



Republic of Rwanda  
Ministry of Health



# USE OF TELEMEDICINE TO IMPROVE ACCESS TO COMPREHENSIVE ABORTION CARE IN RWANDA: INNOVATIVE APPROACH

## OPERATIONAL RESEARCH FINAL REPORT

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## Executive Summary

### **Background:**

Rwanda has witnessed significant legal and policy shifts regarding the access to safe abortion care. Despite these advances, persistent challenges remain in ensuring the availability, readiness, and equitable access to safe abortion services. A pilot study conducted in Musanze District, Rwanda, tested a facility-based telemedicine model to expand access to first-trimester medication abortion by integrating primary health centers into the care pathway. Rwanda's legal framework permits abortion under specific circumstances, yet service delivery has largely been restricted to doctors in hospitals, creating geographic and logistical barriers. The intervention connected nurses and midwives at health centers with doctors, remotely localized at district hospitals through telemedicine for case authorization and clinical oversight, while client counseling, clinical assessments and initial medication provision were conducted at the health center level, and follow-up was done by nurses at the health center or by phone. The result from the pilot study in Musanze district demonstrated clear evidence that telemedicine model for providing abortion care services at the health center (HC) level is safe, feasible and acceptable. To further understand the feasibility, safety, acceptability and client satisfaction, the Ministry of Health recommended expanding the study to other 3 districts of Rwanda.

### **Methods:**

A prospective study was conducted in 45 public health centers from Musanze, Karongi, Ruhango and Rwamagana Districts. All clients in the first trimester seeking abortion care service in 45 public health centers from the four districts were invited to voluntarily participate in the study. Nurse/midwives in health centers were remotely connected to doctors in district hospitals during the provision of abortion services. The doctor based at the district hospital remotely supported the nurse-midwife reviewing client's clinical information's, laboratory results, ultrasound image, and rule out the ectopic pregnancy and other major underlying health problems such as heart disease, kidney disease, discuss lab test, make decision for termination of pregnancy, and prescribe methods to be used for termination of pregnancy. After a decision by the doctor and prescription of medications abortion, the nurse-midwife provided the methods prescribed and followed the approved clinical protocol to manage the case. A nurse/midwife at the health center conducted three

follow-up consultations by telephone or in person. The first within 48 hours, the second at 7 days, and the third at 14 days. The follow-up consultations are to confirm the patient's health status and assess completion of abortion.

Nurse/midwives used the telehealth digital tool to record patient information, including medical history, clinical assessments, lab tests, exams, and treatment details, with the ability to upload supporting documents and revisit records as needed. Clients digitally sign the consent forms, after which the nurse initiates a teleconsultation with a remote doctor, who provides digital prescriptions and signs the required consent forms. The tool allows multiple teleconsultations and follow-up visits as needed, ensuring comprehensive management of medical abortion care.

Additional qualitative data was collected to further understand feasibility, client acceptability, perception, safety, program effectiveness, and health systems' needs to scale-up the program. Key informants, focus group discussion and in-depth interviews were conducted. In total, 99 respondents participated in the qualitative part of this study.

Descriptive statistics were used for quantitative data analysis, and results are presented in tables and graphs. Interviews were qualitatively analyzed using iterative thematic techniques.

## **Results:**

The findings show that a total of 1,096 clients sought abortion services across 43 of the 45 selected health centers, of whom 920 were considered eligible to receive safe abortion care services. Women seeking safe abortion care services were predominantly young aged 18-24 years (52.0%); 78.6% of the clients received abortion service at health centers were single. Almost a half of clients (49.9%) completed secondary school and 40.4% had only primary education. The majority of clients 530 (57.6%) were not having living children at the time of seeking pregnancy termination. The study findings revealed that 95.6% (43 of 45) of targeted health centers provided abortion services through telemedicine. A total of 735 clients completed the three required follow-up, equivalent to 80%

Phone call follow-up was conducted for 79.4% of clients. After taking abortion medication, 97.4% of clients reported the starting of bleeding during the first follow-up, and 68.2% did not experienced any drug related side effects. Treatment successful rate was

99.6% and was defined as absence of bleeding and pain at the third follow-up. 99.5% of clients did not report any danger sign during the follow-up two. This is an indication of safety of using telemedicine in provision of abortion care services. Active engagement of healthcare providers at health center and hospital highlights the feasibility of delivering medication abortion services through a decentralized telemedicine supported model. Participants described telemedicine as a safe process that allowed them to receive abortion care while taking medication at home with adequate guidance and follow up. Both providers and clients emphasized that clear instructions, continuous communication, and reassurance from healthcare providers helped address initial fears and ensured safety.

A total of 99 nurses were trained, of them 74.7% provided the abortion services through telemedicine and a total of 19 Doctors were trained, of them 84.2% provided the abortion services through telemedicine. The completion rates of more than 80% of any of the 3 follow-ups indicate the high level of abortion care acceptability using telemedicine. Clients reported overwhelmingly positive experiences with telemedicine-based abortion care. They emphasized trust in providers and satisfaction with the clarity of explanations given during consultations. They reported services as respectful, nonjudgmental, and emotionally supportive. Clients were satisfied about accessing abortion care at health centers using telemedicine. Clients reported feeling reassured, supported, and able to resume normal activities due to clear counseling, continuous and effective follow-up, and respectful care.

Furthermore, finding showed that 780 (84.8%) clients were pregnant due to rape; 93,4% had no history of abortion; for 485 (52,7%) it was their first pregnancy; 78.6% were single while 9 were persons with disability. 97.4% of clients who took medication and followed up at day 2 reported bleeding as a sign of beginning of abortion and 68.2% did not experience any side effect related to medication taken, while follow- up at day 7 revealed that only 4 clients (0.5%) experienced danger signs. Finally, follow- up at day 14 revealed that treatment success rate was 99.6% (732/735) and only 29.1% of clients adopted a Family Planning method.

### **Conclusions and recommendations:**

Based on these positive outcomes from this operational research, which demonstrate that the telemedicine model is safe, feasible, and acceptable to both clients and healthcare

providers the telemedicine-supported abortion care model should be expanded and scaled up to additional health centers and districts, with priority given to underserved and rural areas. National scale-up should be accompanied by standardized clinical protocols, strengthened referral loops systems, continued provider training and mentorship, and full integration into national digital health systems to ensure quality, sustainability, and equitable access to comprehensive abortion care. In addition, the service delivery model and regulatory framework should be reviewed and updated to enable adolescents under 18 years of age to safely access abortion services at the health center level without mandatory referral to hospital level.

## List of Acronyms

CAC	Comprehensive abortion care
CHW	Community health worker
D&C	Dilation and curettage
D&E	Dilation and evacuation
EC	Emergency Contraception
EVA	Electric vacuum aspiration
HC	Health Center
IUD	Intrauterine Device
MA	Medication abortion
MCCH	Maternal, Child, and Community Health
MMR	Maternal Mortality Ratio
MVA	Manual vacuum aspiration
PI	Principal Investigator
RBC	Rwanda Biomedical Center
RHIYW	Rwanda Health Initiative for Youth and Women
RMNCAH	Reproductive, Maternal, Newborn, Child & Adolescent Health
RSOG	Rwanda Society of Obstetricians and Gynecologists
SPH	School of Public Health
WHO	World Health Organization

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## 1. Background and Context

The barriers to access safe abortion present a serious health risk for women globally. According to WHO recommendations, many components of abortion care in the first trimester can be provided on an outpatient basis and by mid-level providers, and women can self-administer the abortion medication and self-assess the abortion completeness at home (WHO, 2015).

Telemedicine defined as the delivery of healthcare services at a distance through information and communication technologies has become an increasingly important component for modern healthcare systems, including the provision of abortion care (Prata, 2025). In recent years, abortion providers have adopted telemedicine platforms, such as videoconferencing, to offer counseling and remotely administer medication abortion services (Craig A, 2022). Recent evidence demonstrates that telemedicine supported medication abortion is safe, effective and highly acceptable by clients (Cleeve A, 2025).

Access to safe and timely induced abortion particularly during the early stages of pregnancy (up to 12 weeks) is critical public health interventions that can prevent nearly half a million maternal deaths and reduce morbidity among millions of women globally (Kapp N, 2020). Strengthening access to safe abortion care is therefore an essential component of achieving universal reproductive health and advancing the sustainable development goals (SDGs). Although numerous global guidelines and recommendations exist, limited research has examined abortion care from a health services perspective to guide planning and policy makers in expanding access (Craig A, 2022). Evidence gaps remain on how to effectively integrate abortion services within existing primary healthcare and family planning systems as well as how to optimize the health workforce. Nevertheless task shifting from medical doctors to nurses and midwives in high income countries has shown encouraging results. The overall evidence base particularly in Low- and middle-Income countries is still insufficient (Kapp N, 2020).

## 1.1 Abortion in Rwanda

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Rwanda has made notable progress in reducing maternal mortality from 1,071 maternal mortality ratio (MMR, deaths per 100,000 live births) in 2000 to 105 in 2024 (HSSP V,2025), yet complications from unsafe abortion pose a significant public health challenge.

In Rwanda, despite endorsement of legal exemptions for safe abortion, cultural, stigma and religious barriers continue to affect access to safe abortion. The annual rate of 25 unsafe abortions per 1,000 women aged 15–44 was and is still recorded in Rwanda [7], and 40% of Rwandan women are subjected to complications related to self-induced abortions that require medical attention. A more recent study which captured data from 2017 and 2019 found that abortion was the cause for 8% of maternal deaths (Rulisa et al., 2021).

## 1.2 Legal Framework for Abortion Services in Rwanda

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In 2012, Rwanda expanded legal grounds for abortion to include cases of rape, incest, forced marriage, and pregnancies that put the health of the pregnant person or the health of the fetus at risk (Republic of Rwanda, 2012). In 2018, the law was expanded such that there is no criminal liability if the pregnant person is a minor (Ministry of Health Rwanda, 2018). A 2014 evaluation of the program to operationalize the new exemptions found the program made significant contributions to make abortion safer in Rwanda but also demonstrated that further work was required to reach the goal of providing safe abortion services to all eligible women (Hodoglugil et al., 2017). Implementation of the revised penal code limits authorization of abortion care to only medical doctors. Consequently, access to medication abortion services remains limited for women residing outside of urban centers where hospitals have limited number of medical doctors. Only few health centers, known as medicalized health centers, have doctors on site, while most community-level health centers are staffed primarily by nurses and midwives, limiting local access to safe abortion services.

Rwanda adopted a significant Law Regulating Healthcare Services in 2025, marking one of the most important health policy reforms in recent years.

Key features of this law include:

- **Lowered age of consent for health care services:**

For the first time, the law reduces the minimum age at which adolescents can access health services including sexual and reproductive health care without parental consent. This change aims to improve access to timely care for young people and reduce barriers that previously kept adolescents from seeking services earlier.

- **Access to sexual and reproductive health:**

The law explicitly expands access to a range of sexual and reproductive health services for adolescents, addressing longstanding gaps in care and adherence human rights frameworks.

### **1.3 Safety and Efficacy of Medication Abortion in the 1<sup>st</sup> Trimester**

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Use of medication for termination of pregnancy is a globally endorsed method, and is increasingly used worldwide. In 2015, World Health Organization’s (WHO) safe abortion guidance recommended that abortion services be provided at the lowest appropriate level of the health-care system, including medical abortion up to 12 completed weeks of pregnancy. The guidelines state that mid-level health workers, including midwives, nurse practitioners, clinical officers, physician assistants, and others, can be trained to provide safe, early abortion without compromising safety (World Health Organization, 2015). A systematic review of early abortion services in low- and middle-income country primary care showed that providing early medical abortion in primary care services is safe and feasible and “task-shifting” to mid-level providers can effectively replace doctors in providing abortion (Zhou et al., 2020). Ethiopia successfully task-shifted medication abortion in the first trimester to midlevel providers in health centers and was able to make substantial progress in expanding comprehensive abortion care as a result (Gebrehiwot et al., 2016).

The protocol for administering medication abortion is also widely tested and evidence based (Guttmacher Institute, 2019). It involves the combination use of two medications, mifepristone and misoprostol, which have both been on WHO’s complementary List of Essential Medicines since 2005, transforming both how abortion is provided and how it is experienced by women (World Health Organization, 2006). The protocol is approved for use up to 70 days after a patient’s last

menstrual period. Under the protocol, only one visit is required for a patient to obtain medication abortion pills, and the patient may take the second medication in the regimen (misoprostol) at home or another chosen location. Evidence shows that medication abortion is safe, with serious complications requiring hospitalization for infection treatment or transfusion occur in less than 0.4% of patients (Guttmacher Institute, 2019; Raymond et al., 2013). Medication abortion is also highly effective, with a success rate of more than 95% using the standard protocol (Chen & Creinin, 2015; Guttmacher Institute, 2019)

## 2. Objectives

### 2.1. Goals and Objectives

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The goal of the research was to assess the feasibility, safety and acceptability of using telemedicine model for providing safe abortion care services at the health center level and demonstrate that nurses and midwives working in public health centers in four districts includes **Musanze, Ruhango, Karongi and Rwamagana** can provide first trimester medication abortion services within the legal framework by using teleconsultation to connect with district hospital doctors for authorization of provision. This study represents the second phase, building on an initial pilot in Musanze District, with the purpose of further validating the findings across additional districts. The findings from a pilot study in Musanze supported the development of service provider guideline and contributed to the revision of ministerial order related to the provision of abortion services. The aim for the second phase of the study, build on the previous findings to establish and further evaluate the safety, the feasibility, and acceptability of the intervention at expended number of health facilities.

