available at: <http://www.who.int/mediacentre/news/notes/2007/np05/en/>

⁶ Cost-sharing approaches include different faith-based organizations that procure medicines jointly; have supplies delivered and distributed from a central warehouse.

⁷ CCIH is a global health faith-based membership organization based in Washington, DC, with a mission to promote health and wholeness from a Christian perspective. Currently, the membership of CCIH includes approximately 150 Christian organizations and institutions, 21 affiliate groups, and over 400 individual members.

⁸ Christian Connections for International Health (2008). *International Family Planning: Christian Actions and Attitudes - A Survey of Christian Connections for International Health Member Organizations*. Available at: <http://www.ccih.org/ccih-publications/166-international-family-planning-christian-actions-and-attitudes-a-survey-of-christian-connections-for-international-health-member-organizations-.html>

Study Goal and Objectives

The goal of this study was to identify distinct types of FBO supply chain systems, the performance of the types in terms of stockouts, the associated challenges these supply chain systems face that contribute to stockouts, and then to recommend possible solutions. The following objectives were set:

- › Identify and describe the basic characteristics and challenges of FBO supply chains at the service-delivery level;
- › Deepen understanding of the types of supply chains used by FBOs to access vital RH commodities, including contraceptives; and
- › Identify potential FBO partners and design strategic interventions to improve RH supply chain availability at the service-delivery level.

Methods

Data collection for the research was conducted in three parts: email surveys, phone interviews, and country visits, all focusing on key drivers of commodity security, including, but not limited to:

- › Sources used by FBOs to access health care products.
- › Nature of ‘transactions’ between the facility and their suppliers/sources.
- › Risk of stockouts associated with different types of supply chains.
- › Facility inventory and storage management practices.
- › Training of staff responsible for logistics management.
- › Financing for RH supplies and logistics.
- › Institutional and contextual factors influencing the availability of products at FBO facilities.

Part 1: Email Surveys⁹

CCIH carried out an email survey with the aim of identifying the sources that FBOs use to obtain their RH supplies.

In-country sources included:

- › Depot of MOH/government (national, regional, or district), also referred to as ‘public sector.’
- › Depot of faith-based supply organization (FBSO).
- › Depot of an international organization (e.g., United Nations Children’s Fund [UNICEF], United Nations Population Fund [UNFPA], Global Fund, WHO, donor-funded projects, international NGOs, etc.).
- › Retail pharmacy, pharmaceutical warehouse, social marketing depot, etc.

⁹ Survey instrument available upon request. Email ccih@ccih.org

Sources outside the country that send product directly to an FBO health facility:

- › Nonprofit suppliers (e.g., German Protestant Association for Cooperation in Development [EZE], IMA World Health, MAP International [MAP], International Dispensary Association [IDA], etc.).
- › Commercial suppliers.
- › Other outside sources (e.g., hand-carried by visitors, etc.).

The survey also collected information on the basic characteristics of supply chain components at the service-delivery level, and established a baseline understanding of the prevalence of stockouts of select products.

The list of RH products used in this study was developed based on the resource “Essential Medicines for Reproductive Health: Guiding Principles for Their Inclusion on National Medicines Lists.”¹⁰ A few items were influenced by the faith-based context, such as the addition of CycleBeads[®], and the exclusion of abortion-related medicines (mifepristone). **Appendix 1** includes a list of RH commodities included in this survey.

Initial respondents for the electronic survey were those responsible for managing FP/RH supplies at the service-delivery level of faith-based health facilities in Africa. This initial list included 120 facilities in 20 African countries.

Survey questions were influenced by established sources such as the USAID | DELIVER PROJECT Logistics System and Indicator Assessment Tools, and the RHSC’s Harmonized Suite of Indicators to Measure Stockouts and Availability of Contraceptives. The questions were tailored based upon the service-delivery level and faith-based context. The survey was pretested at facilities in two countries, and translated into French. Out of 120 facilities contacted, 46 responded from 13 countries.

Part 2: Phone Interviews¹¹

CCIH conducted follow-up phone interviews with a subset of respondents in order to broaden and deepen the understanding of characteristics of different types of FBO supply chains, whether they contribute to stockouts or help prevent them, and to “validate” the typologies that were emerging from the email survey data. The subset of email survey respondents contacted for interviews was selected based on broad criteria of diversity in: supply chain types, geography, language, faith denomination, and level of stockouts assessed via Part 1 findings, as well as those who gave particularly thoughtful or interesting responses to the email survey, or had unusual characteristics. Eighteen facilities were selected for in-depth phone interviews, and 16 interviews representing six countries were successfully conducted.

An interview guide was used with questions pulled from existing logistics assessments as well as questions that further explored subjects from Part 1. These include ordering practices, mitigation approaches for product shortages or stockouts, storage capacity, communications with their suppliers, supplier reliability, and product QA practices.

¹⁰ PATH, the World Health Organization, and the United Nations Population Fund. Essential Medicines for Reproductive Health: Guiding Principles for Their Inclusion on National Medicines Lists. Seattle: PATH; 2006. Available at: <http://whqlibdoc.who.int/hq/2006/a91388.pdf?ua=1>

¹¹ Instrument design available upon request. Email ccih@ccih.org

Part 3: Country Visits¹²

While Parts 1 and 2 of the survey focused on the FBO facility, the aim of Part 3 was to explore factors outside of the facility and at higher levels of the supply chain that can and do play a role in influencing availability of products at facility levels. Specifically, the aim of this component of the study was to validate email and phone survey findings on the ground, gather additional information on the key drivers of stockouts at health-facility levels, and investigate broader, contextual and institutional factors that play a role in an FBO health facility's ability to successfully obtain RH supplies.

Two countries, Cameroon and the DRC, were selected as they represented two predominant and emerging FBO supply chain types.

Countries with multiple survey respondents were considered for CCIH site visits. Two countries, Cameroon and the DRC, were selected as they represented two predominant and emerging FBO supply chain types.

Field visits included some of the health institutions that participated in the email and phone interviews, national-level FBOs, and coordinating offices, supplies of FBO facilities (including MOH depots, FBSOs, donor projects, commercial supplies), and others stakeholder institutions (such as MOH, social marketing agencies, etc.).

¹² Instrument design available upon request. Email ccih@ccih.org

Findings

The following section provides a summary of data and findings, which include a profile of FBO health facility study respondents, products managed at each health facility, sources of products, a highlight of the stock/stockout status of RH commodities at the FBO facility level, and RH services and financing. This section also includes a summary from the in-country visits and a summary of key contextual and institutional factors (Part 3 of the study) that were found to influence the availability of contraceptive supplies at FBO facilities (Part 2 of the study).

Characteristics of FBO Health Facility Respondents

Based on responses to Part 1, 46 FBO health facilities from 13 countries formed the base of this study. Respondents were predominantly rural hospitals (41% of surveyed facilities) and rural health centers (26% of surveyed facilities), and the majority were small- to medium-sized facilities as measured by number of health facility staff, with 80% of the small facilities located in rural settings. **Figures 1 and 2** illustrate some of the principal characteristics of facilities surveyed; further detail by country on **Figure 2** is available in **Appendix 2**.

