



INTERACTIVE VOICE RESPONSE (IVR) HOTLINE: DEPLOYING TECHNOLOGY FOR FISTULA CARE

A DEPLOYMENT MANUAL

a global social enterprise improving lives via mobile

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Summary

This manual describes activities, considerations and recommendations that will aid the design, development and implementation of an IVR Hotline for the execution of a fistula intervention. This document also highlights observations, achievements and areas of improvement in the Fistula Care IVR Hotline development and intervention process. Furthermore, the document is a showcase of EngenderHealth's role in the eradication of stigmatization faced by women with fistula.

Key Findings Include:

1. Stigmatization of women suffering from fistula is still prominent in social circles and this has made it difficult for women with the condition to seek the help and medical treatment that they need.
2. There is a large financial burden for the treatment of fistula as it is very expensive. This makes it difficult for women with this condition to seek the required treatment and care they need since they cannot afford it.
3. A lack of awareness and sensitization on the condition makes it difficult for community members and health workers in remote areas to identify women suffering from fistula.
4. Inadequate healthcare facilities stifles treatment and patients are referred to other health care facilities or are sent back home without treatment.

The information in this report has been gathered from secondary sources including previous EngenderHealth materials, online publications and live interviews with individuals that participated in previous fistula interventions in Nigeria and Uganda.

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Overview

Introduction

Obstetric fistula is an abnormal opening between a woman's vagina and bladder and/or rectum through which urine (vesico-vaginal fistula) and/or faeces (recto-vaginal fistula) continually leak.¹ With harmful effects on a woman's quality of life, this condition remains a major public health concern to the United Nations and other health agencies due to the large number of women that currently live with the condition daily. About 2 to 3.5 million women suffer from this condition predominantly in developing countries, including Nigeria. In Nigeria, between 400,000 and 800,000 women are currently living with fistula, mostly in rural low-income households.² According to UNFPA, Nigeria accounts for 40% of fistula cases worldwide.³ Currently, the rate of prevention and treatment of the backlog of obstetric fistula in Nigeria is very low.

Approximately 80-90% of the causes of obstetric fistula is due to prolonged obstructed labour, especially in young women who have no access to caesarean section. This obstruction may be due to women having small or underdeveloped pelvis, the baby's head being too big or a badly positioned baby during labour. Some of these women are in labour for up to 5 days without professional medical assistance. This can lead to severe tissue damage and stillbirths.

The World Health Organization describes fistula as "the single most dramatic aftermath of prolonged or neglected childbirth"⁴

¹ Oluwasomidoyin Olukemi Bello, Imran Olud (UNFPA)are Morhason-Bello, Oladosu Akanbi Ojengbede, *Nigeria, a high burden state of obstetric fistula: a contextual analysis of key drivers: Pan African Medical Journal May 2020*

² The Horror of Fistula And A Survivor's Tale, <https://nigeria.unfpa.org/en/news/horror-fistula-and-survivors-tale>

³ <https://nigeria.unfpa.org/en/topics/obstetric-fistula-0>

⁴ Chika Oduah, *Nigerian Health Workers Blame Cultural Practices for Fistula Epidemic*, <https://www.voanews.com/africa/nigerian-health-workers-blame-cultural-practices-fistula-epidemic>

What are the leading causes of fistula?

A lack of access to quality emergency and basic health care facilities has been identified as the main cause of fistula continuation in developing countries. Several studies have highlighted different factors that contribute to the development of obstetric fistula, some of which include child marriage and early age at pregnancy, unqualified traditional midwives, harmful traditional birth methods and poor pregnancy care facilities.

Furthermore, poverty and malnutrition also play a major part as root causes for the increase in fistula cases in young, uneducated women in Nigeria. Nigeria's fistula numbers do not seem to be dropping. Currently there are 3.2 fistula cases per 1000 births and 13,000 new cases annually.⁵ The absence of reliable data plays a large role in the inconsistencies in the number of cases. The numbers presented is largely inflated as a means to plan for documented cases and prepare for undocumented cases.

How can reported fistula cases be managed and reduced?

Interventions to reduce the occurrence, sensitize and make treatment available to women living with fistula are well underway, but it was suggested that the backlog of unrepaired cases may take 83 years to address at the current rate of treatment. Obstetric fistula is considered one of the most traumatic childbirth injuries and more often than not, it leads to a myriad of social and psychological issues. As a consequence, affected women are at risk of social isolation, depression, long-lasting medical problems and deepening poverty, as many women in this situation are shunned by society and forced to fend for themselves.

The introduction of technology to help improve health care around the world is something that has been embraced on a large scale. However, the use of technology in identifying women suffering from obstetric fistula and providing them with the appropriate referral and care has limited impact due in part to illiteracy of the target population. Technology if deployed properly,

⁵ Oluwasomidoyin Olukemi Bello, Imran Oludare Morhason-Bello, Oladosu Akanbi Ojengbede, *Nigeria, a high burden state of obstetric fistula: a contextual analysis of key drivers: Pan African Medical Journal May 2020*

has the potential to increase access to information and medical care for women suffering from fistula or the stigma brought on by condition.

EngenderHealth Interactive Voice Response (IVR) Hotline Toolkit

In order to fully understand the effect and impact of fistula in communities and to further design suitable interventions to tackle the disease, EngenderHealth and Population Council conducted an intervention utilizing an IVR hotline system. The hotline was designed and set up to screen women with fistula utilizing a series of carefully scripted questions in their local languages and dialects. During this intervention, primary healthcare workers and community workers were trained on how to identify and refer women with fistula in the participating communities.

Guide to Using this Manual

Who is this manual intended for?

The Fistula IVR Hotline manual is intended for use by fistula intervention specialists, including government officials, planning organizations, universities and individuals who are responsible for the planning, design and implementation of an IVR Hotline for fistula related interventions.

Why was this manual developed?

Guidelines for the setup of IVR Hotline need to be developed and made available for use by key stakeholders. In the context of a fistula intervention programme, the use of an IVR Hotline has proven to be a useful tool in the screening of fistula patients. This manual seeks to provide guidance for maximizing the impact of the IVR hotline in the continuum of care for fistula. It provides technical guidance for setting up a hotline and also provides insight into other key elements such as screening, scheduling, transportation and post-treatment monitoring of patients.

User should expect to

- 1) Learn about fistula, causes, challenges and objectives of the fistula interventions,
- 2) Understand the role of the IVR Hotline in the fight against fistula
- 3) Obtain guidance on considerations to take into account when designing an IVR hotline system with the aim to maximize the use and impact of the system.
- 4) Learn the basics for planning the design of an IVR hotline

Users should not expect to

- Learn how to technically implement the hotline (e.g.,: coding, programming technology, telephony technology)
- Learn to design referral systems

Stakeholder Segmentation

This part of the document provides an overview on how to identify, group and engage stakeholders.

