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Health Provider Perceptions of Contraceptive Availability in Jamaica during the COVID-19 Pandemic

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Abstract

Health Provider Perceptions of Contraceptive Availability in Jamaica during the COVID-19 Pandemic

By Denise Catbay

Background: The COVID-19 pandemic impacted all aspects of health service delivery, especially sexual reproductive health services. COVID-19 restrictions affected patients' access to and clinics' provision of family planning services. More than two and half years after the first case of COVID-19 in Jamaica, the effects of the pandemic on contraceptive availability can still be seen.

Goal: The goal of this research project is to identify the contraceptive methods that were available at public health centers in three regions in Jamaica, determine whether there were any disruptions or circumstances that impacted health providers' provision of contraceptive methods, and analyze health provider perceptions of contraceptive availability during the pandemic.

Methods: The study applied a retrospective cross-sectional convergent mixed-methods descriptive study design. The project analyzed quantitative surveys and qualitative in-depth interviews with HIV and family planning healthcare providers at 14 health centers in 3 regions in Jamaica. For the 48 surveys, the project used STATA to analyze univariable and bivariate relationships with descriptive statistics and Fisher's exact tests. For the 23 interviews, the project conducted thematic analysis with MAXQDA.

Results: The majority of healthcare providers reported no change in the availability of contraceptive methods during the COVID-19 pandemic. The same types of methods were available before, during, and at the peak of the pandemic. The methods perceived to be more available were male condoms, injectables, and oral contraceptives. The methods perceived to be less available were female condoms, IUDs, implants, and emergency contraception. Staffing issues negatively affected the availability of long-acting reversible contraception. Changes in contraceptive availability were associated with perceptions of recent stockouts and on-time deliveries. Qualitative results showed a variety of challenges that health personnel faced including contraceptive stockouts, staff shortages, and a lack of trained staff for IUDs.

Discussion: Despite challenges with stockouts and staff shortages, there was overall availability of contraceptives at health centers in Jamaica during the pandemic. Though contraceptives were available, COVID-19 restrictions prevented patients from accessing available family planning services. More research is needed to understand the accessibility of family planning services during the pandemic from the patient perspective.

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Acronyms

AAAQ – Availability, Accessibility, Acceptability and Quality framework

AHF – AIDS Healthcare Foundation

CESCR – Committee on Economic Social and Cultural Rights

COVID-19 – SARS-CoV-2 or Coronavirus

DV – Domestic violence

EC – Emergency contraception

FP – Family planning

FP2030 – Family Planning 2030

GBV – Gender-based violence

HIV/AIDS - Human immunodeficiency virus/Acquired immunodeficiency syndrome

IDI – In-depth interview

IPPF – International Planning Parenthood Federation

IRB – Institutional review board

IUD – Intrauterine contraceptive device

LARC – Long-acting reversible contraception

LMICs – Lower-middle income countries

NERHA – North East regional health authority

NFPB – National Family Planning Board

OCP – Oral contraceptive pills

PAHO – Pan American Health Organization

PPE – Personal Protective Equipment

SERHA – South East regional health authority

SPHHT - School of Public Health and Health Technology

SRH - Sexual and reproductive health

SRHA – South regional health authority

STI – Sexually transmitted infection

REDCap - Research Electronic Data Capture

UN – United Nations

UNFPA – United Nations Population Fund

UNICEF – United Nations Children's Fund

USAID – United States Agency for International Development

UTECH – University of Technology Jamaica

WHO – World Health Organization

Chapter 1: Introduction

The effects of the SARS-CoV-2 (COVID-19) pandemic reverberated to every corner of the world. Infectious disease, respiratory illness, and viral containment became the primary focus of public health in 2020, requiring healthcare workers to reorient their jobs, and more broadly their lives, around the novel disease. Other health priorities were made secondary as the world rushed to understand how to work with, diagnose, treat, and prevent viral infection while still providing health services. Sexual and reproductive health (SRH) services were often deprioritized during the pandemic, even though family planning (FP) needs did not diminish in the wake of COVID-19 (Ho et al., 2022). In fact, data from several countries indicate an increased demand for FP (Bharati & Sahu, 2022; Michael et al., 2021). As a result, many people experienced an unmet need for FP during the pandemic, with an estimated 12 million women unable to access FP services, resulting in an estimated 1.4 million unintended pregnancies (UNFPA, 2021a). Literature demonstrating the impact of COVID-19 on FP is in its nascence. In Bangladesh, there was a decline in the utilization of FP and adolescent reproductive health services, a significant reduction in clients' utilization of FP services during Nigeria's lockdown, and a decrease in the already minimal FP healthcare workforce in Syria (Catterson, 2021).

One region where the impact of COVID-19 on FP has been understudied is the Caribbean. The effects of the pandemic on health systems in the region have not been widely studied, let alone in the island nation of Jamaica. The United Nations Population Fund (UNFPA) Subregional Office for the Caribbean saw the initial impacts of COVID-19 in the region through disrupted supply chains for condoms and other contraceptives (Wilson-Harris, 2020). A 2020 analysis conducted at the beginning of the pandemic predicted that an estimated 11,300 to 44,500 women would be unable to use contraception resulting in 282 to 13,400 unintended pregnancies in Jamaica (GFF, 2020). The range in potential impact warrants the need for additional research to understand the impacts of the COVID-19 pandemic on FP.

The Availability, Accessibility, Acceptability, and Quality (AAAQ) framework, shown in Figure 1, can be applied to FP to understand and operationalize service delivery that is centered on human rights. The right to the highest attainable state of health was defined by the United Nations (UN) Committee on Economic, Social and Cultural Rights (CESCR) in 2000, as services that are available, accessible, acceptable, and good quality. Grounded in the Human Rights Based Approach to health, the framework was designed to help hold countries accountable to their obligations under the right to health. It provides practical guidance in the assessment of human rights principles in public health realities and is used as a tool to translate between complex principles and tangible measures (Kähler et al., 2017).

As defined by the CESCR, availability refers to "functioning public health and healthcare facilities, goods and services, and programs available in sufficient quantity within the country" (2000). Accessibility has four sub-components: non-discrimination, physical accessibility, economic accessibility, and information accessibility (CESCR, 2000). Acceptability implies that "all health facilities, goods, and services must be respectful of medical ethics and culturally appropriate (i.e., respectful of the culture of individuals, minorities, peoples, and communities, sensitive to gender and life-cycle requirements, as well as being designed to respect confidentiality and improve the health status of those concerned)" (CESCR, 2000). Quality emphasizes that "health facilities, services, and commodities must also be scientifically and medically appropriate and of good quality" (CESCR, 2000). To facilitate high quality health services, there must be "skilled medical personnel, scientifically approved and unexpired drugs and hospital equipment, safe and potable water, and adequate sanitation" (CESCR, 2000). All the components of the AAAQ framework contribute to women's increased ability to obtain FP and contraceptive methods. To provide FP services that align with the AAAQ criteria, health systems must ensure that effective methods of contraception as well as information and education related to one's sexual and reproductive health is available, accessible, acceptable

and of good quality. This paper will specifically explore one aspect of the AAAQ framework – availability.

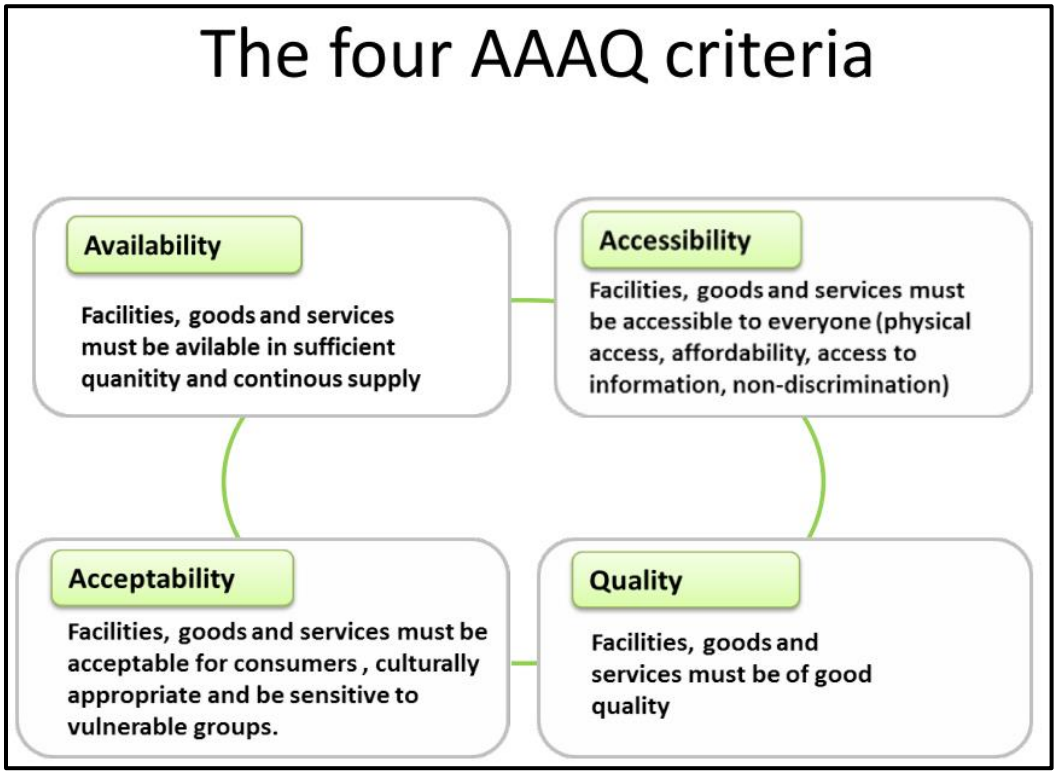


Figure 1. *The Four AAAQ criteria, as depicted by Kähler et al. (2017)*

Note: From "AAAQ and sexual and reproductive health and rights: International indicators for availability, accessibility, acceptability, and quality," by L. Kähler et al., 2017, The Danish Institute for Human Rights.

Problem Statement

Jamaica has a high contraceptive prevalence rate, with 73% of married women using contraception (World Bank, 2022). Of these women, 68% use modern contraceptive methods (World Bank, 2022). However, when 10% of women have an unmet need for FP in a country with high rates of maternal mortality and teenage pregnancy, the need for contraception cannot be understated (World Bank, 2022). To meet the reproductive needs of this population, ensuring the availability of contraception at health centers in Jamaica is critical. In the past, the Jamaican government, through the National Family Planning Board (NFPB), made strides to achieve contraceptive security by implementing a logistics management information system and setting

high quality standards for contraceptives that enter the country (Williams, 2012). However, persistent and widespread stockouts of popular methods remained a challenge to the Jamaican health system's provision of FP services (Crawford et al., 2018). This challenge would be magnified by the COVID-19 pandemic, as seen through contraceptive supply issues and movement restrictions in the Caribbean (Wilson-Harris, 2020).

The COVID-19 pandemic impacted SRH services around the world, however, public health research to measure and understand the pandemic's impact on FP in Jamaica is limited. Research around COVID-19 in Jamaica has generally encompassed its effects on tourism, transportation, education, and nutrition. As of March 2023, there is a limited amount of research related to COVID-19's impact on women's health, let alone SRH, in Jamaica. As a result, there is a need to measure and understand the impact of the COVID-19 pandemic on FP services, especially contraceptive availability in Jamaica.

Purpose and Research Questions

The purpose of this project is to understand health provider perspectives of the impact of COVID-19 on the availability of contraceptive methods at health centers in three regions of Jamaica. To achieve this goal, the study will address three research questions:

1) To identify the contraceptive methods that health providers perceive were offered and available to women and girls at public health centers in three regions in Jamaica

2) To determine whether there were any disruptions or circumstances that impacted health providers' provision of contraceptive methods

3) To analyze health provider perceptions of contraceptive availability during the pandemic

Significance

This research explores the barriers and facilitators that healthcare providers faced in pandemic settings in the delivery of FP, specifically contraceptive services. The provision of FP and contraceptive services strengthens the health system's ability prevent unwanted pregnancies, decrease maternal mortality, and help women exercise their reproductive rights. The information from this research is useful to inform policy and SRH programming at the governmental and donor level. It also has implications at the health center level that could identify areas of improvement and best practices that facilitate the availability of FP methods, in pandemic and non-pandemic times. Additionally, non-governmental and non-profit organizations supportive of FP/SRH programs could utilize this information to determine effective approaches to support the Jamaican health system and increase sustainability and productivity among the Jamaican health workforce.

Chapter 2: Literature Review

Family Planning and its Benefits

An estimated 371 million women in lower-middle income countries (LMICs) are using modern methods of FP, which in turn has averted 141 million unintended pregnancies, 29 million unsafe abortions, and 148,000 maternal deaths (FP2030, 2022). When women have the ability to time and space the number of children they want, FP prevents about 75% of unintended and closely spaced pregnancies, unplanned births, and abortions (Barot, 2017). By preventing high-risk pregnancy and high numbers of births, FP contributes to reduced maternal, infant, and child mortality rates (Cleland et al., 2012; Starbird, et al., 2016; Stover & Ross, 2009). Additionally, FP services significantly lower abortion rates (Rahman et al., 2001).

Known as a 'best buy' for global health, FP has been associated with multiple proximate and distal factors improving women's health and status and benefiting societies overall (Starbird, et al., 2016). FP programs have been shown to improve nutritional outcomes, like high average weight and body mass index (Bailey et al., 2014, Gribble & Graff, 2010; Rana & Goli, 2017). Children of parents who used FP were more likely to be healthy and educated (Gribble & Graff, 2010; Rana & Goli, 2017). Access to FP contributed to young women's attainment of higher education, resulting in increased earning power and empowerment (Do & Kurimoto, 2012; Gribble & Graff, 2010; Sonfield et al., 2013). FP programs were associated with decreased poverty, increased participation in the labor force, economic growth, and development (Gribble & Graff, 2010; Sonfield et al., 2013). Most importantly, access to FP services empowers individuals and couples to plan their sexual and reproductive lives, and fully exercise their reproductive and human rights.

Contraception as the Cornerstone of Family Planning

FP is defined as the "ability of individuals and couples to anticipate and attain their desired number of children and the spacing and time of their births" (Institute of Medicine,

2009). It includes a wide range of services including contraceptive services, pregnancy testing and counseling, helping clients achieve pregnancy, basic infertility services, preconception health services, and sexually transmitted disease services (CDC, 2016). Among the services that FP encompasses, the provision of contraceptive methods has become synonymous with FP.

According to the World Health Organization (WHO), FP is “achieved through use of contraceptive methods and the treatment of infertility” (WHO, n.d.b). Jain and Muralidhar (2011) defined FP as “the intentional prevention of conception through the use of various devices, sexual practices, chemicals, drugs, or surgical procedures”. Contraceptive methods include oral contraceptive pills, hormonal injections, implants, intrauterine devices, male and female condoms, patches, vaginal rings, and emergency contraceptives. There are permanent methods of contraception, when surgical procedures are performed on men and women to prevent them from becoming pregnant. This is known as tubal ligations for females and vasectomies for males.

Methods can be categorized into traditional and modern methods of contraception. Traditional methods include withdrawal and fertility awareness methods such as basal body temperature method, sympto-thermal method and calendar-rhythm method. Modern methods include female sterilization, male sterilization, oral contraceptive pills, intrauterine contraceptive devices (IUDs), injectables, implants, female and male condoms, diaphragm, rings, patches, contraceptive foam/jelly, and lactational amenorrhea method.

Understanding Modern Methods of Contraception

Modern FP methods can be categorized into short- and long-acting methods. Short-acting methods refer to contraceptive methods intended to be used over a short period of time and require regularity in their use, at daily, weekly, monthly intervals, or at every instance of

sexual intercourse. Methods that are considered short-acting are male and female condoms, oral contraceptive pills, rings, or patches. Long-acting reversible contraception, or LARCs, are methods that require administration of a medical professional and are highly effective in duration and pregnancy prevention. Methods that are considered LARCs are implants, intrauterine devices, and injections. This study will focus on short- and long-acting modern methods among those with the capacity to become pregnant.

