

A man in a red blazer with yellow trim is looking at a mobile phone in a hallway. The hallway has yellow walls and a white ceiling. A dark red text box is overlaid on the right side of the image.

Use of Interactive Voice Response for Professional Development in Kenya:

Findings From Activity
Implementation and
Assessment



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K4Health™

Knowledge for Health

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Cover photo credit: © 2016 Amanda BenDor. Student at Kenya Medical Training College Kitui interacting with the K4Health interactive voice response (IVR) training course on his mobile phone. The course used mobile technology, specifically IVR, to provide refresher training of family planning information learned through the Global Health eLearning Center.

CONTENTS

CONTENTS	3
ACRONYMS.....	5
EXECUTIVE SUMMARY	6
Background	6
Planning and Implementation	6
Evaluation	7
Recommendations.....	7
BACKGROUND	9
PLANNING	11
Location Selection	11
Implementation Team Selection.....	11
IVR Platform Selection	12
IMPLEMENTATION	14
Content Adaptation.....	14
Platform Setup	14
Participant Recruitment.....	15
Participant Engagement and Technical Support.....	15
EVALUATION	16
Knowledge Retention Evaluation Design.....	16
Usability and Platform Engagement	17
COST CONSIDERATIONS.....	23
DISCUSSION	24
Programmatic Challenges.....	24
Key Findings	24
RECOMMENDATIONS FOR PROGRAMS CONSIDERING IVR FOR HEALTH CARE WORKFORCE TRAINING	26
Program Management	26
Technology	26
Content	26
Partnerships	27
CONCLUSION	28
BIBLIOGRAPHY.....	29

APPENDIX A: GHeL Family Planning Reinforcement IVR Training Course Script with Questions and Answers..... 31

Miscellaneous Recordings.....	31
Introduction	32
Family Planning Counseling Domain.....	32
Family Planning Method-Specific Domain	36

APPENDIX B: Knowledge Assessment..... 41

Family Planning Counseling Domain.....	41
Family Planning Method-Specific Domain	43

ACRONYMS

IVR	Interactive Voice Response
GHeL	Global Health eLearning Center
KES	Kenyan shilling
KMTC	Kenya Medical Training College
SMS	Short Message Service
USAID	U.S. Agency for International Development

EXECUTIVE SUMMARY

Background

This white paper describes the Knowledge for Health (K4Health) Project's interactive voice response (IVR) activity implementation, funded by the U.S. Agency for International Development (USAID). The report also serves as a guiding example for other program implementers and organizations interested in using IVR to train health professionals.

In response to a growing demand for customized training content, K4Health began to explore new ways to deliver the technical global health content available online for free from the Global Health eLearning Center (GHeL). The goal was to reach a wider audience of health care program managers and health care providers working in low- and middle-income countries. While the proportion of households with internet access has increased globally, accessibility and connectivity continue to be an issue for the vast majority of people living in low- and middle-income settings. On the other hand, there are almost as many mobile cellular subscriptions as people on Earth, and more than three-quarters of these subscribers live in low- and middle-income countries.

K4Health thus sought to test how easily and effectively existing GHeL quiz content could be adapted to an IVR platform. IVR is a technology that works with any type of mobile phone. It delivers information via audio recordings, while users can provide feedback by pressing a number key. IVR can deliver more robust information than short message service (SMS) can, but because IVR information is audio recorded, it does not require a smartphone, internet connectivity, or even full literacy. That said, literacy was not an issue with the audience of this activity.

In 2013, IntraHealth International's CapacityPlus project, funded by USAID, developed an IVR training platform for health professionals in Senegal. Building on this experience, K4Health collaborated with Kenya Medical Training College (KMTC) in Kitui, the Kitui District Hospital, and IntraHealth Kenya to develop and deliver a similar IVR family planning reinforcement training to 233 students and health care providers in Kenya.

Planning and Implementation

The K4Health IVR training—also called the Family Planning Mobile Training Course—was designed to deliver 20 audio questions with accompanying explanations. Lecturers from KMTC reviewed the content for appropriateness before it was delivered. The course was delivered as audio recordings because most of the training participants used basic phones and the amount of content that was delivered would have required multiple SMS text messages, while audio allows for approximately 500 words of pre-recorded content. The course used the spaced-education methodology, which is a question-and-answer learning approach that repeats content in a way that has been scientifically proven to help students retain information (Qstream, 2017). To pass the IVR training, participants were required to answer each question correctly twice. Participants first received an SMS text message prompting them to initiate the daily training call by responding "Yes." Once a participant's text was received, the IVR platform immediately called the participant's mobile phone. Participants could answer up to 4 questions per call. The fastest a participant could complete the training was 10 days, if every question was answered correctly on the first try.

After conducting a review of IVR technology platforms, K4Health selected InSTEDD's Verboice platform and built custom code to accommodate the training design. Content for the Family Planning Mobile Training Course was adapted from the GHeL Family Planning 101 and Family Planning Counseling courses.

Evaluation

All participants (n=233) were invited to complete the Family Planning Mobile Training Course at least 6 weeks after he or she had completed the baseline knowledge assessment if not longer, to allow for some decline in memory retention over time. Before and after the Family Planning Mobile Training Course, participants were

asked to complete baseline and endline knowledge assessment tests. A total of 48 participants did not start the Family Planning Mobile Training Course, while 86 started but did not complete it. Because these two groups (n=134) were exposed to IVR training course, but did not initiate or complete it, they were dropped from the analysis. Additionally, those participants that did not complete both the baseline and endline assessment were dropped from the analysis. Among the intervention group (i.e., those who completed the baseline and endline knowledge assessments as well as the IVR training course, n=75), the mean scores from baseline to endline increased from 12.1 at baseline to 15.9 at endline. This difference is statistically significant. Results indicate that IVR positively affected family planning (FP) knowledge.

The IVR platform monitoring data revealed that:

- Participants who completed the training (n=75) spent an average of 22.6 days engaged in the IVR training, with an average call duration of 5.9 minutes.
- Participants who did not complete the training (n=86) spent an average of 8 days engaged in the IVR training, with an average call duration of 3.8 minutes.

In addition, a usability assessment was conducted at midline to inform K4Health as to participant's motivations to take part in the IVR training course, their overall likes and dislikes of the IVR training course, and suggestions for improvement. A separate report can be found online that details all of the findings from that assessment. In this report, we highlight a few select findings which we believe could be helpful in informing the possible replication of this activity by other organizations and institutions.

Recommendations

Overall, the evaluation found that the project's use of IVR for continued professional development was successful. Table 2 on the next page provides specific recommendations for improving the use of IVR and spaced-education methodology for further continued professional development activities.

Table 2. Recommendations for improving IVR professional development trainings

Findings	Recommendations
The results indicate that IVR may be a viable methodology for ensuring student and health care provider knowledge is up-to-date in family planning.	Future studies should include a control group, or a group that was not exposed to IVR training course at all, to enhance the validity of our findings.
Participants requested more interactivity, specifically around the ability to ask questions related to the training content.	Explore platform options to add more interactivity (e.g., a help hotline, FAQ link, or ability to leave voice messages) to future IVR training courses or to integrate IVR training courses into existing, more traditional face-to-face trainings.
Some participants with older mobile phone models had difficulty hearing the audio recordings.	In advance of the training course, conduct a review of what phones are in predominant use among the target audience. Send training content via both voice calls/audio recordings and SMS.
Similar to other online and distance learning initiatives, the attrition rate was an issue. More than half of the participants enrolled in the IVR training course (64%) did not start or complete it.	Consider creating micro-incentives for completing the IVR training course, such as having the training accredited so health care providers earn continued professional development credits and students can earn course credits.
Participants expressed high user satisfaction with the platform and the IVR training format.	Share these results with other KMTC campuses to explore scale-up of IVR blended learning for family planning and other health care services.