The specific objectives were to:

1. To evaluate the safety and feasibility of using telemedicine in provision of MA services at health centers.
2. Assess the level of acceptability and client satisfaction of the telemedicine MA service provision at HCs.
3. To provide evidence-based recommendations for the scale-up of telemedicine use in abortion care.

### 2.2 Service Delivery Model

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Consenting clients requesting medication abortion services at health centers participated in a joint consultation with a health center nurse/midwife and an authorized doctor at the district hospital who connected via telemedicine. Before the nurse scheduled teleconsultation with the doctor, they verified legal eligibility and age of pregnancy using last menstrual period and ultrasound exam; conducted psychological/social assessment, clinical assessment, and pre-procedure counselling; requested laboratory tests; and entered information in electronic patient file.

The doctor based at the district hospital remotely supported the nurse/midwife to do the following: review client's clinical data, ultrasound image and rule out the ectopic pregnancy, discuss lab tests, make decisions for termination of pregnancy, and prescribe methods to be used for termination of pregnancy. After a medical decision by the doctor, the nurse/midwife provided the mifepristone combination tablet, three doses of misoprostol tablets to take home the day after (24 hours after taking mifepristone tablet) and pain management medication and followed the approved clinical protocol to manage the case. The nurse-midwife at health center conducted three telephone follow-up consultations using a questionnaire guide: 1) 48 hours after mifepristone intake to confirm the client took the misoprostol, bleeding started, and determine whether side effects were well managed with no danger signs; 2) 7 days after the medication abortion to ensure no complications, that the pregnancy termination was ongoing or completing, assess level of bleeding and cramping level, ensure no side effects or signs of infection and check the general status; and 3) 14 days after medication abortion to assess completion of abortion, and ensure no signs of incomplete abortion or infection. The patient returned to the health center if it was deemed necessary during the telephone consultations. A doctor was available to the nurse-midwife via teleconsultation to address concerns related to outcome and medication side effects during the follow-up appointments. The decision to refer the patient was made by the consulting doctor.

## 3.Methodology

### 3.1 Study Design Overview

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This study employed mixed study design with both quantitative and qualitative data. The study enrolled first trimester clients seeking abortion care from 45 public health centers across four districts (Rwamagana, Musanze, Ruhango and Karongi), with participation strictly voluntary. These districts were selected because they are part of a national decentralized model for providing comprehensive abortion care, where nurses and midwives at the health centers are authorized to deliver primary level reproductive health services. The study sites therefore represent a mix of rural and semi-urban settings, allowing the study to capture variations in abortion care access and delivery across different geographical and health system contexts in Rwanda.

#### **Timeline:**

The development and implementation of this research project took place between May 2024 and December 2025. During the initial phase (mid-May to mid-November 2024), the research team reviewed the study protocol, Health care provider's clinical guidelines, and development telehealth tool, trained healthcare providers, conducted project introductory meetings and VCAT trainings, and ensured that all necessary medications and IT equipment were in place. The digital tool was then used for service delivery and data collection from mid-November 2024 through December 2025, completing 12 months of service provision. Additional qualitative data collection was conducted by RHIYW consultants in November and December 2025, followed by data analysis and preparation of the final report in December 2025.

### 3.2 Quantitative study

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The quantitative component included all first trimester clients seeking termination of pregnancy who voluntarily agreed to participate. These clients received services through a decentralized telemedicine model where nurses and midwives at the health centers were remotely connected to medical doctors at district hospitals for ultrasound review, diagnosis, authorization and guiding abortion care services and prescription of the appropriate method. Nurses and midwives formed an essential part of this

population because they delivered Comprehensive Abortion Care (CAC) services, conducted follow-up assessments and applied standardized clinical protocols under remote supervision.

**Inclusion criteria for clients:**

- Women and girls aged 15 years or older
- First trimester pregnancy ( $\leq 12$  weeks)
- Eligible for abortion under the Rwandan legal framework (pregnancy due to rape, incest, forced marriage, minor below 18, or pregnancy endangering the women's health)
- Willing to receive abortion services at health centers
- Provided Informed consent for abortion services and study participation
- Women 15 years or older seeking post abortion care at selected health centers

**Exclusion criteria for clients:**

- Women under 18 years without a go ahead from **Isange one Stop center (IOSC)**
- Women with major underlying conditions (eg: heart disease, kidney disease, severe anemia)
- Women with Obstetric/ gynecologic complications (eg: ectopic pregnancy, uterine scar, myoma)
- Women requiring surgical abortion or referral directly to district hospital
- Women who do not consent to participate

### **3.3 Qualitative data**

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Qualitative data were collected to assess feasibility, acceptability, safety, program effectiveness and health system requirements for scale-up. Data collection included in depth interviews with 16 nurses/midwives and 16 heads of health centers involved in the telemedicine intervention, key informant interviews with four district directors of health and national level stakeholders as well as four focus group discussions with Community Health Workers. The mixed participants provided a comprehensive understanding of the telemedicine model for expanding access to abortion care services in Rwanda. Overall, 99 participants were interviewed from the four districts.

**Table 1: Selected institutions and health facilities for qualitative**

District	Health facility/Institution	Type of Interview
National level	<ul style="list-style-type: none"> <li>• RBC/MCCH</li> <li>• RSOG</li> <li>• Digital Health - MoH</li> </ul>	3KIIs
Rwamagana	<p>One nurse/midwife at Rwamagana Health centre</p> <p>Head of Rwamagana HC</p> <p>One nurse/midwife at Munyiginya Health centre</p> <p>Head of Munyinya HC</p> <p>One nurse/midwife Nyagasambu Health centre</p> <p>Head of Nyagasambu HC</p> <p>One nurse/midwife at Ruhunda Health centre</p> <p>Head of Ruhunda HC</p> <p>Interviews with clients</p> <p>Focus Group Discussion with 6 CHWs</p> <p>Director of Health</p> <p>Director general or Clinical Director</p>	<ul style="list-style-type: none"> <li>• 12 IDIs,</li> <li>• 1 FGDs</li> <li>• 6 KIIs</li> </ul>
Musanze	<p>One nurse/midwife at Muhoza Health centre</p> <p>Head of Muhoza HC</p> <p>One nurse/midwife at Kinigi Health centre</p> <p>Head of Kinigi HC</p> <p>One nurse/midwife at Karwasa Health centre</p> <p>Head of Karwasa HC</p>	<ul style="list-style-type: none"> <li>• 12IDIs,</li> <li>• 1 FGDs</li> <li>• 6 KIIs</li> </ul>

District	Health facility/Institution	Type of Interview
Ruhango	One nurse/midwife at Musanze Health centre	
	Head of Musanze HC	
	Interviews with clients	
	Focus Group Discussion with 6 CHWs	
	Director of Health	
	Director General/Clinical Director of Ruhengeli Hospital	
	One nurse/midwife at Byimana Health centre	● 12IDIs,
	Head of Byimana HC	● 1 FGD
	One nurse/midwife at Mbuye Health centre	
	Head of Mbuye HC	● 6 KIIs
	One nurse/midwife at Mwendo Health centre	
	Head of Mwendo HC	
	One nurse/midwife at Kigoma Health centre	
	Head of Kigoma HC	
Interviews with clients		
Focus Group Discussion with 6 CHWs		
Director of Health		
Director General/Clinical Director of Ruhango Hospital		
Karongi	One nurse/midwife at Kibuye Health centre	● 12IDIs,
	Head of Kibuye HC	● 1 FGDs
	One nurse/midwife at Gisunzu Health centre	

District	Health facility/Institution	Type of Interview
	Head of Gisunzu HC One nurse/midwife at Rufungo Health centre	● 6 KIIs
	Head of Rufungo HC One nurse/midwife at Bisesero Health centre	
	Head of Bisesero HC Interviews with clients	
	Focus Group Discussion with 6 CHWs Director of Health	
	Director General/Clinical Director of Kibuye Hospital	

Overall, 99 respondents participated in the qualitative part of this study.

### 3.4 Data Collection and Management

Health care providers Nurses /midwives in the research project were responsible for completing forms to document service delivery as part of the program. The data collection tools are outlined below.

The data collection for this study followed a structured set of procedures designed to assess, treat and refer clients seeking abortion care at participating health centers. The intervention focused on the integration of a telemedicine supported abortion service within existing comprehensive sexual and reproductive health (SRH) services.

In addition to quantitative data collection, the study incorporated qualitative data to gain deeper insights into clients and provided experiences with telemedicine supported abortion services. Qualitative data were collected through purposively selected in-depth interviews and key interviews with clients who had received abortion services and healthcare providers involved in the service

delivery, including nurses, midwives and supervising doctors. Participants were selected based on the direct involvement in the intervention and their ability to offer rich, relevant perspectives. Interviews were conducted in the private and confidential space within the health facility or via phone participants unable to return in person. Trained qualitative researchers followed a semi-structured interview guide to explore perceptions of the service accessibility, satisfaction, challenges encountered, quality of teleconsultation interactions, and recommendations for improving the model. All interviews were audio recorded with the participant consent, transcribed verbatim and later translated for analysis. The qualitative approach allowed for an in-depth understanding of contextual factors influencing service delivery and client experiences, complementing the quantitative findings.

### **Service record/Electronic form:**

Health care providers completed an individual service clinical record for each woman receiving or referred for medication abortion service. Service data were collected and managed using the telehealth digital developed and hosted at the ministry of health. The same record was updated after each follow-up call/visit at 48 hours, 7 days and 14 days after mifepristone was taken at the HC. The form included 7 sections as described below:

- **General information:** Basic patient information, including name, address, phone number for follow-up calls, general appearance, reasons for termination.
- **Medical history and initial assessment:** Medical, obstetrical and gynecological History: Sociodemographic information and woman's reproductive history, prior use of contraception, Physical and Pelvic Examination: complete examination includes ultrasound exam for gestational age and screening of abnormalities and ectopic pregnancy; blood tests, STI tests
- **Telemedicine Consultation:** Information from the first telemedicine call with the doctor, as well as any subsequent telemedicine calls in which the nurse/midwife is call the doctor for consultation
- **Medication and Treatment:** Information on counselling and all medications given to the woman and treatments prescribed including post abortion contraception
- **Follow-up Visits:** reason for the visit, medications and treatments, referral

- **Treatment Summary:** Overview of all treatment received

### **Project implementation areas**

The project was implemented across four districts in Rwanda: Musanze, Rwamagana, Ruhango, and Karongi. In **Musanze District**, services were provided at 13 health centers: Bisate, Gashaki, Gasiza, Gataraga, Kabere, Karwasa, Kinigi, Muhoza (Ruhengeri), Murandi, Musanze, Nyange, Shingiro, and Gacaca. In **Rwamagana District**, 15 health centers participated: Avega, Rwamagana, Gahengeri, Gishali, Karengye, Murambi, Munyiginya, Musha, Muyumbu, Mwulire, Nyagasambu, Nyakaliro, Nzige, Rubona, and Ruhunda. In **Ruhango District**, 9 health centers were included: Byimana, Gishweru, Munanira, Mbuye, Muremure, Karambi, Kigoma, Mwendo, and Kinazi. In **Karongi District**, 8 health centers participated: Kibuye, Bigugu, Gisunzu, Rufungo, Munzanga, Mwendo, Gisovu, and Bisesero. These 45 health centers across the four districts formed the primary sites for the implementation of telemedicine-supported comprehensive abortion care services. Four hospitals supported were; Ruhengeri and Rwamagana Level Two Teaching Hospitals, Kibuye Referral Hospital, and Ruhango District Hospital.

### **Project Inputs Across Pre-Implementation and Implementation Phases**

In this research project; key inputs included the training of 124 healthcare providers in the comprehensive abortion care, use of telehealth system, equipping 45 health centers with essential ICT tools such as computers, webcams, signature pads, internet connectivity, airtime, and delivering essential medicines and consumables for abortion care, including Mifepristone-Misoprostol and ultrasound gel. Capacity-building activities, also included onsite Values Clarification and Attitude Transformation (VCAT) sessions for each selected health centers (in total 480 health center staff participated) and orientation on the in country legal framework related to abortion services provision of 4,523 community health workers across all district, these to ensure awareness on availability of services at health center level via telemedicine, reduce stigma, and strengthen service delivery. Additional preparatory and implementation activities included district-level orientation meetings for district stakeholders, as well as the establishment of monitoring and evaluation systems, including site supervision and bi-monthly virtual meetings to track progress, identify challenges, and provide corrective actions. Collectively, these inputs ensured facility level working environment readiness,

staff were competent, and communities were informed to support safe, accessible, and high-quality telemedicine-assisted abortion services.

### **3.5 Data Entry and Analysis**

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Quantitative data collected through the digital tool (Tel-health) were analyzed on a continuous and monthly basis. The system was used to generate summary reports for each participating health facility, capturing the indicators such as total number of clients served, abortion methods provided, complications, referrals and follow up outcomes. These reports are informed by information recorded in each patient's digital file in addition, a national level dashboard developed to provide Rwanda Biomedical Center (RBC) and the research team with real time access to aggregated data from all 45 health centers. The dashboard included clearly defined indicators agreed upon during the development of the digital tool, supporting ongoing monitoring, program and decision making. Descriptive statistics was used during the analysis.