Identifying and Engaging Stakeholders

Stakeholder engagement is an important component for the development of an IVR Hotline. Identifying stakeholders helps with the design and flow of the IVR system ensuring that the system accommodates all possible users of the system and taking into consideration that there might be callers that would require information on the project or willing participants in the fistula screening process.

How to identify key stakeholders

A mapping exercise should be used to identify all individuals with an interest in the use of the IVR Hotline. Once a comprehensive list of possible stakeholders has been produced, they can be categorized according to various criteria, such as their role, relative importance and influence

in the IVR interaction and fistula screening exercise. This will help develop the proper screening questions for the IVR hotline to be used for the dissemination of information on fistula and the screening of patients for the fistula repair and treatment.

IVR hotline stakeholder mapping

Stakeholders (Users)	Role
Client	Caller with possible fistula symptoms, calls for screening
Community Worker (Third Party)	Community worker in charge of aggregating possible fistula patients after screening, also responsible for following up on scheduling and post treatment monitoring. Will be trained to assist clients with screening in situations where literacy or understanding might be an issue. Responsible for handling transportation vouchers and liaison with primary healthcare facility.
Volunteer Workers (Third Party)	Volunteer workers assist with general needs for the intervention. Will be trained to assist clients with screening in situations where literacy or understanding might be an issue.
Desk Officer	Administrative staff who manages schedules in primary or secondary health facility after screening

Research

Interactive Voice Response System

What is an Interactive Voice Response (IVR) System?

Interactive Voice Response (IVR) is an automated telephony system that interacts with callers, gathers information and routes calls to the appropriate recipients. An IVR system (IVRS) accepts a combination of voice telephone input and touch-tone keypad selection and provides the appropriate responses in the form of voice, fax, callback, email and other contact methods.⁶ IVR systems can consist of telephony equipment, software applications, a database and a supporting infrastructure.

How IVR System Works

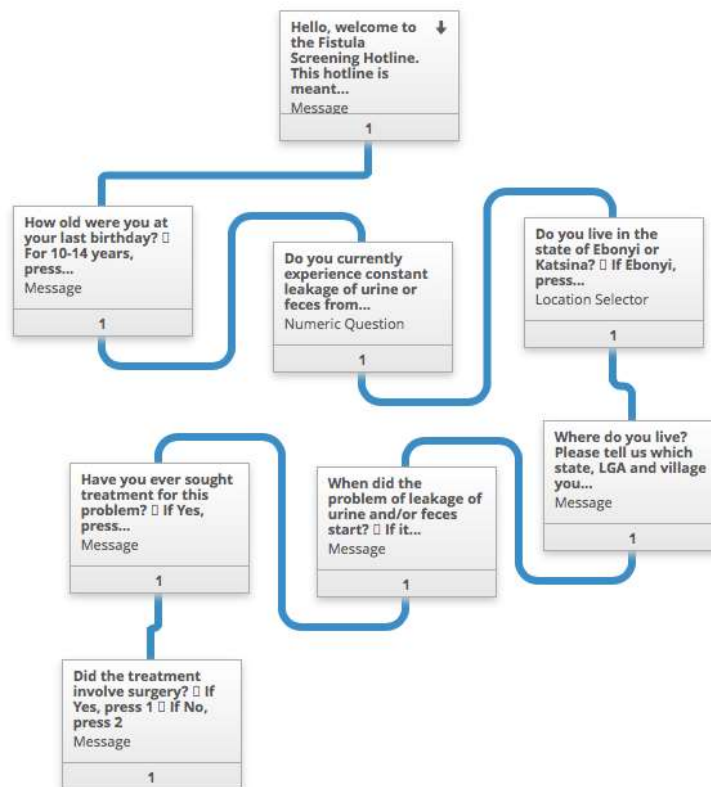
An IVR application provides prerecorded voice responses for appropriate situations, keypad signal logic, access to relevant data and, potentially, the ability to record voice input for later use. Using computer telephony integration (CTI), IVR systems can hand off a call to a human being who can view data related to the caller on a display. IVR systems also use dual-tone multi-frequency (DTMF) signals as a line of communication between a phone and a computer. The computer uses a telephony board or card to understand DTMF signals.

IVR solutions have become such an everyday part of phone systems that they have become the first point of contact for most businesses. IVR systems mediate calls and based on input from the caller, they are directed to the right place and issues are resolved faster.

⁶ Margaret Rouse, *Interactive Voice Response (IVR)*,
<https://searchcustomerexperience.techtarget.com/definition/Interactive-Voice-Response-IVR>

An IVR system can also work as a multi-channel marketing tool. Allowing organisations reach their clients via SMS or automated calls with pre-recorded messages. This makes the IVR system a more effective information dissemination and feedback collection tool.

Decision Maker Flow



Benefits of an IVR System

IVR technology can benefit large and small businesses in the following ways:

Saves time and money: with IVR technology, the need for human interaction to ask repetitive questions is mitigated. Interaction is made more effective using the IVR prerecorded prompts and instructions that have been uploaded into the system, based on feedback, the caller is directed to the next menu item until the caller is satisfied or prompts to speak to an operator. This saves money on human capital and reduces mistakes/human error.

Greater customer satisfaction: The IVR system eliminates wait times by responding to the caller immediately.

Round-the-clock service: The IVR system can operate without interruptions and is available to provide information to callers whenever they need it.

Call movement through an IVR System – See Appendix C



IVR Hotline for Fistula Care Intervention

The interactive voice response (IVR) hotline was introduced to help disseminate fistula information and conduct fistula screening. With mass media messaging, the IVR hotline was used as an effective campaign tool. The IVR hotline cuts through the language and illiteracy barrier as callers are prompted to select their preferred language. The hotline is a good tool for stimulating outreach, demand, recruiting, referring, dissemination of information on fistula, and training of healthcare workers, community workers and volunteers.

The Fistula Care IVR Hotline was just one part of a tripartite solution to tackling fistula in Nigeria. Paired with trained community agents and trained primary healthcare workers, the intervention made traction in the participating localities. A total of 566 women completed the IVR hotline screening process of which 415 (73%) were screened positive for fistula symptoms. There was positive feedback on the use of the hotlines as they ensured that affected women remained

anonymous while seeking solutions to their fistula problem. A prevailing challenge to the process was the limited or poor mobile phone coverage and ownership.