BACKGROUND

In response to a growing demand for customized training content, K4Health began to explore new ways to deliver the technical global health content that is available online for free from the Global Health eLearning Center (GHeL). The goal was to reach a wider audience of health care program managers and health care providers working in low- and middle-income countries. While the proportion of households with internet access has increased globally, accessibility and connectivity continue to be an issue for the vast majority of people living in low- and middle-income settings. On the other hand, there are almost as many mobile cellular subscriptions as people on Earth, and more than three-quarters of these subscribers live in low- and middle-income countries.

K4Health thus sought to test how easily and effectively GHeL quiz content could be adapted to an interactive voice response (IVR) platform. IVR is a technology that works with any type of mobile phone. It delivers information via audio recordings, while users can provide feedback by pressing a number key. IVR can deliver more robust information than short message service (SMS) can, but because IVR information is audio recorded, it does not require a smartphone, internet connectivity, or even full literacy. For our participants, literacy was not an issue. However, given that most of our participants used basic phones at the beginning of this activity, we determined that using audio recordings of the content would be more appropriate than sending multiple SMS text messages. Throughout implementation of this activity, more health care provider participants began to acquire smartphones. We recommend given the amount of content being delivered that SMS only be considered for replication of this activity with an audience that has smartphones.

In 2013, IntraHealth International's *CapacityPlus* project developed an IVR platform to deliver a refresher course on managing contraceptive side effects, rumors, and misconceptions to 20 nurses and midwives in two districts in Senegal. The course delivered 20 audio questions with accompanying explanations using the spaced-education methodology, which is a scientifically proven learning approach that repeats questions and answers over time (Qstream, 2017). Research on the spaced-education methodology has demonstrated that spaced reinforcement, also known as distributed practice, combined with testing, can significantly improve long-term retention of knowledge and skills (Kerfoot, 2010).

An evaluation conducted after the *CapacityPlus* pilot study indicated that the participants retained modest but significant and sustained knowledge gains both five weeks and 10 months after completing the course (Gilroy et al., 2015). One of the recommendations from the study was that the course be scaled up to deliver family planning refresher training to other geographic areas. Despite the value of these findings, very little additional research has been conducted on the effectiveness of mobile learning (mLearning) through IVR.

K4Health's IVR training builds on the lessons learned and recommendations from the *CapacityPlus* pilot study, which included a very small sample size. K4Health sought to test a similar platform at a much larger scale, to learn more about the usability of the IVR platform, and hear from users about their experiences.

In October 2015, K4Health launched the Family Planning Mobile Training Course in Kenya to test how easily and effectively GHeL content for continuing professional development in family planning—specifically, the quiz and final exam questions of GHeL's Family Planning 101 and Family Planning Counseling courses—could be adapted to an IVR delivery system. In collaboration with the Kenya Medical Training College in Kitui (KMTC Kitui), its Center of Excellence in Family Planning and Reproductive Health, and the Kitui District Hospital, K4Health recruited a total of 233 participants. All participants were invited to complete the Family Planning Mobile Training Course, which included a total of 20 questions on family planning related content, at least 6 weeks after he or she had completed the baseline knowledge assessment if not longer, to allow for some decline in memory retention over time. Implementation of the course was completed in September 2016, and the endline knowledge assessment test as part of the evaluation was completed in December 2016.

PLANNING

Location Selection

Kenya was selected as the site to implement K4Health's IVR activity because there is a rich history of demand and acceptance of distance learning education as demonstrated by the commencement of AMREF's eLearning Nurse Upgrade program in Kenya in 2005 and its continued expansion in its eLearning offerings. Also, from K4Health's experience, Kenyan health professionals are among GHeL's top certificate earners. Kenya was also a practical choice because English is one of the official languages, and the GHeL courses are available mainly in English. Finally, through this activity, K4Health leveraged collaborations that IntraHealth, a K4Health partner that specializes in improving the health care workforce, already had in place with the KMTC and its Family Planning Center of Excellence in Kitui.

Choosing Kenya as the implementation location thus ensured knowledge of local training needs, strong relationships with both the training school and district hospital management staff, and, therefore, ease in participant recruitment. KMTC Kitui and the Kitui District Hospital were actively engaged in implementation, documentation, and monitoring and evaluation for the IVR activity. This increased their sense of ownership of the activity and hopefully will also increase their desire and ability to implement similar activities, with additional course topics, to train students and/or alumni in the future.

Finally, K4Health has ongoing work in East Africa with the USAID/Kenya and East Africa Mission, and implementation of the IVR activity in Kenya was thought likely to create future opportunities to replicate and scale up this activity in other countries in the region.

Implementation Team Selection

K4Health identified a project lead at Johns Hopkins Center for Communication Programs (CCP) to manage the overall implementation of the IVR activity. In addition to this project lead, K4Health relied on IntraHealth International headquarter staff and IntraHealth's field-based team in Kenya to support implementation. The senior informatics developer who led the backend development of the *CapacityPlus* IVR activity in Senegal was brought on board to work alongside IntraHealth developers in Kenya to identify the appropriate open-source technology solutions. The IntraHealth technical advisor to the K4Health Project, who also supported early deployment of the Senegal IVR activity, was also engaged to help adapt the content for the Kenya IVR activity and to co-lead the usability assessment.

Finally, this implementation team engaged a local consultant with strong relationships with KMTC Kitui and the Kitui District Hospital to lead the on-the-ground engagement with the IVR participants. This K4Health consultant, with the support of lecturers at KMTC and the nurse supervisor at Kitui District Hospital, recruited KMTC students and health care providers practicing at the district hospital to be participants. The consultant also provided encouragement and technical support throughout the implementation period, and helped to deliver surveys and organize focus group discussions among the participants during the evaluation phase.

IVR Platform Selection

It was important to K4Health to select an IVR platform that would allow KMTC Kitui and the Kitui District Hospital to replicate this activity in the future. As a result, we evaluated a number of off-the-shelf and open source solutions that could easily be downloaded or purchased. Also, to use the spaced-education methodology, the Family Planning Mobile Training Course required a flexible IVR platform that could be delivered to a large group of participants while simultaneously providing a personalized training experience. During the initial planning stage, there was a trip to Kenya to explore informally the types of phones that were most popular among students and providers, the telecommunication firm most used, and their preferred times of day to receive calls. With this in mind, K4Health anticipated that participants would likely initiate training calls at similar times, most likely in the morning before clinic hours or classes, in the afternoon during lunch, or in the

evening at the end of the workday. Therefore, the platform needed to be able to accommodate a high volume of texts and calls during these narrow time frames. Additionally, in reviewing the literature, we found that most interventions that employed the spaced-education methodology allowed up to two to four questions delivered a day. In order to allow participants to answer up to four questions a day, the platform needed to be able to track the number of questions answered as well as the questions received and the questions answered correctly and incorrectly. The audio recording that they received would tell them if they answered incorrectly. Then, they would be provided the correct response and feedback. The incorrectly answered questions would be back into the training. Once a question was answered correctly twice, it would be retired.