Additionally, methods of contraception can be understood as hormonal or non-hormonal. Most contraceptives are hormonal and prevent pregnancy by changing women's hormones to prevent ovaries from releasing eggs (ASRM, 2008). Hormonal methods include oral contraceptive pills, implants, injections, and hormonal IUDs. In contrast, non-hormonal contraceptives prevent pregnancy by preventing sperm from meeting an egg and include condoms and the copper IUD (ASRM, 2008) Contraceptive methods can also be categorized by end user. Methods that directly involve participation of a partner including male condoms are known as partner-dependent methods. Whereas, methods of contraception that rely on the user to take on the responsibility of administering or receiving contraception, which are most FP methods, are known as user-dependent or female-controlled methods (Woodsong and Koo, 1999).

Unmet Need for Family Planning

About one in four women of reproductive age in LMICs are not using safe, modern methods of contraception and are considered to have an unmet need for FP (Sully et al., 2020). Unmet need is defined by the WHO (n.d.a) as the "percentage of women who are fertile and sexually active but are not using any method of contraception and who report that they either do not want any more children or wish to delay the next child". When women experience unmet need, there is an increase in maternal mortality, child mortality, adolescent pregnancies, and unsafe abortions (Rahaim, et al., 2022). Between 2015-2019, 73 million abortions occurred

annually and half of all pregnancies worldwide (totaling to 121 million pregnancies) were unintended (Bearak et al., 2020). To effectively address unmet need, it is important to understand how women are accessing FP and contraception and the obstacles in providing those services.

Jamaica in Focus

The effects of unmet need can be seen at the regional level. An estimated 16.3% of women in the Caribbean had unmet need for FP, but country-specific rates varied (UNFPA, n.d.). Jamaica's unmet need was among the lowest in the region, with 10% of women experiencing an unmet need for FP (World Bank, 2022). Seventy-three percent of Jamaican women were using contraception and, of these women, 68% were using modern contraceptive methods (World Bank, 2022). With low unmet need, low fertility rate, and high contraceptive prevalence, one would expect Jamaica to attain the previously mentioned benefits of FP. In contrast, the country has a relatively high maternal mortality ratio of 74 per 100,000 women and a high teenage pregnancy rate of 14%, with more than 80% of adolescent pregnancies going unplanned (Crawford et al., 2009; World Bank, 2022). Research shows that gaps in FP/SRH access among urban and rural populations and the increased prevalence of HIV and obesity contributed to higher rates of maternal mortality (POLICY project, n.d.; McCaw-Binns & Lewis-Bell, 2009).

The factors influencing high adolescent birth rates in Jamaica have been studied. Jamaica has the third-highest adolescent pregnancy rate in Latin America and the Caribbean, with an adolescent birth rate of 48/1000 women (Wilson-Harris, 2020; World Bank, 2020). Forty percent of Jamaican women have been pregnant at least once before they reach the age of 20 (Crawford et al., 2009). High adolescent pregnancy in Jamaica is linked to early sexual initiation, low rates of contraceptive use, and the lack of SRH education among youth (Brown, 2003). Economic status also plays a role, as Jamaican girls from the poorest households are 12 times

more likely to become pregnant (UNICEF, 2019). Parental interaction, control, and experiences of sexual abuse were also key cultural factors associated with adolescent pregnancy in Jamaica (MacFarlane et al., 2019). Increased access to and education about FP and modern contraception can help address high rates of maternal mortality and adolescent pregnancy in Jamaica.

Contraceptive Use in Jamaica

Modern contraceptive use in Jamaica has increased steadily over the past couple of decades. In 1970, an estimated 33% of married women reported using modern contraceptives (USAID, 2016). In 1997, the percent increased to 62.9% and, according to the most recent data from 2009, Jamaica had a contraceptive prevalence rate of 68% (WHO, 2019). In 1970, 52% of women, married or in a union, reported their need for modern contraception was satisfied, whereas in 2022, an estimated 85% percent had their FP needs satisfied (USAID, 2016; UN 2022).

A wide range of contraceptive methods are made available to Jamaican women including oral contraceptive pills, injectables, implants, IUDs, vaginal rings, and condoms (NFPB, 2018; UN, 2019). According to the UN Contraceptive Use by Method report (2019), Jamaicans utilize condoms (14.6%), oral contraceptive pills (8.9%), injectables (6.5%), sterilization (6.3%), IUDs (0.9%), and implants (0.2%). The popularity of male condoms was pushed by Jamaica's HIV/AIDS prevention approach which encouraged the dual method use for protection against HIV and sexually transmitted infections (STIs) (Chin-Quee et al., 2010). Implants and IUDs are notably less popular, at 0.2% and 0.9% respectively, with fewer women using LARCs every year (Hylton-Kong et al., 2021b; WHO, 2019). With less than 1% of women using IUDs, Jamaica has the second lowest number of IUD users in Latin American or Caribbean countries (Franklin et al., 2021). Reasons that Jamaican women discontinued their

FP method included the reluctance to increase family size, wariness of potential side effects, and myths about particular methods or FP in general (Henry-Lee, 2001; Sedgh et al., 2021).

Contraceptive methods are available to citizens at no cost to users through public health facilities after consultation with a medical officer/physician, registered nurse, or certified midwife (NFPB, 2015). Condoms are also distributed by HIV teams at health centers and are made available through consultation at the clinic, education sessions, and community outreach, among other avenues. The NFPB is responsible for procuring and supplying contraceptive methods to the regional health authorities or the non-governmental organizations who are responsible for the distribution of the commodities to service delivery points (Williams, 2012). Through domestic financing and its partnership with UNFPA, the NFPB invested almost USD$2 million towards improving contraceptive choice for the country, which significantly reduced stockouts of contraceptive methods from 85% in 2015 to 20% in 2019 (UNFPA, 2021b). The introduction of the Contraceptive Logistics Management Information System in Jamaica in 2014 also helped to reduce stockouts (Crawford et al., 2018). Additionally, the United States Agency for International Development (USAID) provided financial and technical assistance, concentrating its efforts throughout the 1990s to shift public sector service recipients to the private sector and to develop FP programming (Williams, 2012).

Challenges to Contraceptive Availability around the World

Health systems around the world face multiple challenges when providing contraception to women and girls. National politics, laws, policies, and guidelines can stymie contraceptive service provision. The Philippines, for example, has a number of policies and normative documents that are not or only partly in agreement with WHO recommendations around FP and SRH (Melgar et al., 2018). In 2021, Iran enacted a law that prevents public healthcare providers from offering free contraception and performing voluntary sterilization (Berger, 2021). Venezuela’s government stopped providing free contraceptives through its public health system,

leaving women to fend for severely limited supplies at exorbitant prices (Albaladejo, 2018). Based on insufficient access to contraceptive supplies, FP counseling, and online information, the European Parliamentary Forum for Sexual and Reproductive Rights (2020) ranked the Czech Republic, Lithuania, Slovakia, Hungary, and Poland as the countries in Europe with the most restrictions on contraception.

Insufficient investment in FP and SRH at national levels has also hindered contraceptive availability. When there is a lack of investment in FP globally, unmet need for FP increases. Its effects can be seen across maternal, child, and reproductive health when “50 million women attend fewer antenatal care visits, 31 million do not deliver in a health facility, 16 million do not receive care for a major obstetric complication, 35 million have unsafe abortions, 299,000 die from causes related to pregnancy and children, and 133 million do not receive STI treatment” (Sully et al., 2020). The cost to meet all reproductive healthcare needs in women living in LMICs would cost $69 billion annually (Sully et al., 2020). If $18.8 million more US dollars were invested in SRH in the Caribbean, then Barbados, Guyana, Jamaica, and Saint Lucia would be able to meet their 2030 FP and maternal health coverage targets and prevent 23% more unintended pregnancies, 23% more stillbirths, and 25% more maternal deaths in these countries (UNFPA, 2021c).

Barriers to contraceptive availability also occur at the service delivery level. Health clinics face multiple challenges in the provision of contraceptive services. Method mix, defined as the combination of contraceptives available within and beyond FP programs, differs across different countries and methods based on the needs of the users and country resources (Babazadeh et al., 2018; Boglaeva, 2021; Lince-Deroche et al., 2020; Zimmerman et al., 2019). To effectively evaluate level of client choice, “the standard in the field is for service delivery points to offer at least three methods” of contraception, optimally five methods (Muhoza et al., 2021). When method mix is limited, contraceptive discontinuation can occur (Grindlay, et al.,

2016). In contrast, when contraceptive method mix is expanded and more modern methods are made available, the prevalence of contraceptive use among women increases (Ross et al., 2002; Ross & Stover, 2013).

Adequate supply of contraceptive methods and stockouts play a large role in contraceptive availability (Ali et al., 2018; Muhoza et al., 2021). A study looking at East and Southern Africa health facilities found that SRH commodities were available in less than 50% of the areas that were surveyed (Ooms et al., 2020). Another study conducted in the Democratic Republic of Congo found that over a quarter of service delivery points experienced stockouts of all FP methods and observed frequent stockouts of implants and injectables (Babazadeh et al., 2018). Studies have shown that LARC provision, including IUDs and implants, is more challenging than short-acting methods (Grindlay et al., 2016; Muhoza et al., 2021; Thanel et al., 2018). Studies cited several reasons, including low levels of service readiness for LARCs, complicated documentation requirements, a lack of equipment, private rooms, or the commodity itself (Muhoza et al., 2021; Thanel et al., 2018). One qualitative study in Uganda showed that stockouts in FP methods led to a number of negative consequences such as unplanned and unwanted pregnancies, increased risk for domestic violence (DV), and increased costs to find contraception elsewhere (Grindlay et al., 2016). A survey conducted by the Reproductive Health Supplies Coalition found inconsistent and unreliable availability of consumables and equipment for FP at the health clinic level (Webb & Christofield, 2020).

Skilled and trained staff can also determine health clinics' ability to provide contraceptives. Providers' skills and attitudes have influenced the provision of contraceptive methods and SRH services, acting as both facilitators and hindrances (Castle & Askew, 2015; Gubhaju, 2009; Landry et al., 2008). A study in Chad and the Democratic Republic of the Congo trained providers to insert IUDs and implants and found a "dramatic and sustained increase in new users of all contraceptive methods, especially implants" (Rattan et al., 2016). Similarly,

Lemani et al. (2018) found an increase in LARC uptake in Malawi after healthcare providers were trained to insert, counsel on, and offer implants and IUDs at clinics.

Provider knowledge of contraceptive methods also contributes to the availability of FP methods. One study found that the lack of consistent and accurate knowledge among healthcare providers dramatically affected their ability to provide high quality contraceptive care for patients (Delendorf, 2010). In Rwanda, FHI360 (2013) found few providers who felt confident in their ability to counsel on LARCs and that the majority of providers wanted additional training. There is also evidence that the provision of contraception “that is affected by harmful bias towards certain populations or about certain methods” can undermine patient-centered care (Soin et al., 2022).

Challenges to Contraceptive Availability in Jamaica

Like many other health systems in the world, Jamaica faces challenges in providing FP and contraceptive services. There are financial barriers in Jamaica that restrict the availability of contraception. If the government invested 4% more in maternal health and FP, Jamaica would be able to fulfill all unmet need for FP in the country by 2030, thereby preventing about 75,000 pregnancies, 2,500 stillbirths, and averting 106 maternal deaths (UNFPA, 2021c). Another obstacle to contraceptive provision is the taxation imposed by the government on contraceptive commodities, which can negatively impact the affordability and accessibility of FP methods in the country (Williams, 2012).

In addition to being champions of FP, health providers themselves can hinder the availability of contraception in Jamaica. According to a study conducted by Hylton-Kong et al. (2021), health providers in Jamaica play an important role in women’s understanding of contraception. Physician preference of certain methods, disparity in counseling skills, and barriers related to cultural values and norms impacted how Jamaican health providers

prescribed contraceptive methods (McDonald et al., 1995). This is further evidenced by differences in providers' provision of contraceptive services to adolescent populations in Jamaica. Studies have found that FP providers were hesitant to provide services to adolescents due to religious beliefs and patients' young age (Crawford, et al., 2009; Eggelston et al., 1999). Half of providers "considered menstruation a factor in the timing the provision" of contraceptives, which prevented some patients from initiating a method on the same day (Hardee et al.,1995). Evidence also shows gender inequality in the provision of contraceptive information and treatment, where male adolescents had easier access compared to their female counterparts (Crawford et al., 2009). Providers can take more actions to increase greater access to FP information and contraception, especially among younger clients.

In addition to these barriers, the availability of supplies and commodities at Jamaican health centers adds another complex layer in Jamaican women's access to contraception. The lack of availability of supplies and equipment in Jamaican health centers impacted how health providers prescribed contraceptive methods (McDonald et al., 1995). Patients in rural areas had less access to LARCs because these methods were primarily available through private sector providers concentrated in urban areas of Jamaica (Bailey et al., 1996). In populations of parous women aged 19-35 years, one study found decreased implant uptake due to frequent stockouts at national and clinic levels and suboptimal provider training (Chevalier et al., 2018). Chevalier et al. (2018) reported cost barriers at the national level also contributed to unreliable availability and low utilization of implants.

One study conducted by Crawford et al. in 2018 looked at contraceptive availability among 78 facilities in Jamaica. They found that most health facilities offered at least three contraceptive products: oral contraceptive pills, male condoms, and injectables (Crawford et al., 2018). The product most likely out of stock was male condoms, followed by oral contraceptive pills (Crawford et al., 2018). On average, stockouts of male condoms lasted about three months

(Crawford et al., 2018). On the day of the survey, 5% of clinics were experiencing a stockout of at least one contraceptive method, and Type I facilities (clinics that offered basic health services) reported more likely to experience stockouts that day (Crawford et al., 2018). Information management relating to contraceptive stock data also posed a barrier. Crawford et al. (2018) also found that there were also inconsistencies in how stock information was recorded in monthly contraceptive logbooks, which can lead to issues in procurement and supply planning.

The Impact of COVID-19 on Contraceptive Availability

The COVID-19 pandemic created new obstacles to FP service availability through disruptions in global supply chains, restrictive protocols limiting movement and gatherings, and general uncertainty around viral exposure in health and non-health settings. Based on a 10% proportional decline in the use of contraceptive methods due to COVID-19, one modeling exercise projected as many as 49 million women with unmet need for modern contraceptives and 15 million additional unintended pregnancies would occur worldwide (Riley et al., 2020).

Since the emergence of COVID-19, evidence from the UN, academia, civil society, government ministries, and other partners have confirmed widespread losses in access to SRH information and contraceptives (UNFPA, 2021d). Eighty-six percent of countries reported less or much less access to contraceptive services due to COVID-19 (Endler et al., 2021). An estimated 12 million women were unable to access FP services, resulting in an estimated 1.4 million unintended pregnancies (UNFPA, 2021d). These losses were attributed to a multitude of factors including: the reallocation of financial resources, lockdowns and movement restrictions, supply chain disruptions, product shortages, and staff shortages (UNFPA, 2020).

The impact of the pandemic manifested differently across different countries. Research shows a decrease in FP utilization globally due to COVID-19. One report suggested a 50%

decline in utilization of FP and adolescent reproductive health services in Bangladesh, a significant reduction in clients' utilization of FP services during Nigeria's lockdown, and a decrease in the already minimal FP healthcare workforce in Syria (Catterson, 2021). Adelekan et al. (2021) further described a 30-50% reduction in service utilization of reproductive health services in Nigeria, citing challenges with stockouts, unavailability of contraceptives, transportation, and insufficient personal protective equipment (PPE). Five African countries found that women and girls delayed or postponed care-seeking for contraceptive services due to the pandemic (APHRC, 2021).

Another impact of the pandemic was the decrease of FP service provision around the world. The International Planned Parenthood Federation (IPPF) found that 88% of its member associations globally reported having to scale down the availability of at least one SRH service category either by decreasing hours, sites, or the number of available providers (IPPF, 2020). A survey with over a thousand physicians in the U.S. found that multiple FP services were discontinued during the pandemic, including LARC placement, removal, and provision of emergency contraception (EC) (Zapata et al., 2021). A non-governmental organization working in Eastern and Southern Africa reportedly delivered 40% fewer LARC services as an immediate impact of COVID-19 in 2020 (Berdellima, 2020).