The IVR hotline used a series of carefully crafted questions and prompts to inform, screen and eventually determine callers who were likely suffering from obstetric fistula (*see sample script in appendix*). The success from the Ebonyi and Katsina exercises proved that the IVR intervention would be useful in expanding access to health care services for women suffering from fistula related conditions and stigmatization in the more remote parts of Nigeria.

Interviews & Findings

The interview with contact persons on the fistula care IVR hotline project identified the following as issues and experiences during the Fistula Care interventions in Nigeria and Uganda:

s/n	Issue/Experience
1	<p>IVR Hotline and Referral System – The IVR hotline wasn't directly linked to the referral system, this made follow up with screened women, issue tracking and voucher distribution a manual process.</p> <p>Notes: <i>A system that will allow for a seamless handshake between the IVR Hotline and the Referral App. This will allow for a more effective Referral and Hotline Ecosystem.</i></p>
2	<p>Language, Accents and Dialects – Considering the diversity and the number of languages and dialects spoken in Nigeria, understanding and interpretation became an issue and led to some false positive screening results.</p> <p>Notes: Nigeria: <i>Dialect/Accents - Use of more localized and/or central dialects and accents should be considered</i></p> <p>Uganda: <i>A negligible number complained about the accent of the person who translated the IVR hotline advert into their dialect (Luganda).</i></p>

3	<p>Network issues made it difficult to access the hotline, and in turn affected the callback feature</p> <p><i>Notes:</i></p> <p><i>An agreement can be reached with telecommunications companies in certain areas to improve service or provide solutions such as telescoping masts for cellular antennas as part of their corporate social responsibility. The extent of this solution will only be determined once conversation starts.</i></p> <p><i>The IVR can also be hosted on several networks for example in Nigeria, instead of one carrier, the Hotline can be hosted on 2 or 3 carriers as these carriers have different penetration levels depending on the region.</i></p> <p><i>Community agents were also able to refer patients directly to the fistula care centers in instances where network coverage was an issue and had to carry out preliminary physical screenings.</i></p>
4	<p>Awareness – in some areas, awareness was limited. This translated to an initial low participation and reduced the level of trust in the intervention and the use of the IVR hotline. Community workers had to be engaged to penetrate communities and have one-on-one interactions with community members.</p> <p><i>Notes:</i></p> <p><i>This was an issue in both Nigeria and Uganda – leveraging strong media channels like radio and/or TV, IVR and SMS outbound campaigns, and community engagements would go a long way to ensuring the target audience is reached.</i></p>
5	<p>IVR Hotline Training - Community workers, volunteers and health workers did not have proper knowledge on how the hotline worked, as they were not trained properly on its use</p> <p><i>Train the trainer approach should be introduced to ensure that knowledge is transferred properly and community workers and volunteers are better prepared to handle cases/patients. Use of flyer/manuals with a step-by-step instructions on how to use the IVR Hotline would also help with training and creating awareness.</i></p>
6	<p>Third party callers – some of the callers rely on friends or family members phones to make calls and when the system calls back they might not be connected or talking to the concerned party –</p> <p><i>Notes:</i></p>

	<i>The hotline should accommodate third-party callers and allow third party callers screen and schedule hospital visits for concerned clients. This can be better streamlined with the help of community workers and volunteers</i>
7	<p>Transportation – financial constraints made transportation expensive for most of the clients - <i>the use of vouchers have aided in easing the burden, but it is not a perfect system, the voucher system should be linked to the referral app via the hotline. This can allow for digital vouchers/codes to be sent to caller's phones after screening. These same codes/vouchers should be sent to community workers and volunteers with the necessary information for patient follow-up and possibly scheduling for transport and clinic visitation</i></p> <p><i>Landlocked areas posed a great challenge, in Ebonyi, some communities were inaccessible by car and clients had to pay okada "bikes" to navigate the roads to the agreed pickup location. Local okada "bikes" should be identified as part of the transportation needs in these communities and vouchers should also be made available</i></p> <p>Notes: <i>In Ebonyi, okada riders "motorcycles" were used to transport patients in landlocked areas to the pick up point. This form of transportation should be considered and made a part of the transportation team and should have vouchers generated for them.</i></p>
8	<p>Data Analytics – repeated data sets, complicated data sheets and manual analytics led to errors in generated reports. Duplicate numbers were registered, in some instances, different patients used the same number to place calls and there was no way treat cases individually or identify patient with a particular issue.</p> <p>Notes: <i>A fully automated system will prevent most of the common errors that occur in a manual analytics system; the use of Viamo's call center and issue tracker solution will allow for calls to be routed to live operators and voicemails for follow-up and documentation.</i></p>
9	<p>Healthcare facility Database – the IVR system did not have a healthcare database warehousing names and addresses of healthcare centers that were signed up for the fistula screening and/or repair intervention.</p> <p>Notes: <i>A list of primary and secondary healthcare facilities can be uploaded into the system. Patients that call in can pick facilities closest to them for their physical screening exercise before they</i></p>

	<i>are referred to a secondary facility for treatment. This would reduce transportation costs and needs.</i>
10	<p>Treatment fees – during the treatment and care, it was noted that other tests were carried out. Patients were asked to pay for tests outside of the fistula care and treatment. These tests were deemed necessary and some patients could not afford the tests or were not duly informed prior to the scheduled day of the hospital visit; this resulted in patients being rescheduled and in turn made any return visits difficult as transport vouchers were for one-time use only.</p> <p>Notes: <i>Vouchers should be made open or reusable for multiple hospital trips. Transport partners and community workers and volunteers should monitor the use of the vouchers. A list of possible required tests should be drawn up and subsidized for the patients. This should also be communicated to the clients during the awareness campaign so they are not blindsided by and unplanned bill.</i></p>
11	<p>Qualified Staff (Staffing): Trained healthcare workers were transferred out of their wards, this made screening tasking as health centers were left understaffed.</p> <p>Notes: <i>Private health workers that live around the communities should be encouraged to sign up as volunteers; stipends would also be a good incentive.</i></p>

In the more remote parts where screening exercises were taking place, community volunteers were of great assistance. They would visit women who had been screened and help transport them using a transportation voucher. These vouchers helped augment and reduce the financial burden on the women to be treated.

Issues regarding the scheduling of patient visits also became a major issue, there were some reported cases of conflicting schedules or the facility was not adequately fitted to manage the number of patients on a daily or scheduled basis. This led to women returning home and not wanting to participate in the exercise, as it had already taken a toll on their finances or time.