Most “out-of-the-box” IVR platforms currently available are set up to send a single message to a large number of recipients. These platforms can track basic indicators, such as when a participant received an SMS or initiated an IVR call, as well as the duration of the call. However, for the spaced-education training, the platform needed to also track answers to the questions and trigger a new set of questions that were both randomized and customized for each participant based on their individual progress.

It was also essential to the training design that the platform be appropriate for a target audience of 50 to 500 participants and be able to meet reporting needs for monitoring and evaluation. Additionally, because one purpose of the activity was to design a training solution for scale-up and replication, K4Health needed an IVR platform that would be low-cost and easy to set up.

The activity team looked at six IVR platforms before deciding on InSTEDD’s Verboice platform (Table 3 on the next page). This open-source application programming interface (API) was easy to set up, requiring only a laptop and modem. The modem plugged into the laptop to send texts to the IVR participants to ask if they were ready for their training call. When a participant responded “Yes,” this triggered the Verboice platform to initiate the call via InSTEDD’s free server. Four phone lines were purchased through Callcentric, a Voice-over-Internet-Protocol (VoIP) phone service, and then integrated into Verboice to handle the calls.

Table 3. Six IVR platforms rated by five essential criteria for the IVR activity

IVR platform	Fit for 50–500 participant	Ability to add custom code	Reporting features	Easy setup	Affordable
Verboice	X	X	X	X	X
FreeSwitch + Moodle		X	X		X
EngageSpark	X		X		X
VotoMobile	X				
RapidPro			X	X	X
Vumi		X	X		X

IMPLEMENTATION

The Family Planning Mobile Training Course was designed to deliver 20 audio questions with accompanying explanations via IVR. It used the spaced-education methodology, a question-and-answer learning approach that repeats content in a way that has been scientifically proven to help students retain information and change their behaviors. To pass this course, participants—who had already received all the information once through previous completion of related GHeL courses—had to answer each audio question correctly twice. Participants received an SMS text message prompting them to initiate the daily training call by responding “Yes.” Once a participant’s reply text was received, the IVR platform would immediately call that participant’s mobile phone. Participants could answer up to four questions per call. The fastest a participant could complete the course was 10 days, if he or she answered every question correctly on the first try.

Content Adaptation

K4Health consulted with lecturers at KMTC Kitui and the nurse supervisor at Kitui District Hospital to select content for the training. As the KMTC Kitui campus has a Family Planning Center of Excellence, the lecturers were interested in all students and all KMTC staff having basic knowledge of family planning. The nurse supervisor at the hospital was interested in the nurses gaining refresher training on family planning and family planning counseling to maintain high-quality family planning services at the hospital’s family planning clinic. Four GHeL courses were proposed as options for IVR training content: Family Planning 101, Family Planning Counseling, Healthy Timing and Spacing of Pregnancy, and Hormonal Contraceptives. The KMTC Kitui lecturers and the Kitui District Hospital nurse supervisor selected the Family Planning 101 and Family Planning Counseling courses for the IVR training.

The GHeL Family Planning 101 and Family Planning Counseling course final exams were reviewed by the project lead and local consultant, and 10 questions—with correct answer feedback—were selected from each final exam. The result was a total of 20 IVR training questions. The questions and the answer feedback were edited to ensure that the language was easy to understand and that the technical content was relevant to health care providers in Kenya. An IntraHealth Kenya staff person then created audio recordings of the content. Each question and each answer was recorded in a separate audio file to make it easy to integrate the audio files into the system. See Appendix A to review the IVR training content.

Platform Setup

The IntraHealth Kenya technology team for this activity managed the setup and maintenance of the IVR platform. They added the customized K4Health IVR training code to the Verboice API and linked it to the four Callcentric phone lines. Initial setup and testing was done in the United States. The U.S.-based developer then traveled to Kenya to set up the software on a laptop and modem provided by IntraHealth in Kenya and train local staff on platform maintenance.

Participants were added to and removed from the platform manually to allow the U.S.-based developer to closely monitor the platform to ensure that it was working properly since he may not receive complaints from participants in Kenya. Once a participant was added, the training was initiated automatically and began delivering SMS prompts to start daily training questions. Based on conversations with participants at KMTC Kitui and the Kitui District Hospital, it was understood that the best time for students and providers to complete daily training questions would be in the early morning and late evening. Initially, the technology team was unsure how high the call volume would be (i.e., how many participants would initiate the call immediately after receiving the SMS prompt). To avoid possible delays between a participant’s texted “Yes” and that participant receiving a call, initially only 40 participants were added to the platform at a time. As the team came to understand both the level of participant engagement throughout the day and the call load the four phone lines could handle, that number was increased to 60 participants, and eventually to all 233 participants. Participants were removed as they completed the course.

Participant Recruitment

Multiple trips to Kitui were made to promote the activity and recruit participants, as Internet connectivity was low in the area and participants responded more to face-to-face promotion than to phone calls. The U.S.-based K4Health Project lead and the local K4Health consultant together led the initial trip to introduce the project to KMTC Kitui and the Kitui District Hospital. They delivered a presentation to 20 KMTC Kitui lecturers, 400 KMTC Kitui students, and 40 health care providers at Kitui District Hospital. Subsequent recruitment trips were conducted by the local K4Health consultant alone.

From September 2015 to December 2015, 233 recruited participants completed offline versions of the GHeL Family Planning 101 and Family Planning Counseling courses and a paper-based baseline knowledge assessment, which consisted of a sample of final exam questions from the GHeL Family Planning 101 and Family Planning Counseling courses. Prior to this, none of the participants had experience taking GHeL courses.

Participant Engagement and Technical Support

The local K4Health consultant regularly called and texted participants in the Family Planning Mobile Training Course to encourage them to complete the IVR training and to provide any technical support. After a few weeks activity on the platform slowed down. The local consultant confirmed with KMTC lecturers and nurse supervisor on possible reasons why and they recommended offering phone credit as a micro-incentive to encourage those who had not completed the training to continue onto completion. As a result, a phone credit micro-incentive of 2,000 Kenyan shillings (KES) was provided to all participants who successfully completed the training. During the usability assessment described in the next section, we asked participants why their activity slowed down. They explained that they would have liked to know how many questions were remaining in their individualized training. Without information on their progress, participants were experiencing training fatigue.

Additionally, in response to participants requesting more communication with the IVR team, a WhatsApp group was created. Through the WhatsApp group, the IVR team was able to provide faster technical support and answer questions related to receiving the phone credit incentive.

EVALUATION

Knowledge Retention Evaluation Design

IVR has shown promise in affecting knowledge in different contexts. However, there are limited data exploring the effects of IVR on family planning knowledge. This study sought to ascertain how exposure to IVR affected family planning knowledge among students and health care providers in Kenya.

Methods

K4Health recruited a total of 233 participants for this activity. Students training to be nurses, medical health records professionals, and public health practitioners; lecturers at KMTC Kitui; and nurses at Kitui District Hospital were invited to complete the offline versions of the GHeL Family Planning 101 and Family Planning Counseling online courses and the baseline knowledge assessment. Since all of the KMTC lecturers who participated in the activity were also practicing health care providers, they were included in the same group as the nurses and collectively considered health care providers during the evaluation.