The literature also sheds light on the impact of the COVID-19 pandemic on contraceptive availability. Multiple studies observed stockouts for FP methods and FP-related commodities in several countries (Adelekan et al., 2021; Bage & Datta, 2021; Brunie et al., 2022; Kabagenyi, et al., 2022; Sseninde et al., 2021). Public sector facilities in Zimbabwe were unable to provide FP methods which resulted in clients purchasing methods on the black market or going without (Mavodza, et al., 2022). IPPF (2020) also reported that 25% of their member associations operated with a shortage of key SRH commodities exacerbated by delays in moving products within countries, receiving replenishment stocks from national governments, and securing

customs clearances. As country governments and health systems adapt to a new reality altered by COVID-19, there is an opportunity to build upon successes and identify areas of improvement to serve the SRH needs of women.

Jamaican Health System Response to COVID-19

Like many other countries, Jamaica had to grapple with the effects of the COVID-19 pandemic. The first case of COVID-19 in Jamaica was reported in Kingston on March 10, 2020 (Ministry of Health and Wellness, 2020a). As of March 2023, Jamaica had over 154,000 cases of COVID-19 and over 3,500 COVID-19 related deaths (Ministry of Health and Wellness, 2023). The Jamaican government implemented measures and protocols to prevent the spread of the disease. It instituted travel bans to and from countries with high infection rates, including China, Iran, the United Kingdom, South Korea, Singapore, Spain, Germany, and France (Morris, 2020). Mandates for social distancing and indoor masking were enacted, schools closed, work from home orders were issued, and social gatherings were limited to 15 persons (Jamaica Ministry of Health, 2020b). Curfews were enforced at various points in time during the pandemic to prevent further transmission. The pandemic heavily impacted the tourism industry, one of the main drivers of the country's economy, causing a decline of 70 percent (ECLAC, 2021).

The health system in Jamaica was vulnerable in the event of a global pandemic. The 2021 Global Health Security Index reported that Jamaica did not have an "overarching national public health emergency response plan for communicable diseases with pandemic potential" (GHSI, 2021). Furthermore, the Inter-American Development Bank (2021) found that the Jamaican health system was unprepared to meet the need for medical services caused by COVID-19 due to the lack of intensive care units, ventilators, and telehealth services. In response to the pandemic, the government invested in the procurement and distribution of PPE and created testing guidelines for health workers in direct contact with COVID-19 patients (PAHO, 2022). Clinics were forced to adapt to the changing pandemic environment with limited

resources, curtail many health services to reduce in-person contact, and develop innovative approaches to reach their patients. FP and SRH services were especially impacted.

COVID-19 Impact on Contraceptive Availability in Jamaica

Six months after COVID-19 arrived in Jamaica, the UNFPA Subregional Office for the Caribbean was already seeing the pandemic's effects through disrupted supply chains for condoms and other contraceptives (Wilson-Harris, 2020). However, the effects of the COVID-19 pandemic on contraceptive availability in Jamaica have not been extensively documented. Due to the reduction of FP health services during the COVID-19 pandemic, the United Nations Children's Fund (UNICEF) anticipated that the anticipated increase in maternal mortality in Jamaica could potentially undo decades of progress (Castro, 2020). A 2020 analysis conducted at the beginning of the pandemic predicted that an estimated 11,300 to 44,500 Jamaican women could be unable to use contraception resulting in 282 to 13,400 unintended pregnancies (GFF, 2020). The range in potential impact and uncertainty warrants the need for additional research to understand the impacts of the COVID-19 pandemic on FP in the country. This thesis will help address this gap by analyzing the impact of COVID-19 on contraceptive availability from the perspective of health providers in community integrated health centers across three regions in Jamaica.

Chapter 3.1: Methods

The study analyzed the impact of the COVID-19 pandemic on FP service delivery, specifically contraceptive availability, at AIDS Healthcare Foundation-affiliated health centers in Jamaica, utilizing a mixed-methods approach.

Research Partners and Support

This study was conducted in partnership with the AIDS Healthcare Foundation Jamaica (AHF), and the University of Technology Jamaica (UTECH). AHF Jamaica is a country office of the US-based AIDS Healthcare Foundation, a “global nonprofit providing cutting-edge medicine and advocacy regardless of ability to pay” (AIDS Healthcare Foundation, 2022a). Under the direction of the Caribbean regional director, Dr. Kevin Harvey, AHF Jamaica serves thousands of patients throughout the island nation through its partnership with public health clinics (AHF, 2022b). Within the context of this study, AHF Jamaica staff improved the research team’s understanding of the Jamaican context and health system and its application throughout study design, recruitment, and dissemination. AHF data quality team members, Pettia Williams and Sashane Lovelace, leveraged AHF working relationships with regional health authorities, the Ministry of Health, and other Jamaican health and governmental institutions, to raise awareness of the study amongst all related stakeholders and coordinate fieldwork logistics.

UTECH, through its School of Public Health and Health Technology (SPHHT), was also a partner of the study. SPHHT is the “only tertiary institution in Jamaica providing training in public health inspection and public health nursing” (UTECH, 2021). With the support of the head of the school, Dr. Kevin Harvey, and SPHHT Master’s of Public Health candidate and registered nurse, Kimbeley Farquharson, data collection tools were reviewed and adapted specifically to the Jamaican context. In addition to this technical support, they also aided in fieldwork and data collection. Lastly, the Emory Global Health Institute was a financial partner of the project, which provided funding to support fieldwork and in-country logistics of the study.

Study Design

This study was a retrospective cross-sectional convergent mixed-methods descriptive study using quantitative surveys and qualitative in-depth interviews (IDIs) from data collected through the "Assessing Changes in Sexual and Reproductive Health and HIV/AIDS Services During the COVID-19 Pandemic in Jamaica: A Facilities-Based Study." The survey allowed the team to systematically collect data on a breadth of health services, including sexual/reproductive health, HIV/AIDS, contraceptive services, and DV. The target population was familiar with surveys, which allowed the research team to collect data in a way that was flexible to respondents' schedules and expertise. IDIs were useful to uncover the emic perspective of systems in a way that would provide the most data and be respectful of health providers' time (Hennink et al., 2020). The mixed-methods design of this project supports the overall goal by using quantitative results to identify trends and qualitative results to understand COVID-19's impact through an in-depth and emic perspective (Creswell & Creswell, 2017). Through the convergent mixed-methods approach, the team collected quantitative and qualitative data simultaneously and compared results complementarily which allowed the research team to comprehensively understand of the impact of COVID-19 on contraceptive availability in Jamaica.

Setting

Data was collected from May-June 2022 at 14 health clinics in three regions in Jamaica: North East region (NERHA), South region (SRHA), and South East region (SERHA). The research team collected data through two modes: 1) in-person data collection at 6 health sites (43%): Port Antonio Health Center, St. Ann's Bay Health Center, Mandeville Health Center, Black River Health Center, May Pen Health Center, and AHF Clinic, and 2) virtual data collection through Zoom and/or phone calls with persons at 7 health sites (57%): Port Antonio Hospital, Ocho Rios Health Center, Bamboo Health Center, Brown's Town Health Center,

Fellowship Health Center, Annoto Bay Health Center, and Steer Town Health Center. Data from one health site (Port Maria Health Center) was collected both in-person and virtually.

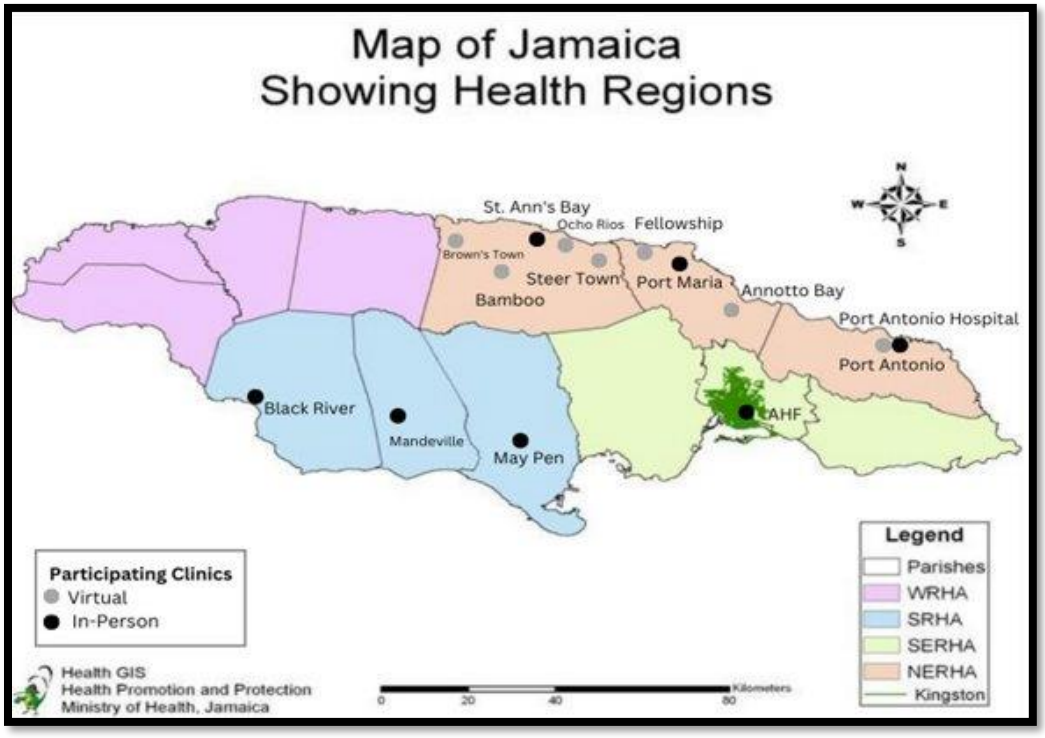


Figure 2. *Map of Health Clinics in Study*

Note: Adapted from *Jamaica's Health Systems* by T. McCartney, 2015 (https://slideplayer.com/slide/1605701/).

Sampling and Recruitment

The study used purposive and convenience sampling to identify survey respondents and IDI participants. Principal investigator SN and AHF data manager PW co-developed an email communication strategy for recruitment. Next, PW shared the purpose and objectives of the research with Regional Health Authorities and requested permission to enter clinics. Regional Health Authorities that approved of the study connected the research team with Treatment Care and Support Officers and/or Health Clinic Managers at health clinics that were purposively selected based on their direct affiliation with AHF. These intermediaries identified individuals at health centers who were positioned to speak to health service delivery before and during the COVID-19 pandemic, approached individuals for participation, and emailed them the purpose

and objectives of the approved study. AHF research team partners PW and SL cross-referenced interested individuals against the research team's screening criteria and created a list of potential participants to guide the research team in their data collection at health centers.

Inclusion criteria

Inclusion criteria were persons aged 18 or older, specific types of health professionals (physicians, pharmacists, HIV clinic managers, public health nurses, midwives, and HIV treatment and care support providers, nurse or physician managers), working in SRH or HIV/AIDS care, licensed to work in Jamaica, worked at the health center before COVID-19 pandemic and at the time of data collection, and understood healthcare service delivery during COVID-19 pandemic.

Exclusion criteria

Exclusion criteria were persons who were unable to speak to clinic services prior to the onset of the pandemic, were not licensed, and did not work in SRH or HIV/AIDS service delivery during the COVID-19 pandemic.

In the days leading up to their visit, AHF or research team members contacted potential participants through phone calls, email, or Whatsapp with additional information about the study and to gauge their continued interest in participating. Eligible personnel were informed that study participation was voluntary and there was no penalty or remuneration for non-participation. AHF and the research team members worked with participants and clinic managers to schedule surveys and interviews on days that would incur minimal strain on clinic activities. Additional participants were spontaneously identified to participate in the study through snowball sampling, when identified participants would ask colleagues to participate in the study.

Participants

The larger Jamaica study engaged a total of 66 healthcare professionals through its research. The team used the REDCap (Research Electronic Data Capture) mobile application

on handheld tablets to collect data for surveys and interviews for all clinics, except for two, where surveys were collected on paper copies and later manually input and validated on the REDCap server. Targeted participants for the survey included staff with the following job titles: physicians, pharmacists, HIV clinic managers, public health nurses, midwives, and HIV treatment and care support officers. Targeted participants for the IDIs included nurse or physician managers.

Table 1. *Positions of Participants at Health Centers from Full Sample of Surveys and In-Depth Interviews (N=66)*

	Surveys	**In-Depth Interviews**
	Frequency (n)	Frequency (n)
Physician	3	8
Pharmacist	2	1
HIV Clinic or Nurse Manager	1	-
Public Health Nurse	7	3
Midwife	24	3
Contact Investigator	10	5
Nurses (other)	2	4
Medical Investigator	1	0
Social Worker	-	3
Adherence Counselor	-	1
Psychologist	-	1
Total	51	29
Note: 14 participants (21%) opted to complete both the interview and the survey.		

Consent

Participants were emailed digital copies of the consent form prior to the day of data collection. On the day of data collection, participants were given another opportunity to review the consent form, ask any questions or clarifications, or withdraw from the study entirely. If participants agreed to participate, they signed the consent form using the REDCap mobile application on electronic tablets or paper copies. For virtual interviews and surveys, consent was signed by proxy only after receiving verbal agreement from participants. If participants were

interested in participating in both the IDI and survey, they were given a second opportunity to review the consent form in its entirety and provide their consent a second time, before providing more data to the study. For IDIs specifically, additional consent was required for permission to record. Except on the consent forms, no names were recorded, and any identifying information was removed from surveys and transcripts. Confidentiality was maintained through the de-identification of data in data cleaning stages and secure storage practices throughout the duration of the study, in accordance with ethical research standards.

Data Collection

Data Collection for Surveys

A total of 51 surveys were conducted, ranging from 12-68 minutes. Thirty-seven surveys (73%) were conducted in-person and 14 surveys (27%) were conducted virtually over Zoom or the phone. Surveys were conducted individually by trained research team members. The quantitative survey was developed using REDCap and the accompanying mobile application hosted at Emory University (Harris et al., 2009, 2019). REDCap is a secure, web-based software platform designed to support data capture for research studies, providing 1) an intuitive interface for validated data capture; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for data integration and interoperability with external sources (Harris et al., 2009, 2019). REDCap was used on handheld tablets to collect data offline and obtain signatures for consent. Healthcare providers who participated in the study were given the option to complete both the survey and interview, depending on their availability and interest. In total, 14 participants (21%) opted to complete both the interview and the survey.

Data Collection for IDIs

Twenty-nine interviews were conducted, with duration ranging from 20–64 minutes. Twenty-four interviews (83%) were done in-person and five interviews (17%) were conducted

virtually. IDIs were conducted in pairs, depending on the needs of the interview, with one research team member acting as interviewer and another acting as notetaker. The REDCap mobile application on tablets was used to collect demographic information, obtain signatures for consent, and record interviews.

Table 2. *Number of Surveys and Interviews Conducted at each Health Site (N=66)*

Facility Name	Facility Type	Region	Mode	Interviews Frequency (n)	Surveys Frequency (n)
Annoto Bay	Health Center	NERHA	Virtual	0	1
Bamboo	Health Center	NERHA	Virtual	0	1
Brown's Town	Health Center	NERHA	Virtual	0	1
Fellowship	Health Center	NERHA	Virtual	0	1
Ocho Rios	Health Center	NERHA	Virtual	0	1
Port Antonio	Health Center	NERHA	In-Person	4	8
Port Antonio	Hospital	NERHA	Virtual	0	6
Port Maria	Health Center	NERHA	In-Person/Virtual	3	4
St. Ann's Bay	Health Center	NERHA	In-Person	4	6
Steer Town	Health Center	NERHA	Virtual	0	1
AHF Clinic	NGO	SERHA	In-Person	2	3
Black River	Health Center	SRHA	In-Person	4	5
Mandeville	Health Center	SRHA	In-Person	7	6
May Pen	Health Center	SRHA	In-Person	5	7
			Total	29	51

Study Instruments

The survey questionnaire was co-developed by Emory research team members in close collaboration with the AHF data quality manager PW and UTECH/SPHHT colleagues KH and KF.