Lessons Learned

The IVR Hotline had a major effect on the outcome of the project. The hotline increased participation. This was largely due to the level of anonymity it provided callers and potential patients. Due to the dependency of the IVR system on network availability, the IVR hotline should be deployed on more than one mobile platform as network penetration varies by region and by provider.

During the course of the project, the need to link the IVR Hotline system to a functional referral system became apparent. This merger will allow easy tracking and scheduling of patient visits and treatments. The exercise also exposed the need for available transportation and a more effective transportation voucher system. This three-way system will work towards delivering a well-rounded referral ecosystem.

IVR Hotline Development, Design & Implementation Recommendations

When setting up an IVR Hotline system for a fistula intervention programme, there are multiple factors to take into consideration, including local context and customs, environment and sensibilities. Different countries and regions have peculiar problems that range from access to health care, transportation, and literacy levels to name a few.

In regards to fistula, it is also important to take into consideration the anonymity of the beneficiaries, because many of them already suffer from some form of social stigmatization brought upon them by their medical condition.

Human Centered Design

Using a human centered design approach, consisting of identifying and involving all key stakeholders including the primary beneficiaries in the design of the hotline is key. This is best achieved by conducting a series of interviews and design workshops with the stakeholders, the end goal being to determine the key messages and user experience that the hotline should have. Adopting an HCD approach from conception to development, deployment and post deployment (M&E + refinement) ensures that we include our beneficiaries and key stakeholders at each phase of the project, and include their voice and feed-back. A pre-launch test can be conducted with a controlled number of users, this will enable us to ensure that beneficiaries approve of the voice and translation used for the hotline, which was not the case in our last project.

Affordability and Access

Network Coverage

A network assessment of the participating communities, states and regions needs to be carried out to identify the most stable and effective mobile network or networks in the area. This will ensure that the IVR Hotline is hosted on the most reliable mobile network carrier in the area.

Language

The languages used for the IVR Hotline should be as localized and central as possible. In Nigeria, there are various accents and dialects; this can make effective communication via the IVR Hotline difficult. There are central dialects that are understood locally and should be explored during the design and deployment of the IVR Hotline.

Toll Free Numbers

We should ensure that calling the hotline and receiving calls from the hotline is 100% free, and we should communicate that very clearly to the targeted population. Through its technology, Viamo can ensure that both inbound and outbound calls are always free. Instead of the beneficiary paying for the airtime, whether the calls are outbounds or inbounds, the costs of airtime are passed on to the project's sponsor.

Toll free numbers are numbers that can be dialed from other numbers with no charge to the person placing the call. These numbers allow businesses and individuals to be reached without being charged. Toll free numbers are common for customer-service calling. This has particularly provided organizations a means to be contacted by customers at no cost.

Short Code Phone Numbers

Rather than using a long phone number like 810 555 1212, we recommend using a short code phone number for the hotline like for instance 321 of 53555. Short codes are 3 to 5 digit long and facilitate easy dialing and retention. Third-party calls should be expected and provisions should be made to handle these as most of these women might not have personal phones and

would require unique identifiers for screened patients regardless of the numbers used to place the call.

Hotline Access

Having the hotline available 24hrs a day, ensures that patients can call in at the best suitable time for them and remain anonymous.

Live Operators - Messages and Tracking

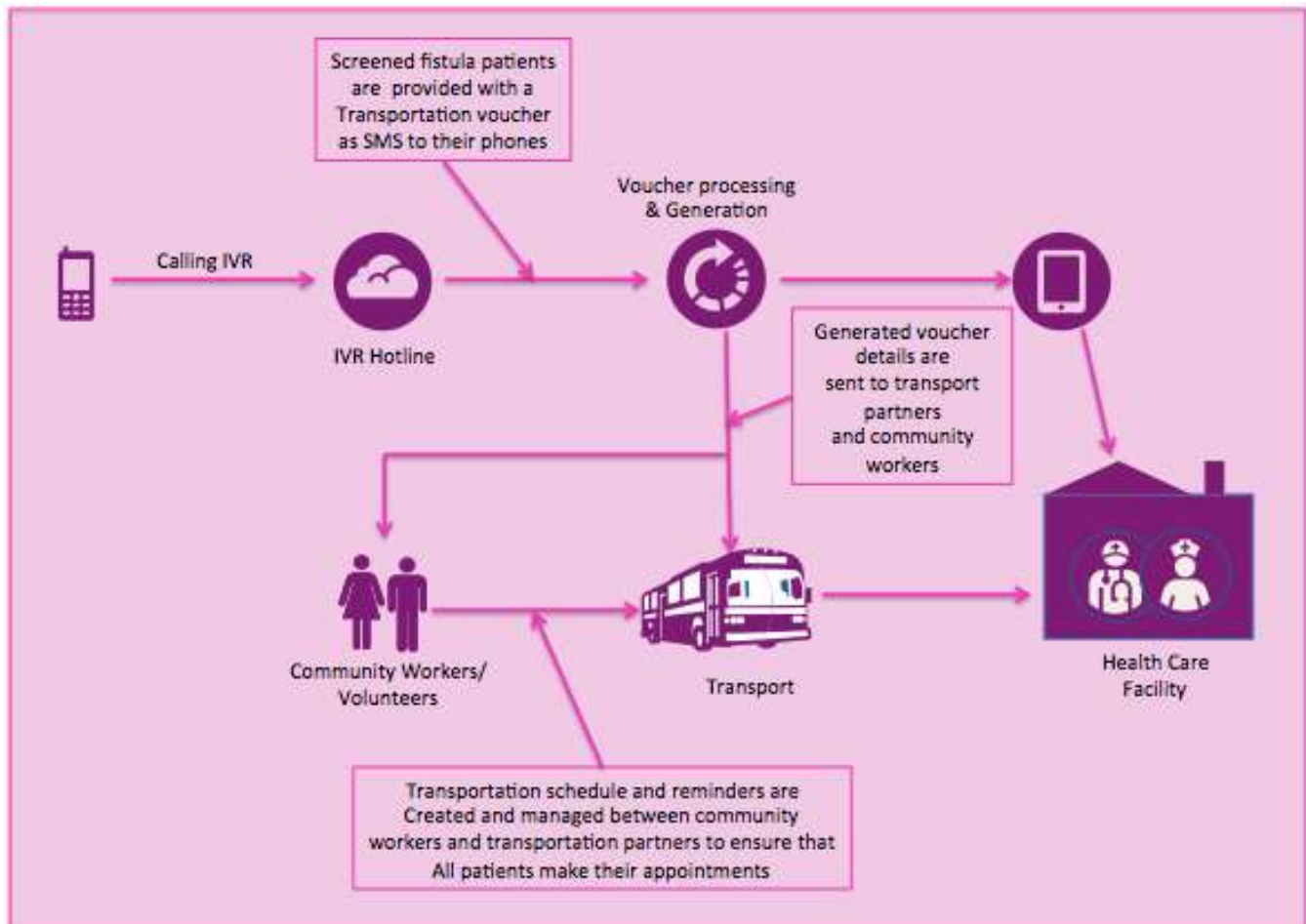
The hotline should be equipped with Viamo's call center and issue tracker solutions, which allows for calls to be routed to live operators and allow callers to leave voice messages when no operators are available. Voice mails can be tracked, documented and responded to within the software.