Qualitative data analysis conducted using thematic analysis approach. All interviews were transcribed and translated in English and imported into Atlas.ti software for coding and organization. Researchers reviewed transcripts to identify recurring ideas, patterns and themes related to service acceptability and telemedicine interactions and perceived quality of care. Key themes and illustrative quotes used to present qualitative findings in the report. Finally, the triangulation was conducted to integrate quantitative and qualitative results, allowing the research team to compare trends, validate findings and generate a more comprehensive understanding of the effectiveness and feasibility of telemedicine supported abortion services.

### **3.6 Ethical Review**

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Institutional Review Board approval for this research was obtained from the Rwanda National Ethics Committee. The ethical approval was obtained on 24 July 2024 (RNEC 501) and extension was received on 24<sup>th</sup> September 2025 (RNEC 920).

Women were asked to sign both informed consent for pregnancy termination and for research enrollment.

Furthermore, consenting clients requesting medication abortion services at health centers were informed about a joint consultation with a health center nurse/midwife and an authorized doctor at the district hospital who connected via telemedicine.

# 4. KEY FINDINGS

## 4.1 Introduction

The study was conducted across four districts (Musanze, Karongi, Ruhango and Rwamagana) utilizing both qualitative and quantitative data to assess the feasibility, safety, and acceptability of the use of telemedicine for provision of first trimester medication abortion services at health center level. The analyses are based on the data collected through service delivery forms from November 2024 to December 2025 and Qualitative data collected in November 2025.

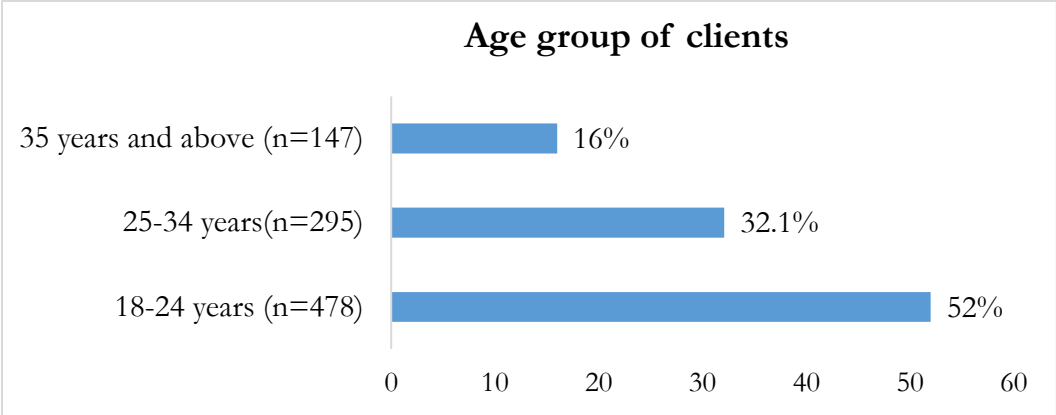
During the study period a total of 1096 clients sought the abortion services in 43 health centers. After assessing the eligibility criteria as per legal exemption and per study protocol, 920 clients were eligible to receive abortion services through telemedicine at health center.

## 4.2 Characteristics of women who accessed abortion care using telemedicine

### 4.2.1 Socio- demographic characteristics of women seeking abortion-related services

The findings show that women seeking safe abortion care services were predominantly young, with the majority aged 18-24 years (52.0%), followed by those aged between 25-34 years (32.1%) and 16% were aged 35 years and above.

**Figure 1: Age group of study participants**



**Table 2: Socio-demographic characteristics of clients**

Variables	Number	Percentage
<b>Marital status</b>		
Single	723	78.6%
Married	124	13.5%
Cohabiting	18	2.0%
Separated	31	3.4%
Windowed	7	0.8%
Divorced	17	1.8%
<b>Educational level</b>		
No formal education	28	3.0%
Primary	372	40.4%
Secondary	459	49.9%
Above secondary education	61	6.6%
<b>Has disability</b>		
Yes	9	1.0%
No	911	99.0%

Nearly eighty percent (78.6%) of the clients received abortion service at health centers were single and 13.5% were married. Almost a half of clients (49.9%) completed secondary school and 40.4% had only primary education. This indicates that more than half of clients who sought abortion care services had secondary education and above (56.5%). Nine clients (1.0%) had disability, of them 4 had physical disability, 2 had visual disability, one had speech disability, one had mental disability and one had hearing disability.

#### 4.2.2 Reproductive history and contraception method use among clients

Table 4 is presenting the results about the reproductive health history of the 920 clients who sought pregnancy termination services in the 43 health centers.

**Table 3: Reproductive health history of clients**

Variables	Number	Percentage
<b>Gravidity</b>		
1	485	52.7%
2	187	20.3%
3	112	12.2%

Variables	Number	Percentage
4	56	6.1%
5 and more	80	8.7%
<b>Parity</b>		
0	497	54.0%
1	190	20.7%
2	109	11.8%
3	54	5.9%
4	37	4.0%
5 and more	33	3.6%
<b>Prior abortions</b>		
None	859	93.4%
1	53	5.8%
2	6	0.7%
3 or 4	2	0.2%
<b>Number of living children</b>		
None	530	57.6%
1	178	19.3%
2	94	10.2%
3	49	5.3%
4	36	3.9%
5 and more	33	3.5%

Among the 920 women who sought safe abortion care service at health center level, more than a half (52.7%) of clients were experiencing their first pregnancy, while a smaller proportion (8.7%) 80 had gravidity of 5 and more. In terms of parity, 497(54.0%) had parity zero and 33(3.6%) had parity of 5 and more; indicating that many were seeking abortion care before having children. Regarding prior abortions, 859 (93.4%) clients reported no history of abortion in the past; suggesting that repeat abortion was uncommon among the study population. while only 2(0.2%) clients reported having 3 to 4 abortions previously. The majority of clients 530 (57.6%) were not having living children at the time of seeking pregnancy termination, 33(3.4%) reported having 5 and more living children. These findings suggest that the project primarily served women at early stages of their reproductive lives, emphasizing the need for accessible, confidential, and youth-friendly services.

### 4.3 Feasibility and safety of using telemedicine in provision of Medical Abortion services at health centers.

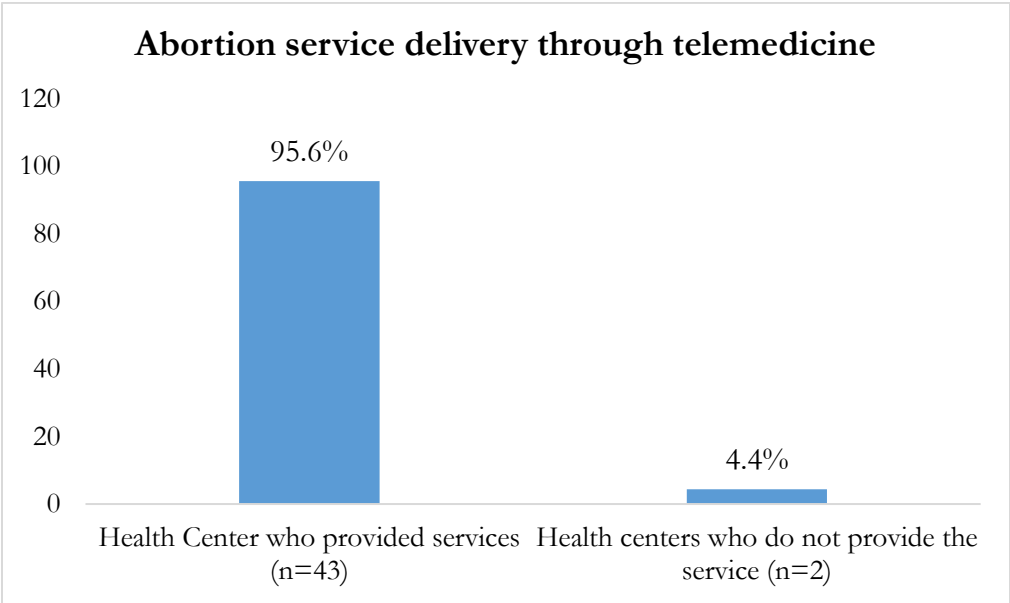
In addition to qualitative aspects, feasibility was assessed by determining the:

- Proportion of health centers that provided the services through telemedicine,
- Proportion of clients who received abortion services through telemedicine at health center
- Number/proportion of clients completing three follow-up visits.

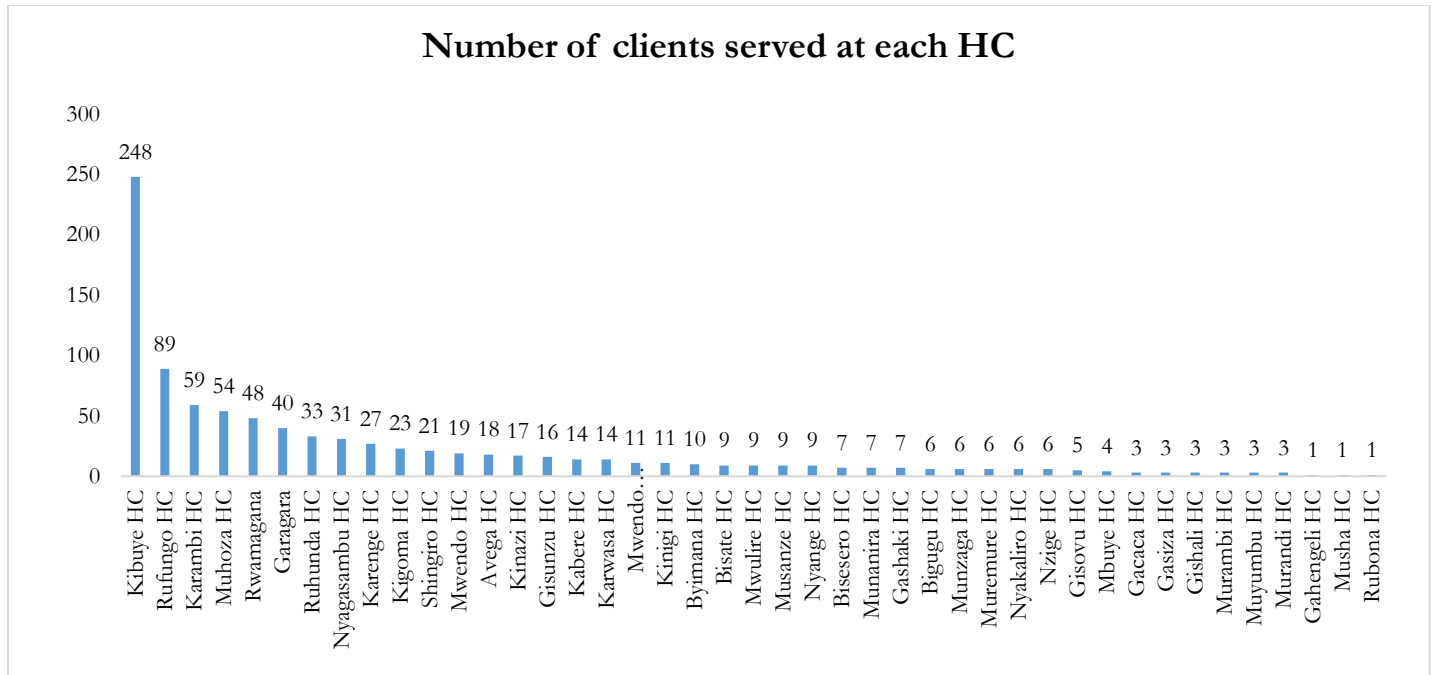
#### 4.3.1 Feasibility

The study findings revealed that 95.6% of targeted health centers provided abortion services through telemedicine. Two health centers named Gishweru in Ruhango and Munyiginya in Rwamagana did not provide abortion care services during the study period. These results demonstrating that most facilities were able to integrate this service into routine care effectively.

**Figure 2: Number of HCs that provided abortion services**

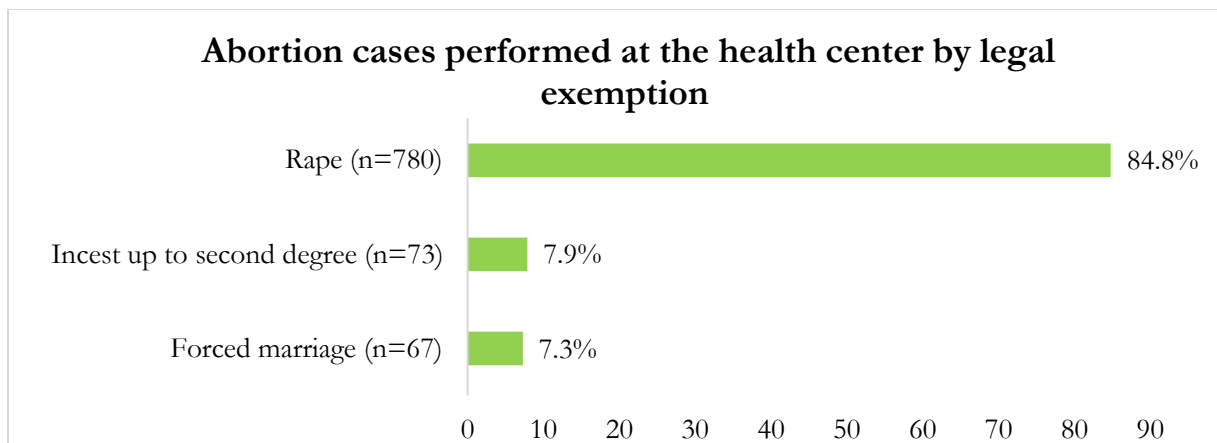


**Figure 3: Number of clients served at each health center**



The distribution of clients across health centers shows considerable variation; A total of 248 clients received abortion care service at Kibuye health center, and 89 clients received the service at Rufungo health center. Some health centers served very few clients; Number of clients served at selected health center differ due to client’s availability and demand for abortion care services within each facility’s catchment area.