Logistics management of RH commodities in FBO facilities was controlled by a doctor in 23 out of the 46 facilities, followed by 11 facilities reporting a nurse being responsible, and five reporting a clinical officer. A pharmacist was involved in only two facilities, and another two facilities also identified a pharmacy technician as responsible. Only one facility identified a professional logistician as responsible for supplies management. Overall, the average number of years of experience of the responsible person is about four years, ranging from two to five years. (**Appendix 3** includes more detail by country on staff responsible for the management of RH commodities).

Figure 1: Survey Responses by Country (% of FBO facilities who responded)

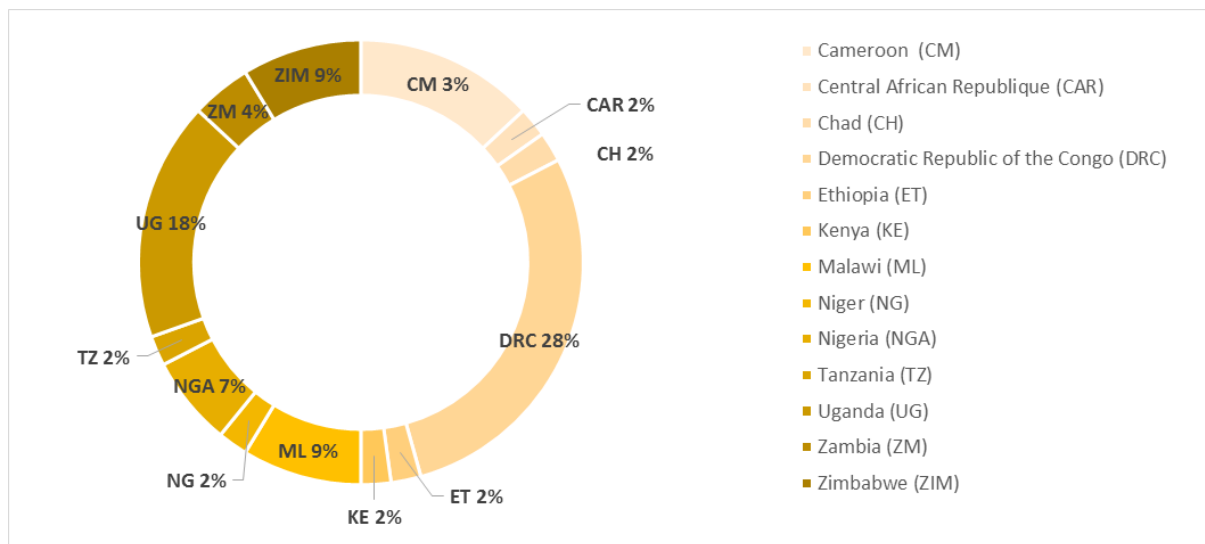
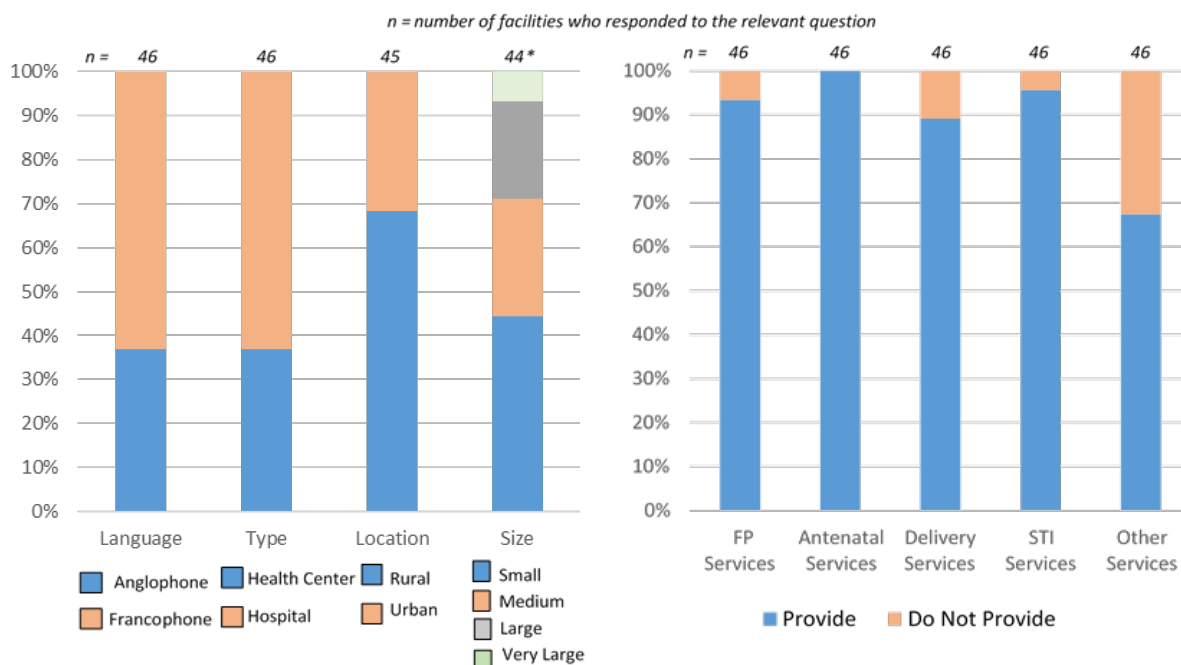