The project sponsor should ensure that enough well trained operators are available to service the hotline. When all operators are busy, callers will be able to leave a voicemail. When time allows, operators will listen to the voice mails and call back the callers.

Transport Voucher

Transport vouchers support should be merged with community workers' responsibility to improve scheduling and efficiency. After callers are screened, voucher information should be sent to the patient and to community workers for follow-up and scheduling.

IVR Hotline + Transport Voucher + Referral App Flow



Awareness and multi-channel marketing

Awareness creation will ensure that all stakeholders are well informed on the need and intention the intervention seeks to address. It will also enhance awareness of the intervention and promote the role of the IVR hotline, especially in regards to the anonymity that the system provides.

Creating awareness of the hotline among the target beneficiary population and key stakeholders and influencers is of paramount importance. This allows us to maximize the use of the hotline and maximize the chances that people understand the goals of our intervention and that it is well received.

One should maximize as many communication channels as possible, including IVR, SMS, radio, community agents, 3rd parties organizations including civil society (CSOs) and health facilities. If budget allows and the audience is well suited, project website, social media, print media and TV should also be considered.

Toll free numbers and IVR systems can be set up to allow for calls and text messages at a scheduled time. Once these calls are placed, the called party is taken through a series of prompts for input or they just listen to some pre-recorded information. This allows the system to be used as a marketing tool. This form of marketing creates awareness in real-time. Numbers called can be monitored and tracked by using the call center and issue tracker applications whereby one can document issues reported by callers. Both call center and issue tracker applications allow for the generation of reports on demand.

Staffing

Hotline Operators

Operators of the hotlines must be trained to follow up on as many patients as possible and assess what works and what needs improving to help improve on the overall IVR Hotline system. Additionally, intermittent monitoring and training should be done, to ensure that quality is maintained and that we maintain an adequate number of operators all through the life of the project.

Healthcare Workers at Health Facilities

Ensure that referral healthcare facilities are adequately prepared to handle referral cases and treatment. Staff has to be well trained (clinical and interpersonal skills) to help with marketing and scheduling of patients to optimize the facility and patient's time.

Community Health Workers and Volunteers

Community workers and volunteers must be well trained and capable of using the IVR system. In situations where network is not available, they must be trained to carry out physical fistula

screenings in their respective communities. This will help the already understaffed healthcare facilities in their respective communities.

Community workers should be encouraged to make follow up calls and visits to patients that have been screened and treated. They should also seek to identify women in the community who might be suffering from the condition, but might be reluctant to seek treatment for diverse reasons. Efforts should be made to make those women understand that the treatment is free and that they will remain anonymous.

Screening Centers

Screening centers should be set up in each ward or community. These centers can also handle referrals once a patient has been screened.

Referral System/Application

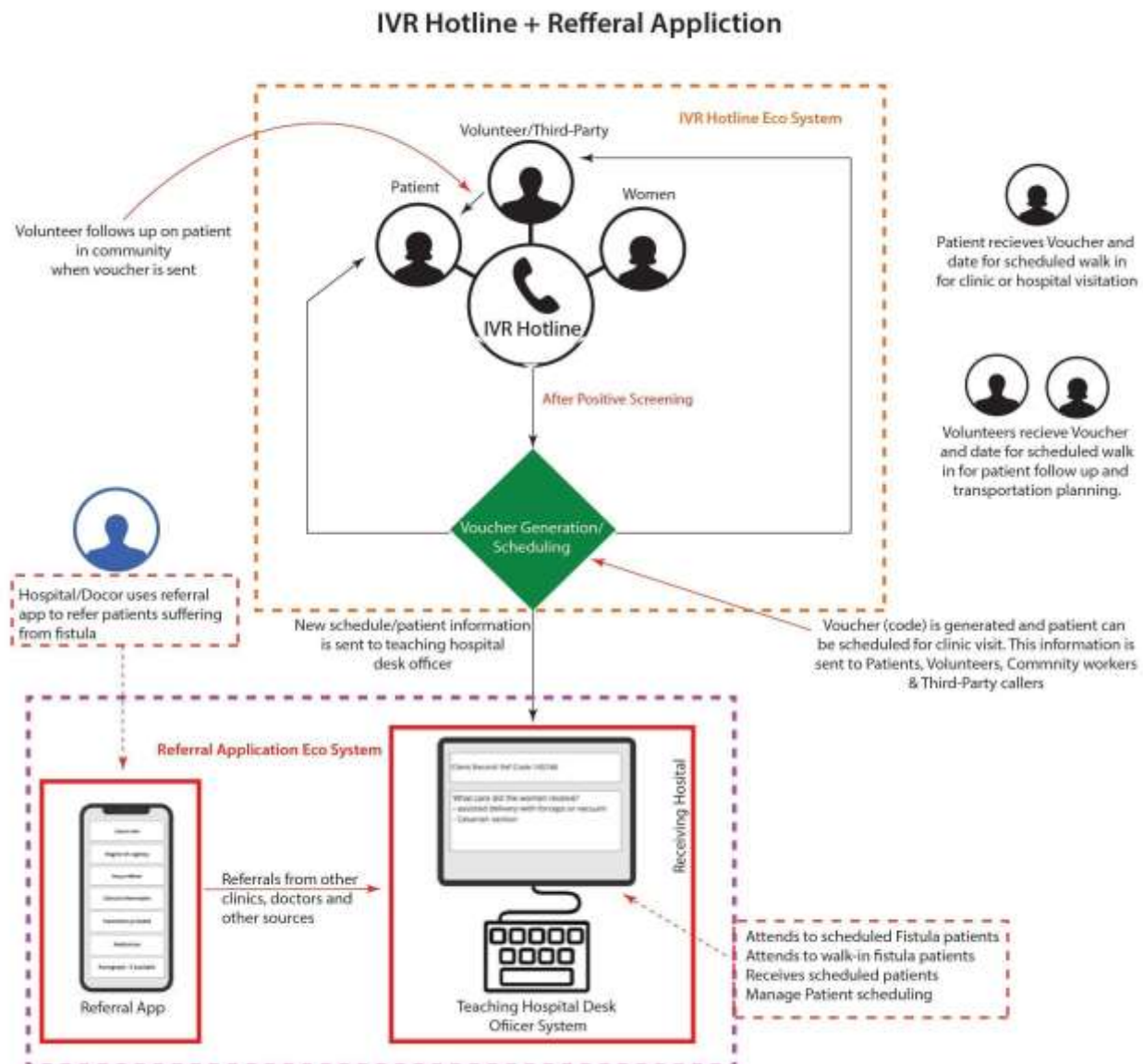
A referral system or application is a tool designed to refer patients to hospitals after screening. This application will have the patient's information uploaded to a database and shared with the secondary healthcare facility in preparation to receive the patient on a scheduled day.