**Figure 4: Clients by Legal Indications for Seeking Abortion Services**



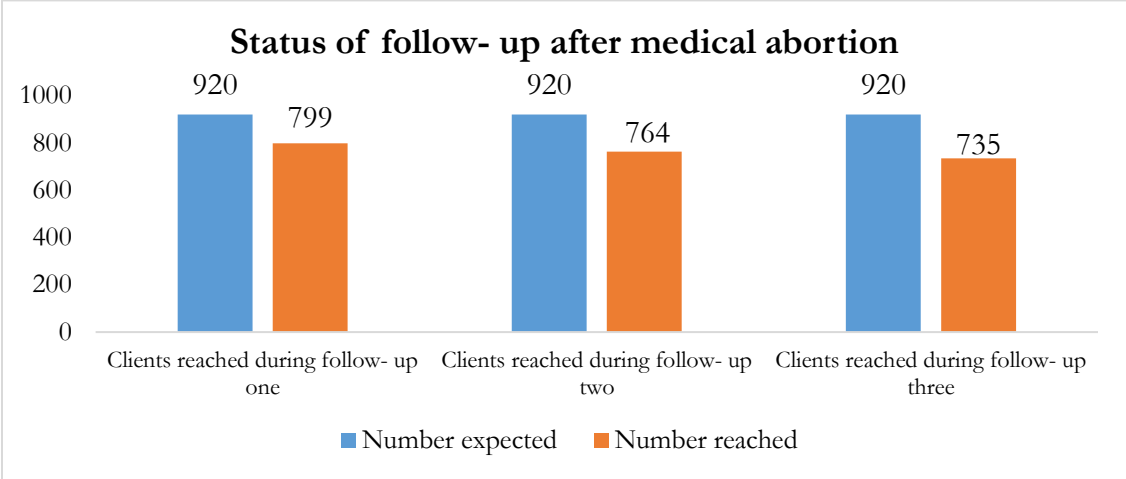
Among the abortion cases, the majority were the result of rape (n = 780, 84.8%). Cases of second-degree incest accounted for 73 clients (7.9%). These findings indicate that the telemedicine model was feasible for survivors of sexual violence; the high uptake among those clients suggests that telemedicine model effectively reduces barriers such as distance, stigma, and limited access to facilities with trained providers.

**Figure 5: Follow-up rates among clients**



79.4% of clients who initiated treatment at the health center completed their follow-up consultations by phone rather than returning for in-person visits. This suggests that follow up by telephone was a practical option for most clients, supporting the feasibility of remote follow-up within the telemedicine service delivery model.

**Figure 6: Client Follow-Up Completion Across Three Follow-Up Points**



The figure shows a gradual decline in client participation across the three required follow-up contacts. Of the 920 clients targeted for follow-up, 799 were reached at the first follow-up, representing a substantial initial retention. This number slightly decreased to 764 clients at the second follow-up and further to 735 clients at the third follow-up. Overall, more than 80% of clients completed all three follow-up visits, indicating a high level of feasibility of follow-up through the telemedicine model.

## **Training and competencies**

Nurses/midwives successfully completed the training that included: values clarification and attitudes transformation; study procedures (enrollment, informed consent); telemedicine protocol; clinical procedures (clinical assessment, case management, patient follow-up), and counselling; and data collection using an electronic patient record. Their active engagement highlights the feasibility and reliability of delivering medication abortion services through a decentralized telemedicine supported model.

At the end of each training session, all trained participants (except one provider in Rwamagana District) signed consent forms indicating their willingness to provide abortion care services in accordance with the research protocol. This consent process confirmed providers' acceptance of the intervention and their commitment to delivering services voluntarily upon returning to their respective health facilities. Healthcare providers emphasized that comprehensive abortion training was essential for delivering quality safe abortion services via telemedicine. The training strengthened their skills in medication administration, client monitoring, counseling, and use of technology, while also facilitating peer learning and problem-solving. Providers highlighted the importance of ongoing supervision and refresher training to improve service quality and noted the need for psychosocial support for providers themselves, given the emotional demands of abortion care. Community sensitization and awareness of the legal framework were also identified as critical to improving acceptance and access to services.

*"We have received various training on how to teach our clients to take medications and monitor how they are taking them. After they take medications, we call them and ask whether the bleeding started or if they experienced side effects."*

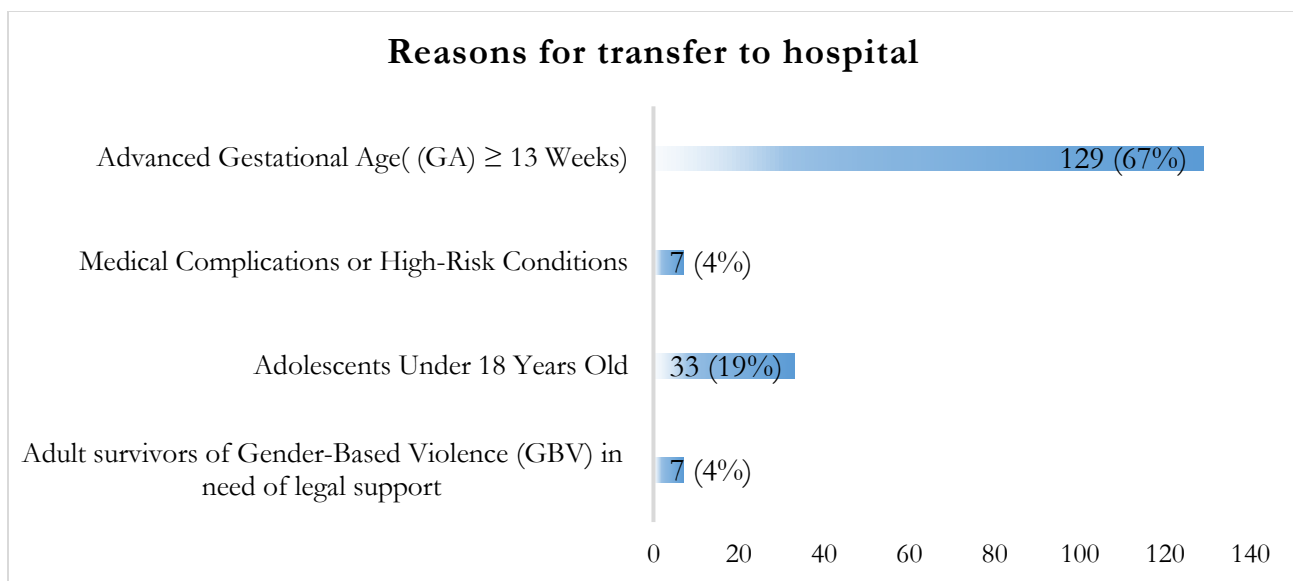
**37years Male Nurse -Ruhango district**

*“Before we started providing abortion services, they have trained us. They first taught us how the service works for those who are authorized. Then they thoughts about technology, they trained us about counselling.”* **32years Female Nurse-Karongi District** *“Since abortion law was revised in 2018, eligible clients no longer need to go to court, they can give consent directly at the health facility. To make this service feasible, we focused on informing communities, participants and healthcare providers. Although religious beliefs still make abortion services sensitive topic, bringing the service closer to the community at health centers helped reduce long hospital waiting times and delays. Overall, clients appreciated the services, although continued awareness about law remains necessary”* **KI-RSOG 001**

### 4.3.2 Safety

Nurses and midwives were able to accurately assess eligibility, evaluate gestational age, respect clinical protocols, and make referrals when needed.

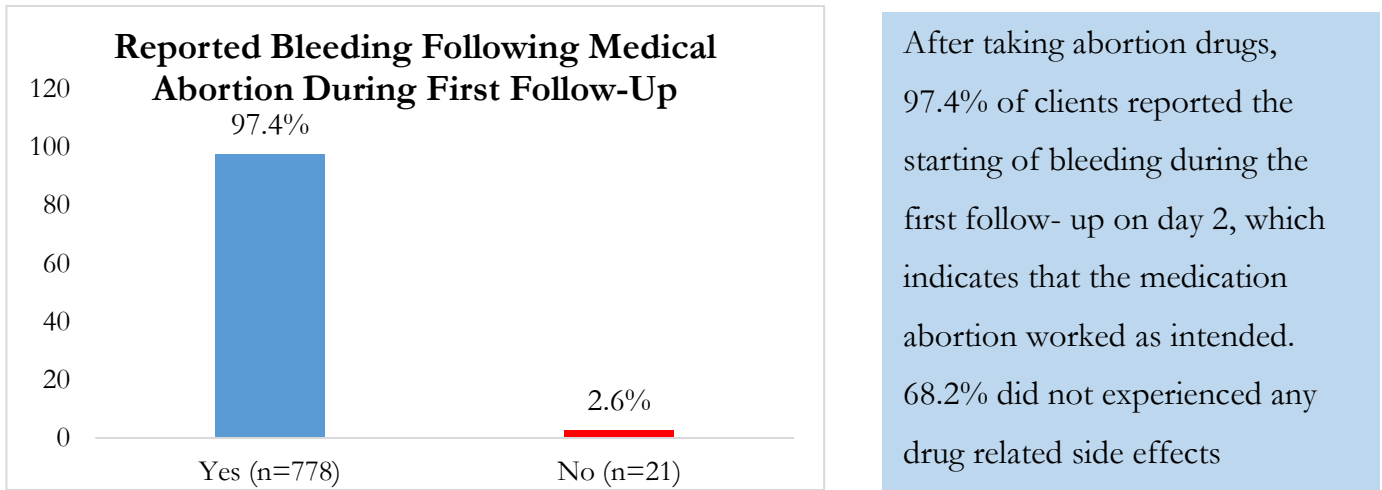
**Figure 7: Reasons for Client Referral to Hospital**



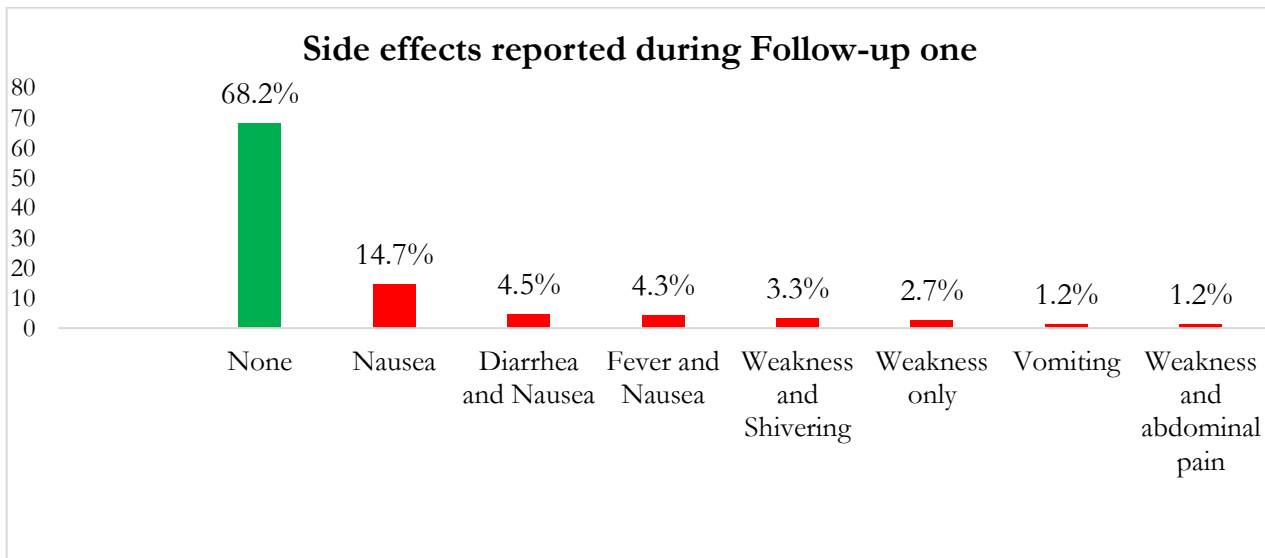
The high proportion of clients appropriately referred to the hospital (over 67% for gestational age >12 weeks, 19%; 33 cases were referred because they were under 18 years old and 4% for underlying medical conditions & high conditions) demonstrates the safety of the telemedicine model. Nurses and midwives were able to accurately assess eligibility, apply clinical protocols, and make referrals when needed, indicating that nurses and midwives using telemedicine can safely and effectively manage cases at the health center level while ensuring higher-risk clients receive the care they require

at hospitals. This suggests that telemedicine is a practical approach for expanding safe abortion access while maintaining quality and adherence to clinical guidelines.