Participants were then invited to participate in the Family Planning Mobile Training Course as a reinforcement training at least 6 weeks after he or she had completed the baseline knowledge assessment if not longer, to allow for some decline in memory retention over time. A total of 48 participants did not start the Family Planning Mobile Training Course, while 86 started but did not complete the course while it ran from October 24, 2015 to September 29, 2016. Because these two groups (n=134) were exposed to IVR training course but did not initiate or complete it, they were dropped from the analysis.

Participants were then asked to complete an endline knowledge assessment test. The endline knowledge assessment test was identical to the baseline, with 22 family planning questions in multiple choice and true/false formats. The assessment included questions from both the Family Planning 101 and the Family Planning Counseling final exams; seven of the 22 questions were also included in the IVR training. Appendix B includes a copy of the knowledge assessment survey. The endline knowledge assessment survey was distributed in October and November 2016. Those participants who did not complete both the baseline and endline assessment were dropped from the analysis.

Data were then analyzed among one group, the intervention group, comparing baseline scores to endline scores. The intervention group comprised of individuals that answered all 20 questions of the IVR course twice. The analysis of the intervention group (n=75) included a t-test of unequal variance to determine if there was a difference between baseline and endline scores.

Results

Among intervention group participants, 55 were students and 20 were health care providers, and 41 were female while 34 were male (see Table 4).

Table 4. Demographics of the intervention group

Participants (n = 75)	
Sex	
Male	34 (45.3%)
Female	41 (54.7%)
Profession	
Student	55 (73.3%)
Health care provider	20 (26.7%)

The mean scores from baseline to endline among the intervention group increased from 12.1 at baseline to 15.9

at endline. This difference is statistically significant (see Table 5).

Table 5. Intervention group mean scores baseline to endline

Participants (n=75)	Baseline	Endline	P value
Mean score	12.1 (10.9-13.3)	15.9 (15.3-16.5)	<0.05

Results indicate that IVR positively affected family planning knowledge. IVR may be a viable methodology for ensuring student and trainer knowledge is up to date in family planning. Future studies should include a control group, or a group that was not exposed to IVR at all, to enhance the validity of our findings.

Usability and Platform Engagement

To assess whether participants found the IVR technology and training design to be an acceptable training method, K4Health delivered a usability survey and conducted focus group discussions at the midpoint of activity implementation.

Methods

The usability survey was delivered in paper format to a convenience sample of 74 participants who were available at the time of the midpoint assessment. Responses were recorded and analyzed using Microsoft Excel. Table 6 provides a breakdown of respondent demographics.

Table 6. Demographics of usability survey respondents

Participants (n = 74)	
Sex	
Male	29 (39%)
Female	45 (61%)
Profession	
Student	65 (88%)
Health care provider	5 (<1%)
No response	4 (<1%)

To gather more qualitative insights related to usability, three focus group discussions were conducted among participants who had completed the usability survey. The first focus group discussion included eight students who were completing a diploma in Community Health Nursing; the second group included seven hospital staff from Kitui District Hospital; and the third group included eight students completing a certificate in Health Records and Information Systems. Qualitative data was coded and analyzed using Microsoft Excel.

The usability survey questions and focus group discussion interview guide focused on understanding the following topics:

- Motivation for taking part in the IVR course
- Ease of use of the IVR training
- User satisfaction with the IVR training
- Overall suggestions for improvement

Finally, to understand participant behavior and engagement on the IVR platform, user reports were generated from passive data collected by the IVR platform and were analyzed at the end of implementation, using Microsoft Excel. *Engagement* in this context is described as participants responding to training questions during daily calls sent via the IVR platform.

The data was analyzed to understand the following questions:

- What was the average number of days that participants in each group actively received training calls?
- What was the average number of minutes that participants in each group spent answering questions during a training call?

Results

Findings from the usability survey, focus group discussions, passive data tracked by the IVR platform were organized related to main themes.

Motivation for Taking Part in the IVR Course

On the usability survey, participants' primary reported motivation for enrolling in the Family Planning Mobile Training Course was interest in learning about family planning. Another top motivating factor was interest in being part of a research study (Table 7 on the next page).

Table 7. Participants' motivation for enrolling in the IVR training

Motivation	# of Participants (n = 74)
Interested in learning more about family planning	42 (58%)
Interested in being part of a research study	22 (30%)
Interested in earning a certificate of completion from GHeL	5 (7%)
Interested in assessing how much I know about family planning	4 (5%)
Total	73 (99%)

During focus group discussions, participants also reported an interest in educating their communities on family planning as the primary motivation for signing up for the IVR training. Many participants expressed that poverty is a major development issue in Kenya and that family planning is a critical factor in slowing population growth at the country level. By limiting family size, families are able to afford education and move toward a pathway to financial success. Another motivating reason was that participants, especially the students, saw an opportunity to gain more information for their personal lives.

"I thought it was a very good idea so once I heard of it, I wanted to learn it to help people to plan their lives, to plan their pregnancies. The higher the population of the country, the more the children will suffer. So it was my good idea to do the course."

—Student, Diploma in Community Health Nursing

"What motivated me is that in future I will be a mother. So if I take this course, maybe I will be able to plan my family, I'll be able to know the methods of family planning. Some of the methods have negative effects. With this training I was hoping to know which methods will have negative effects. And then I'll teach other people in the community. As you know most of the people are poor and they cannot raise many children. Some people are so ignorant they do not even know what family planning is. So I'll be able to teach them how to take family planning and the effects."

Ease of Use of the IVR Training

The usability survey asked questions related to participants' access to and use of a mobile phone to understand the level of participant ease and satisfaction with receiving training material via a mobile phone. Most participants reported that it was "easy" or "very easy" to use their mobile phone for the IVR training (Table 8 on the next page).

Table 8. Participants' ease in using mobile phones for IVR training

Ease of Using Mobile Phone to Complete IVR Training (n = 73)	
Very easy	51%
Easy	41%
Difficult	6%
Very difficult	3%

Table 9 describes the main challenges that participants reported in completing the IVR training. The top reported challenges all indicated a desire for more interaction with either the IVR training team or other participants. Challenges were further expanded on in the focus group discussions, in which some participants reported experiencing technical difficulties with their mobile phone. Most difficulties were said to be caused by the participants' personal devices. Participants who were taking the training on an older-model feature phone or a basic mobile phone experienced issues with audio that made it difficult to hear the instructions and questions.

"The quality of audio depends on the phone you're using. When trying to answer, if you can't hear, you answer incorrectly, so you keep getting the same question and giving the wrong answer. That's why I couldn't complete the training."

—Student, Certificate in Health Records and Information Systems

Table 9. Participant-reported challenges to completing the IVR training

Top Reported Challenges to Completing the IVR Training (n = 73)	
Unable to ask questions	57%
No exercises or demonstrations	47%
Unable to interact with other participants	39%

User Satisfaction with IVR Training Instruction and Content

Most participants (61%) reported that the training instructions were excellent and that they provided complete, concise, and clear information. About half of the participants found the training questions to be "very easy" and "somewhat easy," and the other half found the questions "challenging" (Table 10 on the next page). Fifteen percent of the participants found the training materials to contain information that was "completely new," while 78% found only "some of it" to be new.