Ultimately, the essence of the IVR hotline is not only to provide information on fistula, screen possible fistula patients, but also to refer beneficiaries for treatment and follow up post treatment with information on what to do after treatment and how to spot signs of possible infection.

Linking the hotline to an automated referral system and/or application maximizes performance and satisfaction. Patients can be referred to clinics and scheduled for appointment immediately after screening. This can be achieved by integrating a random code generator (voucher generating module) with the IVR Hotline that will allow for generated codes to be sent to callers as soon as they are done screening. This code will be saved in the system and will be assigned to individual patients and phone numbers. The codes can be used to schedule appointments and also as a voucher code to be used by the patients for transportation and possibly to collect personal hygiene items provided to them through the intervention.

Linking the IVR hotline to a referral application will help automate most of the processes. Processes like transport voucher generation, scheduling and post treatment follow up are some of the processes that can benefit from an IVR hotline-referral system integration.

See figure below:



Closing

The number of smartphone users in Nigeria, Africa's biggest economy and most populous country, is forecast to grow to more than 140 million by 2025. Currently, estimates from different sources put the number of smartphone users in Nigeria at roughly 25 to 40 million.⁷

With this number of users and network penetration levels rising, the use of mobile technology to fight fistula and other public health problems cannot be over emphasized. Mobile technology has come a long way over the past 10 years, especially in developing countries. Mobile technologies such as mobile banking and GPS, have further increased acceptance of mobile devices in some of the more hard-to-reach parts of these developing countries.

The IVR hotline is no exception. As a technology tool, the IVR hotline can be used to achieve results that are only limited by one's imagination. This technology can be adapted to solve a plethora of problems in today's world.

In Nigeria and Uganda, it was used to gather information and treat patients suffering from fistula, a dangerous side effect of prolonged labour and a threat to the livelihood of women especially in rural areas. The system provided patients with the privacy they required in order to seek appropriate treatment. The stigma of the condition is severe and has led to women being ostracized from the social circles, making feeding and access to other basic necessities a challenge. The IVR Hotline showed that there is a way to still reach these women and strategize on how to change their lives and living conditions, it has also provided a means to reach them for post treatment follow-up and social behavioral change (SBC) messaging.

Fistula is a degenerative condition that has led to severe health challenges for women. With Nigeria leading in number of reported and documented cases, the need for awareness and sensitization on the disease must be met with an intention and determination to solve and free

⁷ *Smartphone users in Nigeria 2014-2025*, (O'Dea, 2020) <https://www.statista.com/statistics/467187/forecast-of-smartphone-users-in-nigeria/>

women from the stigma of this disease – the use and application of technology cannot be over-emphasized.

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IVR Hotline Toolkit Key Informants

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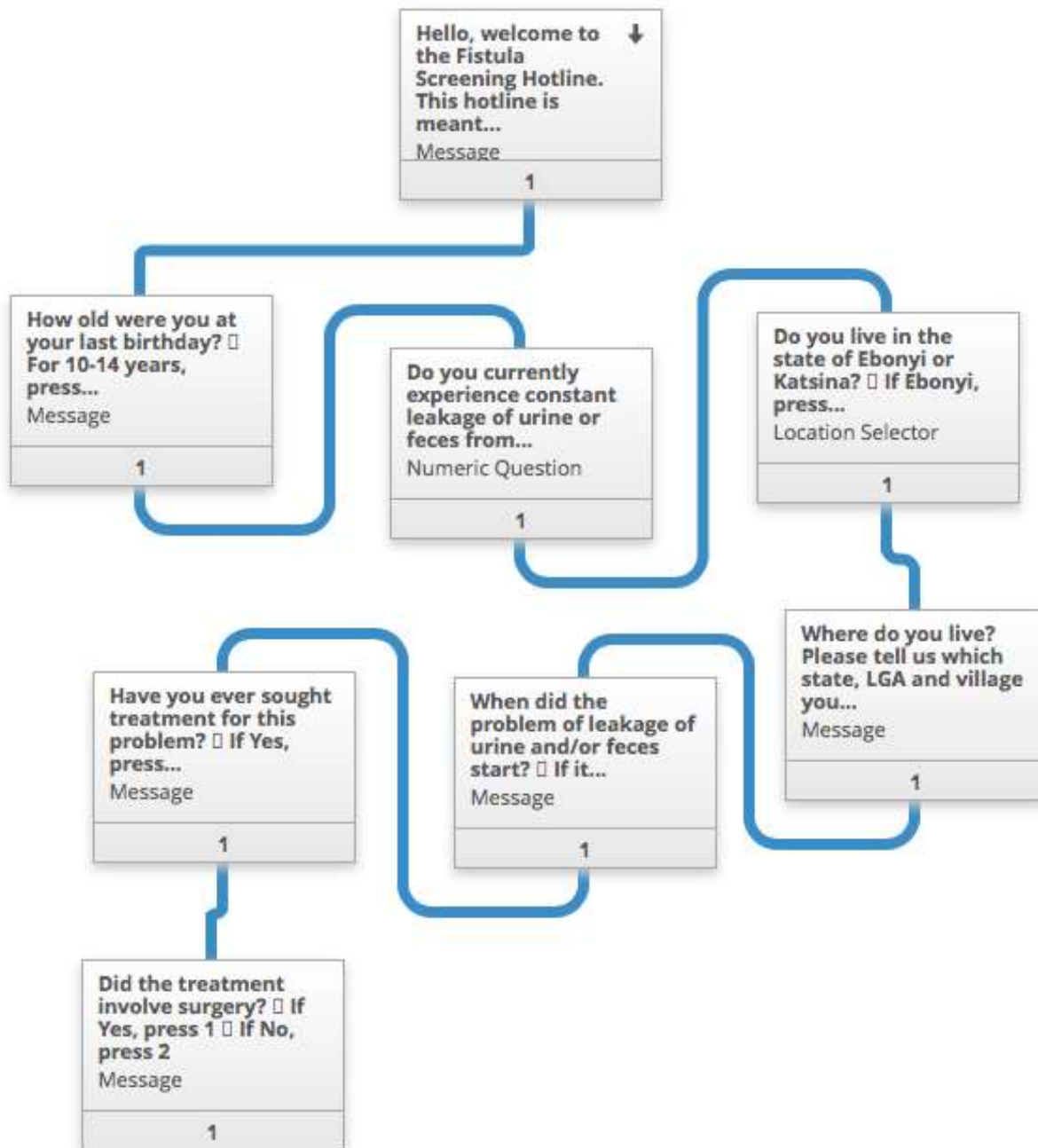
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Appendix