**Figure 8: Clients reporting having bleeding during first follow- up**

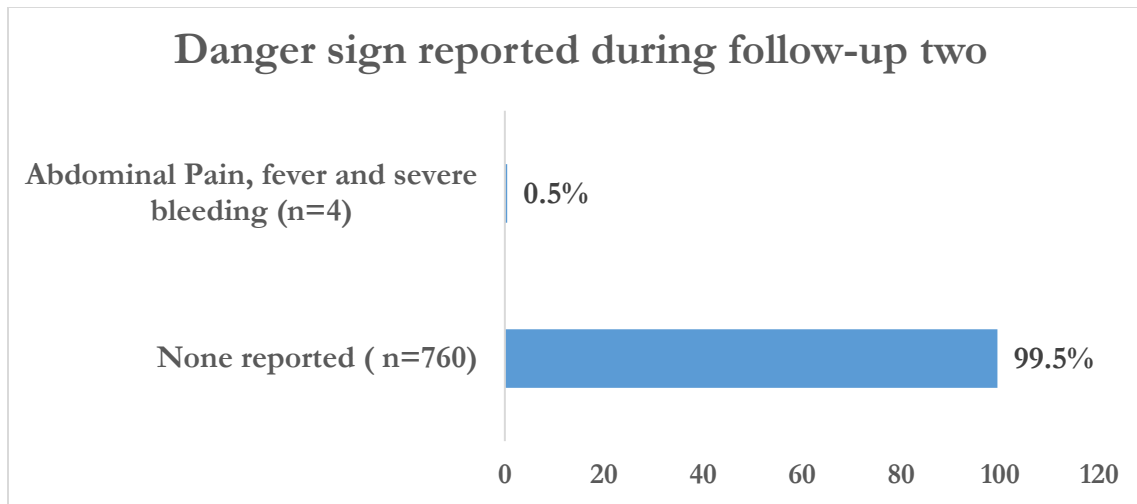


**Figure 9: Side effects reported during follow-up one**



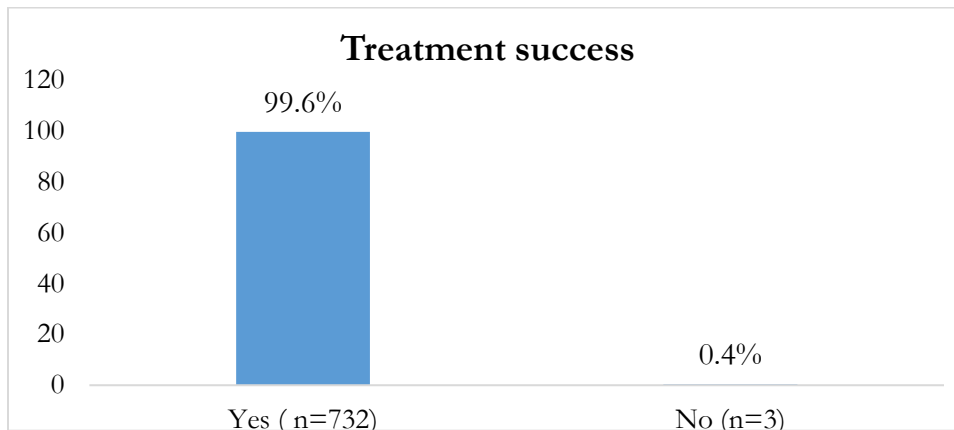
The majority of clients served at health center level (68.2%) did not experience any side effects, showing that the medication was well tolerated, Nausea was reported by 14.7% of clients, smaller proportions experienced diarrhea with nausea (4.5%), fever with nausea (4.3%), weakness and shivering (3.3%), weakness only (2.7%), vomiting (1.2%), and weakness with abdominal pain (1.2%).

**Figure 10: Reported Danger Signs at Second Follow-Up Visit (Day 7)**



At the second follow-up visit/call, 99.5% of clients reported no danger signs. Only 0.5% (4 clients) reported experiencing danger signs, including abdominal pain, fever, and severe bleeding. This shows that the model is safe and appropriate for scale-up, with very low rates of reported danger signs.

**Figure 11: Medical abortion Treatment success**



Treatment successful rate was 99.6% and was defined as absence of bleeding and pain at the third follow-up call or in person visit on day 14 after initial administration of medication

**Note:** Treatment success: Absence of bleeding and pain at 14 days

Participants described telemedicine as a safe process that allowed them to receive abortion care from home, with adequate guidance and follow up, after initiating the first doses of medication at the health facility during the initial consultation. Both providers and clients emphasized that clear instructions, continuous communication, and reassurance from healthcare providers helped address initial fears

and ensured safety. For many clients, home follow-up increased privacy, confidentiality and sense of control, reinforcing trust in telemedicine approach.

*“Even though some colleagues and people outside of health center questioned the process because they only see what reported in the news, our experience shows that telemedicine is safe and feasible. Clients receive instructions, ongoing support and follow-up, so taking the subsequent doses of medication at home does not mean they are alone or unsafe”*

**37 years, Female Nurse-Karongi district**

*“At first, I was afraid that taking the further medication at home could make everything known if something went wrong and I was thinking that my partners can see it. I never wanted anyone to know but nurse explained clearly that it would be safe and that there was no need to stay at the health center. With that reassurance, I realized that being at home actually helped me to keep it confidential and feel safe”* **21years, client – Ruhango district** *“....,I decided to take it privately in my room. The nurse kept checking on me, asking how I felt and any changes I noticed. Even though we didn’t talk for long each time, the nurse followed up many times and that made me feel safe. I didn’t even experience any serious side effects.”* **26 years, client – Rwamagana district**

*“Knowing that I don’t have to go to the hospital helped me to feel secure. I felt reassured that I wouldn’t be putting myself or anyone else at risk. When I felt that I will take remaining medication from home I felt that am very secured with more privacy. No knew that I was taking medication for pregnancy termination”* **18 years, client -Karongi district**

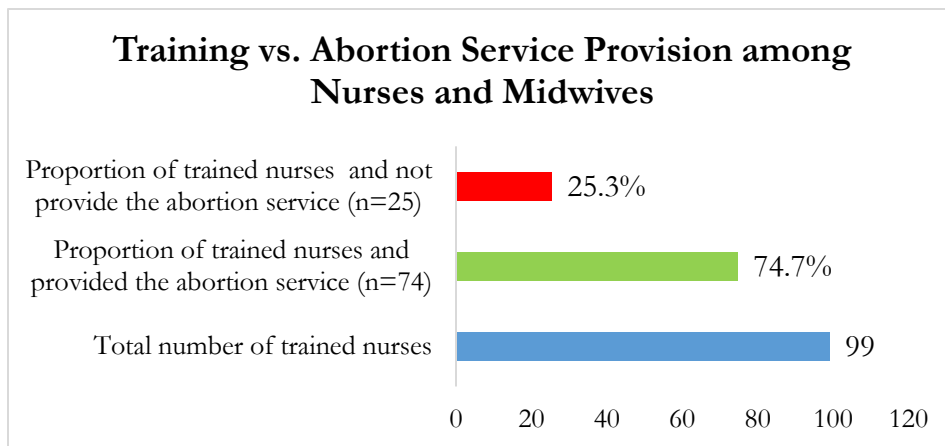
The telemedicine abortion services were found to be safe, with most clients experiencing no or only mild side effects and very few complications requiring further intervention. Structured counseling, clear guidance on danger signs, regular follow-up, and timely referral systems ensured early identification and management of complications. Providers and health workers reported that serious complications were rare and that the model contributed to reductions in unsafe abortions and abortion-related maternal morbidity.

## 4.4 Acceptability and client satisfaction of the telemedicine medical abortion service provision at health centers

Providers willingness to provide abortion services through telemedicine was measured by assessing the number of nurses and midwives who were granted credentials to use the digital tool after completing training, and those who actually provided services during the study period. Qualitative views provided insights about client satisfaction for both telemedicine and medication abortion at health center.

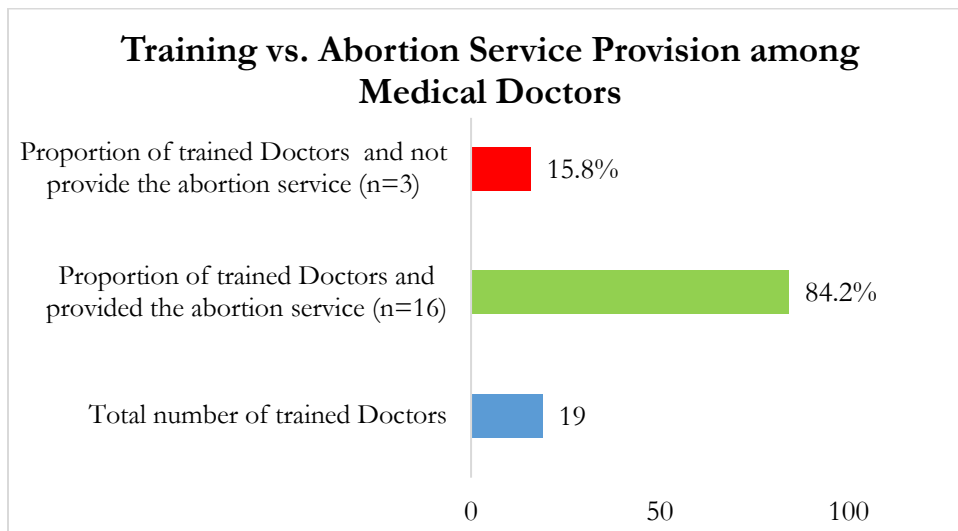
### 4.4.1 Acceptability of telemedicine medical abortion service

**Figure 12: Nurses training and abortion services provision**



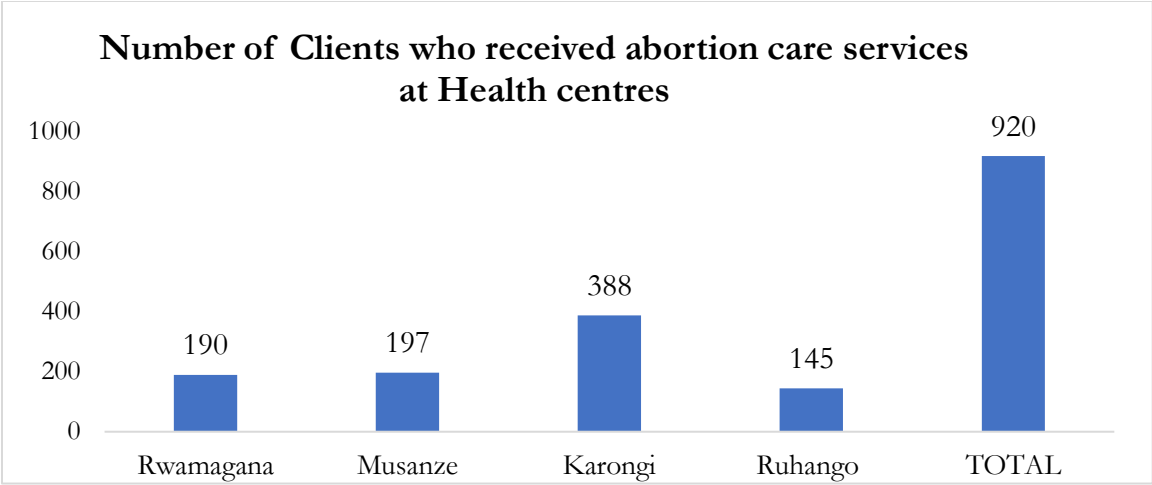
A total of 99 nurses and midwives were trained and granted credentials to use the digital tool, of them 74.7% provided the abortion services through telemedicine. This support the feasibility of task-sharing via use of telemedicine.

**Figure 13: Doctor's training and abortion services provision**



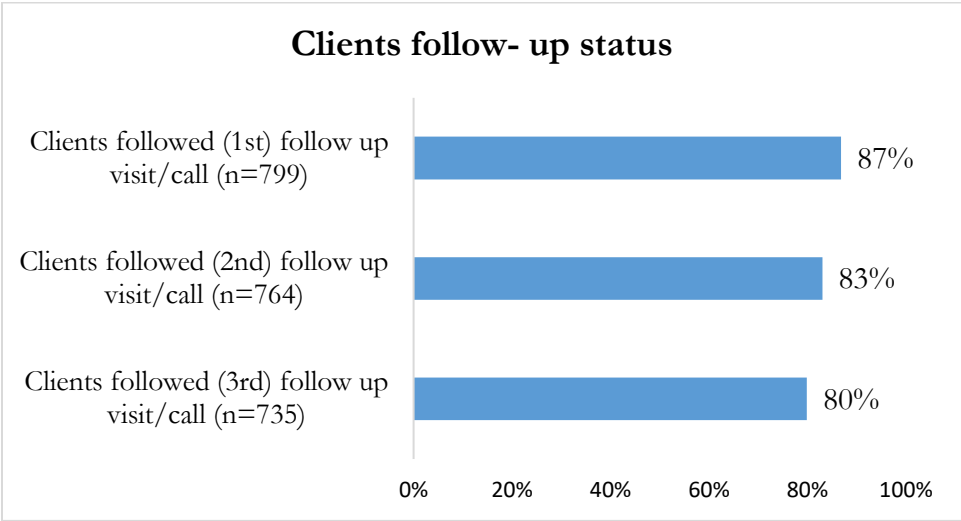
A total of 19 Doctors were trained and granted credentials to use the digital tool, of them 84.2% provided the abortion services through telemedicine

**Figure 14: Number of clients who received abortion care service at Health center through Telemedicine**



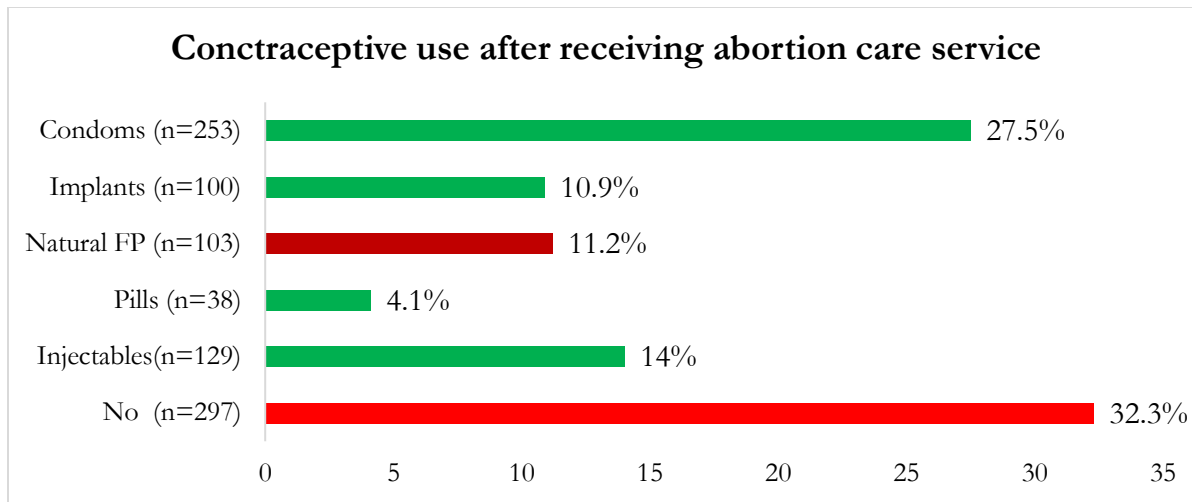
Regarding client’s acceptability of accessing abortion care service through telemedicine, the results revealed that a total of 920 clients received abortion care services across four districts at primary health center level, with the highest number served at Karongi (388), followed by Musanze (197), Rwamagana (190), and Ruhango (145). This indicates variation in service uptake across districts.