Table 10. Participant rating of how easy the training questions were to answer

Ease of Answering the Training Questions (n = 74)	
Very easy	14%
Somewhat easy	41%
Challenging	44%
Very challenging	1%

During the focus group discussions, participants were questioned on whether they understood the training design and on their level of satisfaction with both the mobile delivery method and the training design.

Participants reported that they enjoyed the IVR training experience. Participants repeatedly reported that the training was convenient. They liked that they could answer the daily questions when their schedule was free. They also liked the training design, specifically that the questions would be repeated until they answered correctly, and that an explanation of the correct answer was available after they answered a question. In general, the participants found the language used in the instructions and questions to be clear and easy to understand. When asked if receiving four questions a day were too many, most participants said that they were easy to complete, and many actually wished for more.

“According to the IVR, I was first shocked how to respond to these questions. But when I got the message to reply, I thought that it was a good way to do it. Every day you had a question to answer. The good thing is that it is convenient. Anytime you get a question, you just respond to the message and you get it. You’re open to answer the question anytime you want. So I liked the IVR and I hope to continue.”

—Student, Diploma in Community Health Nursing

The participants did experience some challenges. Several participants mentioned that the training model was new to them and that at first they had some difficulty, until they learned which keys to press on the keypad for instructions or to answer questions.

“The next time maybe you first strengthen. You first explain to them. Because for some of us, that experience is just so new, so it’s a bit challenging. To explain about the call, and that you have to press numbers. Yeah, you need to learn how.”

—Student, Diploma in Community Health Nursing

Overall Suggestions for Improvement

While in general the participants enjoyed the IVR training, they did provide several suggestions for improvement during the focus group discussions.

Many participants wished for more interactivity. They would have liked a feature that allowed them to ask more clarifying questions or opportunities to access more resources, such as further courses or job aids.

“For me, there’s one thing that I would to be added to it, a way to ask questions back [murmurs of agreement]. You see you have questions but you cannot ask. That’s the only problem with it, but still there is the response. Sometimes they give this number. You can reply with the message but you cannot be called.”

—Student, Diploma in Community Health Nursing

Some participants who had difficulty hearing the audio suggested that the training content be delivered by both audio calls and text messages.

IVR Platform Participant Engagement

Trends in participant engagement on the IVR platform were also analyzed from passive data tracked on the platform. Participants received one call a day and were asked up to four questions. For a participant to complete the training with a perfect score, they would need to engage with the IVR platform for 10 days. Table 11 describes the number of days participants were engaged in IVR training and for how long, by course completion status.

Table 11. Results of monitoring data tracked by the IVR platform

Participants (n = 161)	# of Days of Receiving Training Calls			Avg. call duration
	Average	Minimum	Maximum	
Completed the course (n = 75)	22.6 days	12 days	88 days	5.9 mins
Did not complete the course (n = 86)	8 days	1 day	35 days	3.8 mins

COST CONSIDERATIONS

K4Health closely tracked the IVR training activity costs to understand what budget items should be considered when implementing a professional training using IVR technology.

The following cost considerations include only the planning and implementation phases to provide a cost estimate for possible future scale-up or replication. Costs for the evaluation phase are not included as the evaluation does not directly relate to costs associated with designing and implementing an IVR training.

Costs for the actual implementation of the technology were relatively low. The necessary hardware (laptop and modem) was provided by IntraHealth in Kenya, and the Verboice platform and server were free, thus technology costs included only the subscription to Callcentric and the costs to send prompt SMS messages to participants. Through the life of the project, these combined costs were US\$2,656. In addition, to try to encourage IVR course completion, the project team decided to add an incentive for participants who completed the course. The incentive was agreed to be 2,000 KES per participant. In total, US\$1,524 was paid to IVR course participants. This is not an always necessary cost. In fact, we recommend in the next section using university course credit or continuing professional development credit as incentives instead.

However, the IVR activity costs extended beyond technology. Table 12 provides a breakdown of all the activity costs that would likely be incurred in other IVR activities in Kenya, including technology, IVR platform development and maintenance, and training delivery and support. The percentage of program management effort that should be considered for an activity similar to K4Health's IVR activity is 30% of a project lead's time and 5% of project support time over 20 months.

Table 12. Cost estimates for 20 months of the K4Health IVR activity

Budget Item	Cost Estimate in U.S. Dollars
Technology (i.e., Callcentric phone lines & SMS prompts)	\$2,656
IVR platform development and maintenance (i.e., IT developer support)	\$14,020
Participant incentives	\$1,524
Training delivery and support (i.e., Content adaptation/audiorecording, recruitment, and ongoing participant follow-up support)	\$14,909
Total	\$33,109

Other costs for the K4Health IVR activity included two international trips from the United States to Kenya: one by the U.S.-based project manager to launch the activity, and the other by the U.S.-based technology team member to set up the IVR platform. Each trip cost approximately \$5,000.

DISCUSSION

Programmatic Challenges

Several programmatic challenges caused delays in completing the activity and required the team to be flexible in the programmatic approach.

Initially, the implementation phase of the activity was intended to be one year, with the initial recruitment trip planned for April 2015. However, the project start date was postponed by three months after [the April 2 attack on Garissa University College](#). The new timeline conflicted with the college exam schedules and holidays, and some participants had a delayed start on receiving training content via the IVR platform.

Participants' limited access to the Internet was moderately challenging. Both students and health professionals interested in participating in the IVR training reported limited access to computers or mobile devices that had sufficient internet speed to complete these courses and final exams online. The K4Health consultant thus distributed offline versions of the course and exams. Project team members then manually uploaded participants' assessment data via Google Forms.

Finally, as the IVR platform used a new configuration of the Verboice API, the IT team took a conservative approach to learning the platform's limitations. At first, the team added new participants in small groups to learn about their expected volume of engagement. This decision also contributed to delayed IVR start dates for some participants. Another implementation team may choose a different approach in how they adapt the Verboice API, such as automating the removal of participants from the platform once they complete the course or even automating when cohorts begin to receive messages instead of manually removing and starting participants on the platform.

Key Findings

Overall, the evaluation findings – from the usability assessment as well as the knowledge retention survey – revealed that the project was successful in not only the participants' acceptability and satisfaction of using IVR for continued professional development but also improvements in their knowledge scores at endline. Table 13 provides specific recommendations for improving the use of IVR and spaced-education methodology for further continued professional development activities.

Table 13. Key findings and recommendations

Findings	Recommendations
The results indicate that IVR may be a viable methodology for ensuring student and health care provider knowledge is up-to-date in family planning.	Future studies should include a control group, or a group that was not exposed to IVR training course at all, to enhance the validity of our findings.
Participants requested more interactivity, specifically around the ability to ask questions related to the training content.	Explore platform options to add more interactivity (such as a help hotline, FAQ link, or ability to leave voice messages) to future IVR training courses, or consider integrating IVR training into existing, more traditional face-to-face training courses.
Some participants with older mobile phone models had difficulty hearing the audio recordings.	Before a training begins, conduct a review of what phones are in predominant use among the target audience. Send training content via voice calls and SMS.

Similar to other online and distance learning initiatives, the attrition rate was an issue. More than half of the participants enrolled in the IVR training course (64%) did not start or complete it.	Consider creating micro-incentives for participants to complete an IVR training course, such as having the training accredited for health care providers to earn Continuing Professional Development credits and students to earn for University course credit.
Participants expressed high user satisfaction with the platform and the IVR training format.	Share the results of this evaluation with other KMTC campuses to explore scale-up of IVR blended learning for family planning and other health care services.