Figure 2: Characteristics of Facilities Responding to Email Survey



* Staff Size: Small: <=30; Medium: 31-100; Large: 101-300; Very Large: >300

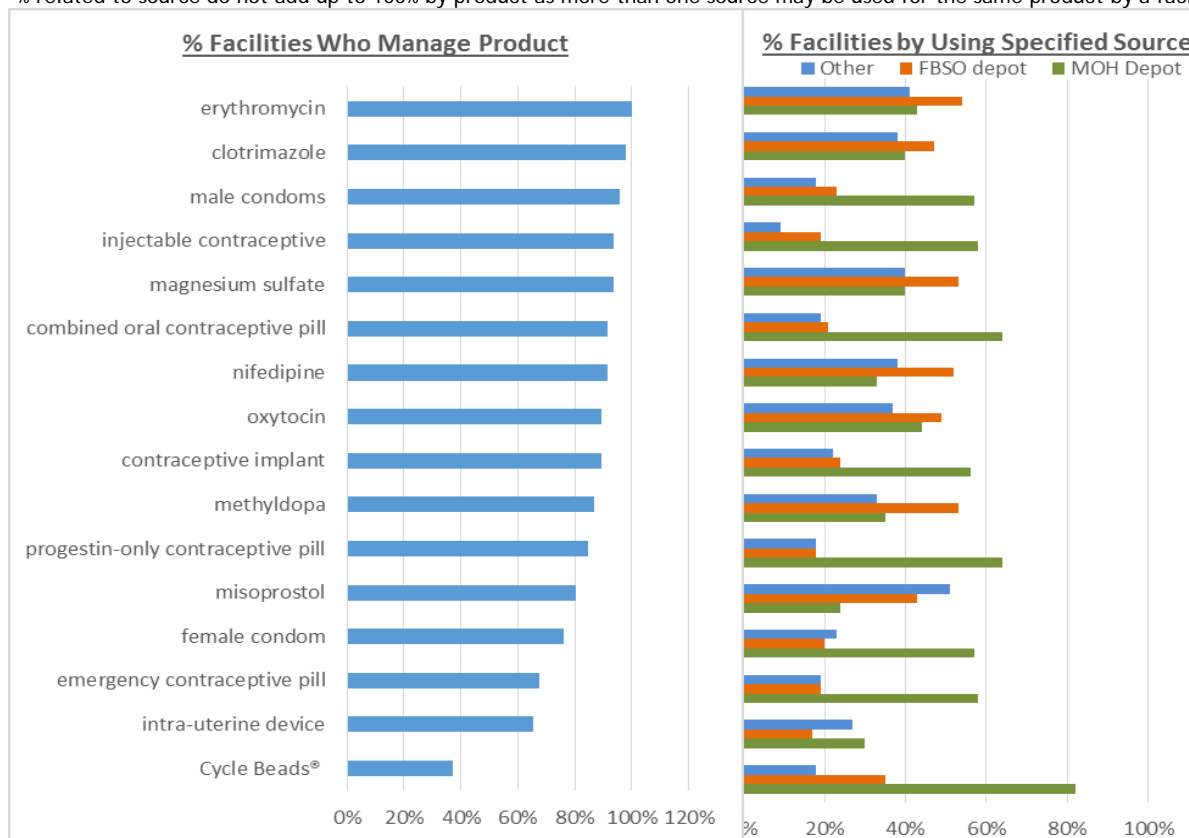
Management of RH Supplies and Sources

The survey investigated the sources of products provided by each facility, both in-country and out-of-country suppliers. Figure 3 illustrates the principal sources of each products provided (details in Appendix 4). The following findings were observed of all sources:

- › Eleven of the 16 products surveyed are managed by at least 80% (37) of the FBO facilities. These include the five contraceptives (male condoms, injectable contraceptives, combined and progestin-only oral contraceptives, and contraceptive implants) and six other RH products (erythromycin, clotrimazole, magnesium sulfate, methyldopa, nifedipine, and oxytocin).
- › CycleBeads®, the least common contraceptive, are offered by only 17 (or about one-third) of the surveyed facilities, while IUDs are the second least commonly managed FP contraceptive (with 30 out of the 46 facilities carrying the method).
- › Contraceptive pills are the products that FBOs most commonly obtained from the MOH or public sector (green bars in Figure 3). With the exception of IUDs, 50% or more of the facilities reported a public-sector source of all contraceptive products.
- › As for non-contraceptive RH products, depots of FBSOs are the principal sources. Misoprostol was the only product that the FBOs received mainly from “other” in-country sources (neither MOH nor FBSOs).

Figure 3: RH Supplies Managed By FBO Facilities and Their Sources*

*% related to source do not add up to 100% by product as more than one source may be used for the same product by a facility.



Availability of Contraceptive and Other Reproductive Health Supplies

The email survey asked about stock availability of essential RH supplies through two lenses: one question asked the respondent to list which of the 16 tracer RH products were out of stock that day (Table 1). The second question requested the respondent to consider a short list of eight tracer products and report whether each item had been stocked out at any point over the last three months.

Table 1: Number of Facilities Reporting Product Stocked Out on the Day of Survey

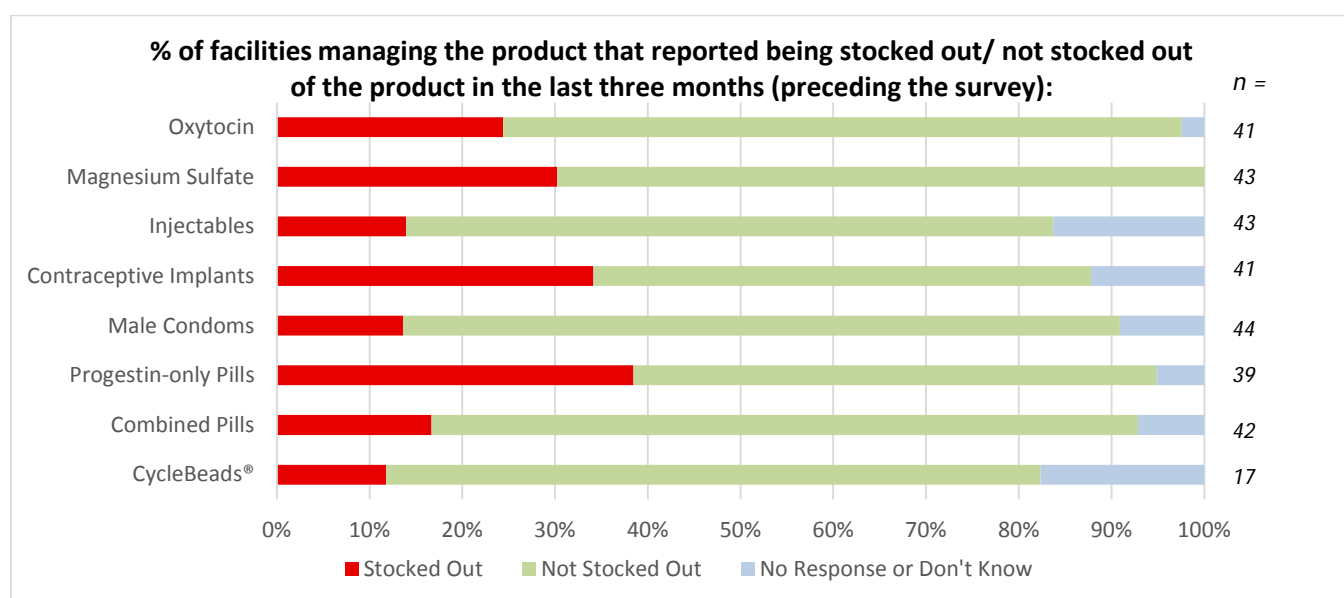
Number of facilities reporting product was out of stock on day of survey

n = facilities who manage the product

FP Products		All Other RH Products	
Contraceptive implant	27% (n=41)	Misoprostol	27% (n=37)
Intra-uterine device	20% (n=30)	Nifedipine	17% (n=42)
CycleBeads®	18% (n=17)	Magnesium sulfate	16% (n=43)
Emergency contraceptive pill	13% (n=31)	Oxytocin	12% (n=41)
Combined oral contraceptive pill	12% (n=42)	Clotrimazole	11% (n=45)
Female condom	11% (n=35)	Erythromycin	9% (n=46)
Injectable contraceptive	7% (n=43)	Methyldopa	7% (n=40)
Progestin-only contraceptive pill	5% (n=39)		
Male condoms	4% (n=44)		

Figure 4 on page 16 shows the number of facilities carrying each RH product, and the percentage that reported being stocked out in the three months preceding the survey. Of these eight products, progestin-only pills, contraceptive implants, and magnesium sulfate were the most commonly stocked-out products, with at least one-third of the facilities managing these products reporting a stockout in the last three months; oxytocin was reported to have a 25% stockout rate in the last three months. The prevalence of stockouts was relatively low for the other four products—namely injectables, male condoms, and combined oral pills and CycleBeads®—though a significant number of facilities reported not knowing the stock status in the case of CycleBeads® and injectables.