**Figure 15: Completion rate of the three follow-ups**



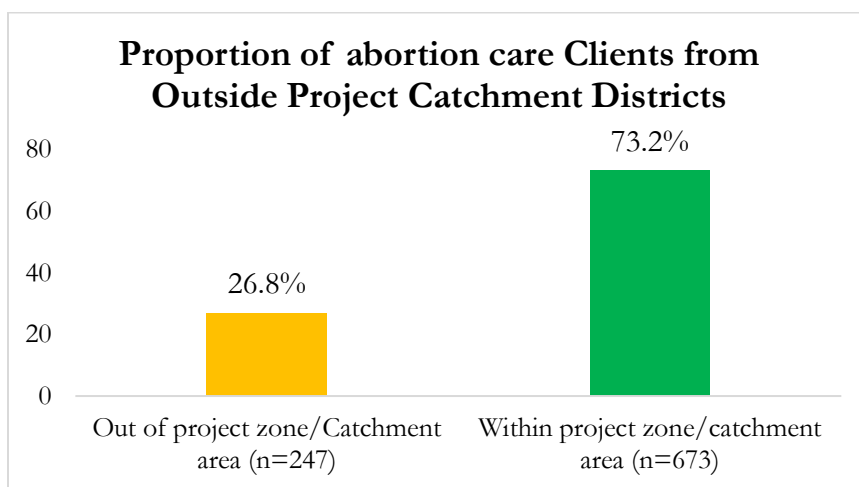
The completion rates of more than 80% of any of the 3 follow-ups indicate the high level of acceptability of accessing abortion care using telemedicine

**Figure 16: Family planning uptake after receiving the services**



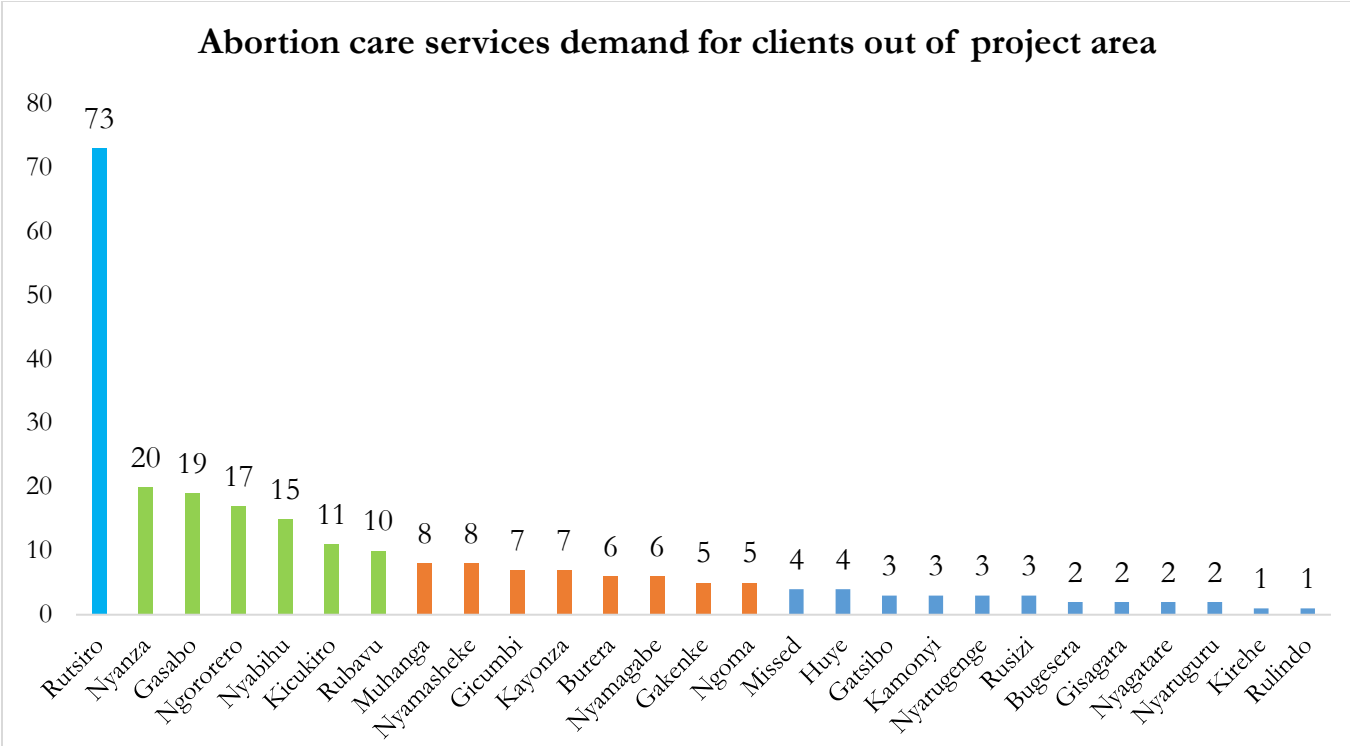
Despite the high acceptance of abortion care service using telemedicine at health center the uptake of modern family planning (FP) methods after abortion is quite low. Only about 29.1% of clients adopted a family planning method (excluding condoms and natural methods), while nearly one-third (32.3%) chose not to use any FP method at all. Looking at specific methods: Implants had a 10.9% uptake, injectable were chosen by 14% of clients, and oral pills were used by only 4.1%. This suggests that post-abortion family planning adoption particularly for long-acting hormonal methods remains limited. Factors that may limit adoption include inadequate counseling, limited provider skills, concerns about side effects, or clients not feeling ready to start FP immediately after abortion.

**Figure 17: Demand of abortion care services at health centers for clients out of project area**



The high level of abortion care services acceptability at health center is also evidenced by a big number of clients who travels from other districts to seek abortion care services in the project catchments area where 247 (26.8%) clients who received abortion care services were from other districts

**Figure 18: Number of clients served from out of project area**



Women from Rutsiro District demonstrated high demand of abortion care services where 73 clients who received abortion care services in selected health centers where from Rutsiro district. This finding suggesting to consider Rutsiro District during the program scale-up. The study revealed that 10 to 20 clients who sought abortion care services were from Nyanza, Gasabo, Ngororero, Nyabihu, Kicukiro, and Rubavu districts. Between Five to ten served clients were from Muhanga, Nyamasheke, Gicumbi, Kayonza, Burera, Nyamagabe, Gakenke and Ngoma Districts. The results highlight the urgent need for expanding the provision of abortion care services in additional health centers in other underserved districts to improve accessibility and reduce the need for long-distance travel.

Clients reported positive experiences with telemedicine-based abortion care. They emphasized trust in providers and satisfaction with the clarity of explanations given during consultations. They reported services as respectful, nonjudgmental, and emotionally supportive. Many initially reported fear or hesitation, but these concerns were alleviated through attentive listening, clear explanations, patient counseling, and ongoing follow-up by healthcare providers.

Providers, on the other hand, emphasized that telemedicine decentralized services to health centers, reduced long travel and hospital congestion, and empowered nurses and midwives with new skills and confidence to deliver safe abortion care under remote guidance from doctors. Overall, telemedicine improved client satisfaction, provider capacity, and the accessibility of abortion care services. Community Health Workers (CHWs) reported that educating women about eligibility, legal aspects, and abortion guidelines helped increase awareness, confidence, and comfort in seeking services.

*“I explained my problem to the nurse, and after listening carefully, she helped me and provided the medicine. She clearly explained how to use it and advised me to return immediately if anything changed. I followed her instructions and felt supported throughout the process.”* **19 years Client-Musanze district**

*“To improve the acceptability of telemedicine in provision of medical abortion, we educate people in the villages about eligibility criteria, pregnancy termination legal aspect, abortion services guidelines clearly so that women feel informed, confident and comfortable seeking the services when they need it.”* **32 years, Female CHW, FGDs, Karongi district**

*“I was welcomed kindly and reassured that I could call them anytime if I had a problem. At first, I was scared when I saw the nurse with the doctor on video call, but he listened to me and explained everything. Throughout the whole process, I felt supported, respected and well cared for.”* **24 years, Client-Ruhango district**

*“With the introduction of telemedicine, the system works similarly to task-shifting as it allows clients to access services at health centers rather than going to the hospital. This shift, supported our healthcare providers especially nurses / midwives at the health centers to have more knowledge and skills because they can now deliver safe abortion care directly with doctors online. Doctors no longer feel overwhelmed by patients coming to the hospital, they have the confidence and training to guide clients remotely to ensure that service is effective while maintaining safety.”* **46 years, Male -KI - Rwamagana District**

*“The utilization of telemedicine in provision of abortion care services decentralized service to health centers, reduced clients long travel to the hospital, saved time and costs for clients but also empowered our healthcare providers with new skills and knowledge, they could now deliver services with good level of acceptability by clients.”* **40 years, Male, KI-Ruhango district.**

#### **4.4.2 Client satisfaction**

Clients were satisfied about accessing abortion care at health centers using telemedicine. Clients reported feeling reassured, supported, and able to resume normal activities due to clear counseling, continuous and effective follow-up, and respectful care.

*“After receiving an abortion service, I followed all advice received from a nurse and doctor and I was satisfied with the service received. I was wondering how long I would be absent to school but the healthcare provider told me that I would be able to go to school in next day and I did as she expected”* **21 years, client -Karongi district**

*“client’s satisfaction about using telemedicine in provision of abortion care at health center, is attributed to the way the model is designed where the clients received full explanation of the procedure and systematic follow-ups after obtaining service at health center”* **44 years, Male, KI, Karongi district**

*“As leaders, our responsibility is to bring services closer to the community, including medical Abortion services. Telemedicine allows clients to access abortion care services at health center without travelling long distances to the hospitals and face the long waiting lines.”* **48 years Male, KI, Ruhango District**

*“So far, there have been no delays in provision of abortion care and clients reported high level of satisfaction of telemedicine as the number of clients who want the services are increasing day by day.”* **46 years Female, KI- Rwamagana district**

## 5. ACTION PLAN AND IMPLEMENTATION PROGRESS

### Overall Objective:

Sustain the use telemedicine in comprehensive abortion care (CAC) services provision in 4 districts; Musanze, Karongi, Ruhango, and Rwamagana districts, and scale up the model to additional districts to improve equitable access to safe abortion services.