Quantitative Survey

At the time of development, there were few publicly available surveys that specifically addressed contraceptive availability during the COVID-19 pandemic. As a result, questions were developed using existing research on contraceptive commodities and supply chain

assessments prior to the pandemic, to inform the content and structure of the survey. AHF and UTECH/SPHHT partners were consulted throughout the development phase to ensure questions and potential responses were specific to the Jamaican health system and the in-country pandemic context. The UTECH/SPHHT partner KF also facilitated a pilot of the survey to test the survey's usability and comprehensibility with Jamaican health providers.

The survey consisted of 66 questions of varying types: multiple choice, scale, numerical, dichotomous, ordinal, and categorical. Questions were divided into six sections encompassing topics such as: demographic information, the availability and patient utilization of contraceptive methods, SRH services, HIV services, the prevalence and availability of DV screenings, both before and during the COVID-19 pandemic, and general health center information.

For the purposes of this research, this study will restrict the scope of its research to the subset of data from the contraceptive portion of the survey. This study specifically focused on the thirty questions that directly related to contraceptive methods which asked about: the availability of contraceptive methods at the center, the types of contraceptives offered, quantities dispensed per method, the occurrence of low stock or stockout situations and on-time deliveries. Other questions asked about the frequency of method availability and if respondents were able to provide information on contraceptive availability before the pandemic (December 2019- February 2020) and during a peak of the pandemic (April-June 2020).

See Appendix A. Survey Questionnaire.

In-Depth Interview Guide

The interview guide was developed based on a review of the literature related to the COVID-19 pandemic and healthcare service delivery from early in the pandemic. Based on this research, the team identified gaps in the literature related to SRH, HIV/AIDS, and DV and developed interview questions that would generate data around these health areas within the context of the pandemic. AHF and UTECH/SPHHT partners were consulted throughout the development phase to ensure questions and potential responses were specific to the Jamaican

health system and the in-country pandemic context. UTECH/SPHHT partner KF also facilitated a pilot of the IDI guide to test the tool's usability and comprehensibility with Jamaican health providers. The guide consisted of multiple sections covering participant demographic information, overall clinic service delivery, SRH, HIV/AIDS, and DV services before and after the beginning of the COVID-19 pandemic. Twenty-four questions were asked about the impact of COVID-19 on HIV/AIDS care, STI services, DV and gender-based violence (GBV), contraceptives and FP, health personnel experiences, organizational structure, commodities, and healthcare systems. For the purposes of this research, responses related to contraceptive availability were used to inform this study.

See Appendix B. In-Depth Interview Guide.

Data Cleaning

Cleaning Quantitative Data

At the close of each day of data collection, the interviewers systematically reviewed survey responses for any missing, impossible, or suspect values. Identified issues were addressed immediately via consensus with the research team and partners. All survey data was entered or uploaded onto the REDCap server by June 2022 with most data being entered and checked for accuracy on the same day of collection. Data validation was divided among the research team members to review consistency among variable names, values, and coding in REDCap and Microsoft Excel. After initial cleaning, the team used SAS to run descriptive statistics to identify any outstanding data quality issues and addressed them with input from PI Narasimhan.

Cleaning Qualitative Data

After each day of data collection, interviewers reviewed notes and recordings to develop memos summarizing key points and emerging themes from each interview. Once all interviews had been conducted, recorded interviews were transcribed by a transcription service,

HappyScribe™. Transcriptions were reviewed against the audio recordings for accuracy and any personal identifiable information was omitted, in accordance with ethical research standards.

Data Analysis

Quantitative Analysis

Data from 48 surveys out of the total 51 (94%) from the larger Jamaica project was used to inform this research analysis. Of the three excluded surveys, one was incomplete and two did not provide any data on contraceptives at the health center. Also of note, 16% of respondents (n=8) were unable to speak to stockout situations and half of participants (n=23) were unable to provide stock information before or during the peak of the COVID-19 pandemic. Data was analyzed using Stata V.17 (StataCorp, 2021). Analysis of survey data began with descriptive statistics. The project used counts and frequencies to express categorical and dichotomous variables. To analyze bivariate relationships, Fisher's exact test was applied because the sample size of 48 participants yielded more than 20% of expected cell counts that were less than five (Nowacki, 2017). The study set $\alpha=0.05$ and used the two-sided p-value to determine statistical significance. Variables that were analyzed for bivariate analysis included: the availability of contraceptive methods on the day of survey, region, frequency of availability for each contraceptive method, stockouts within last 3 months, stockouts at a peak of the pandemic, stockouts prior to the pandemic, changes in the availability of contraceptives during the COVID-19 pandemic, and on-time delivery of contraceptives to the health center. Using these variables, the analysis was able to look at perceptions of stockouts from three periods of time: the period prior to the onset of COVID-19 in Jamaica (December 2019- February 2020), at the peak of the pandemic (April-June 2020), and the three months prior to survey administration.

To increase the power of the analysis for the small sample size, select variables were collapsed into larger groupings. For example, the 'region' variable combined South (SRHA) and South East (SERHA) regions into one South region, and the North region consisted of the North East region (NRHA) alone. When possible, individual methods were collapsed into three main groups of contraceptives: 1) barrier methods, consisting of male and female condoms, 1) short-acting methods, consisting of injectables and oral contraceptive pills, and 3) long-acting methods, consisting of IUDs and implants. Taking into consideration pandemic conditions, the analysis needed to differentiate between methods that necessitated frequent or regular visits for contraception and methods that did not require frequent visits to the health center. Based on this rationale, oral contraceptive pills and injectables were classified as short-acting methods for the purposes of this analysis. Lastly, bivariate analyses focused on regular use methods since there was little data regarding emergency contraceptives.

Qualitative Analysis

Data from 23 interviews out of the total 29 conducted were used to inform the research analysis. The six interviews that were excluded did not discuss the intersection of codes 'Commodity Security' and 'Family Planning' or 'Family Planning Services'. A codebook was developed through deductive coding and consensus. Research team members conducted a preliminary coding through Microsoft Word on transcripts there were considered data-rich and/or longest in duration to develop any potential codes. All resulting codes were reviewed collectively and refined iteratively until a set of well-defined codes was agreed upon by the research team. An additional round of coding and consensus meetings facilitated inter-coder reliability. MAXQDA 2022 (VERBI Software, 2021) was used to code the transcripts using the codebook. The IDI question that was most relevant to this project was: "Can you describe any challenges to getting commodities needed for patient care for SRH patients prior to March 2020?"

Of the 28 codes from the original study, this study focused on and further analyzed the three codes that were directly related with contraceptive availability including: 'Commodity

Security', 'Family Planning Services', and 'Family Planning'. Transcripts that contained the intersection of these three codes were used to develop a deductive codebook for secondary analysis. This study used thematic analysis to understand the impact of the pandemic on contraceptives in Jamaica. Thick descriptions are defined as written narratives developed to "contextualize issues and understanding their meaning", which allowed for further analysis and conceptualization of the phenomena of contraceptive availability (Hennink et al., 2020). Thick descriptions of the codes from secondary analysis were developed which contributed to the development of themes.

Convergent Analysis

Quantitative results were compared to qualitative results through convergent analysis to understand any trends that occurred in contraceptive availability during the COVID-19 pandemic. For this study, qualitative data was used to provide more context to quantitative findings, which served to either validate areas where results aligned or provide deeper perspective into areas where results contrasted. The results were reported using a contiguous approach where quantitative and qualitative findings are presented separately but still in one document (Fetters et al., 2013).

Institutional Review Boards and Ethical Considerations

The study was submitted to Institutional Review Boards (IRBs) at Emory University and the UTECH. In February 2022, the study received the 'Not Human Subject Research Determination' from the Emory University IRB under the designation of 'quality improvement' because the study posed minimal risk and would be used by AHF for planning purposes. Subsequently, the UTECH Ethics Board approved the research study in April 2022 after further evaluation and proposal changes. Additionally, principal investigators SN and KH developed a memorandum of understanding establishing survey protocols and standards of procedure. Expressed agreement from the AHF-associated clinics was required and obtained prior to the

initiation of the study. After receiving approval from Emory, UTECH, and AHF, the team also received approval from the Ministry of Health in February 2023 to visit health centers in the country and contact individual providers.

Chapter 3.2: Results

Survey results identified the contraceptive methods that were available to FP patients during the pandemic at 14 health centers across Jamaica. Most respondents reported no change in the availability of contraceptive methods during the pandemic. According to respondents, the same types of methods that were available before the pandemic were also available at the peak of the pandemic, including male condoms, injectables, and oral contraceptive pills. However, male condoms and injectables were also reportedly stocked out at various times during the pandemic. Compared to other methods, IUDs and implants were perceived to be less available at clinics during the pandemic. Few participants reported any availability of female condoms and EC at health centers.

IDIs revealed multiple themes that described the challenges healthcare workers faced in contraceptive service delivery and how the pandemic impacted the availability of FP methods at health centers, including:

1. Issues with contraceptive supplies during the pandemic limited the method mix that was available at health centers in Jamaica.
2. The COVID-19 pandemic and its restrictions affected the availability of FP services but posed a greater barrier to patients' accessibility of contraceptives.
3. The division of staff at the regional and clinic level contributed to inefficient contraceptive provision.
4. The uptake of LARCs is at risk due to dearth of trained personnel.

Quantitative Results

Demographic Information

Of the total 51 respondents surveyed in the larger Jamaica study, 94% (n=48) were able to answer questions on contraceptives at the health center. Of these, 10 respondents (21%) also completed the IDI. As seen in Table 3, respondents were largely female (n=45, 94%) and

aged between 30-60 years (n=39, 82%). The survey also collected data from 3 respondents (6%) who identified as male, 6 respondents (13%) younger than age thirty and 3 respondents (6%) aged 61 and over. Half of survey respondents were midwives (n=24, 50%) with contact investigators (n=8, 17%) and public health nurses (n=7, 15%) also contributing a large part of the data. Other positions that were surveyed included physicians (n=3, 6%), pharmacists (n=2, 4%), other nurses (n=2, 4%), and a medical investigator (n=1, 2%). Of the 48 respondents, a majority (n=18, 38%) worked in the health field for 6-10 years, with a smaller percentage (n=12; 25%) having 11-20 years of experience. The survey also collected data from 11 participants (23%) who had less than 5 years of work experience, of whom 3 participants (6%) had less than 1 year of experience. There were also 7 respondents (14%) with 20 or more years of work experience. When looking at the level of education of respondents, most (n=28, 58%) received a bachelor's degree, with an additional 23% (n=11) having obtained a certificate in midwifery and another 6% (n=3) had a professional degree (i.e., M.D.). Other participants had received their master's degree (n=2, 4%), associate degree (n=2, 4%), some college (n=1, 2%) and high school diploma (n=1, 2%).

Table 3. *Demographic Information of Survey Respondents (N=48)*

	Frequency (n)	Percent (%)
Gender Identity		
Male	3	6%
Female	45	94%
Job Title		
Physician	3	6%
Pharmacist	2	4%
HIV Clinic or Nurse Manager	1	2%
Public Health Nurse	7	15%
Midwife	24	50%
Contact Investigator	8	17%
Nurses (other)	2	4%
Medical Investigator	1	2%

Table 3. *Demographic Information of Survey Respondents (N=48) (continued)*

Age		
18-30 years old	6	13%
31-40 years old	18	38%
41-50 years old	10	21%
51-60 years old	11	23%
61+ years old	3	6%
Years of Experience		
1 year or less	3	6%
2-5 years	8	17%
6-10 years	18	38%
11-20 years	12	25%
20+ years	7	14%
Level of Education		
High School	1	2%
Associate Degree	2	4%
Some College	1	2%
Bachelor's Degree	28	58%
Certificate in Midwifery	11	23%
Master's Degree	2	4%
Professional Degree	3	6%

Availability of Contraceptive Methods at the Health Center

Table 4. *Contraceptive Methods Available at the Health Center on Day of Survey (N=48)*

	Frequency (n)	Proportion (%)
Barrier		
Male Condoms	45	94%
Female Condoms	8	17%
Short-Acting		
Oral Contraceptives	41	85%
Injectables	44	92%
Long-Acting		
Implants	17	35%
IUDs	25	52%
Other		
Emergency Contraception	5	10%

The results of the survey show that male condoms and short-acting methods were reported as the most available types of contraceptives at the health center. A large majority of participants reported the availability of male condoms (n=45, 94%) and injectables (n=44, 92%) at the health center on the day the survey was conducted. Oral contraceptive pills were also reported to be available by most participants (n=41, 85%). A little more than half of respondents (n=25, 52%) reported the availability of IUDs at the health center. This further dropped to 35% of respondents (n=17) for implant availability. The least available methods, as reported by participants, were female condoms (n=8, 17%) and EC (n=5, 10%).

Provider Perceptions of Product Availability

Table 5. *Provider Perceptions of the Availability of Contraceptive Methods at the Health Center by Frequency (N=48)*

	All the Time		Some of the Time		None of the Time		Don't know	
	Frequency (n)	Percent (%)	Frequency (n)	Percent (%)	Frequency (n)	Percent (%)	Frequency (n)	Percent (%)
Male Condom	42	88%	1	2%	3	6%	2	4%
Female Condoms*	2	4%	9	19%	30	64%	6	13%
Oral Contraceptives	33	69%	2	4%	6	13%	7	15%
Injectables	35	73%	3	6%	2	4%	8	17%
Implants	7	15%	8	17%	26	54%	7	15%
IUDs	14	29%	9	19%	16	33%	9	19%
Emergency Contraception	3	6%	1	2%	36	75%	8	17%

*n for Female Condoms is 47, due to a data collection issue.
Note: Percentages may not equal to 100 due to rounding.

Recognizing the difficulties in obtaining stock data, particularly over time, the survey asked respondents how frequently each FP method was perceived to be available at the health center, using a scale of “All the time”, “Some of the Time”, and “None of the Time”. When asked to identify the methods available “all the time”, most respondents reported the following methods: male condoms (n=42, 88%), injectables (n=35, 73%), and oral contraceptive pills

(n=33, 69%). Long-acting methods like the implant (n=7, 15%) and IUD (n=14, 29%), were reported by some participants as being available at the health center ‘all the time’. Only a few respondents perceived female condoms (n=2, 4%) and emergency contraceptives (n=3, 6%) to be available “all the time” at the health center.

When asked about the contraceptive methods that were available at health centers “some of the time”, female condoms (n= 9, 19%), IUDs (n=9, 19%), implants (n=8, 17%) were identified. Injectables were also reported as available ‘some of the time’ by 3 respondents (6%). Oral contraceptive pills (n= 2, 4%), male condoms (n= 1, 2%), and EC (n=1, 2%) were reported as available ‘some of the time’ by few respondents.

The contraceptive methods that were most frequently reported as available “none of the time” were EC (n=36, 75%) and female condoms (n= 30, 64%). Long-acting methods were also reportedly never available at the health center by several respondents. A little more than half of respondents reported implants (n= 26, 54%) and a third of respondents (n=16) claimed the health center never had IUDs available for patients. Much fewer respondents perceived injectables (n=2, 4%), male condoms (n= 3, 6%), and oral contraceptive pills (n=6, 13%) as never available at the health center. It should be noted that a moderate proportion of respondents was unable to speak to the frequency of availability of IUDs (n=9, 19%), injectables, (n=8, 17%) and EC (n=8, 17%).

Stockouts

Table 6. *Stockouts of Contraceptive Methods at the Health Center by Time Period*

	Before the pandemic (n=25)		**At the Peak** (n=25)		**Stocked out in last 3 months** (n=8)	
	Frequency (n)	Percent (%)	Frequency (n)	Percent (%)	Frequency (n)	Percent (%)
Male Condoms	0	0%	1	4%	2	25%
Female Condoms	2	8%	3	12%	1	13%
Oral Contraceptives	0	0%	1	4%	0	0%
Injectables	4	16%	4	16%	3	38%
Implants	2	8%	2	8%	1	13%
IUDs	1	4%	2	8%	0	0%
Emergency Contraception	1	4%	1	4%	2	25%
Note: Percentages may not sum to 100 percent due to rounding.						