Appendix A: Sample IVR Decision Tree



Annex

EngenderHealth Fistula Care Plus – English Script

File#	File Name	English
1	Intro1_Hausa	<p>Hello, welcome to the Fistula Screening Hotline. This hotline is meant to help you know if you should seek medical care for something called fistula.</p> <p>Fistula can cause constant leakage of urine and/or feces from your vagina during the day and night.</p> <p>This can be both uncomfortable and embarrassing, but you are not alone - many women like you experience this problem, usually after a difficult childbirth, but sometimes also after an assault or after a surgery or operation.</p> <p>Thankfully, with proper medical care, fistula can be treated.</p> <p>We will ask you some personal questions about you and your health. Please answer the questions using the keypad on your phone to select the option that is correct for you.</p> <p>Please answer honestly so that we can advise you well on the medical care that you should seek. This will take less than 5 minutes of your time – let's begin.</p>
2	Q1_Hausa	<p>How old were you at your last birthday?</p> <p><input type="checkbox"/> For 10-14 years, press 1 <small>[1] [SEP]</small></p> <p><input type="checkbox"/> For 15-19 year, press 2 <small>[2] [SEP]</small></p> <p><input type="checkbox"/> For 20-24, press 3 <small>[3] [SEP]</small></p> <p><input type="checkbox"/> For 25-39, press 4 <small>[4] [SEP]</small></p> <p><input type="checkbox"/> For over 40 years, press 5 <small>[5] [SEP]</small></p>

3	Q2_Hausa	<p>Do you currently experience constant leakage of urine or feces from your vagina during the day and night even when you are not urinating or trying to urinate?</p> <p><input type="checkbox"/> If Yes, press 1 [L SEP]</p> <p><input type="checkbox"/> If No, press 2 [L SEP]</p>
4	Q3_Hausa	<p>Do you live in the state of Ebonyi?</p> <p><input type="checkbox"/> If Yes, press 1 [L SEP]</p> <p><input type="checkbox"/> If No, press 2 [L SEP]</p>
5	Q4_Hausa	<p>Do you live in the state of Katsina?</p> <p><input type="checkbox"/> If Yes, press 1 [L SEP]</p> <p><input type="checkbox"/> If No, press 2 [L SEP]</p>
6	Q5_Hausa	<p>Where do you live? Please tell us which state, LGA and village you live in. If you do not know, please say, 'don't know.'</p> <p>Once you have finished recording your response, please press 1.</p>
7	Action1_Hausa	<p>Your symptoms are likely not caused by a fistula, but it is still important that you talk with a health care worker to determine how best to treat your current symptoms.</p> <p>Please visit the nearest health facility for advice and treatment.</p>
8	Action2_Hausa	<p>Fistula is curable and you can receive free treatment at the National Obstetric Fistula Centre (MCCI) in Abakaliki.</p> <p>A community volunteer from the organization DOVENET will contact</p>

		<p>you within 2 days via the cell phone you used to make this call.</p> <p>They will provide you with more information on fistula as well as a voucher for a free trip for you and a companion of your choosing to go to the National Fistula Centre at Abakaliki, where you can get properly diagnosed and treated for free.</p>
9	Action3_Hausa	<p>Fistula is curable and you can receive free treatment at the National Obstetric Fistula Centre at Babbar Ruga in Katsina.</p> <p>A community volunteer from the organization FOMWAN will contact you within 2 days via the cell phone you used to make this call.</p> <p>They will provide you with more information on fistula as well as a voucher for a free trip for you and a companion of your choosing to go to the National Fistula Centre at Babbar Ruga in Katsina, where you can get properly diagnosed and treated for free.</p>
10	Action4_Hausa	<p>Fistula is curable and you can receive treatment at one of Nigeria's treatment facilities.</p> <p>Within four days, you will receive a follow up SMS with information on the nearest fistula treatment center to you.</p>
11	Action2_Community_Hausa	<p>Fistula is curable and you can receive free treatment at the National Obstetric Fistula Centre (MCCI) in Abakaliki.</p> <p>The community volunteer from the organization DOVENET, who helped you make this call, will provide you with more information on fistula as well as a voucher for a free trip for you and a companion of your choosing to go to the National Fistula Centre at Abakaliki, where you can get properly diagnosed and treated for free.</p>
12	Action3_Community_Hausa	<p>Fistula is curable and you can receive free treatment at the National Obstetric Fistula Centre at Babbar Ruga in Katsina.</p> <p>The community volunteer from the organization FOMWAN, who helped you make this call, will provide you with more information on fistula as well as a voucher for a free trip for you and a companion of your</p>

		choosing to go to the National Fistula Centre at Babbar Ruga in Katsina, where you can get properly diagnosed and treated for free.
13	Intro2_Hausa	<p>We will now ask you some additional questions to better understand your condition and respond in the best possible way.</p> <p>As before, please answer the questions honestly and use the keypad on your phone to select the option that is correct for you.</p> <p>This will take an additional 5 minutes of your time – let's begin.</p>
14	Q6_Hausa	<p>When did the problem of leakage of urine and/or feces start?</p> <p><input type="checkbox"/> If it started After you delivered a live or stillborn baby, press 1 [SEP]</p> <p><input type="checkbox"/> If it started After abdominal or pelvic surgery while you were not pregnant, press 2 [SEP]</p> <p><input type="checkbox"/> If it started After a sexual assault, attack, or other injury, press 3 [SEP]</p> <p><input type="checkbox"/> If None of the above, press 4 [SEP]</p>
15	Q7_Hausa	<p>Did this delivery (after which leaking started) happen normally, did they pull the baby out, or did they cut you/do an operation?</p> <p><input type="checkbox"/> If it was a Normal delivery, press 1 [SEP]</p> <p><input type="checkbox"/> If it was an Assisted vaginal delivery, press 2 [SEP]</p> <p><input type="checkbox"/> If it was a C-section (delivery through the [SEP]tummy), press 3 [SEP]</p>
16	Q8_Hausa	<p>Have you ever sought treatment for this problem?</p> <p><input type="checkbox"/> If Yes, press 1 [SEP]</p> <p><input type="checkbox"/> If No, press 2 [SEP]</p>