Figure 4: Stockout of Tracer Products



Reproductive Health Services and Financing

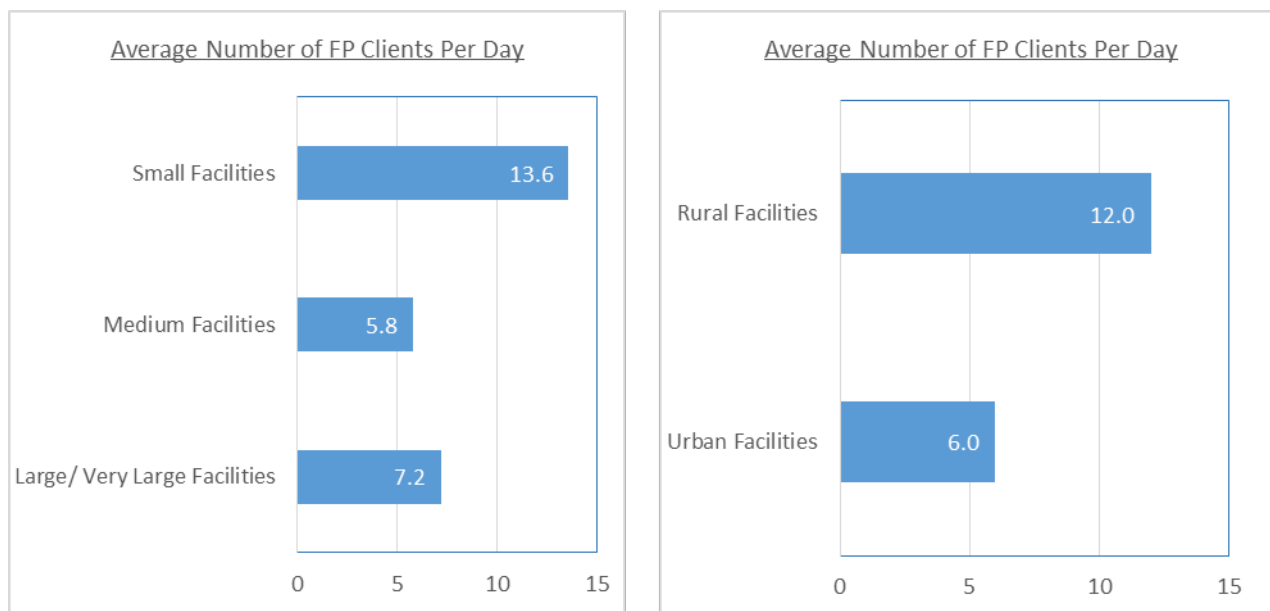
All 46 facilities provided antenatal care services (Table 2), and all but two provided FP services to their clients. Half of the facilities charge clients for FP services.

Table 2: Services Offered and Services Paid for by Clients (46 health facilities)

Services	Number of Facilities Offering Services Specified	Number of facilities requiring payment by client for specified service
Antenatal Care	46	33
Deliveries	41	38
Family Planning	44	23
Prevention and Treatment of Sexually Transmitted Infections (STIs)	44	35
Other*	31	17

*Other services mentioned by the facilities: breast cancer screening, infertility management, prevention and management of cervical cancer, general consultations, PMTCT (Prevention of Mother-to-Child Transmission of HIV), postnatal care, post-abortion care, immunizations, and fistula care.

Figure 5: Distribution of FP Clients in Surveyed Facilities



The average number of FP clients seen per day was 9.7 (Figure 5). Interestingly, the smaller facilities reported a higher number of FP clients than the medium or large facilities. Also, rural facilities reported a larger average number of FP clients per day than urban facilities.

Country Visits

Part three of the research involved visits to two countries to see firsthand some of the surveyed FBO health facilities and explore factors outside of the facility, such as their suppliers, and understand how higher levels of the supply chain play a role in influencing availability of products at facility levels. The aims of this component of the study were to validate email- and phone-survey findings on the ground, gather additional information on the key drivers of stockouts at FBO health-facility levels and investigate broader contextual and institutional factors that influence their ability to obtain reproductive supplies.

Cameroon

During this research, CCIH had contact with four of 12 Protestant groups and the health division of Cameroon Council of Protestant Churches (CEPCA), a countrywide network. Country visits enabled CCIH to understand more clearly FBO depot systems and their relationships with the MOH.

The faith-based groups in Cameroon do follow MOH guidelines and procedures, but each group seems to work mainly on its own. The Cameroon Baptist Convention Health Services (CBCHS) has a large pharmacy depot with satellite depots that serve six hospitals and 80 health centers, mostly in the English-speaking west and in the south. The Presbyterian Church of Cameroon and the Evangelical Church of Cameroon also work in these areas, and each church operates medical depots. Most Evangelical Lutheran Church facilities and depots are in northern Cameroon, in French-language areas.

FBO depots purchase RH medicines (and other medicines) from MOH depots, order them from overseas shippers, and/or purchase them from local pharmaceutical companies. FBO depots then sell to their own networks of hospitals and health centers, and the facilities charge the patients for medicines and services. However, for contraceptive supplies, Cameroonian FBOs depend almost entirely on the MOH supply chain for contraceptives (which the MOH obtains free from UNFPA). FBO facilities can then charge clients for FP services, but not for commodities. Church-related pharmaceutical depots do not always receive prompt payment from hospitals and health centers. FBOs mentioned numerous recent stockouts of various contraceptives; in a few cases, FBOs purchased contraceptives from a national social marketing association and then had to charge clients to offset the costs.

Democratic Republic of the Congo (DRC)

In each of the DRC's 516 Health Zones (HZ), hospitals and health centers may be owned and operated by the MOH, by FBOs, or by community groups. Each HZ central office compiles monthly service reports from all its health centers, including their requests for medicines and supplies. The HZ depot then places an order from an approved pharmaceutical depot. (Each of the country's nine administrative provinces has one or more pharmaceutical depots, approved for use by the HZ. Some depots are operated by the MOH, others by an FBO or other registered group.) Donor organizations and international health agencies, including faith-based donors, are strongly encouraged to work through the HZ system and to collaborate with the HZ plans (not just support a few specific hospitals or health centers).

Overall, the most striking aspect of the faith-based health care in eastern DRC is its integration with the MOH and international donors. Though FP/RH program coverage is not comprehensive, the DRC is practicing good faith-government-private collaboration.

All health facilities charge patients for procedures and medicines. Exceptions include products that are entirely funded by the MOH and/or international donor agencies: immunizations, tuberculosis tests and medicines, HIV/AIDS tests and medicines, mosquito bednets, and contraceptives. These products are provided to the public without charge, though health facilities may charge for related services (e.g., inserting contraceptive

implants and IUDs). In November 2014, at the DRC National Conference on FP, the MOH announced it would soon begin funding some purchases of contraceptives.

The visits to health facilities and depots in landlocked North Kivu and South Kivu provinces in the eastern part of the country revealed several systems of receiving RH supplies. Most products came from Europe, India, or the USA, via an ocean route and then by truck (or by air and truck), and most FBO health facilities used multiple sources for RH supplies (e.g., HZ depot, and when necessary commercial pharmacies, or the social marketing organization).

Overall, the most striking aspect of the faith-based health care in eastern DRC is its integration with the MOH and international donors. Though FP/RH program coverage is not comprehensive, the DRC is practicing good faith-government-private collaboration.

FBO Facilities' Logistics Practices, Strengths, and Challenges

The following is a summary of the major findings regarding logistics practices of FBO facilities, along with the strengths and challenges in supply chain management that were identified.