**Table 4: Action plan and implementation progress**

Objective	Key actions	Responsible actors	Timeline	Implementation progress notes
1. Maintain Services provision via telemedicine in 4 districts	<ul style="list-style-type: none"> <li>▪ Ensure continuation of services via telemedicine</li> <li>▪ Conduct refresher training for nurse/midwives (MVA, basic ultrasound, LARC)</li> <li>▪ Train additional providers in understaffed sites</li> <li>▪ Strengthen supervision and mentorship, including FP and mental health</li> <li>▪ Ensure client follow up; Maintain phone &amp; in-person follow-up and Introduce tracking tools</li> <li>▪ Strengthen referral closed-loop system</li> <li>▪ Recurrent Values Clarification and Attitude Transformation (VCAT) training for all providers</li> </ul>	MoH/RBC, District Health Offices, Health facilities and developing partners	Immediate & ongoing	<ul style="list-style-type: none"> <li>▪ Services operational in 43 of 45 centers (95.6%)</li> <li>▪ 90 Providers actively engaged.</li> <li>▪ Training materials available for replication.</li> <li>▪ 80% follow-up completion</li> <li>▪ Low FP uptake,</li> <li>▪ Poor counselling &amp; Mental health screening tool identified</li> <li>▪ Referral feedback gaps prioritized for improvement</li> </ul>

Objective	Key actions	Responsible actors	Timeline	Implementation progress notes
2. Scale-Up to New Districts	<ul style="list-style-type: none"> <li>Identify priority districts</li> <li>Conduct facility readiness assessments</li> <li>Engage district leadership &amp; hospitals</li> <li>Train new nurses/midwives/doctors in use telemedicine in abortion services provision.</li> <li>Use experienced providers as mentors</li> <li>Review training materials and guidelines</li> </ul>	MoH/RBC, District Health Offices, Health facilities and developing partners	Short term (6 months)	<ul style="list-style-type: none"> <li>Evidence available in intervention districts</li> <li>Scale-up criteria defined</li> <li>Draft Training materials and guidelines available</li> <li>Mentorship model identified but not formalized</li> </ul>
3. Ensure quality and safety of services	<ul style="list-style-type: none"> <li>Uninterrupted supply of abortion drugs &amp; equipment</li> <li>Standardize clinical protocols</li> <li>Monitor service quality, safety, and follow-up</li> </ul>	MoH/RBC, Health facilities and developing partners	Ongoing	<p>High treatment success (99.6%)</p> <p>Occasional stock-outs highlight need for improvements</p>
4. Equity and Access for Underserved Populations	<ul style="list-style-type: none"> <li>Establish telemedicine services at health posts and in faith-based hospital catchment areas</li> <li>Integrate adolescent-friendly services</li> <li>Conduct targeted community sensitization for adolescents and underserved populations.</li> <li>Update regulations to allow adolescents under 18 to access services</li> </ul>	MoH/RBC, District Health Offices, Health facilities and developing partners	Ongoing	<ul style="list-style-type: none"> <li>Geographic inequities and transfer problems documented; in faith-based areas face barriers</li> <li>Adolescents underserved.</li> </ul>
5. Optimize digital telemedicine platform	<ul style="list-style-type: none"> <li>Continue platform use in existing districts</li> <li>Upgrade the tool (including SMS reminders, MH screening tools, offline use)</li> <li>Train new district providers in use of telemedicine platform</li> <li>Integrate telemedicine abortion data into the national digital health system with secure interoperability</li> </ul>	MoH Digital Health Unit, developing Partners	Medium term	<ul style="list-style-type: none"> <li>Digital tool used for case documentation &amp; teleconsultation</li> <li>Upgrade needs documented before expansion</li> </ul>

Objective	Key actions	Responsible actors	Timeline	Implementation progress notes
5. Community Capacity Building & Engagement	<ul style="list-style-type: none"> <li>▪ Train and empower CHWs for referrals, follow-up, and awareness</li> <li>▪ Sustain community awareness and target awareness in new districts</li> <li>▪ Engage community leaders, youth groups, and women's organizations</li> <li>▪ Address stigma through peer education and VCAT sessions</li> </ul>	District Health Unit, Developing partners, Community Organizations, CHWs	Ongoing	<p>CHW involvement initiated</p> <p>Community education limited.</p> <p>Stigma remains a challenge</p>
6. Monitoring, Evaluation, and Learning	<ul style="list-style-type: none"> <li>▪ Monitor utilization, safety, follow-up, client satisfaction</li> <li>▪ Document lessons learned to inform national scale-up</li> <li>▪ Establish regular review meetings with district teams</li> <li>▪ Incorporate referral close the loop systems into scale-up planning</li> <li>▪ Strengthen data use for decision-making</li> </ul>	MoH/RBC, Health facilities, developing partners	Ongoing	<p>Strong evidence base from pilot districts</p> <p>Routine monitoring systems exist</p> <p>Existence of telemedicine digital tool where referral module can be integrated</p>

## 6 CHALLENGES AND MITIGATION MEASURES

Table 5: Challenges and mitigation measures

Challenge	Mitigation Strategies
<p>1. Staffing Constraints and Stigma</p> <ul style="list-style-type: none"> <li>▪ <b>Stigma toward abortion services provision in some facility.</b></li> <li>▪ <b>Limited availability of medical doctors for teleconsultations due to high workload.</b></li> <li>▪ <b>Limited provider skills in basic ultrasound use, Manual vacuum aspiration (MVA), and provision of long-acting reversible contraceptives (LARC), particularly IUD insertion, leading to unnecessary referrals.</b></li> <li>▪ <b>Staff turnover and small number of trained providers in some facilities.</b></li> <li>▪ <b>Insufficient Counseling and Mental Health Support</b></li> <li>▪ <b>Low provider motivation and Risk of burnout and fatigue among providers.</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ Integrate VCAT training and stigma-reduction activities into pre-service and in-service education for all healthcare providers.</li> <li>▪ Increase the number of trained doctors for teleconsultation and implement duty rosters for continuous coverage.</li> <li>▪ Implement mentorship models and conduct targeted training in basic ultrasound use, manual vacuum aspiration (MVA), and long-acting reversible contraception (LARC) for selected health center level providers.</li> <li>▪ Establish retention strategies and recognition incentives for trained providers.</li> <li>▪ Train more providers on counselling and mental health screening, strengthen internal referrals, and integrate counseling quality into supervision.</li> <li>▪ Establish provider wellbeing programs, including peer support, counseling services, and regular debriefing sessions and establish a supportive work environment.</li> </ul>
<p>2. Geographic Access Barriers</p> <ul style="list-style-type: none"> <li>▪ <b>Limited availability of abortion services in areas served by faith-based facilities.</b></li> <li>▪ <b>Long travel distances and complicated referrals in Faith-Based Facility Catchment Areas</b></li> <li>▪ <b>Long distances limiting timely access to hospitals for those referred.</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ Integrate telemedicine-supported abortion services at health posts nearby faith based facilities to improve accessibility.</li> <li>▪ Revamp the Rwanda referral system to allow nearby referral system in Rwanda</li> <li>▪ Design and disseminate a referral map for CAC using telemedicine</li> </ul>

Challenge	Mitigation Strategies
<p>3. Client Access and Follow-Up Challenges</p> <ul style="list-style-type: none"> <li>▪ <b>Adolescents under 18 face barriers to referral due to regulatory restrictions preventing direct access at health center level.</b></li> <li>▪ <b>Difficulty reaching some clients for follow-up due to lack of phones or unstable contact information.</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ Policy and regulatory reform to allow under 18 to access abortion care at health center level through telemedicine with appropriate safeguards, as well as strengthen capacity of HCs staff in services provision.</li> <li>▪ Introduce alternative follow-up mechanisms, including community health worker supported follow-up and scheduled in-person visits.</li> </ul>
<p>4. Supply Chain Challenge and diagnostics capacity gaps</p> <ul style="list-style-type: none"> <li>▪ <b>Occasional stock-outs of abortion medications, MVA kits and laboratory reagents required for full blood count testing.</b></li> <li>▪ <b>Lack of full blood testing capacity at health center level</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ Improve supply chain forecasting, quantification, and redistribution to prevent commodity stock-outs.</li> <li>▪ Strengthen capacity and repair non-functional machines.</li> </ul>
<p>5. Referral, Counter-Referral, and Follow-Up Challenges</p> <ul style="list-style-type: none"> <li>▪ <b>Weak referral and counter-referral systems between hospitals and health centers.</b></li> <li>▪ <b>Delays and stigma affecting receipt of referred clients at hospital level.</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ Integration of referral tracking tools/module within the digital platform to monitor client outcomes and referral loops.</li> <li>▪ Improve documentation of referral forms by completing names and phone number for staff contacted at receiving facility and referring healthcare provider</li> </ul>
<p>6. ICT Infrastructure and Digital tool limitations</p> <ul style="list-style-type: none"> <li>▪ <b>Poor internet connectivity at some health centers.</b></li> <li>▪ <b>Digital tool that constrains continuity of care, inclusivity (adolescents and GBV survivors), interoperability with</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ Enable offline data capture and low-bandwidth or backup connectivity options to maintain services during internet disruptions.</li> <li>▪ Upgrade the digital tool to ensure automated follow-up, referral loops, inclusive adolescent and GBV-responsive care, interoperability with national systems, and comprehensive data capture.</li> </ul>

Challenge	Mitigation Strategies
<p><b>national systems, and comprehensive data capture.</b></p>	
<p>7. Community and Socio-Cultural Barriers</p> <ul style="list-style-type: none"> <li>▪ <b>Persistent abortion stigma and community resistance driven by cultural and beliefs.</b></li> <li>▪ <b>Low community awareness of legal indications and availability of services</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ Engage community leaders, women’s groups, youth representatives, and faith-based stakeholders in dialogue to reduce misconceptions.</li> <li>▪ Leverage community health workers to disseminate accurate information and facilitate referrals.</li> <li>▪ Implement targeted community education activities to address abortion stigma, clarify legal rights, and emphasize confidentiality of care.</li> </ul>
<p>8. Service Integration and Post-Abortion FP Care Gaps</p> <ul style="list-style-type: none"> <li>▪ <b>Poor Integration with SRH, Adolescent, and GBV Services</b></li> <li>▪ <b>Low Post-Abortion Family Planning Uptake</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ Reinforce Integrate abortion services with adolescent-friendly services, GBV, and social support platforms while training providers in confidential, survivor-centered care</li> <li>▪ Strengthen availability of LARC methods, the provision client-centered counseling, ensure timely initiation, and address myths through community education.</li> </ul>

## 7. DISCUSSION

This study investigated the feasibility, safety, acceptability and client's satisfaction of telemedicine supported abortion care delivered at public health centers. Overall, the findings show that telemedicine is a feasible, safe, and acceptable model for providing abortion care within primary healthcare settings.

The findings demonstrate that women seeking safe abortion care via telemedicine were predominantly young adults (18–24 years), comprising 52.0% of clients. This age distribution is consistent with global evidence (Sigu et al.2025), showing that younger women are among the highest users of abortion services regardless of being in person care with a doctor or via telemedicine at primary health facility, reflecting patterns of sexual activity, use of contraceptive gaps, and fertility intentions in this group. The high proportion of single women (78.6%) further aligns with studies indicating that single or unmarried status is associated with higher rate of seeking abortion care services, it is well known that socio-cultural dynamics influence reproductive autonomy (De Haas B, Kabagenyi A, Diennabila S., 2025).

Educational attainment among clients revealed that almost half (49.9%) had completed secondary education. These findings are aligned with other studies reported that higher education attainment generally correlates with better access and use of safe abortion services, as educated women have greater awareness, communication skills, and understanding of reproductive health, leading to more informed decisions. Conversely, lower education levels are associated with higher risks of unsafe abortions, complications, and poorer outcomes (Klu D et al.,2022; Listowel F.& Joseph Kojo O., 2025). Additionally, over half of clients (57.6%) reported having no living children, suggesting that many women seek abortion care early in their reproductive trajectories. This is consistent with international data showing that many clients who sought abortion care services are nulliparous or early in childbearing (Cleeve A et al., 2025).

Crucially, this study demonstrated that telemedicine was widely adopted, with 95.6% of targeted health centers providing abortion services through telemedicine and high client engagement: 80%

completed all three required follow-ups. This high completion and engagement rate suggests both feasibility and user commitment to telemedicine pathways. In comparison, systematic reviews of telemedicine abortion models report similar adherence to follow-up protocols and no significant safety differences compared with in-clinic care (Cleeve A et al., 2025; Upadhyay U.D et al.,2024), reinforcing the feasibility of telemedicine model in provision of abortion care services in primary health facilities. In nutshell, there is certainty evidence that telemedicine yields comparable success and safety outcomes in terms of abortion care services provision.

The predominance of phone follow-up (79.4%) underscores the importance of low-tech, accessible communication modes in telemedicine models, especially in low-resource settings where advanced digital platforms may be challenging to use (Upadhyay U.D et al.,2024; Prata N et al.,2025). Moreover, clinical outcomes in this study were excellent where 97.4% clients reported the onset of bleeding at first follow-up (within 48 hours), and 68.2% experienced no drug-related side effects. Combined with a 99.6% treatment success rate and 99.5% reporting no danger signs at the second follow-up, these findings align with broader evidence showing high efficacy and safety for medication abortion via telemedicine in the primary healthcare settings, with very low rates of serious complications or adverse events. The results from this study demonstrated that , the use of telemedicine model in provision of abortion care services at health centers is safe and completion rates nearly to physical person care standards.

Insights from providers and clients further reinforce the feasibility and acceptability of this telemedicine-supported model. Active engagement by healthcare providers was critical: clear instructions, continuous communication, and empathetic support helped address client concerns and foster confidence. Literature on telemedicine abortion care emphasizes that personalized communication and supportive counseling significantly improve client satisfaction and perceived safety (Kapp N et al.,2021; Endler M et al.,2019). The qualitative insights such as respectfulness, nonjudgmental interactions, reassurance, and continuity likely contributed to clients' strong satisfaction and trust in the telemedicine abortion care services at health centers.

The training of providers also yielded important service delivery insights. Of the 99 nurses trained and granted credentials to use the digital tool, 74.7% provided telemedicine abortion services, among 19 doctors who were trained and credentialed, 84.2% delivered services via telemedicine. These figures demonstrate task-sharing and capacity building in decentralized settings. Task-sharing is the approach where trained nurses and midlevel providers deliver clinical care under appropriate protocols. This approach has been shown to expand service reach without compromising safety or quality, particularly in low- and middle-income countries where physician/doctors' shortages are common. Telemedicine further bridges gaps between remote providers and specialist supervision, enhancing confidence and clinical decision support.