RECOMMENDATIONS FOR PROGRAMS CONSIDERING IVR FOR HEALTH CARE WORKFORCE TRAINING

K4Health recommends that organizations interested in using IVR technology in their own professional training programs and activities consider these four essential areas during the planning phase: program management, technology, content, and partnerships.

Program Management

Program management for the K4Health IVR activity largely fell to the activity lead at K4Health in Baltimore and to the K4Health consultant based in Kenya. The activity lead was responsible for managing the team, making key decisions related to technology and content, maintaining partner relationships, and ensuring that the activity progressed per the projected timeline and budget. However, a huge factor in the successful implementation of this activity was hiring a local consultant who had strong ties in the medical education network, was experienced in online learning and instructional design, and had an enthusiasm for technology. In fact, K4Health strongly recommends that future IVR programs or activities move forward only after identifying the local program manager, and that this person be included in all steps of the implementation cycle.

Technology

Most of the participants had limited or no internet access, so paper copies of the GHeL Family Planning 101 and Family Planning Counseling courses and knowledge assessment tests had to be delivered and collected in person. However, all of the participants did have access to at least basic phones for the IVR training course.

K4Health was confident about choosing InSTEDD's Verboice API because the IT team was experienced in writing custom code and in setting up and testing new technologies in Kenya. Oftentimes, technology makes up the highest percentage of an activity budget. Even in this case, in which the IVR platform was free, IT support was required for platform setup and maintenance for the duration of the activity. If it is difficult to find an experienced in-house IT team, consider hiring an outside firm experienced in implementing IVR technology in low-resource settings.

Content

Content should be developed in conjunction with the technology and with the intended users, not consecutively, to prevent platform complications and delays in implementation. Content for IVR platforms needs to be created or adapted for both SMS text and audio. Content for text should be concise and brief, as many mobile phones have small screens or character limits that may allow no more than one to two sentences. However, a higher word count is possible for audio content. Ideally, each call should have a maximum of three

to five minutes of content or a maximum of 500 words.

K4Health recommends conducting a review of existing resources before deciding to develop content from scratch. The [*Making Content Meaningful: A Guide to Adapting Existing Global Health Content for Different Audiences* \(Lee, Mwaikambo, & Jayarajan, 2016\)](#) provides useful guidance on adapting content for technology platforms. While it's important to plan for enough time to adapt existing resources, creating new content will often be a more time-consuming and costly endeavor.

Finally, special care must be taken to ensure that the content is both relevant to the participants and easy for them to understand.

Partnerships

When implementing any professional training activity, strong in-country partnerships with educational or health care institutions, such as hospitals or clinics, are critical. For K4Health's IVR activity, participant recruitment and engagement was possible only because of the partnerships with KMTC Kitui and the Kitui District Hospital. The college and hospital not only expressed interest and supported the activity, but also helped identify and contact participants throughout the activity. IntraHealth International and the IntraHealth offices in Kenya were also essential to starting up this activity as they had already-established relationships with KMTC Kitui. IntraHealth International continued to be a critical partnership in this activity by providing in-country logistical and administrative support.

For further reading on implementing a technology-focused activity, K4Health recommends [*Principles for Digital Development*](#) (The Principles for Digital Development Working Group, [2015](#)).

CONCLUSION

To provide quality health care, health care workers need access to up-to-date technical information. Attending face-to-face learning events, such as conferences and workshops, can pose logistical challenges for health care providers who work in remote areas, as arranging travel and work coverage during an absence can be difficult. Paper resources, such as textbooks and manuals, eventually become outdated, and it can be costly both to update and publish new versions and to distribute them to health care providers. New technologies like IVR can be used by programs and activities that seek solutions to the challenges of providing ongoing training to health care workers.

While further study and evidence is needed to fully understand the ideal platforms and training formats for different audiences, K4Health's Family Planning Mobile Training Course activity showed that overall, both pre-service and in-service health care providers enjoyed using IVR as a learning platform. IVR is especially practical for audiences that have limited internet access, low digital literacy, and even low literacy, as IVR delivers content directly to personal mobile phones in an audio format.

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APPENDIX A: GHeL Family Planning Reinforcement IVR Training Course Script with Questions and Answers

Miscellaneous Recordings

Text in **red** indicates content that was included in the IVR training scripts and audio recordings.

- **Short Introduction**
 - *We can have a long introduction (below) for the first call for a user, but then we'll want something shorter for subsequent calls. It can either be both recordings the first time or two separate ones. For example, the short intro can be, "Thank you for participating in the Family Planning Mobile Training Course—a follow-up course to several of the family planning courses on the Global Health eLearning Center." and that can be pulled out of the long intro. Or it can be a simple "Welcome back" type thing with the long intro as is.*
 - **Text for recording:** Welcome back to the Family Planning Mobile Training Course—a follow-up training course to the Family Planning 101 course and the Family Planning Counseling course on the Global Health eLearning Center! Thank you for your participation.
- **Post-Question Prompt (this will be repeated X times until a response is given)**
 - Press the number key corresponding to your answer or press 8 to hear the question and choices again.
 - What do we do if nothing is entered after X times? Just hang up? Another message then hang up?
- **Post-Feedback Prompt (if more remaining questions)**
 - *Something like one of these:*
 - Press 1 to hear your next question or press 9 to hang up if you're done for the day.
 - Press 1 to hear your next question or hang up if you're done for the day.
- **Post-Feedback Prompt (if 4 answered for the day)**
 - You have answered all questions for today. You will receive a text tomorrow when your next question is ready.
- **Invalid Response**
 - *For when an invalid key is pressed after a question or feedback prompt.*
 - That key was invalid.
- **Correct Response**
 - That answer was correct.
- **Incorrect Response**
 - That answer was incorrect.
- **Course Complete**
 - You have answered all the questions for this course.

- **Error**

- An error has occurred. Please contact the administrator for this course.

Introduction

Thank you for participating in the Family Planning Mobile Training Course—a follow-up course to several of the family planning courses on the Global Health eLearning Center. The course has 20 questions about family planning counseling and treatment. This course is supported by the USAID-funded K4Health Project, with assistance from the Johns Hopkins Center for Communication Programs and IntraHealth International.

The way the course works is you will receive a text message asking you if you are ready to receive an audio phone call with a course question. If you are ready, simply text back “Yes” and you will receive a call within a few minutes. You will then be asked a question and given up to five answer choices. Using the keypad on your phone, you will type in the answer to the question or key in “8” to repeat the question. Once you have selected your choice, you will hear a message indicating if the answer is correct or incorrect. You will be able to answer up to 4 questions a day. In order to complete the course, you will have to answer all 20 course questions twice.

Family Planning Counseling Domain

1. All of the following are aspects of facilitative communication in counseling a client on family planning EXCEPT:

- 1 Discussing lifestyle and psychosocial issues
- 2 Showing agreement or understanding
- 3 Discussing religious and political issues
- 4 Expressing positive emotion
- 5 Building a partnership with the client

Feedback:

The correct response is “3. Discussing religious and political issues.”