Ordering

- › Generally, FBO facilities make their own ordering decisions for the FP/RH products using standard logistics tools. The decisions are led by the storekeeper, the facility in-charge, or a designated hospital committee. Exceptions occurred where facilities dependent on the MOH (and occasionally other donors) reported that the supplier decides the quantities the facility receives. Both telephone and email were commonly used to communicate with supply sources. The frequency of ordering varied by facility: bimonthly, quarterly, or every four months.
- › *Strengths*: Most facilities do consider safety stocks when determining quantities to obtain, funds permitting.
- › *Challenges*: 55% of surveyed facilities had experienced stockouts of contraceptives in the prior three months, though most had found Other sources or substituted other products. While the ingenuity of the facilities is commendable, it is not ideal as it reduces the facilities' ability to consistently offer a full range of choice to the patient. Ordering practices are also inconsistent for FBO facilities, in large part related to irregular or unscheduled supply (and deliveries) from sources. Only a few facilities reported regular supply of deliveries from FBSOs and MOH sources (deliveries by FBSOs were delayed), and MOH orders were noted for not always being complete. Facilities that could not rely on a consistent source of supply for products were more likely to say they did not consider safety stocks in their inventory-

management practices. The resulting scenario would, for example, see a facility determine an order quantity, but the supplier adjusts the quantities to be supplied. Facilities may receive products that were not what they ordered or needed; one facility received only what the source (typically the MOH) is able to provide. On a different note, two facilities that use out-of-country sources reported supplier stockouts and time-consuming customs procedures as major hurdles. These problems may prevent access to low-cost/high-volume International sources.

Transport

- › A wide spectrum of answers described responsibility for delivering products to FBO facilities, and whether the deliveries were on time and complete. In the most common scenarios, the facility collects products with its own vehicle or pays for a truck, taxi, or motorcycle to pick them up. FBSOs typically deliver supplies to the facility according to a regular schedule.
- › *Challenges:* Rural facilities are often many hours from their MOH and/or FBSO depots, which led to difficulties in arranging transportation and variation in delivery schedules.

Eighty-seven percent (87%) of facilities reported at least one person designated to deal with quality assurance issues.

Storage and Product Quality Assurance

- › FBO facilities used different strategies for storing their FP/RH commodities, with some using general storage spaces and others keeping their supplies close to their point of use (FP clinic or delivery room). Eighty-seven percent (87%) of facilities reported at least one person designated to deal with QA issues (though QA was rarely that person's primary role). An equally high proportion of facilities have a procedure or reporting mechanism, should a QA incident arise.
- › *Strengths:* At almost all facilities, storage capacity was ruled out as a factor affecting quantities ordered by facilities, and most reported having no major storage problems. The study also found low incidence of expiry or quality problems. No facilities reported expiry of FP/RH products in their facility in the recent past, and only a few quality issues were reported, involving three products: oxytocin, misoprostol, and magnesium sulfate.
- › *Challenges:* While storage space did not affect ordering decisions, a few facilities reported other problems such as regulating storage temperatures and maintaining the cold chain for oxytocin. Less often mentioned were insufficient space, poor security, and lack of steady electricity. Of the quality incidents that were cited, reports involved misoprostol (that it was not working and the tablets were too big), oxytocin (a break in cold chain from supplier), and magnesium sulfate.

Cost Recovery and Financing

- › Responses about fees charged to patients varied widely. In many instances, patients pay for some of the RH medicines but not all, depending on what the source was. In the case of contraceptives, if the MOH gave them free to a health facility, the facility was typically not permitted to charge patients (though some charged for the action of inserting IUDs and contraceptive implants). Most facilities with a single faith-based source reported that patients paid something for all products, including contraceptives. Overall, the main source of financing for FBO health facility budgets is patient fees (for products and services), followed by external funding or donations (e.g., from a foreign faith organization), and subsidies from government in the form of salary payments to some staff members, or direct budget subsidies.
- › *Challenges:* A few facilities noted that contraceptives purchased from FBSOs were ‘too expensive’, compared to being free from the MOH, or from international organizations (especially long-term methods). One of the poorer-performing facilities also mentioned having a substantial debt burden with its FBSO.

Types of Supply Chains in FBO Health Facilities

The email survey, phone interviews, and field visits showed a variety of FBOs. They differed on facility size, location, range of client services offered, their financing, sources of contraceptives and of other RH commodities, and stockouts.

Five primary types emerged based on patterns in the supply chains used by FBO facilities to obtain RH commodities. This product-based typology revealed differences that can be categorized into five types with differences in product stock status, and other variables described below and captured in **Appendix 5**.¹³

Table 3 describes the five types of supply chains that were identified, while **Table 4** provides a high-level summary of the prevalence of these types by country. In countries where more than one site was surveyed, the existence of more than one type in a country suggests that type is determined based on facility preference rather than external contextual factors. Meanwhile, there also appears to be predominant types in countries that were more broadly sampled; for instance, all four facilities surveyed in Zimbabwe were classified as the *Public-Sector Reliant* type, while DRC facilities were typically *Blended*. Overall, considering the distribution of facilities based on the types where FBSO supply chains play a role versus where they do not, it is interesting to note that 64% (or 28) of the facilities rely on FBSOs for their RH commodities, and about 50% (or 23) rely on MOH supply chains.

¹³ In developing this typology, standard facility variables were considered, such as location (rural vs. urban), size (large vs. small), client load, and type (hospital vs. health center). They did not elucidate much variation or relationship to stockouts.

Table 3: Typology of FBO Facility Supply Chain

Type	Source of Contraceptives	Source of Other RH Commodities	Defining Characteristics	Number of Facilities	Average % of Tracer Contraceptives & Other RH Products Stocked Out
<i>1. Vertically Integrated</i>	FBSO ¹	FBSO	Contraceptives & other commodities are sourced through FBO-run supply chain.	7	17% & 13%
<i>2. Public-Sector Reliant</i>	MOH depot	MOH depot	Contraceptives & other commodities sourced through MOH (or public sector) supply chain.	11	9% & 16%
<i>3. Blended</i>	FBSO / MOH depot	FBSO / MOH depot	Contraceptives & other commodities sourced through both FBSO & MOH supply chains.	16	34% & 35%
<i>4. Mixed</i>	MOH depot	Other sources ²	Contraceptives sourced via MOH-sector sources; Other commodities obtained via Other sources (not FBSO, MOH depots or International sources).	5	12% & 11%
<i>5. Ad hoc</i>	International sources ³	FBSO/ Other sources	Contraceptives obtained via International sources; Other commodities can be sourced via FBO-run supply chain and Other sources.	5	23% & 23%

1. FBSO stands for faith-based supply organization and is intended to broadly reference pharmaceutical depots operated by FBOs.

2. "Other sources" here includes in-country sources (e.g., retail pharmacies, wholesalers, social marketing depots), and out-of-country sources (not-for-profit sources, out-of-country FBOs, etc.) as defined in the Methods section of in the main report.

3. "International sources" here refers to those defined as international in the Methods section (e.g., international funders, donor-funded projects, and international NGOs).

4. Refers to stockouts in the last three months from the time of the email survey. Overall Average % of Tracer Contraceptives & Other RH Commodities: 21% & 23%

Table 4: Classification of Types by Country

Type	CM	CR	DRC	ET	KE	ML	NG	NGA	TZ	UG	ZM	ZIM	Grand Total
1. <i>Vertically Integrated</i>	4									3			7
2. <i>Public-Sector Reliant</i>			1	1		3					2	4	11
3. <i>Blended</i>	1		11		1			1		2			16
4. <i>Mixed</i>		1				1	1		1	1			5
5. <i>Ad hoc</i>	1							2		2			5
Grand Total	6	1	12	1	1	4	1	3	1	8	2	4	44

Note: Highlighted cells include facilities that were included for follow-up phone interviews.