17	Q9_Hausa	<p>From whom did you seek treatment most recently?</p> <p><input type="checkbox"/> If it was a Health professional (such as doctor, midwife or nurse), press 1 ^[L]_[SEP]</p> <p><input type="checkbox"/> If it was a Community or village health worker, press 2 ^[L]_[SEP]</p> <p><input type="checkbox"/> If it was a Traditional birth attendant or other provider, press 3 ^[L]_[SEP]</p> <p><input type="checkbox"/> If it was someone else, press 4 ^[L]_[SEP]</p>
18	Q10_Hausa	<p>Did the treatment involve surgery?</p> <p><input type="checkbox"/> If Yes, press 1 ^[L]_[SEP]</p> <p><input type="checkbox"/> If No, press 2 ^[L]_[SEP]</p>
19	Q11_Hausa	<p>Who has most recently helped you in seeking treatment?</p> <p><input type="checkbox"/> If it was your Husband, press 1 ^[L]_[SEP]</p> <p><input type="checkbox"/> If it was your Husband's family (such as mother-in-law), press 2 ^[L]_[SEP]</p> <p><input type="checkbox"/> If it was your Own family (such as mother, father, sister), press 3 ^[L]_[SEP]</p> <p><input type="checkbox"/> If it was another person, press 4 ^[L]_[SEP]</p> <p><input type="checkbox"/> If you have not received assistance from others, press 5 ^[L]_[SEP]</p>

20	Q12_Hausa	<p>Why have you not sought treatment? Please select the most significant of the following answer choices.</p> <p><input type="checkbox"/> If you Did not know that treatment is possible or where to go, press 1 <small>[L] [SEP]</small></p> <p><input type="checkbox"/> If the Cost of travel or treatment was too high, press 2 <small>[L] [SEP]</small></p> <p><input type="checkbox"/> If the Distance of treatment was too far, press 3 <small>[L] [SEP]</small></p> <p><input type="checkbox"/> IF it was because of Social barriers, such as a lack of permission, embarrassment, isolation, press 4 <small>[L] [SEP]</small></p> <p><input type="checkbox"/> If it was because you had Concerns about quality <small>[L] [SEP]</small> of care at the treatment facility, press 5 <small>[L] [SEP]</small></p> <p><input type="checkbox"/> If it was another reason, press 6 <small>[L] [SEP]</small></p>
21	Conclusion1_Hausa	<p>You have now completed the screening process. Thank you for your time.</p> <p>Someone will follow up within two days using this mobile number.</p>
22	Conclusion1_Community_Hausa	<p>You have now completed the screening process. Thank you for your time.</p>
23	Conclusion2_Hausa	<p>You have now completed the screening process.</p> <p>Thank you for your time. If you would like to receive a follow up SMS to</p>

		<p>this mobile number within four days, please press 1.</p> <p>If you would not like to receive a follow up message regarding the nearest fistula treatment facility, please press 2.</p>
24	LanguageSelctor_Ha usa	To access the hotline in Hausa, press 1.
25	Followup1_Hausa	<p>Thank you for calling Fistula Screening Hotline.</p> <p>Fistula is curable and you can receive free treatment. Please visit Farida General Hospital for diagnosis and treatment.</p>
26	Followup2_Hausa	<p>Thank you for calling Fistula Screening Hotline.</p> <p>Fistula is curable and you can receive free treatment. Please visit Maryam Abatcha Women and Children Hospital for diagnosis and treatment.</p>
27	Followup3_Hausa	<p>Thank you for calling Fistula Screening Hotline.</p> <p>Fistula is curable and you can receive free treatment. Please visit Hajjia Gambo Sawaba VVF Center for diagnosis and treatment.</p>
28	Followup4_Hausa	<p>Thank you for calling Fistula Screening Hotline.</p> <p>Fistula is curable and you can receive free treatment. Please visit Gesse Fistula Centre for diagnosis and treatment.</p>
29	Followup5_Hausa	<p>Thank you for calling Fistula Screening Hotline.</p> <p>Fistula is curable and you can receive free treatment. Please visit National Obstetric Fistula Center Babbar Ruga for diagnosis and treatment.</p>
30	Followup6_Hausa	<p>Thank you for calling Fistula Screening Hotline.</p> <p>Fistula is curable and you can receive free treatment. Please visit Sobi</p>

		Specialist Hospital for diagnosis and treatment.
31	Followup7_Hausa	<p>Thank you for calling Fistula Screening Hotline.</p> <p>Fistula is curable and you can receive free treatment. Please visit Adeoyo Maternity Teaching Hospital for diagnosis and treatment.</p>
32	Followup8_Hausa	<p>Thank you for calling Fistula Screening Hotline.</p> <p>Fistula is curable and you can receive free treatment. Please visit General Hospital for diagnosis and treatment.</p>
33	Followup9_Hausa	<p>Thank you for calling Fistula Screening Hotline.</p> <p>Fistula is curable and you can receive free treatment. Please visit National Obstetric Fistula Center for diagnosis and treatment.</p>
34	Followup10_Hausa	<p>Thank you for calling Fistula Screening Hotline.</p> <p>Fistula is curable and you can receive free treatment. Please visit Laure VVF center Kano for diagnosis and treatment.</p>
35	Followup11_Hausa	<p>Thank you for calling Fistula Screening Hotline.</p> <p>Fistula is curable and you can receive free treatment. Please visit General Hospital for diagnosis and treatment.</p>
36	Followup12_Hausa	<p>Thank you for calling Fistula Screening Hotline.</p> <p>Fistula is curable and you can receive free treatment. Please visit Evangel VVF center for diagnosis and treatment.</p>
37	Followup13_Hausa	<p>Thank you for calling Fistula Screening Hotline.</p> <p>Fistula is curable and you can receive free treatment. Please visit National Obstetric Fistula Center for diagnosis and treatment.</p>

38	Followup14_Hausa	<p>Thank you for calling Fistula Screening Hotline.</p> <p>Fistula is curable and you can receive free treatment. Please visit Pope John Paul II Family life VVF center for diagnosis and treatment.</p>
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