Twenty-five respondents (52%) of the total 48 were able to speak to the occurrence of stockouts before the pandemic and at its peak. In the period before the pandemic, 64% (n=16) of respondents observed a contraceptive stockout of some kind at the health center. There were no reports of stockouts for male condoms or oral contraceptive pills. Before the pandemic, the method reported stocked out by the highest number of respondents was injectables (n=4, 16%). Female condoms (n=2, 8%), implants (n=2, 8%), IUDs (n=1, 4%), and EC (n=1, 4%) were also reported stocked out by health providers during this period.

While more than half of respondents (n=14, 56%) did not perceive a stockout at the peak of the pandemic, 44% (n=11) of respondents did. At the peak, each method was perceived to be out of stock by at least one respondent. Multiple respondents reported stockouts of injectables (n=4, 16%) and female condoms (n= 3, 12%). Fewer respondents reported observing stockouts of implants (n=2, 8%), and IUDs (n=2, 8%). One participant (4%) reported observing a stockout of each of the following methods: male condoms, oral contraceptive pills, and EC.

The majority of the 48 total respondents (n=33, 69%) reported no stockouts of any method within the three months prior to the survey administration. Of the fifteen (31%) respondents who did report a stockout, only 8 respondents (17%) were able to provide method-

specific information. Injectables reported stocked out were reported out of stock by the most respondents (n=3, 38%), followed by male condoms (n=2, 25%), and EC (n=2, 25%). Female condoms and implants were also reported to have been stocked out by one participant (13%) respectively.

On-Time Delivery at the Health Center

Table 7. *Provider Perceptions of On-Time Delivery of Contraceptive Methods at the Health Center (N=48)*

	Frequency (n)	Percent (%)
Strongly Agree	13	27%
Agree	17	35%
Disagree	5	10%
Strongly Disagree	0	0%
None of the above	1	2%
Don't Know	12	25%
Note: Percentages may not equal to 100 due to rounding.		

When asked about their perceptions of the timeliness of contraceptive deliveries at the health center over the course of the pandemic, most respondents agreed (n=17, 35%) or strongly agreed (n=13, 27%) that contraceptives were delivered on time. In contrast, only 10% (n=5) did not agree and zero participants strongly disagreed. Notably, 25% of participants (n=12) did not have the knowledge to respond to this specific question.

Provider Perceptions of Changes in the Availability of Contraceptive Methods

Table 8. *Provider Perceptions of Changes in the Availability of Contraceptive Methods (N=48)*

	Frequency (n)	Percent (%)
More Availability	2	4%
Less Availability	4	8%
No Changes in Availability	36	75%
Don't Know	6	13%
Note: Percentages may not equal to 100 due to rounding.		

Participants were also asked about perceived changes in overall contraceptive availability at the health center during the pandemic. A large majority of respondents (n=36, 75%) did not report any changes in the availability of contraceptives at the health center. Eight percent (n=4) reported a decrease in availability, where only 4% (n=2) perceived an increase in availability. Thirteen percent (n=6) of participants could not respond to the question.

Changes in Contraceptive Availability: Provider Perceptions of Contraceptive Availability Before and During COVID-19 Pandemic

Table 9. *Provider Perceptions of the Availability of Contraceptive Methods, Before and at the Peak of COVID-19 (n=25)*

	Before the pandemic		**At the Peak**	
	Frequency (n)	Percent (%)	Frequency (n)	Percent (%)
Male Condoms	24	96%	23	92%
Female Condoms	4	16%	2	8%
Oral Contraceptives	22	88%	18	72%
Injectables	23	92%	24	96%
Implants	9	36%	8	32%
IUDs	10	40%	7	28%
Emergency Contraception	3	12%	3	12%
Note: Percentages may not equal to 100 due to rounding.				

Respondents were asked about the availability of methods before and at the peak of the COVID-19 pandemic, defined as between December 2019-February 2020 and April-June 2020, respectively. Of the 25 respondents who were able to speak to these time periods, most reported no changes in the methods of contraception available before and at the peak of the pandemic. The methods that were reportedly available prior to the COVID-19 pandemic by most respondents were: male condoms (n=24, 96%), injectables (n=23, 92%), and oral contraceptive pills (n=22, 88%). At the peak of the pandemic, most respondents reported the same three methods were available: injectables (n=24, 96%), male condoms (n=23, 92%), and oral contraceptive pills (n=18, 72%), as seen in Table 9. There were four methods that participants

perceived to be not available before or during the peak of COVID-19: EC (before: n=3, 12%; peak: n=3, 12%); female condoms (before: n=4, 16%, peak: n=2, 8%); implants (before: n=9, 36%; peak: n=8, 32%); and IUDs (before: n=10, 40%; peak: n=7, 28%). Perceptions of the availability for oral contraceptive pills had the largest difference between the two time periods, from 88% (n=22) before the pandemic to 72% (n=18) at its peak. Of the least available methods, EC was perceived to be unavailable by the same proportion (n=3, 12%) before and during the peak of COVID-19.

Bivariate Analyses

Provider Perceptions of Availability of Methods by Region

Table 10. *Availability of Contraceptive Methods on the Day of the Survey by Region (N=48)*

Region	Available Day of Survey									Total	
	Barrier			Short-Acting			Long-Acting				
	n	% Method	% Region	n	% Method	% Region	n	% Method	% Region	n	% Total
North	25	52%	89%	25	52%	89%	20	42%	71%	28	58%
South	20	42%	100%	20	42%	100%	11	23%	55%	20	42%
Total	45	94%		45	94%		31	65%		48	100%

Note: Percentages may not equal to 100 due to rounding.

The relationship between the types of methods available on the day of survey and the regional location of health centers was analyzed. Of the total 48 participants, 58% were participants based in clinics in the North health region (NERHA). The remaining 42% of respondents were based in the South region, consisting of SRHA and SERHA. Across both regions, a large majority of respondents (n=45, 94%) reported the availability of barrier and short-acting methods at health centers. Long-acting methods, including IUDs and implants, were reported available at the health center by 65% of participants (n=31).

When looking at contraceptive method type within each region, all participants (n=20) in the South region and almost 90% of respondents (n=25) in the North region reported the

availability of barrier and short-acting methods at their health centers. However, respondents' perceptions of the availability of long-acting methods differed between the two regions. Fifty-five percent of participants (n=11) in the South region reported the availability of LARCs at the health center, compared to 71% (n=20) in the North region, but this association was not statistically significant for barrier methods (p = 0.255), short-acting methods (p = 0.255), and long-acting methods (p = 0.359).

Provider Perceptions of Stockouts by Region

Table 11. *Stockouts of Contraceptive Methods by Region, at Three Different Time Periods*

	Stockout Prior to Pandemic (n=25)			**Stockout at peak (n=25)**			**Stockout in last 3 months (n=41)**		
Region	Yes n (row %)	No n (row %)	Total n (row %)	Yes n (row%)	No n (row %)	Total n (row %)	Yes n (row %)	No n (row %)	Total n (row %)
North	6 (35%)	11 (65%)	17 (100%)	9 (53%)	8 (47%)	17 (100%)	6 (25%)	18 (75%)	24 (100%)
South	3 (38%)	5 (63%)	8 (100%)	2 (25%)	6 (75%)	8 (100%)	2 (12%)	15 (88%)	17 (100%)
Total	9 (36%)	16 (64%)	25 (100%)	11 (44%)	14 (56%)	25 (100%)	8 (20%)	33 (80%)	41 (100%)

Note: Percentages may not equal to 100 due to rounding.

The study found no clear association between stockouts and health center location. When asked about perceptions of stockouts before the pandemic, most respondents in the survey did not report stockouts in the months leading up to the onset of COVID-19. Additionally, there was no regional difference in how respondents observed stockouts prior to the pandemic.

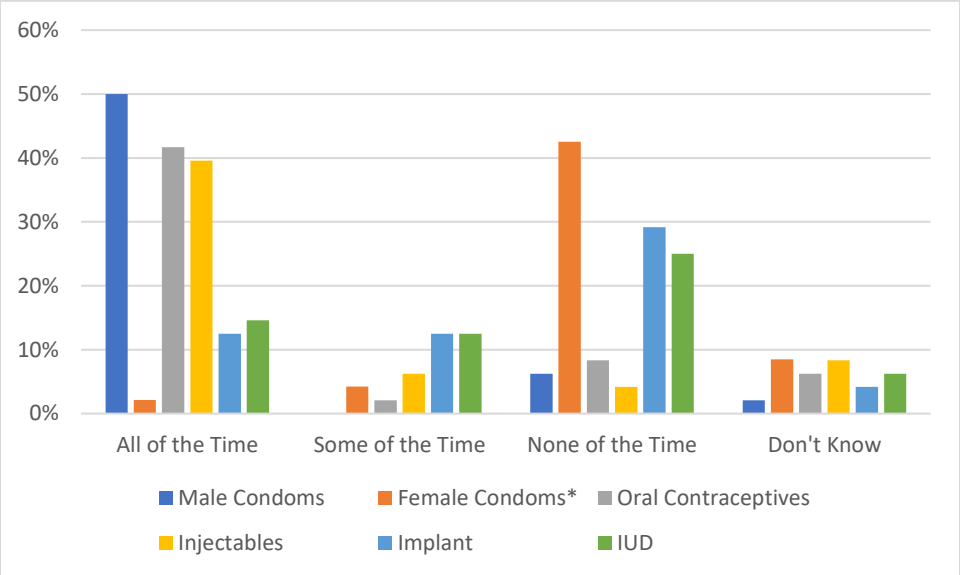
The survey also asked about perceptions of stockouts at the peak of the pandemic. Eleven respondents (44%) reported an occurrence of a stockout when the pandemic peaked. Looking closer at disaggregated data in Table 11, more than half of respondents in the North region (n=9, 53%) had reported a stockout whereas only a quarter of participants (n=2, 25%) in the South region shared the same perception.

When asked about the occurrence of stockouts within the past three months, a majority (n=33, 80%) of participants did not observe a stockout of any FP method. The trend continues when looking at perceptions within each region -- more respondents did not perceive an occurrence of a stockout in the three months prior to the survey. The difference between the number of 'Yes/No' responses was most stark for this time period, with more respondents in both regions reporting no stockouts compared to those who did.

Across all three time periods, the majority of South region participants did not observe a stockout, with just two participants reporting a stockout within the last three months (12%) and at the peak (25%) and three participants (38%) prior to the pandemic. The only time more participants observed a stockout compared to those who did not was during the peak of the pandemic, as reported by North region respondents. There were no statistically significant associations between region and perceptions of stockouts prior to pandemic ($p = 1.00$), at peak ($p = 0.234$), or in the last 3 months ($p = 0.433$).

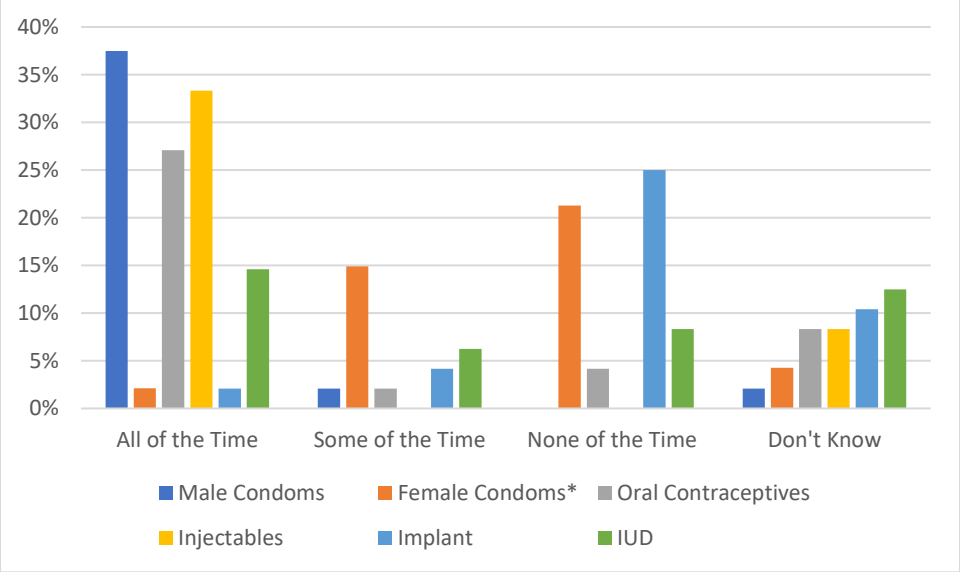
Provider Perceptions of Frequency of Availability by Region

Figure 3. *Frequency of Availability of Contraceptive Methods in the North Region (N=48)*



**n for Female Condoms is 47, due to a data collection issue*

Figure 4. *Frequency of Availability of Contraceptive Methods in the South Region (N=48)*



**n for Female Condoms is 47, due to a data collection issue*

Respondents were asked about the frequency of availability for each method offered by the health center. Figures 3 and 4 summarize their responses by region. Looking broadly across

methods, male condoms were perceived to be the most available method, with the highest percentages for both the North (n=24, 50%) and South (n=18, 38%) regions. This was followed by oral contraceptive pills and injectables. The methods that were perceived to be available "none of the time" in both regions were female condoms, implants, and IUDs.

Looking at the data within each region provides a different perspective. Male condoms were perceived by most participants as the method available "all the time" for both regions. More respondents in the North region perceived oral contraceptive pills (n=20, 71%) to be available "all the time" compared to 65% (n=13) in the South region. In contrast, 80% (n=16) of South region respondents perceived injectables to be available "all the time" at the health center compared to 68% (n=19) of North region respondents. Interestingly, more respondents (n=7, 35%) in the South region reported female condoms to be available "some of the time" at the health center, compared to 7% (n=2) of North region counterparts. Methods that were perceived to be available "some of the time" included implants (North: n=6, 21%; South: n=2, 10%), IUDs (North: n=6, 21%; South: n=3, 15%) and female condoms (North: n=2, 7%; South: n=7, 35%). However, these same methods were perceived by larger proportions of participants to be available "None of the time" in both regions. Seventy-four percent (n=20) of North region respondents and 50% (n=10) of South region respondents perceived female condoms as the method least available at the health center. Implants (North: n=14, 50%; South: n=12, 60%) and IUDs (North: n=12, 43%; South: n=4, 20%) were also perceived as available 'none of the time'. No statistically significant associations existed between region and perceived frequency of contraceptive availability of male condoms ($p = 0.279$), female condoms ($p = 0.090$), oral contraceptive pills ($p = 0.821$), injectables ($p = 0.384$), implants ($p = 0.145$), or IUDs ($p = 0.205$).

Provider Perceptions of Recent Stockouts and Changes in Contraceptive Availability

Table 12. *Provider Perceptions of Changes in Contraceptive Availability and Stockouts within the last Three Months (n=38)*

Stockout Experienced in last three months	Reported Changes in Availability of Contraceptives since start of COVID-19			Total
	No Change in Availability n (row %)	More Availability n (row %)	Less Availability n (row %)	n (row %)
Yes	4 (57%)	0 (0%)	3 (43%)	7 (100%)
No	28 (90%)	2 (6%)	1 (3%)	31 (100%)
Total	32 (84%)	2 (5%)	4 (11%)	38 (100%)

Note: Percentages may not equal to 100 due to rounding.

The study sought to understand the association between the occurrence of stockouts within the last three months and perceived changes in contraceptive availability since the onset of COVID-19. The analysis shows that most participants who reported no stockouts also reported no perceived changes in the availability of contraceptive methods during COVID-19 (n=28, 90%). Those who did report stockouts within the last three months (n=7, 18%) reported no change in availability (n=4, 57%) or less availability (n=3, 43%) of contraceptives at the health center. The 2 respondents (5%) who reported greater availability of contraceptives since the beginning of the pandemic also did not report any stockouts. Among the 4 respondents (11%) who reported less contraceptive availability during the pandemic, 3 respondents also observed stockouts during the last three months. There was a statistically significant association between contraceptive availability and recent stockouts ($p = 0.029$).