When providers practice facilitative communication, clients are encouraged to be more active. Facilitative communication includes:

- Discussing lifestyle and psychosocial issues
- Expressing positive emotion
- Building a partnership with the client
- Showing agreement or understanding

2. Which of the following is NOT a provider’s responsibility in good family planning counseling?

- 1 Providing accurate information
- 2 Listening to the client
- 3 Encouraging the client to speak

4 Challenging the client's decisions

Feedback:

The correct response is "4. Challenging the client's decisions."

In good family planning, the provider's role includes:

- Providing accurate and relevant family planning information
- Listening carefully to the client's needs and desires
- Supporting the client's choices

3. Clients who are satisfied with the quality of care they have received are more likely to continue using a family planning method.

- 1 True
- 2 False

Feedback:

The correct response is "1. True." When clients perceive that they had received quality care, they are much more likely to continue using their contraceptive method.

4. When counseling family planning clients, it is best NOT to mention side effects because these clients might not experience them anyway.

- 1 True
- 2 False

Feedback:

The correct response is "2. False." It is best to forewarn a client about possible side effects so that if they experience any side effects that are considered normal inconveniences or nuisances they do not worry. In addition, knowing what side effects are normal and what are not can help a client more easily identify when she should seek medical care.

5. Returning family planning clients that have experienced no problems using their method of choice are the most common type of family planning client.

- 1 True
- 2 False

Feedback:

The correct response is "1. True." Returning clients who are satisfied with their contraceptive method and who are not experiencing any problems are the most common type of family planning client.

6. Which of the following is NOT a skill required for good family planning counseling?

- 1 Good interpersonal communication
- 2 Questioning a client's decisions
- 3 Personalized information-giving
- 4 Efficient problem-solving
- 5 Supporting continued method use

Feedback:

The correct response is "2. Questioning a client's decisions." Good family planning counseling involves dynamic, two-way communication between providers and clients.

Key skills that provider should have in order to provide good family planning counseling include:

- Respect for clients' choices
- Efficient decision-making and problem-solving
- Personalized, accurate, and effective information-giving
- Good interpersonal communication
- Tailored counseling that meets clients' needs
- Support for continued method use

7. Counseling about side effects of family planning commodities is important because it:

- 1 Reduces contraceptive method discontinuation
- 2 Prepares clients for what to expect
- 3 Teaches clients how to cope with side effects
- 4 All of the above

Feedback:

The correct response is "4. All of the above." Counseling about side effects is one of the most critical components of information-giving.

Providers are often uneasy when it comes to discussing side effects. They are concerned that it might frighten new clients away from using contraceptive methods.

Clients often discontinue using their contraceptive method because they experience side effects that they were not prepared for or expecting. Other clients may continue using a method even if they are experiencing problems because they don't know they can switch.

It is particularly important to tell clients about common side effects, because those are the ones they are more likely to experience.

8. When helping new clients make a decision about which family planning method is best for them, providers must:

- 1 Provide information on methods
- 2 Ensure medical eligibility
- 3 Discuss the side effects
- 4 Review key points for the client to remember
- 5 All of the above are correct

Feedback:

The correct response is “5.All of the above.”

Providers can use the following steps to help clients make decisions:

- Provide information on her desired method (or about the methods that would best suit her needs).
- Ensure she is medically eligible to use the method.
- Discuss possible side effects.
- Discuss how to use the method.
- Discuss when she can start using the method.
- Review the key points she should remember.
- Provide supplies.

9. All family planning clients have the same needs. So, providers should counsel all clients the same way.

- 1 True
- 2 False

Feedback:

The correct response is “2. False.” Some family planning clients may want to space the number of children that they have, while others may want to limit the number of children. In addition, younger women may want to delay becoming pregnant until they finish school. All of these clients, therefore, have different immediate needs as well as future desires.

10. To make appropriate decisions and solve problems, clients need personalized, accurate, and organized information.

- 1 True
- 2 False

Feedback:

The correct answer is "1. True."

To make appropriate decisions and solve problems, clients need personalized, accurate, and organized information.

Personalizing means adapting the counseling to the individual client's situation and needs. Personalized counseling avoids burdening clients with unnecessary information.

Providers must give clients medically and technically accurate information. An important part of this is dispelling rumors the client may have heard or correcting misconceptions she may have about family planning.

One way to provide organized information is to communicate the information "block by block." For example: First discuss how to use the method, then talk about possible side effects, then help the client plan how to manage the side effects.

Family Planning Method-Specific Domain

11. A significant characteristic of the female and the male latex condom is that they offer protection against STIs and HIV.

- 1 True
- 2 False

Feedback:

The correct answer is "1. True."

Female and male latex condoms provide dual protection in that they prevent pregnancy and protect against STIs and HIV.

Dual protection is not accomplished solely through condom distribution, but must also include counseling clients about their HIV/STI risk and helping them make safe choices and decisions. Counseling must also include the importance of correct and consistent condom use.

12. Which method usually causes predictable bleeding pattern with less blood loss?

- 1 Combined oral contraceptive
- 2 Progestin-only pill
- 3 Condom
- 4 Fertility awareness method
- 5 Lactational amenorrhea method

Feedback:

The correct answer is "1. Combined oral contraceptive."

An advantage of the combined oral contraceptive method is that it usually causes a predictable bleeding pattern with less blood loss. Other advantages of combined oral contraceptives include:

- They are effective and reversible

- Safe for almost all women (Serious complications are very rare.)
- Can be used by women of any age whether or not they have children
- Do not interrupt sexual activity and are woman-controlled
- Can be stopped at any time without a visit to a health care provider
- Help prevent certain cancers, anemia, menstrual cramps, and irregular bleeding
- May be used by the breastfeeding mother after the first six months postpartum

13. All of the following are TRUE about the standard days method (SDM) of contraception EXCEPT:

- 1 SDM uses “cycle beads” to help a woman track her cycle.
- 2 SDM requires that a woman or couple track “fertile days.”
- 3 SDM requires that couples refrain from unprotected sex for two days each cycle.
- 4 SDM is based on the fact that there is an identifiable “fertile window” during a woman’s menstrual cycle.

Feedback:

The correct answer is “3. SDM requires that couples refrain from unprotected sex for two days each cycle.”

The SDM is a type of fertility awareness method based on the fact that there is an identifiable “fertile window” during the woman’s menstrual cycle—several days before ovulation and a few hours after—when she can become pregnant. To prevent pregnancy, users avoid unprotected intercourse by using a condom or abstaining on days 8 to 19 of the cycle—a formula based on computer analysis of 7,500 menstrual cycles. A unique quality of SDM is the use of “CycleBeads” that allow a woman to track her cycle accurately without a calendar.

The two-day method is another fertility awareness method. When the woman detects cervical secretions, the couple avoids unprotected sex on that day and until the woman has had two dry days (days without secretions of any type) in a row.

The effectiveness of fertility awareness methods varies widely and depends mostly on the motivation and commitment of the couple.

14. Since IUDs do not require action by family planning clients, counseling is less important than with other methods of contraception.

- 1 True
- 2 False

Feedback:

The correct answer is “2. False.”

Counseling is very important so that women are aware of potential side effects and do not become frightened when they appear. Also, women need to make an informed decision when selecting the IUD and need to know what follow-up is necessary.

15. Which method relies on breastfeeding to delay return of fertility after birth?

- 1 Combined oral contraceptive
- 2 Progestin-only pill
- 3 Condom
- 4 Fertility awareness method
- 5 Lactational amenorrhea method

Feedback:

The correct answer is "5. Lactational amenorrhea method."