Note: Two facilities (one in Chad and another in the DRC) were not included in this typology owing to lack of complete information.

Contraceptives 'Integrated' into Other RH Commodities Supply Chain Systems

The following types are considered 'integrated' in the sense that different product categories are obtained from the same source:

Vertically Integrated (7 of 44 facilities): The contraceptive supply chain used by FBO facilities is fully integrated in the general supply chain; all RH and FP products go to the depot of an FBSO supply chain, which then distributes to its health facilities. This type was found in most facilities in Cameroon and Uganda. In Cameroon, the FBSO obtains contraceptives from the MOH, but the health facility obtains these products from the FBSO in an 'integrated' system. This type is unique in that facilities indicate only rare use of an additional source to supplement their supply of contraceptives.

Public-Sector Reliant (11 of 44 facilities): The contraceptive supply chain is integrated into the MOH supply chain; it occurs where contraceptives are not supplied via an existing FBSO. Facilities surveyed in Zambia, Zimbabwe, and Malawi use this design, as well as the one facility surveyed from Ethiopia, and 1 of the 12 facilities surveyed in DRC. Eight out of the 11 facilities in this type reported also using one or more supplementary sources to obtain some of the contraceptive products and/or other commodities. The supplementary sources for contraceptives tended to be International (such as UNFPA or donor-funded projects), or Other (such as the not-for-profit IMA-ASSP project in DRC). Meanwhile the range of supplementary sources was generally broader for other RH commodities and included other in-country sources.

Blended (16 of 44 facilities): Both the FBSO and the MOH supply chain supply FBO facilities with contraceptives and other commodities. Three of the 16 facilities classified as this type used only these two sources, while the rest used a variety of sources both International and Other (e.g., social marketing, donor-funded projects and international NGOs, etc.). In the case of contraceptives, 6 of the 13 facilities

supplemented their supply from Other sources (primarily social marketing and out-of-country, not-for profit sources), while three cited International sources (primarily UNFPA). All except 3 of the 13 facilities supplemented other RH commodities with International or Other sources. Most of the facilities surveyed in the DRC can be classified as this type, as well as the facility surveyed in Kenya. In the DRC, the field visit identified a unique system in which the basic public health unit is the HZ, serving approximately 100,000 people. HZ provide a coordinated and 'integrated' platform and depot serving the RH and FP needs of both FBO and public-sector health facilities.

Contraceptives in 'Separate' Supply Chains from Other RH Commodities

The remaining two types—*Mixed* and *Ad hoc*—classify facilities where contraceptives are sourced through separate supply chains from other RH commodities. The survey revealed that FBSOs were the most common source for other RH commodities (five of the ten facilities use FBSOs). There is, however, a broad variation in the way a product is sourced via an FBSO. Overall, the following is a summary of these two types:

Mixed (5 of 44 facilities): The MOH is the principal source for contraceptives, while FBO facilities use Other in-country sources (such as wholesale or retail suppliers) for their non-contraceptive RH commodities. This type was identified in one facility in each of the five countries: the Central African Republic (CAR), Niger, Tanzania, Malawi, and Uganda.

Ad hoc (5 of 44 facilities): Facilities use non-MOH sources for contraceptives, mainly international NGOs and UNFPA. This type includes two sites each in Nigeria and Uganda and one facility in Cameroon. For their other RH commodities, three of the facilities in this type report one additional source for their non-contraceptive RH commodities, typically other sources such as private pharmacies or international NGO suppliers.

Characteristics Associated with Supply Chain Types

The following is a summary of the key characteristics associated with the different types. Given the small sample size in each type above, statistical correlations between their characteristics and their stockouts are inappropriate. Hence what is presented below is a highlight of the characteristics that appear to vary most among types.

The number of facilities with stockouts tended to be highest in *Blended* type and lowest in *Public-Sector Reliant* and *Mixed* types. Only 19% of health facilities in the *Blended* type reported “no stockouts” of contraceptives in the three months prior to the survey, and only 13% reported no stockouts of any of the tracer RH products (Appendix 4). In contrast, 70% or more of facilities in the *Public-Sector Reliant* and *Mixed* types reported no stockouts of contraceptives, and over 60% reported no stockouts of any tracer products.

The number of products stocked out tended to be highest in *Blended* and lowest in *Mixed* and *Vertically Integrated* facilities. Similarly, looking at the products stocked out (Appendix 4) in the three months preceding the survey, facilities in the *Blended* type again showed poor results: 34% of tracer contraceptives and 35% of all tracer products were out of stock at some time during the past three months. In contrast, fewer tracer contraceptives were stocked out in the *Public-Sector Reliant* and *Mixed* facilities (9% and 12% respectively), for which the MOH supply chain is a principal source of contraceptives. When considering all tracer products, the *Mixed* and *Vertically Integrated* facilities showed the lowest number of products stocked out.

Facility types with lowest stockout rates also charge clients the least for FP services. Another characteristic of the *Public-Sector Reliant* and *Mixed* types is the low likelihood that they charge clients for FP services. Fewer than 35% of facilities in these types collect FP fees, as compared to 52% of all FBO facilities. This survey finding is consistent with statements made during phone interviews that contraceptive products obtained via the MOH supply chain generally were provided ‘free’ to the facility and were not eligible for facility cost recovery schemes. Integrated facilities (*Vertically Integrated*, *Public-Sector Reliant*, and *Blended*)

Key Characteristics

The number of facilities with stockouts tended to be highest in *Blended* type and lowest in *Public-Sector Reliant* and *Mixed* types.

The number of products stocked out tended to be highest in *Blended* and lowest in *Mixed* and *Vertically Integrated* facilities.

Facility types with lowest stockout rates also charge clients the least for FP services.

Integrated facilities (*Vertically Integrated*, *Public-Sector Reliant*, and *Blended*) carried more RH commodities and were more likely to charge fees for FP services than Separate facilities (*Mixed* and *Ad hoc*).

carried more RH commodities and were more likely to charge fees for FP services than Separate facilities (*Mixed* and *Ad hoc*).

The categorization of FBO facility types into the two broad categories of '*Integrated*' vs. '*Separate*' was found relevant in two distinguishing aspects. One, facilities in the 'separate' category (i.e., the *Mixed* and *Ad hoc* types) carried a smaller range of contraceptives and/or RH commodities (5 and 10 respectively, out of 16 total items surveyed) than those in the *Vertically Integrated*, *Public-Sector Reliant*, *Blended* types or the 'integrated' category in general (which in turn carried 7 contraceptives and a total of 13 RH commodities on average). Second, on average, facilities in the 'separate' category were less likely to charge for FP services compared to those in the 'integrated' (37% of facilities vs. 60% respectively).

The number of facilities with stockouts tended to be highest in Blended type and lowest in Public-Sector Reliant and Mixed types. Only 19% of health facilities in the Blended type reported "no stockouts" of contraceptives in the three months prior to the survey, and only 13% reported no stockouts of any of the tracer RH products (Appendix 4). In contrast, 70% or more of facilities in the Public-Sector Reliant and Mixed types reported no stockouts of contraceptives, and over 60% reported no stockouts of any tracer product.