Provider Perceptions of Stockouts at Peak and Changes in Contraceptive Availability

Table 13. *Provider Perceptions of Changes in Contraceptive Availability and Stockouts at the Peak of COVID-19 (n=25)*

Stockout Experienced at peak of the pandemic	Reported Changes in Availability of Contraceptives since start of COVID-19			Total
	No Change in Availability n (row %)	More Availability n (row %)	Less Availability n (row %)	n (row %)
Yes	8 (73%)	1 (9%)	2 (18%)	11 (100%)
No	14 (100%)	0 (0%)	0 (0%)	14 (100%)
Total	22 (88%)	1 (4%)	2 (8%)	25 (100%)

Note: Percentages may not equal to 100 due to rounding.

Of the subset of 25 respondents able to discuss stockouts, all respondents who reported no stockouts at the peak of the pandemic also saw no change in the availability of contraceptives at the health center (n=14). Of those who observed a stockout during a peak of the pandemic, a majority reported no change in contraceptive availability (n=8, 73%). However, other participants saw less (n=2, 18%) or more availability (n=1, 9%) at the health center during the COVID-19 pandemic. This association was not statistically significant (p = 0.072).

Provider Perceptions of Delays and Changes in Contraceptive Availability

Table 14. *Provider Perceptions of On-Time Delivery of Contraceptives and Changes in Contraceptive Availability (n=35)*

Ontime Delivery to the Health Center	**Reported Changes in Availability of Contraceptives since start of COVID-19**			
	No Change in Availability n (row %)	More Availability n (row %)	Less Availability n (row %)	Total n (row %)
Strongly Agree	13 (100%)	0 (0%)	0 (0%)	13 (100%)
Agree	16 (94%)	1 (5%)	0 (0%)	17 (100%)
Disagree	3 (60%)	0 (0%)	2 (40%)	5 (100%)
Total	32 (91%)	1 (3%)	2 (6%)	35 (100%)

Note: Percentages may not equal to 100 due to rounding.

The study also sought to understand whether there was an association between perceived delays of contraceptive deliveries and perceived changes in contraceptive availability during the pandemic. Twenty-nine respondents (91%) who strongly agreed or agreed that contraceptives were delivered on-time to the health center also reported no change in contraceptive availability. All respondents who strongly agreed (n=13) also reported no change in contraceptive availability at the health center. Sixteen of the 17 respondents who agreed (94%) also reported no change in contraceptive availability, but the outstanding one respondent (5%) saw more availability of contraceptives at the health center. Among the 5 respondents (14%) who perceived delays in the delivery of contraceptives, 40% (n=2) reported less

contraceptive availability. The remaining three respondents (60%) perceived no change in contraceptive availability. This association was statistically significant (p = 0.017).

Qualitative Results

Qualitative data from 23 IDIs on the impact of COVID-19 on SRH, HIV/AIDS, and DV services were used to further understand how COVID-19 impacted contraceptive availability at Jamaican health centers. IDIs also described the challenges and issues that health personnel faced when providing contraception during the pandemic. Qualitative analysis focuses on providers' perceptions of FP service delivery during the COVID-19 pandemic, specifically their perceptions affecting contraceptive provision.

Demographic Information of In-Depth Interviews

There were 23 interviews that provided insight into the availability of contraceptive services. IDI participants were largely female (n =17, 74%) and aged between 30-60 years (n=19, 83%). Participants interviewed included 3 respondents (13%) younger than age 30 and 1 respondent (4%) over the age of 61. Physicians made up about a quarter of the participants (n=6, 26%) followed by contact investigators at 22% (n=5). Public health nurses and other types of nurses provided about a quarter of the data (n= 6, 26%). Other positions that were interviewed included social workers (n=2, 9%), midwives (n=2, 9%), one psychologist (4%) and one adherence counselor (4%).

Looking at respondents' years of experience, a quarter (n=6, 26%) had 6-10 years of working experience and another quarter (n=6, 26%) had 11-20 years of working experience. There were 4 participants with 2-5 years of experience (17%) and an additional 3 participants (13%) who worked in healthcare for a year or less. There were 4 participants (17%) who had more than 20 years of working experience. When looking at education level, most respondents (n=13, 57%) received a bachelor's degree, with an additional 17% (n=4) having completed a

professional degree (i.e., M.D.). Other participants had received their master's degree (n=3, 13%), associate degree (n=1, 4%), and some college (n=1, 4%).

Table 15. *Demographic Information of IDI Participants (n=23)*

	Frequency (#)	Percent (%)
Gender Identity		
Female	17	74%
Male	6	26%
Job Title		
Physician	6	26%
Psychologist	1	4%
Social Worker	2	9%
Public Health Nurse	3	13%
Midwife	2	9%
Contact Investigator	5	22%
Nurses (other)	3	13%
Adherence Counselor	1	4%
Age		
18-30 years old	3	13%
31-40 years old	9	39%
41-50 years old	4	17%
51-60 years old	6	26%
61+ years old	1	4%
Years of Experience		
1 year or less	3	13%
2-5 years	4	17%
6-10 years	6	26%
11-20 years	6	26%
20 or more years	4	17%
Level of Education		
Associate Degree	1	4%
Some College	1	4%
Bachelor's Degree	13	57%
Master's Degree	3	13%
Professional Degree	4	17%
Note: Percentages may not equal to 100 due to rounding.		

Qualitative Assessment of the Availability of Contraceptive Methods

Thematic analysis of IDIs resulted in four primary themes:

1) Issues with contraceptive supplies during the pandemic limited the method mix that was available at health centers in Jamaica.
2) The COVID-19 pandemic and its restrictions affected the availability of FP services but posed a greater barrier to patients' accessibility of contraceptives.
3) The division of staff at the regional and clinic level contributed to inefficient contraceptive provision.
4) The uptake of LARCs is at risk due to dearth of trained personnel.

Theme One: Issues with contraceptive supplies limited the method mix that was during the pandemic.

While most survey respondents did not see a change in contraceptive availability at the clinic, IDI participants described issues with contraceptive methods due to stockouts, delayed shipments, and decreased availability. Participants described male condoms as the method of contraception that experienced the most stockouts, followed by injections, implants and IUDs. Low stock situations of condoms, injections, IUDs, and implants also occurred which posed challenges to the availability of these methods at the health center level. Issues with procurement and distribution were briefly mentioned by participants.

There was variation in perceptions of the supply of male condoms. One participant remarked that the supply of male condoms had diminished whereas, another saw improvement since they had first started their job. According to another participant, the distribution of condoms was uneven between HIV and FP teams. Due to COVID-19 restrictions, outreach events where providers would distribute condoms within the community were paused. During lockdowns, one participant noted health personnel would increase the number of condoms distributed to each patient, realizing that it would be difficult for patients to return to the clinic for contraception under COVID-19 restrictions. Participants noted that though education on female

condoms was provided throughout the pandemic, there were rarely any female condoms available at the health center for distribution to patients.

Injections were the second-most frequently mentioned method of contraception when discussing supply issues. According to participants, some health centers experienced stockouts or shortages of injectables during the pandemic. In response, one participant explained that their health center had to coordinate with other parishes to borrow injectables because the stockout situation of injectables within the entire parish made it difficult.

When asked about any issues with supplies for sexual/reproductive health services, one physician recalled their experience with injectable availability, "…There were times where, for instance, Depo-Provera, which is one of our standard contraceptives, would go out of stock. Some of our patients would have to go and purchase it. Not all of them would be willing or able to purchase it because some generally would not have the funds or have the money to afford it. Others, unfortunately, have the idea that the government is supposed to provide it for them. So, when it's not provided, they just wait until it comes back. And then, you just have to hope that there are no unplanned or undesired pregnancies during that time." (Female physician, 17 years work experience).

Because of stockouts of injectables, participants, like the one above, saw patients resort to using personal funds to purchase the method elsewhere or went without their preferred method. This illustrates how stockouts of contraception, specifically injectables, limited the methods that patients would be able to access at the health center. The quote also provides insight into the limited options available to patients when contraception is not available during a pandemic.

OCPs were one of the methods that appeared to have few or little issues with availability. In fact, a couple of participants noted that OCPs did not go out of stock and were

usually at the health center. In contrast to OCPs, implants were a method of contraception that participants reported was not regularly available at the health center. While participants said the service was offered at health centers, most insertions were performed at the hospital. Similarly, the availability of IUDs was infrequent and dependent on the availability of trained personnel at the clinic.

Theme Two: The COVID-19 pandemic and its restrictions affected the availability of FP services but posed a greater barrier to patients' accessibility of contraceptives.

Most survey respondents reported no changes in the availability of contraceptives at the health center during COVID-19, however, when analyzing IDIs, COVID-19 restrictions played an important role. Participants frequently cited multiple restrictions that were enacted during the pandemic to limit transmission of COVID-19. Among these restrictions, curfew and lockdown mandates appeared to be most disruptive to FP service delivery. To comply with COVID-19 protocols, health clinics drastically limited the number of patients that could be served each day. Clinics also scaled back some of their services and scheduled shifts for staff to limit person-to-person contact. Papanicolaou tests were mentioned as a FP service that was paused during the pandemic. Participants also noted that they would not be able to conduct examinations as closely or as thoroughly as they normally would, due to social distancing protocols. PPE was provided by the government but some reported issues in obtaining enough PPE for all health personnel, which limited the number of staff who were able to provide FP services.

Though the pandemic impacted FP service delivery, most participants described a reduction in the number of patients accessing the clinic at the onset of the pandemic, attributing most of this change to the COVID-19 restrictions of lockdowns and social distancing protocols. Other participants noted that patients expressed fear in coming to the clinic because they believed they would contract the virus at the health center. Another set of participants noted that some patients did not come to the clinic because they were not aware that health centers were

still providing FP services during the pandemic. Participants explained that travel restrictions only allowed those in dire need to travel, because FP was not regarded as an emergency service.

As described by a contact investigator, “The need still remains. But meeting their needs during the pandemic, what would have happened is that- because of no movement, and at times, the need for routine family planning wouldn't be regarded as emergency services. You may find that sometimes, they have access to their family planning readily, they can’t move. However, since the pandemic, systems are now functioning back at our optimum. So, there are available services they can get, once they need it, without restrictions. […] People were getting less access to the contraceptives. So, it’s still available, but they can't reach to it.” (Male contact investigator, 17 years work experience)

This response was echoed in multiple participants’ perceptions -- the availability of contraceptive services did not change during the pandemic, rather it was the accessibility of contraceptive services experienced by patients that was more heavily impacted because of COVID-19 restrictions and lockdowns.

Theme Three: The division of staff at the regional and clinic level contributed to inefficient contraceptive provision.

IDIs also showed that the division of healthcare providers played an important role in the availability of contraceptives in the pandemic. Health personnel were divided in both their level of effort and their location.

The COVID-19 pandemic required health providers to change their normal responsibilities. Multiple participants detailed how they assumed additional work duties to assist with COVID-19 management whereas others were able to stay focused on their normal scope of work. Some participants noticed an uneven amount of their time dedicated to COVID-19-related

duties as opposed to their main job responsibilities. The stretching of the workforce was exacerbated by the existing shortage of health providers due to migration. Many participants described the migration of nurses and physicians overseas in pursuit of higher wages and better benefits. As a result, participants experienced increased workloads, decreased time counseling, and patients endured longer wait times.

Health providers were also divided among different physical locations to perform their duties. Providers were rotated around the parish and had to split their time across multiple health centers. This rotation further exacerbated personnel shortages at the health center, as work was put on standstill until a specific staff member returned for their next scheduled shift. During data collection, respondents would occasionally identify specific personnel who provided certain SRH services but were not present at the health center because they were on rotation that day. For example, there were nurses who specialized in FP, IUDs, or STIs who were not present at the health clinic on a given day.

The effects of the rotational system were described by a public health nurse, “Well, we always have a little issue where our medical teams are concerned. Because of the pandemic, sometimes they also serve other health facilities even though they work here. So, sometimes we have a skeletal system where there's no doctor to do the triage. We have to concentrate on those patients who have appointment and as a result of that, some of those who missed appointment cannot be seen. So, we really have staff issues.” (Female public health nurse, 42 years working experience).

When asked about any problems with service delivery, this participant described the rotational system that was implemented at several health centers across Jamaica. While this system was intended to provide more services to more health centers, according to the participant above, it spread personnel so thin that services and health staff at the clinic were at a bare minimum. This resulted in apparent gaps in services as well as high workloads for staff.

Health providers and staff were also divided into silos of HIV and FP services, which impacted contraceptive provision. There were multiple times when this siloed nature prevented comprehensive understanding of the FP and contraceptive services offered by health centers. Some participants noted that the distribution of condoms was uneven due to the division between technical areas. HIV staff described challenges coordinating with FP counterparts to provide condoms to HIV patients.

Theme Four: The uptake of LARCs is at risk due to dearth of trained personnel.

While most patients were primarily using condoms and other forms of short-acting contraceptives, participants responses seemed to indicate that demand for LARCs was present during the pandemic or that it had even increased. Participants noticed an increase in demand for LARCs among different age groups. One participant described increased demand for implants among teenagers during the pandemic, while another participant saw more middle-aged women come to her for implants. One participant described a shift at their clinic to offer IUDs and implants as much as short-acting contraceptives to encourage potential uptake of LARCs.

Multiple participants noted the inability for health centers to provide services or meet the demand of LARCs among patients, specifically due to the lack of trained personnel to insert IUDs. To mitigate this issue, a rotation system was implemented where trained personnel would be rotated among multiple clinics at different schedules to provide the services to as many locations as possible. However, as discussed above, this was seen as inefficient and ineffective in addressing contraceptive needs. Sometimes, the on-site midwives would be available to insert IUDs but, one participant explained that their health clinic utilized referrals to a gynecology clinic as opposed to inserting them on-site.

One midwife detailed the challenges they saw with IUD insertions, “I have clients on my waiting list, and they are not able to access the services yet because, for one, it's only one

nurse here that is trained. She has not gotten her qualifications in hand to be practicing. So, when she does do this, she has to be doing it under supervision. So, another nurse that is trained and has her documentation we don't have to be supervising her. Now it becomes inconvenient." (Female Midwife, 5 years working experience).

Training was mentioned by multiple participants as a limitation to providing LARCs, particularly IUDs, at the health center during the pandemic. The participant above expressed frustration with the health center's approach to the demand of IUDs among her patients. She described an intensive process of training and that required the presence of multiple persons in a work environment that already faced health worker shortages. This sentiment was supported by other participants who mentioned limitations in LARC provision due to the lack of trained personnel.

Chapter 4.1: Discussion

Issues with the Supply of Contraceptives and Stockouts

More than two years after the first case was confirmed in Jamaica, the impact of the COVID-19 pandemic on FP services was still present. This study was conducted to understand how the COVID-19 pandemic impacted contraceptive availability in 14 health centers in three regions in Jamaica. This impact can be seen through challenges with stockouts and supplies.

Quantitative results show that short-acting contraceptives and male barrier methods were consistently more available at health centers compared to long-acting contraceptives, female barrier methods, and EC. This was perceived by health providers across all regions and at different time points of the pandemic: before, at the peak, and about two years after the initial onset of COVID-19 in Jamaica. Furthermore, participants perceived male condoms, oral contraceptive pills, and injectables to be available “all the time” whereas IUDs, implants, female condoms, and emergency contraceptives were more frequently perceived to be “sometimes” or “never” available at the health center. These results draw attention to the types of methods that had systems in place during the pandemic to sustain availability at health centers over time, and those that did not.

Of the types of methods perceived to be less available at the clinic, IUDs and implants are the most effective methods to prevent pregnancy. The decreased availability of LARCs during the COVID-19 pandemic is a critical gap identified through this research. This gap is widened by the perceived lack of female condoms and EC. When the most effective methods are unavailable and the method mix is limited, women face increased risk of pregnancy in a pandemic environment. As a result, Jamaican women are left to choose from less-effective short-acting methods and partner-dependent male barrier methods.