The lactational amenorrhea method (LAM) is a key contraceptive method for the first six months postpartum, and can serve as a transition method to other short-acting, or to long-acting, methods.

LAM works by nipple stimulation to produce natural hormones that prevent the ovary from releasing eggs. For LAM to be effective, the baby must be breastfed only and on demand.

16. Women who are receiving treatment for AIDS are eligible for an IUD.

- 1 True
- 2 False

Feedback:

The correct answer is "1. True."

Previously the World Health Organization (WHO) classified the IUD as category 3 where use of method is not recommended for HIV-positive women because of concern that their suppressed immune systems might increase the risk of pelvic inflammatory disease (PID). But now women who have AIDS, are on antiretroviral therapy (ART), and are clinically well can safely have an IUD inserted.

Women who are HIV-positive and those with AIDS who are successfully treated are now category 2, unless they have progressed to clinical AIDS **and** are not clinically well on ART.

17. A mother can use the lactational amenorrhea method (LAM) effectively if THREE CRITERIA are ALL met. Which of the following is NOT one of these THREE CRITERIA?

- 1 The mother's menstrual bleeding has not returned.
- 2 She is fully or nearly fully breastfeeding (i.e., she does not give her baby any foods, water, or other liquids). Vitamins, vaccines, and medicines are okay.
- 3 She breastfeeds her baby at intervals of four hours or less.
- 4 Her baby is less than six months old.

Feedback:

The correct answer is "3. She breastfeeds her baby at intervals of four hours or less."

A mother can use LAM effectively if all three of the following criteria are met:

- Her menstrual bleeding has not returned
- She is fully or nearly fully breastfeeding
- Her baby is less than six months old

The optimal pattern is for the baby to be nursed as frequently and as long as the infant wants, both day and night. At night, no interval between feedings should be greater than six hours.

18. Emergency contraceptive pills are effective only during the first 72 hours after a pregnancy is initiated/established.

- 1 True
- 2 False

Feedback:

The correct answer is "2. False." Emergency contraceptive pills are NOT effective once a pregnancy is INITIATED.

19. Effectiveness of emergency contraceptive pills decreases dramatically after how many hours following intercourse?

- 1 24 hours
- 2 48 hours
- 3 72 hours
- 4 100 hours

Feedback:

The correct answer is "3. 72 hours."

Effectiveness of emergency contraceptive pills (ECP) decreases dramatically after 72 hours following intercourse.

ECPs can be taken any time within five days of unprotected sex, but are more effective the sooner after sex they are taken. Each hour of delay in initiating the use of ECPs diminishes their effectiveness in preventing pregnancy.

20. Examples of "dual protection" are using both the male and the female condom at each act of intercourse or taking two rather than one oral contraceptive pill.

- 1 True
- 2 False

Feedback:

The correct answer is "2. False."

Dual protection is the use of condoms to prevent transmission of STIs/HIV and the use of another method to prevent conception.

APPENDIX B: Knowledge Assessment

Note: Highlighted answer choices indicate correct responses.

We would like to ask you 22 questions about your family planning knowledge. They are simple multiple-choice questions, and it will take you about 5 to 7 minutes to complete.

Family Planning Counseling Domain

1. All of the following are aspects of facilitative communication in counseling a client on family planning EXCEPT:

- Discussing lifestyle and psychosocial issues
- Showing agreement or understanding
- Discussing religious and political issues
- Expressing positive emotion
- Building a partnership

2. Which of the following is NOT a provider's responsibility in good family planning counseling?

- Providing accurate information
- Listening to the client
- Encouraging the client to speak
- Challenging the client's decisions

3. Clients who are satisfied with the quality of care they have received are more likely to continue using a family planning method.

- True
- False

4. When counseling family planning clients, it is best NOT to mention side effects because these clients might not experience them anyway.

- True
- False

5. Returning family planning clients that have experienced no problems using their method of choice are the most common type of family planning client.

- True
- False

6. Which of the following is NOT a skill required for good family planning counseling?

- Good interpersonal communication
- Questioning a client's decisions

- Personalized information-giving
- Efficient problem-solving
- Supporting continued method use

7. Counseling about side effects of family planning commodities is important because it:

- Reduces contraceptive method discontinuation
- Prepares clients for what to expect
- Teaches clients how to cope with side effects
- All of the above

8. When helping new clients make a decision about which family planning method is best for them, providers must:

- Provide information on methods
- Ensure medical eligibility
- Discuss the side effects
- Review key points for the client to remember
- All of the above are correct

9. All family planning clients have the same needs. So, providers should counsel all clients the same way.

- True
- False

10. To make appropriate decisions and solve problems, clients need personalized, accurate, and organized information.

- True
- False

11. Which of the following is NOT a benefit of good family planning counseling?

- Decreased method discontinuation
- Increased client participation
- Increased chance of client returning for follow-up
- Increased client satisfaction
- Decreased questions from clients

12. Efficient family planning counseling includes all of the following EXCEPT:

- Tailoring information
- Planning next steps

- Giving the client as much information as possible in case she does not return
- Putting the client's needs first

13. Clients benefit from coaching activities in all of the following ways EXCEPT:

- They learn how to ask questions.
- Their right to speak is legitimized.
- They learn to defend their decisions.
- They learn how to disclose information.
- Clients learn all of these skills from coaching activities.

14. Provider-directed interventions can do which of the following?

- Teach essential communication skills
- Provide up-to-date technical and medical information
- Help providers evaluate their own job performance
- All of the above
- None of the above

15. What effect does provider facilitative communication have on client participation during family planning consultations?

- A negative effect, because the provider is talking more and there is less time and need for the client to participate.
- A positive effect, because facilitative communication fosters rapport and communication.
- No effect. Clients will participate whether the provider practices facilitative communication or not.

Family Planning Method-Specific Domain

16. A significant characteristic of the female and the male latex condom is that they offer protection against STIs and HIV.

- True
- False

17. Emergency contraceptive pills are effective only during the first 72 hours after a pregnancy is initiated/established.

- True
- False

18. When no contraceptive is used, the approximate number of sexually active women who will become pregnant in the first year is:

- 20 out of 100

- 50 out of 100
- 70 out of 100
- 85 out of 100

19. Combined oral contraceptives may reduce the risk of all of the following conditions EXCEPT:

- Ovarian and endometrial cancer
- Strokes
- Ectopic pregnancy
- Symptomatic pelvic inflammatory disease
- Ovarian cysts

20. The Copper-T380A IUD can be used effectively for:

- 5 years
- 12 years
- 15 years
- 20 years

21. Contraceptive methods that can be used by the breastfeeding woman as early as six weeks postpartum include all of the following EXCEPT:

- Lactational amenorrhea method
- Progestin-only pills
- Combined oral contraceptives
- Injections and implants
- Condoms

22. Contraceptive methods that can be used IMMEDIATELY after treatment for abortion/miscarriage include all of the following EXCEPT:

- Barrier methods
- Progestin-only pills, injectables, implants
- Combined oral contraceptives
- Voluntary sterilization
- All can be used

The Knowledge for Health (K4Health) Project shares accurate, up-to-date knowledge and tools to strengthen family planning and reproductive health efforts worldwide.

Learn more at www.k4health.org