Conclusion and Recommendations

African FBOs differ within and among countries in how they access RH supplies and how they handle stockouts. Across the five types of FBO supply chains identified in this study, 55% of surveyed facilities had experienced stockouts of contraceptives in the prior three months. When stockouts occur, FBOs show ingenuity and fill gaps by accessing a diverse portfolio of resources. However, managing RH commodities in this way reduces the ability of the facilities to consistently offer a full range of choices to their patients.

The two integrated types of FBO supply chains—*Vertically Integrated* and *Public-Sector Reliant*—have a wider range of products and relatively lower rate of stockouts than other types. However, the ability of an FBO to change its suppliers and/or practices will depend upon relationships with the suppliers, receiving supplies (distance, transportation), ordering practices, and cost of commodities.

In contemplating interventions to reduce stockouts of contraceptive and RH products in FBOs, lessons from the country case studies in Cameroon and the DRC reinforce the need to consider the whole supply chain for RH products as well as the broader context of access and demand. Three factors closely interplay to influence whether the right product is adequately stocked at the right place for the right price to the client:

- › Demand: the country studies revealed that not only client choice of methods should drive the key products to intervene for, but also interventions should consider the logistics or supply-related bottlenecks that prevent clients from obtaining and using their choice. One such bottleneck relates to the cost of the product, which in turn may be affected by the procurement and logistics practices of the FBOs; promoting access to the lowest-cost, high-quality product is likely an area of action.
- › Organizational: this factor considers the cost-recovery/financing system that may be in place in the FBO or nationally. For instance, in order to sustainably provide contraceptives, FBOs need to be able to charge and recover the cost of drugs and/or their service; meanwhile, the price they charge (for either or both the drugs and services) has to be low enough for clients in consideration of the demand factor above.
- › Supply and pipeline management: this has been the focus of this study and considers, for instance, whether the principal public-sector source has mobilized adequate financing to supply subsidized products to clients such as FBOs, and/or whether the FBSO and FBO facility have access to competitive, high-quality sources. This factor also considers the logistics management practices in place in the whole supply chain, the strength of the relationship between FBOs and the supply source, and the FBOs' influence in the relationship (either individually or as part of a collective).

In general, a whole supply chain perspective considering the interdependent influence and role of these factors will ensure that a critical path to addressing stockouts can be identified, prioritizing factors that will have the largest impact on reducing stockouts, as well as factors that are within the influence of FBOs and their allies. The whole supply chain perspective also confirms the still-important need to continue advocacy for interventions in this FBO sector.

In this light, more specific and potential areas of intervention for surveyed countries may include:

- › In Cameroon, a *Vertically Integrated* type of supply chain exists among the FBO facilities. Addressing stockouts in Cameroon FBO facilities will mean developing relationships and understanding the systems of current and potential suppliers of RH commodities, to ensure proper forecasting for supplies within each church network. Three faith networks in Cameroon are planning together to procure medical supplies and equipment. Ensuring that FP supplies are part of this new system, and perhaps helping them find other suppliers, will help them provide an example of collaboration for other faith-based facilities in Cameroon.
- › In the DRC, a *Blended* supply chain system is dominant among the FBO facilities. Overall, there is good faith-government-private collaboration in the facilities surveyed and visited. Addressing stockouts in FBO facilities will mean understanding and working within the existing HZ system. Solutions must complement the DRC 2014-2020 Family Planning National Multisectoral Strategic Plan. Most FBO facilities surveyed have staff already trained to provide FP services; the challenge is obtaining supplies. Therefore, interventions should target HZ currently underserved with FP services because of stockouts. Helping these HZ will mean identifying regular sources of RH supplies.
- › In Kenya, FBO health facilities buy nearly all supplies (including RH medicines) from the well-run joint Catholic-Protestant national drug depot. However, that depot does not carry contraceptives, so FBOs wanting to offer them request them from MOH depots. FBOs are thus in competition with all MOH facilities for free contraceptives. FBOs are hesitant to start buying contraceptives and charging clients for them, though they already charge fees for FP visits, prenatal consultations, and delivery of a baby. They already charge FP clients for the act of inserting (and sometimes for removing) IUDs and implants. Conversations among FBOs about contraceptive supply alternatives and client payments may result in finding other sources, new cost-sharing possibilities, and more steady contraceptive supplies.

The whole supply chain perspective also confirms the still-important need to continue advocacy for interventions in this FBO sector.

- › In Malawi, *Public-Sector Reliant* and *Mixed* supply chains were observed within the FBO health facilities surveyed. UNICEF, UNFPA, and the MOH have been the primary suppliers to FBO facilities, though the two that were interviewed had challenges in getting the complete orders on time and completely. Only one facility faced stockouts, but the two that were interviewed were interested in connecting with other suppliers. Perhaps a simple intervention in this country would be to use other strong health

facilities with multiple suppliers to serve as positive deviants for those who may be struggling with diversification or if geographically logical in this small country, working with suppliers such as UNFPA, MOH, and UNICEF to negotiate prices and delivery to be more efficient, given the current climate of declining and limited resources.

- › Participating Nigerian faith-based health facilities employ the *Blended* and *Ad hoc* supply chains. To acquire RH supplies, facilities partner primarily with the MOH, the pharmaceutical branch of the Christian Health Association of Nigeria, CHAN Medi-Pharm, UNFPA, President’s Emergency Plan for AIDS Relief (PEPFAR), and the Society for Family Health International, the implementing local partner of Population Services International (PSI). Three of the four facilities surveyed faced stockouts of critical supplies including combined oral contraceptive pills, magnesium sulfate, progestin-only contraceptive pills, emergency contraceptive pills, and contraceptive implants. A large urban facility employing nearly 400 staff in Nigeria has not faced stockouts, but also does not get complete orders from PEPFAR and does not have any control over what they receive from UNICEF. Uncovering obstacles in acquiring complete orders from PEPFAR and an increase in advocacy efforts with UNICEF to get the supplies needed in the right quantities will have positive effects on this large urban facility. This facility also had issues of quality with misoprostol, oxytocin, and magnesium sulfate. Further investigation is needed if recommendations are to be made in addressing the quality of these critical maternal health supplies.

Overall, addressing the challenges and stockouts in a faith-based facility requires understanding its supply chain type, with its relative merits and challenges, as well as the broader context in which it exists.

- › Uganda’s FBO health facilities, seven of eight of which were rural, have the most diversity in supply chain systems with four types present: *Vertically Integrated*, *Blended*, *Mixed*, and *Ad hoc*. Facilities interviewed rely primarily on the Catholic- and Protestant-owned and managed Joint Medical Stores (JMS), and stockouts are not uncommon. One facility partnered with Marie Stopes International and Reproductive Health Uganda to strengthen their supply security, though MSI has concluded its program recently. UNFPA is utilized as a source of supplies by a rural facility. All three facilities that were interviewed via telephone, Skype, etc., were interested in connecting with new suppliers, which may provide additional security to each if financing and logistics could be negotiated. Two of these three are currently relying solely on JMS, and with the current strong FP interest in Uganda, there may likely be other untapped sources to partner with to strengthen RH supply security. While patients do not pay for FP consultations at the facilities surveyed, financing mechanisms are varied when it comes to FP and maternal health products. Concerted advocacy efforts may help to strengthen both diversity of suppliers and financing mechanisms.
- › Overall, addressing the challenges and stockouts in a faith-based facility requires understanding its supply chain type, with its relative merits and challenges, as well as the broader context in which it

exists. As FBOs continue to provide a large proportion of health care services in Africa, they can be major collaborators in reducing RH stockouts and ultimately enhancing the lives of children, women, and families. As a follow-up to this study, CCIH looks forward to supporting and evaluating high-impact interventions in one to two countries that can be more broadly disseminated to address the needs of the FBO sector.