While female condoms were largely unavailable, the availability of male condoms indicates the existence of supply chains and health system resources that could facilitate

increased female condom availability at health centers. According to participants, the limited availability of implants at the health center may be because most implants are inserted at the hospital. Research by Chevalier et al. (2018) also attributed the lack of implant availability to frequent stockouts at health facilities and the central warehouse and cost barriers at the national level. EC is available at pharmacies without a prescription across the country, however, its availability at public health centers can still be important in providing more methods to FP patients during pandemic times (NFPB, n.d.).

Perceptions of contraceptive availability during the pandemic were associated with perceptions of recent stockouts. Those who reported no change in the availability of contraceptives were also likely to report no stockouts in the three months before the survey. These perceptions were also associated with perceptions of delays of contraceptive supplies. Most respondents who perceived on-time deliveries of FP methods to the health center were also likely to report no change in the availability of contraceptives during the pandemic. Without stock or delivery records, it is difficult to confirm the accuracy of provider perceptions of contraceptive stock availability at the health center. However, this finding indicates that provider perceptions of the availability of certain methods are associated with how often they perceive those methods are stocked out or delayed.

Most respondents did not report the occurrence of a stockout. However, those who did were able to provide insight into challenges facing FP service provision in the pandemic. Among those who observed a stockout, the majority of respondents perceived less availability of contraceptives during COVID-19. Of the methods stocked out, injectables were perceived to be stocked out by multiple survey respondents before and during the pandemic. IDI participants explained that decreased availability of injectables was uncommon. Stockout periods were described in detail and participants expounded the mitigation strategies health centers used to ensure continued provision of the method. One strategy to address low-stock levels was the

redistribution of injectables among clinics or even among districts. This aligns with survey results that show a minority of respondents who reported stockouts but still saw continued availability of contraceptives during the pandemic. Reports of injectable stockouts from multiple participants over time highlights the need for a more focused lens to identify causes and potential long-term solutions to ensure availability of one of the most popular methods in the country.

In contrast to surveys, interviews identified male condoms as the method that experienced the most supply issues. Unlike injectables, IDI participants did not express concern with the frequency of stockouts but rather the volume at which stock was replenished, noting increases or decreases in the supply of male condoms over time. The difference in the perceptions of availability of male condoms and injectables between the quantitative and qualitative results may be explained by selection bias. IDIs interviewed multiple HIV staff positions, who often work with condoms, whereas the survey sought more perspectives from FP personnel. Stockouts of IUDs and implants were also reported and described by survey respondents and IDI participants, but to a lesser extent when compared to injectables and male condoms.

Despite stockout occurrences, this research found consistent availability of short-acting and male barrier methods at the health center level during the COVID-19 pandemic. This supports research done by Crawford et al. who observed the availability of male condoms and injectables across 78 Jamaican health centers in 2018. However, unlike Crawford et al. (2018), this study shows consistent availability of oral contraceptive pills at health centers in Jamaica. The findings from this study also show that LARCs, female barrier methods, and EC were less available at health centers compared to short-acting and male barrier methods during the pandemic. This aligns with research demonstrating increased challenges and difficulties in LARC provision when compared to short-acting methods (Grindlay et al., 2016; Muhoza et al.,

2021; Thanel et al., 2018). Additionally, this study echoes other studies that show decreased availability in contraceptive methods in the COVID-19 pandemic because of issues with supplies (Aly et al., 2020; Both et al., 2021; Brunie, et al., 2022; Haddad et al., 2021). This research highlights areas within Jamaican health system that can be supported and strengthened to increase and ensure the availability of contraceptive methods.

Contraceptive Services were Restricted due to Workforce Capacity

Results from qualitative analysis provide more context to understand how Jamaican health personnel confronted the challenges to contraceptive availability during the pandemic. According to participants, the division of staff among multiple tasks and health centers exacerbated existing staff shortages and impacted the availability of FP services. This was especially pronounced in Jamaica's health system which had been and currently suffers from a drain of trained nurses and doctors who pursue better benefits in employment overseas. According to the Inter-American Development Bank (2020), Jamaica has a significant resource deficit of health professionals, with an attrition rate of 300-500 nurses every year. What remained was a resilient workforce that was under resourced, underpaid, and overworked. Multiple participants described changes in their bandwidth, from the addition of COVID-19 management responsibilities to complete task-shifting focused on COVID-19 testing or vaccine rollout. Reduced staff and increased workloads during the COVID-19 pandemic decreased clinics' bandwidth to provide contraceptive services. This finding aligns with other studies that demonstrated decreased staffing capacity and staff shortages for FP during the COVID-19 pandemic (Beatty et al., 2022; Comfort et al., 2022; Kabagenyi et al., 2022). This research confirms predictions made by Aly et al. (2020) who foresaw that limitations in staff at the clinic-level would negatively affect contraceptive provision.

When the few healthcare personnel are spread thin, the gap in meeting the need for FP increases. This was exemplified in the siloed nature of HIV and FP teams. The apparent

separation of HIV and FP workstreams was particularly evident through their work related to male and female condoms. Uneven distribution of male condoms between these two teams resulted in issues with the availability of male condoms for HIV patients. The inability to provide female condoms after demonstrations due to lack of supply was often mentioned by HIV personnel. These findings demonstrate how siloed contraceptive provision between HIV and FP creates a gap that could impact HIV patients' access to condoms. Existing barriers of stigma and patient confidentiality that are compounded by COVID-19 movement restrictions and the unavailability of barrier methods may result in unmet need among persons living with HIV/AIDS in Jamaica. The separation of HIV and FP workstreams is also reflected in a study on adolescent FP utilization in Zimbabwe during the pandemic. Mavodza et al. (2022) found that HIV care and treatment services were better funded and prioritized over FP services, which undermined resilience in the overall health system.

Participants often described the rotational system that was intended to increase service delivery at multiple health centers. According to most participants, this strategy of rotating health providers appeared to intensify staffing gaps and delay health service provision across multiple health centers. Participants explained that, in this system, the provision of certain services was contingent on rotating staff's schedules. This was most pronounced in the IUD provision during the pandemic. Multiple participants described difficulties in meeting the demand for IUDs during the pandemic due to the limited supply of trained nurses. According to IDI participants, patients interested in obtaining an IUD were unable to get same day insertion. Rather, these patients were put on a waiting list until a minimum number of patients was met before a trained health provider was scheduled to come to the health center to insert IUDs. Most participants noted that IUD availability was dependent upon the availability of the trained personnel that day, though one participant explained her health center used referrals to address IUD demand.

Qualitative and quantitative findings point to the limited availability of IUDs, before and during the pandemic, across all regions. IUD availability is largely contingent upon the availability of trained health personnel, and if those personnel operate on an intermittent, rotating schedule, provider bottlenecks can delay patient uptake and undermine demand for LARCs. According to participants, it can also foment mistrust among patients and even staff who want to offer the services but do not have the training or capacity to change the rotational system. This study finds that the availability of IUDs at the health center during the pandemic was commensurate to the availability of health providers trained to insert the method. This finding aligns with other studies that have identified a lack of trained health personnel as a barrier to IUD provision (Bahamondes et al., 2018; Gutin et al., 2011; Hoffman et al., 2016). In a country where less than 1% of women are using IUDs, this information is useful to understanding barriers and facilitators to LARC uptake in Jamaica (Franklin et al., 2021).

Resilience of the Jamaican Health System to Ensure Contraceptive Availability

Quantitative results show that most respondents reported no change in contraceptive availability during the pandemic. Most providers also saw on-time delivery of contraceptives and reported no changes in the types of contraceptives available before and during the COVID-19 pandemic. Among the few participants who did perceive the occurrence of a stockout or delayed deliveries of contraceptives, most participants still reported no change in the availability of contraceptives at the health center. While stockouts and delayed deliveries may have caused immediate short-term supply issues at health centers, these findings suggest that these challenges did not impact the health system’s overall ability to provide conception during the pandemic.

Qualitative results corroborate these findings. Participants emphasized the availability of contraceptive services at health centers; however, it was patients' ability to access these services that proved to be a greater challenge. When asked about changes in the FP service availability, participants often described the myriad of process changes that were implemented to comply with the changing COVID-19 environment and its restrictions. This resulted in the initial decrease of FP patients accessing health centers at the beginning of the pandemic. However, as restrictions eased, many health providers recalled an increased demand for FP. Patients' access to contraceptive services rather than the availability of services at the health center appeared to play a critical role in FP method utilization during the pandemic.

This finding demonstrates the need to differentiate between access and availability in the context of the COVID-19 pandemic in Jamaica. Since this study focused on health provider perceptions, a discussion of access through the perspective of FP patients is outside the scope of this thesis. Nonetheless, it suggests the need to critically examine the factors that contributed to patient access of FP services during the pandemic. This finding supports other research that showed how restrictions on movement and transportation challenges posed hindrances to patients' access to FP information and utilization (Aly et al., 2020; Kabegenyi et al., 2022; Mavodza et al., 2022; Polis et al., 2022). This research also aligns with Endler et al.'s research (2021), where 86% of respondents reported less access to contraceptive services due to the pandemic.

Given the multiple challenges posed by the COVID-19 pandemic, these findings demonstrate the resilience of the Jamaican health system to provide contraceptives throughout the COVID-19 pandemic. Adelekan et al. (2021) observed similar resiliency in public health clinics providing reproductive, maternal, child, and adolescent healthcare across multiple states in Nigeria. These results also reflect an UNFPA (2021a) analysis that found health systems were able to continue service provision despite brief disruptions in FP services.

Application of the AAAQ Framework

Quantitative results identified strengths and gaps in the availability of contraceptives, whereas qualitative results provided more depth to understanding the challenges that the health system had to overcome to maintain contraceptive availability. The AAAQ Framework can be used to frame the main findings of the research. Of the components of the framework, this research study focused mainly on “Availability,” which is defined by the UNSECR (2000) as “the functioning public health and healthcare facilities, goods and services, and programs available in sufficient quantity” within a country. Using this definition, one of the main findings of the research indicates that the overall availability of contraception in Jamaica did not change during the pandemic.

According to participants, health centers remained open and FP services were available throughout the pandemic. However, when it comes to goods and contraceptive services, the framework allows for a more critical perspective. There were times during the pandemic when health centers faced issues with contraceptive availability because there was insufficient quantity and discontinuous supply. Health centers faced stockouts, particularly of male condoms and injectables. There was less availability of long-acting methods, female barrier methods, and EC compared to short-acting and male barrier methods. Availability of contraceptives was also limited because FP services were not sufficiently staffed to ensure continuous supply, as seen in IUD provider bottlenecks during the pandemic.

Another component of the AAAQ framework is ‘Accessibility’, which is composed of “nondiscrimination, physical accessibility, economic accessibility, and information accessibility” (UNSECR, 2000). While surveys and IDIs asked participants about the availability of contraceptives, participants often described issues that were most aligned with the “Accessibility” component of the AAAQ framework. The issues that most participants detailed were challenges to patients’ physical ability to access contraceptives, largely attributable to

COVID-19 restrictions and lockdowns. Other participants also observed patients who were unaware that contraceptive services could still be accessed during the pandemic, which can be seen as inaccessibility to information. Economic accessibility was not frequently discussed by participants however, when FP methods were not available at the clinic, some providers observed patients who had to go without their preferred method because they were unable to afford methods through the private sector. The discussion of accessibility to FP services during the pandemic from the perspective of FP patients is outside the scope of this study. Additional research around this point could be conducted using the AAAQ framework.

Research Limitations

There were several limitations in this research project. One limitation was the inability to conduct research in other health regions. Administrative approval processes did not allow sufficient time to obtain approvals from other health regional authorities. As a result, research was limited to three regions: North East, South, and South East. Another challenge to the research was the limited scope of sampling. The health centers that were selected to participate in the study were affiliated with AHF, the in-country research partner organization. These health centers received technical assistance and financial support from AHF. Though the research team emphasized the independence of the research from AHF, there is a possibility of social desirability bias that could have influenced participant responses and biased the results and findings of the study.

Additionally, the process of recruitment limited the types of participants in the study. The research team worked with AHF to identify the job titles within the health center that would be best positioned to respond to the questions of the research instruments. However, due to the nature of AHF work, many participants for the interviews and surveys were more strongly versed in the HIV/AIDS care landscape relative to FP or SRH. FP and SRH participants were asked to participate in the research; however, AHF's relationships with the health centers were

built on HIV/AIDS-focused activities. Because of this, some of the data was provided through a HIV/AIDS service delivery perspective, which is largely separated from FP service delivery in the Jamaican health system.

The organization of the Jamaican health system did not easily allow one person or one position to speak comprehensively on all the FP-related services being offered at the center. HIV team and FP healthcare professionals often operated in silos, resulting in incomplete perspectives on FP and contraceptive services. To mitigate this during fieldwork, the research team identified additional positions suitable for research as the data collection process continued. Ultimately, the team collected data from healthcare professionals who worked in areas of SRH, Maternal/Child Health, HIV/AIDS, and psychosocial support. In the recruitment of participants, selection criteria did not initially account for length of experience within the Jamaican health system. As a result, new healthcare professionals who had started their career during the pandemic were unable to speak to questions on service delivery prior to the pandemic.

Another limitation in the data collection process on contraceptives was the lack of access to records with data on contraceptive services and stocks of contraceptive methods. Surveys asked if participants could respond to questions about the number of methods distributed or the number of patients seen for contraception. Most participants were unable to provide this information either because they were unaware of the level of detail of the survey or because the information was not readily available or accessible at the time of data collection. Only a few participants were able to extract data from paper-based monthly FP service logs. Lastly, research methods relied on participants' ability to recall events and time periods up to two and a half years into the past, which may be subject to recall bias. Because of this and the inability to collect stock data from FP records and service logs, the research framed much of the data as health provider perceptions. Participants' recollections were not triangulated with numerical data.

Chapter 4.2: Public Health Implications and Recommendations

During the COVID-19 pandemic, health centers across Jamaica experienced challenges in providing contraceptive services to patients. In this study, health providers at Jamaican health centers identified the gaps in contraceptive availability and described the ways they worked to overcome barriers to continue to serve the FP needs of their patients during the pandemic.

Increased Investment in Long-Acting Contraceptives

This research emphasizes the need for renewed focus and increased investment in FP/SRH services, particularly during times of emergency. The project identified gaps in the availability of contraceptive methods during different periods of the COVID-19 pandemic. The number and types of methods that were available during the pandemic were, at times, limited due to stockouts or supply chain interruptions. According to field standards set by the WHO and FP2030, service delivery points, like health centers, should offer at least three methods of contraception, optimally five (Muhoza et al., 2021). Provider perceptions of contraceptive availability in the study indicate that most health centers were able to provide at least three methods. However, when disaggregating the available methods by type, short-acting and male barrier methods were reportedly more available than long-acting methods.

When female condoms, EC, and LARCs, the most effective methods of FP, are less available during a pandemic, Jamaican FP patients have fewer contraceptive options, which can increase the risk of unplanned pregnancies. Increased availability of these methods would provide FP users with more options when access to health services is restricted. A more robust method mix at the health center level would also encourage dual protection to prevent STIs. More investment in the availability of LARCs, emergency contraceptives, and female condoms

will facilitate the Jamaican health system's ability to meet the country's FP needs during emergency times.

Increased training in IUD and implant provision would facilitate more LARC availability and utilization in Jamaica. Several participants observed a dearth of personnel trained to insert IUDs which limited availability at health centers and stymied patient uptake of this type of method. Waiting lists, rotation of trained personnel, and training requirements were also cited as limiting factors in LARC service delivery. This contributed to unmet need for LARCs at multiple health centers during the pandemic. While Jamaican FP patients prefer short-acting methods, there is a need to increase and support long-acting method availability at health centers to ensure a diverse method mix is available for patients and, secondly, to provide longer term options aside from sterilization (WHO, 2019). To facilitate the increased availability of IUDs and implants, the Jamaican Ministry of Health should concurrently assure that training of health providers is commensurate with demand.