In this study, clients overwhelmingly described telemedicine abortion care at health centers as respectful, supportive, and conducive to emotional well-being. The ability to initiate care in healthcare settings, coupled with effective home care settings follow-ups and support, appears to mitigate psychological stress and enhance the overall health experience, making telemedicine attractive for a wide range of individuals, particularly young adults and those balancing educational or work commitments.

Despite promising outcomes, interpretation of these results should consider limitations. The high acceptability, medical abortion success and follow-up rates might reflect selection bias and geographical locations as clients who are more motivated or have better support systems may be more likely to complete follow-ups and those living near health facilities may be easier to be traced during the follow-up. In summary, this study contributes to a growing body of evidence affirming that telemedicine is a safe, feasible, and acceptable model for medication abortion care at primary health centers using telemedicine, particularly in Rwanda decentralized health system.

## 8. CONCLUSION AND RECOMMENDATIONS

### 8.1 Conclusion

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The study demonstrated that telemedicine supported first trimester medication abortion is a feasible, safe and highly acceptable model of care across the four districts. Clinical protocols were consistently adhered to ensuring high quality care, accurate screening and timely referral when necessary. Follow-up coverage remained strong across all age groups, reflecting excellent continuity of care and client engagement.

Qualitative results reinforced these results, highlighting that telemedicine reduced barriers such as stigma, long waiting times and travel challenges, while improving privacy, comfort and timely access to expert support. Nurses and midwives were well prepared, confident and able to manage cases following comprehensive training, which strengthened the feasibility of the decentralized model.

Stakeholders expressed strong support for integrating and scaling up this telemedicine model within Rwanda's broader health strategy, noting its cost effectiveness and its potential to reduce the burden on higher level facilities. Overall, the findings provide compelling evidence that telemedicine can enhance access to safe abortion care and should be considered for expansion nationwide.

### 8.2 Recommendations

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#### 8.2.1 Recommendations to Policymakers, Ministry of Health, RBC, and Development Partners

##### 1. Service Delivery & Clinical Standards

- Scale up the use of telemedicine model for comprehensive abortion care to additional districts, prioritizing rural and underserved areas.
- Leverage existing primary health care and digital health infrastructure to ensure nationwide coverage.
- Establish telemedicine services at health posts and in faith-based hospital catchment areas.

- Adopt standardized national clinical protocols for telemedicine abortion care aligned with in-person guidelines, including eligibility, ultrasound use, follow-up, and referral maps.
- Strengthen referral, follow-up systems and emergency response including using digital tracking.
- Strengthen post-abortion family planning capacity and implement targeted interventions in districts with low uptake, with a focus on increasing access to and use of long-acting reversible contraception (LARC).
- Integrate adolescent-friendly services into comprehensive abortion care, conduct targeted community education, and strengthen community-to-facility referral mechanisms to reach adolescents and underserved populations.
- Integrate comprehensive reproductive, mental health, and psychosocial support services into CAC to ensure holistic, client-centered care for women seeking abortion services.
- Expand telemedicine services to include additional abortion care methods (e.g., MVA) where clinically appropriate.
- Incorporate mental health and psychosocial support services into abortion care for both eligible and non-eligible clients.

## **2. Policy, Legal, and Financing Reforms**

- Update and develop national CAC guidelines to formally integrate telemedicine for abortion care, including updates to provider guidelines, training materials, SOPs, clinical protocols, data management, and patient education resources.
- Update regulations to enable adolescents under 18 to access safe abortion services at health centers without mandatory hospital referral.
- Integrate telemedicine services into national health financing and insurance schemes to ensure sustainability and reduce out-of-pocket costs.

## **3. Digital Health Systems & Infrastructure**

- Integrate telemedicine abortion data into the national digital health system with secure interoperability.

- Use Ministry of Health e-learning platforms to provide continuous training on use of telemedicine in CAC.
- Upgrade the platform to include additional features such as reminders, referral loop systems, mental health screening, and offline functionality.
- Enforce encryption, access control, audit trails, and compliance with national health data standards to protect patient information.
- Strengthen digital dashboards to monitor service delivery, track referrals, commodities, and outcomes in real time, and use the data to evaluate coverage, quality, and inform policy decisions.
- Implement offline-capable telemedicine platforms and low-bandwidth solutions to ensure uninterrupted service delivery in areas with limited connectivity.

#### **4. Workforce Capacity & Provider Support**

- Strengthen provider skills for both pre-service and in-service staff through competency-based training, structured mentorship, refresher courses, and tele-mentorship.
- Ensure recurrent Values Clarification and Attitude Transformation (VCAT) training to reduce stigma.
- Introduce provider mental health support mechanisms, including peer debriefing sessions and supportive supervision, to prevent burnout and demotivation.
- Conduct provider training in MVA, ultrasound, and LARC, and strengthen mentorship, including support in family planning, comprehensive GBV care and mental health.

#### **5. Coordination, Community Engagement & Oversight**

- Establish inter-sectoral coordination mechanisms engaging health, justice, gender, digital health, supply chain, local government, civil society, professional associations, and community stakeholders to ensure effective implementation.
- Conduct community awareness and stigma-reduction activities, leveraging community health workers and youth focused platforms.
- Expand community engagement and demand creation through outreach, youth programs, and community dialogues.

- Strengthen quality assurance through routine data review, clinical audits, and client feedback systems.

## **6. Supply Chain & Logistics**

- Ensure consistent availability of medical abortion drugs and post-abortion contraceptives at health centers.
- Strengthen emergency redistribution systems and automate supply-chain monitoring to prevent stock-outs.

### **8.2.2 Health centers, hospitals, and districts**

1. Sustain the delivery of respectful, confidential, and client-centered abortion services through telemedicine at all service delivery points.
2. Establish on-call telemedicine rosters and cross-train providers to ensure uninterrupted service availability.
3. Ensure the consistent availability of essential abortion drugs, contraceptives, and required equipment to prevent service disruptions.
4. Provide private consultation spaces and discreet appointment scheduling to protect client confidentiality.
5. Maintain clear, functional referral pathways for cases beyond 12 weeks of gestation, non-eligible clients, or those requiring advanced or hospital-level care.
6. Strengthen coordination between health centers, hospitals, and district teams to ensure timely referrals and feedback.
7. Develop and implement age-appropriate counseling, follow-up, and referral protocols for adolescents.
8. Ensure adolescent-friendly service delivery approaches are consistently applied at facility level.
9. Incorporate routine mental health screening, counseling, and referral pathways into abortion care for all clients.
10. Conduct regular case review meetings and strengthen referral linkages with mental health and GBV services at facility and district levels.

11. Monitor site-level service delivery data and implement continuous quality improvement (CQI) cycles.
12. Conduct routine quality assurance activities, including clinical audits, client feedback mechanisms, and performance reviews, to improve quality and accountability.

### **8.2.3. Priority research areas**

1. Assess long-term outcomes of the use of telemedicine for abortion care and task-sharing models.
2. Evaluate the impact of digital health interventions on stigma, access, and uptake among adolescents and young women.
3. Conduct cost-effectiveness analyses comparing telemedicine and hospital-based abortion care.
4. Examine the effects of policy and regulatory reforms on equity, quality, and access.
5. Assess disparities in access across rural/urban areas, socioeconomic groups, undeserved and vulnerable populations
6. Assess clinical outcomes and safety when abortion care tasks are shifted from doctors to mid-level providers.
7. Explore how task-shifting can be combined with telemedicine to expand access in underserved areas.

## 9. Acknowledgements

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We sincerely thank all investigators, technical experts, collaborators, and health care providers for their dedication, teamwork, and invaluable contributions to the successful implementation of this research. The tables below outline the roles and responsibilities of all research team members who contributed to the design, implementation, oversight, and reporting of this study

**Table 6: Roles and responsibilities of research team members**

Names	Roles and responsibilities
Prof Claude Mambo Muvunyi/ Principal investigator	Provides overall scientific leadership, protocol oversight, budget governance, and strategic guidance to maximize research quality and impact.
Dr Muhammed Semakula/ Principal investigator	Leads ethical compliance and protocol development while ensuring regulatory adherence.
Dr. Albert TUYISHIME co-investigators	Supports study design, budget governance, resource oversight, and stakeholder coordination to ensure project effectiveness.
Dr Aline Uwimana/Principal investigator / Research Project Manager	Leads grant implementation, trial management, compliance oversight, resource allocation, and stakeholder.
Dr François Regis Cyiza/ Principal investigator	Supports research implementation, compliance monitoring, data quality assurance, and resolution of operational challenges during the implementation.
Evangeline Dushimeyesu/Principal investigator - Research project manager	Oversees day to day project implementation, team coordination, budgeting, data quality, reporting, data integrity, quality services delivery and funder compliance.
Dr Jean Baptiste Ntuhumbya	Ensures protocol oversight and compliance, and offers strategic guidance to enhance research quality and impact.
Dr Victor / RSOG President co - investigator	Provides senior technical input on protocol design, and interpretation to strengthen scientific rigor and impact.

Names	Roles and responsibilities
Dr Erigene Rutayisire/Research Consultant	Associate professor of Public Health at University of Rwanda, School of Public Health. Provides ethical oversight, protocol evaluation, and guidance on study design, data management, and statistical analysis, including the integration and reporting of qualitative and quantitative data, to strengthen research quality and impact.
Sylvere MUGUMYA (MOH Digital / IT Investigator)	Leads development of the digital tool, data security, and optimization of digital research platforms for data collection, analysis, reporting, and capacity building.
Christine IKUZE/ Investigator / MoH Legal Advisor)	Ensures legal and ethical compliance of the research, including informed consent, data protection, policy alignment, and researcher training.
Sharon Umutesi (Investigator)	Coordinates protocol development, site implementation, participant recruitment, supervision, training, and monitoring of research activities.
Iryanyawera Marie Claire Frida temple Thierry Sebakunzi Claudel Response Ashimwe (IT expert) Jean Bosco Mugiraneza (IT expert)	Development of the telehealth tool , digital tool, data security, and optimization of digital research platforms for data collection, ongoing capacity building on use of the digital tool
Eugene Kanyamanza/ Investigator	Supports field implementation, participant enrollment, data management, mentoring of providers, and operational problem-solving.
Dan Butare/ Investigator	Oversees service delivery readiness, supplies coordination, data collection supervision, and continuous quality improvement at study sites.

Names	Roles and responsibilities
Basonga Emmy	Conducts Values Clarification and Attitude Transformation (VCAT) training for community leaders, provides guidance on clinical service delivery at health center level, and contributes to the development of clinical guidelines.
Nzabonimpa Anicet	Offers technical guidance on clinical service delivery at health center level, and supports the development of clinical guideline
Ndola Prata and Karen Weidert/ US Berkeley	Provide remote technical expertise in protocol development, data analysis, and report writing.
Golbert Kazoza /Investigator	Co-Leads grant/budget implementation
<i>Health facilities / Gynecologists, Medical doctors, Nurses and Midwives; Deliver clinical services, recruit and consent participants, collect and manage data, ensure ethical care, and monitor client outcomes and adverse events.</i>	
<p><b>In Karongi District</b>, the research and service delivery team included Dr. Kagame Alex and Dr. Habamungu Jean De Dieu, who served as doctors, alongside nurses –midwives Valentine Nyirandimimubanzi, Nirere Speciose, Eline Muhawenimana, Havugimana Blaise, Levocate Usabyimana, Bunani Yvette, Iyakare Florent, Nyirangirimana Eline, Uwingabiye Marriane, Niyonkuru Karim, and Nyirangirimana Eline, all of whom contributed to patient care, data collection, and service coordination.</p>	
<p><b>In Musanze District</b>, the team comprised nurses-midwives Hasabwimana Innocent, Uwizeyimana Delphine, Zaninka Marianne, Ernestine Maniriho, Nishimwe Isabelle, Nyirabizeyimana Epiphanie, Rutayisire Safari, Nyirahabimana Irene, Nsanzumukiza Ferdinand, Yatubabariye Médiatrice, Nyirahunge Beatrice, Dusingizimana Esperance, Rugwiza Uwurukundo Clementine, Mutuyeyezu Consolee, Uwiduhaye Zibie, Nyiramana Elyse, Usanabera Sabine, and Nyiramahoro Gaudence, with medical oversight provided by doctors Beni Muhizi and Impano Matabaro Ange Marie.</p>	
<p><b>In Ruhango District</b>, contributions were made by nurses and midwives Rosine Nyiragasigwa, Thamar Nyirabugingo, Siborurema Emmanuel, Utatsineza Daniella, Twiringiyumukiza Pierre,</p>	

Names	Roles and responsibilities
	<p>Ntaganira Emmanuel, Nshimyumukiza Samuel, Wibabara Odile, Uwamariya Odette, Ndayisenga Joram Nkubana, Uwamahoro Alice, Mukankusi Flora, and Mwitende Clarisse, under the clinical leadership of Dr. Uwiringiyemungu J. Nepo.</p>
<p><b>In Rwamagana District,</b></p>	<p>the team included nurses and midwives Uwitonze Emmanuel, Imanishimwe Immaculee, Kanyamibwa Jean Marie Vianney, Mukakalisa Cecile, Mukamana Chantal, Mbaruramye Eduard, Dushimirimana Jeanne Darc, Mukandanga Angelique, Mukangenzi Christine, Kanani Jean Pierre, Bisengo Christophe, Musensengayire Norida, Nyirandayambaje Rahab, Harindintwari J. Claude, and Murekatete Adeline, with doctors Twahirwa Bonaventure and Ndeshyo Alphonse providing medical oversight and clinical support.</p>

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