Appendices

Appendix1: List of RH Commodities Included In Study

Product	Tracer Product for Survey of Stockouts ✓
Clotrimazole	
Combined oral contraceptive pills	✓
Contraceptive implants	✓
CycleBeads®	✓
Emergency contraception	
Erythromycin	
Female condoms	
Injectable contraceptives	✓
Intra-uterine contraceptive devices	
Magnesium sulfate	✓
Male condoms	
Methyldopa	✓
Misoprostol	
Nifedipine	
Oxytocin	✓
Progestin-only pills	✓

Appendix 2: Characteristics of Email Survey Respondents

	Total	Language		Health Facilities				Size**			Services Provided***				
		Franco.	Anglo.	HC	Hospital	Rural	Urban	Small	Medium	Large	FP	Antenatal	Deliveries	STI	Other
Cameroon	6	1	5	3	3	2	3		2	3+1	6	6	4	6	5
CAR	1	1			1	1			1		1	1	1	1	0
Chad	1	1			1		1		1		1	1	1	1	1
DRC	13	13		3	10	9	4	8	2	2+1	13	13	13	13	13
Ethiopia	1		1		1		1		1		1	1	1	1	1
Kenya	1		1		1	1					1	1	1	1	0
Malawi	4		4	2	2	3	1	3		1	3	4	3	4	0
Niger	1	1			1	1				1	1	1	1	1	0
Nigeria	3		3	2	1		2	2		0+1	3	3	3	3	5
Tanzania	1		1		1		1		1		1	1	1	0	0
Uganda	8		8	6	2	7	1		2	1	7	8	7	7	5
Zambia	2		2	1	1	2		2			2	2	2	2	1
Zimbabwe	4		4		4	4			2	2	4	4	4	4	2
Overall	46	17	29	17	29	30*	14*	20	12	10+3	44	46	41	44	31

Shading added to enhance readability.

* Two facilities (one in Cameroon and a second in Nigeria) did not specify.

** Facility in Kenya did not indicate facility staff size. Facility staff-size categories defined as: Small: =<30; Medium: 31-100; Large: >100 +; Very Large: >300.

*** Two facilities not providing FP services: One rural hospital in Malawi (provides male condoms only for non-FP services), one rural health center in Uganda.

Appendix 3: Profile of Staff Responsible for RH Commodities by Country

Professional Training of Person Responsible for RH Supplies**

	No. of facilities reporting Pharmacist	Average years in position	No. of facilities reporting Pharmacy Technician	Average years in position	No. of facilities reporting Nurse	Average years in position	No. of facilities reporting Doctor	Average years in position	No. of facilities reporting Clinical Officer	Average years in position	No. of facilities reporting Other	Average years in position
Cameroon			1	3.7	5	2.3						
CAR											1 ⁽¹⁾	15.3
Chad											1 ⁽²⁾	10.5
DRC					4	5.9	9	3.3				
Ethiopia							1	5.0				
Kenya	1	4										
Malawi							1	5.5	1	6.0	1 ⁽³⁾	2.0
Niger	1	1.9										
Nigeria							3	4.2				
Tanzania					1	1.5						
Uganda					1	6.0	4	4.1	3	2.0		
Zambia							1	2.1				
Zimbabwe			1	1.0			3	3.0	1	2.0		
Overall	2	3	2	2.4	11	3.6	23	3.7	5	2.8	3	9.3

** Overall Average Years of Experience = 3.9

(1) Technicien Supérieure de Santé

(2) Sage-femme

(3) Logistician

Appendix 4: Range of Supply Chains Accessed by Facilities of Tracer RH and FP Products

Notes: Multiple sources possible for each product. Highlighted cells indicate predominant source(s) of each product. *% related to source do not add up to 100% by product, as more than one source may be used for the same product by a facility.

Product	No. of Health Facilities Routinely Carrying Products	% of Health Facilities Routinely Carrying Products Supplied by In-Country Source				% of Health Facilities Routinely Carrying Products Supplied by Out-of-Country Source		
		Public sector/ MOH	FBSO	International NGO, donor	Retail, wholesale, social marketing	Not-for-profit	Commercial	Other
Erythromycin	46	43%	54%	2%	41%	17%	2%	11%
Clotrimazole	45	40%	47%	9%	38%	18%	0%	13%
Magnesium sulfate	43	40%	53%	5%	40%	14%	0%	14%
Methyldopa	40	35%	53%	20%	33%	18%	0%	10%
Nifedipine	42	33%	52%	2%	38%	19%	0%	10%
CycleBeads®	17	82%	35%	12%	18%	12%	0%	12%
Intra-uterine devices	30	30%	17%	27%	27%	10%	0%	17%
Combined oral contraceptive	42	64%	21%	24%	19%	12%	0%	2%
Progestin-only contraceptive	39	64%	18%	21%	18%	5%	0%	3%
Female condoms	35	57%	20%	29%	23%	9%	0%	3%
Male condoms	44	57%	23%	30%	18%	7%	0%	2%
Contraceptive implants	41	56%	24%	27%	22%	10%	0%	2%
Injectable contraceptives	43	58%	19%	23%	9%	7%	5%	2%
Oxytocin	41	44%	49%	2%	37%	10%	0%	2%
Misoprostol	37	24%	43%	11%	51%	5%	0%	5%
Emergency contraceptive pills	31	58%	19%	29%	19%	3%	0%	3%

Appendix 5: Highlight of Key Characteristics by FBO Facility Supply Chain Type

Type	Average # of FP clients per day	% of facilities in rural areas	Average # of years' experience of person responsible	Average # of All* RH & FP products managed from survey list	% of facilities with any stockouts of tracer FP products that they managed in last 3 months	% of facilities with any stockouts of other tracer products that they managed in last 3 months	Average % of FP tracer products stocked out in last 3 months	Average % of other tracer products stocked out in last 3 months	% of facilities providing FP services that charge for FP services
1-Vertically Integrated	6.0	83%	2.0	13 & 7	57%	57%	17%	13%	86%
2-Public-Sector Reliant	13.2	82%	3.1	12 & 6	27%	36%	9%	16%	30%
3-Blended	9.6	75%	4.0	14 & 8	81%	87%	34%	35%	56%
4-Mixed	15.8	75%	6.9	9 & 4	20%	40%	12%	11%	25%
5-Ad hoc	4.2	25%	3.9	11 & 5	60%	60%	23%	23%	60%
Overall	9.7	68%	3.8	12 & 6	55%	61%	21%	23%	52%
Summary by type									
'Integrated' Types (1, 2, 3)	9.8	76%	3.3	13 & 7	59%	65%	22%	25%	60%
'Separate' Types (4, 5)	9.3	40%	5.4	10 & 5	40%	50%	18%	17%	37%

* "All" here includes FP and Other RH products - see list of all 16 RH products in Appendix 4.