Investment in the Family Planning Workforce

Increased investment to draw and retain healthcare personnel should be prioritized to increase the quality of care for FP in Jamaica. Gaps within the health workforce intensified gaps in the availability of contraceptives during the pandemic. Participants suggested that the lack of incentives for health workers to stay in Jamaica contributed to a drain of trained healthcare professionals to find more benefits abroad. Because of the emigration of healthcare workers, those employed at Jamaican health centers faced higher workloads and staff shortages resulting in inefficient FP service delivery. The Jamaican health system should seek to understand the push factors that drive the health workforce to seek employment in other countries, while also exploring the pull factors that would encourage healthcare workers to stay in the country.

This research reveals an opportunity for increased integration and collaboration between HIV and FP services, particularly around condoms. In interviewing health workers at health centers across Jamaica, this study faced difficulties obtaining a comprehensive understanding of the contraceptive availability due to the siloed nature in which HIV and FP teams operated. Frequently, HIV and FP participants were unable to answer regarding the availability of contraceptives at the health center level because these teams did not often interact with each other, use the same sources of information, or understand the extent of services the other team provided. This lack of communication can ignore potential synergies that could lead to higher quality FP service delivery, especially in relations to condom distribution. AHF could extend additional support to health centers to review HIV and FP service delivery processes and ensure measures are in place that would encourage shared knowledge around the availability of and access to contraceptives, particularly condoms.

Facilitating Access to Contraception, not just Availability

Patients' access to contraceptive services is as critical as FP service availability and needs to be better supported in Jamaica. While this research focused on the availability of contraceptive methods at the health center, participants often referenced challenges in patients' accessibility that largely were exacerbated by the COVID-19 restrictions. As a result of movement restrictions, curfews, and lockdowns, participants described barriers to transportation, increased restrictions on the number of people allowed in health centers, and decreased patient flow. Though FP methods were available at the health center, these barriers were perceived as major obstacles to available contraceptive services. There is a need for Jamaica to explore innovative ways to reach FP clients at the last mile, that supplement existing efforts in FP demand creation and patients' health-seeking behaviors. Community outreach services were among the first services to be paused when, in fact, these services were crucial in the delivery of contraceptives to FP patients. Since healthcare personnel were confined to

health centers as much as patients were restricted to their homes, the availability of FP methods at the health center alone was not sufficient in meeting the FP needs of patients.

Healthcare personnel shared best practices from HIV service delivery that were implemented to meet the needs of HIV/AIDS patients. Differentiated service delivery and decentralized drug distribution ensured HIV/AIDS patients had access to antiretroviral medication during the pandemic. With the ability to deliver drugs directly to patients' doors, HIV/AIDS personnel and medication delivery prevented loss to follow-up. In contrast, FP study participants observed an increase in missed injectable appointments and decreased FP service utilization at the start of the pandemic. The Jamaican health system should work with AHF to identify best practices and lessons learned from HIV service delivery during the pandemic and explore additional opportunities to bridge the gap between the availability and accessibility of FP methods. There is a need for additional research to understand barriers and facilitators to patient accessibility to FP services during the pandemic.

Conclusion

This research project aimed to understand the availability of contraceptive methods in Jamaica during the COVID-19 pandemic. From the perspective of health providers, the availability of contraceptive methods did not change despite issues with supplies and constrained health workforce capacity. Quantitative findings demonstrate continued availability of contraceptive services during the pandemic, particularly related to male barrier methods, oral contraception pills, and injectables. However, the survey also identified weaknesses in method mixes at health centers with decreased availability of LARCs, female condoms, and EC. Qualitative findings describe the multitude of challenges that health personnel faced in providing contraceptive services, including low stock situations and stockouts, staff shortages, and the lack of trained staff for IUDs. Overall, the study found that health providers were able to provide

contraceptive services at health centers during the pandemic; however, COVID-19 restrictions prevented FP users from accessing the available FP services.

These findings emphasize the need for more investment in FP/SRH services, particularly during times of emergency. The gaps identified indicate the need for increased training of FP personnel to provide LARCs, which would contribute to a more robust method mix available to women in Jamaica. Workforce challenges described by participants highlight the factors that could motivate the health workforce and strengthen FP and SRH service delivery. This research also revealed opportunities for more synergy between HIV and FP teams, particularly in the provision of condoms. Lastly, limitations on patients' access call for different ways to deliver methods directly to FP users at the last mile. Additional research should seek to understand changes in the demand for LARCs and patient access to FP services since the start of the COVID-19 pandemic in Jamaica.

The findings of this study can be used by the Jamaican health system to understand strengths and identify areas that need additional attention when providing FP and contraceptive services during a pandemic. Increased investment in the workforce to retain skilled personnel and to build their capacity around LARCs can contribute to high quality SRH services in Jamaica. By leveraging both HIV and FP services and finding new avenues to meet FP users' needs, Jamaica can increase FP uptake, decrease unwanted pregnancies, and help women exercise their reproductive rights. These findings speak to the resiliency of the Jamaican health system during the pandemic and can be used to inform FP health service delivery as the country enters a new normal after the onset of the COVID-19 pandemic.

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Appendix A. Survey Questionnaire

Section 2: Contraceptive Methods

I would like to ask you some questions about family planning options at this health centre.

CM0. Does this centre offer contraceptive methods? Select one response.	◯ Yes ◯ No
CM00. We're interested in learning more about contraceptive availability at the health centre before and throughout the pandemic. Would you be in a position to answer some questions on contraceptive methods at this centre? Select one response.	◯ Yes ◯ No
CM1. What short- and long-acting contraceptive methods are available today at this centre? Select all that apply.	☐ Male Condoms ☐ Female Condoms ☐ Oral Contraceptives ☐ Injectables ☐ Implants ☐ IUDs ☐ Emergency Contraception ☐ Other
Please specify:	_____
CM2a. We're interested in learning more about the current contraceptive availability at the health centre, specifically the number of methods distributed last month. Would you be able to tell us how many methods were distributed last month for each of the methods you just provided? Select one response.	◯ Yes ◯ No
CM2b. How many Male Condoms were dispensed over the past month? Record response.	_____ (If 'Don't know', enter '999'.)
CM2b. How many Female Condoms were dispensed over the past month? Record response.	_____ (If 'Don't know', enter '999'.)
CM2b. How many Oral Contraceptive packs were dispensed over the past month? Record response.	_____ (If 'Don't know', enter '999'.)
CM2b. How many Injectable vials were used over the past month? Record response.	_____ (If 'Don't know', enter '999'.)
CM2b. How many Implant sets were used over the past month? Record response.	_____ (If 'Don't know', enter '999'.)
CM2b. How many IUDs were used over the past month? Record response.	_____ (If 'Don't know', enter '999'.)

CM2b. How many Emergency Contraception packs were distributed over the past month? Record response.	_____ (If 'Don't know', enter '999'.)
CM2b. How many [cm_available_other] were dispensed/used over the past month? Record response.	_____ (If 'Don't know', enter '999'.)
CM3. Have any of the contraceptive methods experienced a stockout at any time over the past three (3) months? A stockout refers to a point in time when there are zero usable units of a particular family planning method at a facility. Select one response.	◯ Yes ◯ No ◯ Don't know
CM4a. Which methods experienced a stockout at any time over the past 3 months? Select all that apply.	☐ Male Condoms ☐ Female Condoms ☐ Oral Contraceptives ☐ Injectables ☐ Implants ☐ IUDs ☐ Emergency Contraception ☐ Other
Please specify:	_____
CM4b. How many days were Male Condoms out of stock? Record response.	_____ (In days. If 'Don't know', enter '999'.)
CM4b. How many days were Female Condoms out of stock? Record response.	_____ (In days. If 'Don't know', enter '999'.)
CM4b. How many days were Oral Contraceptives out of stock? Record response.	_____ (In days. If 'Don't know', enter '999'.)
CM4b. How many days were Injectables out of stock? Record response.	_____ (In days. If 'Don't know', enter '999'.)
CM4b. How many days were Implants out of stock? Record response.	_____ (In days. If 'Don't know', enter '999'.)
CM4b. How many days were IUDs out of stock? Record response.	_____ (In days. If 'Don't know', enter '999'.)
CM4b. How many days were Emergency Contraception packs out of stock? Record response.	_____ (In days. If 'Don't know', enter '999'.)

CM5. Since the beginning of the COVID pandemic (March 2020), how has the availability of contraceptives changed? Read list - Select one response.

- ◯ Significantly More Availability
- ◯ More Availability
- ◯ Less Availability
- ◯ Significantly Less Availability
- ◯ No Change in Availability
- ◯ Don't know

CM6. Now I will read a statement and possible responses. Please select the response that best describes your opinion. The statement is: "Since the start of the pandemic (March 2020), contraceptive commodities have been delivered consistently on-time to the centre." Read list - Select one response.

- ◯ Strongly Agree
- ◯ Agree
- ◯ Disagree
- ◯ Strongly Disagree
- ◯ None of the above
- ◯ Don't know

CM7. How often were contraceptive methods available at this center? I will read a list of methods. For each method, please indicate whether the method was available all of the time, some of the time, or none of the time. (Read each option - Select one response.)

	All the Time	Some of the Time	None of the Time	Don't Know
i. Male Condoms	◯	◯	◯	◯
ii. Female Condoms	◯	◯	◯	◯
iii. Oral Contraceptives	◯	◯	◯	◯
iv. Injectables	◯	◯	◯	◯
v. Implants	◯	◯	◯	◯
vi. IUDs	◯	◯	◯	◯
vii. Emergency Contraception	◯	◯	◯	◯
viii. Other (Select a choice to ◯specify.)	◯	◯	◯	

Please specify: _____

CM8. We are also looking to understand the availability of contraceptive methods before the pandemic from December 2019-February 2020 and during a peak of the pandemic between April-June 2020. To do this, you may likely need to refer to inventory logs, stock cards, or the logistics management information system from before and during this peak of the pandemic. Would you have knowledge or access to data for these periods of times? Select one response.

- ◯ Yes
- ◯ No

CM9a. What were the contraceptive methods offered by this centre before the pandemic (December 2019-February 2020)? Select all that apply.

- ☐ Male Condoms
- ☐ Female Condoms
- ☐ Oral Contraceptives
- ☐ Injectables
- ☐ Implants
- ☐ IUDs
- ☐ Emergency Contraception
- ☐ Other

CM9b. Which of these methods experienced a stockout before the pandemic between December 2019-February 2020? Select all that apply.	☐ Male Condoms ☐ Female Condoms ☐ Oral Contraceptives ☐ Injectables ☐ Implants ☐ IUDs ☐ Emergency Contraception ☐ Other ☐ None
Please Specify:	_____
CM10a. What were the contraceptive methods offered by this centre at a peak of the pandemic, between April-June 2020? Select all that apply.	☐ Male Condoms ☐ Female Condoms ☐ Oral Contraceptives ☐ Injectables ☐ Implants ☐ IUDs ☐ Emergency Contraception ☐ Other
Please Specify:	_____
CM10b. Which of the methods were out of stock at a peak of the pandemic (April-June 2020)? Select all that apply.	☐ Male Condoms ☐ Female Condoms ☐ Oral Contraceptives ☐ Injectables ☐ Implants ☐ IUDs ☐ Emergency Contraception ☐ Other ☐ None

Appendix B. In-Depth Interview Guide

COVID-19 and its effects on Sexual and Reproductive Health in Jamaica: In-depth Interview Guide

This interview will take approximately 60 minutes. With your permission, we would like to record the interview so we can be sure we have thoroughly captured your responses. All identifying information will be removed from the interview notes, transcripts, or survey materials. We guarantee you that all of the interviewing data will remain confidential and secure throughout the entire project.

Do you have any questions before we begin?

[*Answer any questions they may have and then begin]*

Background Information/Demographics

[To be filled prior to start of interview but after consenting]

Record ID:

Role in Clinic:

Clinician Name:

Highest level of education:

Starting date/month/year in this Clinic:

Years working in your profession:

Do you consent to recording? *[Start recording]* We are now recording. For the record, do you agree to participate in this research study? Are you okay with being recorded? Remember to speak clearly for the best audio capture results.

1. Opening Questions

First, I'd like to start with a few questions about your work and role here at the clinic as well as overall clinic services.

1. Can you tell me a little bit about your role in the clinic?

2. Can you tell me about the types of patients that your center serves?

Probes: demographic information (age, gender, ethnicity), patients' needs

Interview Framing Questions

3. Can you tell me about the sexual and reproductive health services your clinic provides?

Probe for unmentioned- family planning services, STI services*, miscarriage management, prenatal care, antenatal care, post-abortion care service, screening and referral for DV**

4. Can you tell me about the HIV care services your clinic provides?

2. Service Delivery Prior to COVID-19

Now, I'd like to ask you about services that your clinic provided prior to COVID-related physical distancing and lockdowns, before March 2020, if you can think back to that time.

5. Can you please describe how your clinic provided the services you mentioned previously before March 2020?

Probes: services available, range of options available, frequency of family planning or HIV care specific appointments, how was that experience for you

6. How did your clinic manage gender-based violence care and domestic violence screening for patients before March 2020?

Probes: resources, intake questions, implementation, screening and care

Thank you, now we'd like to specifically learn a little bit more about services and commodities prior to March 2020.

7. Can you describe any issues/challenges in your clinic's service delivery prior to March 2020?

Probes: appointment availability, product availability, meeting patient's needs, patient challenges to care, workforce issues. Probe specific to SRH and HIV

8. Can you describe any challenges to getting commodities needed for patient care for sexual and reproductive health patients prior to March 2020?

Probes: product availability, product cost

3. Service Delivery after COVID onset

Now, I'd like to discuss what your center did to adapt to COVID-19.

9. What safety protocols did your center institute/implement in response to COVID-19?

Probes: How did that impact patients accessing care? Switch to telehealth services, masking at clinics, limiting services

10. In terms of pandemic response, how did your organizational structure change?

Probes: staffing, job responsibilities, services provided, precautions, risk mitigation strategy, resources allocated

Thank you, I'd like to transition to asking how service delivery has changed since the onset of COVID-19.

11. How has your job changed since March 2020?

Probes: appointment type, day-to-day, priorities

12. How has your service delivery of sexual and reproductive health services changed since the pandemic onset?

Probe: What are some common challenges that have occurred since the pandemic that the centre has experienced when providing sexual and reproductive health services?

13. How has your service delivery of HIV/AIDS care services changed since the pandemic onset?

14. What were the positive improvements or innovations in your care delivery because of COVID-19, if any?

Probes: Example of care innovation, Ask about Family Planning, STI, Other SRH, HIV care, and DV screening.

I would like to transition to ask you about your impressions of the impact of COVID-19 on the patients you serve.

15. In what ways, if any, has COVID-19 changed how patients feel about their care?

Probes: Trust in clinic services? Ability to come to clinic? Desire to come to clinic?

16. How have the needs of the population as it relates to family planning been impacted since March 2020?

Probes: less/more contraception sought, availability of product, general demand for contraception, miscarriage management, abortion services

17. How have patients' needs with HIV services and care changed since the start of the Pandemic?

Probes: challenges to care, increase in incidence, prolonging care, more severe symptomology,

18. How have patients' needs with STI services and care been impacted since the start of the Pandemic?

Probes: challenges to care, increase in incidence, prolonging care, more severe symptomology,

19. How have patients' needs for help with domestic violence and domestic violence screening been impacted since March 2020?

Probes: Types of patients, increases in substance use, change in case load, referring them to services, screening, and needs

Thank you, we only have a few more questions.

20. Overall, have sexual and reproductive health services returned to normal procedures?

If difficulty answering- For example, what they were like prior to March 2020?

21. What are the current gaps in the needs in the center?

Probes: services, patient satisfaction, resources, what role did COVID play?

4. Closing Questions

22. What do you think needs to change to improve the current healthcare system?

23. How do you think health systems could better prepare for outbreaks like this in the future?

24. Is there anything further you would like to discuss?

That's the end of our interview! Your knowledge and experiences are extremely important to us, and we appreciate you taking the time to speak with us.