Published in final edited form as:

J Health Care Poor Underserved. 2017 ; 28(1): 153–174. doi:10.1353/hpu.2017.0015.

Can incentives reduce the barriers to use of antenatal care and delivery services in Kenya? Results of a qualitative inquiry

Eleanor Fleming[a,b], **Joanna Gaines**[b,c], **Katherine O'Connor**[b,c], **Judith Ogutu**[d], **Nancy Atieno**[d], **Salimah Atieno**[d], **Mary L. Kamb**[a], and **Robert Quick**[c]

[a]Centers for Disease Control and Prevention; National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention; Office of the Director; Atlanta, GA; USA

[b]Centers for Disease Control and Prevention; Division of Applied Sciences, Epidemic Intelligence Service; Scientific Education and Professional Development Program Office; Atlanta, GA; USA

[c]Centers for Disease Control and Prevention; National Center for Emerging and Zoonotic Infectious Diseases; Division of Foodborne, Waterborne and Environmental Diseases; Atlanta, GA; USA

[d]Safe Water and AIDS Project; Kisumu, Kenya

Abstract

A qualitative inquiry was used to assess if incentives consisting of a hygiene kit, protein-fortified flour, and delivery kit reduced barriers to antenatal care and delivery services in Nyanza Province, Kenya. We conducted 40 interviews (baseline: five nurses, six mothers, one focus group of five mothers; follow-up: nine nurses, 19 mothers) to assess perceptions of these services. Mothers and nurses identified poor quality of care, fear of HIV diagnosis and stigma, inadequate transport, and cost of care as barriers. Nurses believed incentives encouraged women to use services; mothers described wanting good birth outcomes as their motivation. While barriers to care did not change during the study, incentives may have increased service use. These findings suggest that structural improvements—upgraded infrastructure, adequate staffing, improved treatment of women by nurses, low or no-cost services, and provision of transport—could increase satisfaction with and use of services, improving maternal and infant health.

Keywords

Kenya; prenatal care; women's health; maternal health services; social determinants of health

Kenya has high maternal and neonatal mortality rates, approximately 360 per 100,000 live births and 31 per 1,000 live births, respectively.[1] Among 15–49 year-old women, maternal deaths represent about 15% of all deaths.[1] The Kenyan Ministry of Health (MOH) recommends that expectant mothers attend a minimum of four antenatal care (ANC) visits

Correspondence to: Eleanor Fleming; National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention; Centers for Disease Control and Prevention, 1600 Clifton Road Mailstop E07, Atlanta, GA 30333. efleming@cdc.gov.

before giving birth to ensure the health of mother and child. Among rural women who had a live birth in the five years preceding the *Kenya Demographic and Health Survey 2008–09*, 44% had four or more antenatal visits.[1] Most women initiated care late in pregnancy with a median of six months gestation at the first visit.[1] Four postnatal visits are also recommended for women who deliver in facilities.[2] In Nyanza Province, located in rural western Kenya, the neonatal mortality rate was 39 per 1,000 live births, 44% of women delivered in a health facility, with 46% of those deliveries performed by a skilled provider.[1] Among these mothers, 66% received no postnatal checkup.[1, 2]

In 2011, the Kenyan MOH and Safe Water and AIDS Project (SWAP, a local non-governmental organization) implemented a program in 25 health facilities (including hospitals, health centres, and dispensaries) in Nyanza Province that included several interventions to motivate a greater number of mothers to attend four or more ANC visits, deliver in health facilities, and receive postnatal check-ups. To improve the quality of care at the health facilities, nurses received advanced training on emergency obstetrical care, neonatal resuscitation, rapid syphilis testing, and safe water and hygiene practices.[3] To increase care-seeking, pregnant women in the program received three incentives: a hygiene kit (Waterguard water treatment solution and soap) at the first and third ANC visits; protein-fortified flour (*unga*) at the second and fourth ANC visits; and a delivery kit (surgical gloves, a sterile razor blade, swaddling cloth, and water storage container with a tap) at delivery in health facilities. At the first ANC visit all women were offered free screening with a rapid syphilis test kit and free treatment for women testing positive[4] (rapid HIV tests were already standard practice of ANC care). An evaluation of this program, which included baseline and follow-up surveys of a population of 201 pregnant women, showed statistically significant increases from pre-intervention pregnancies to post-intervention pregnancies in the percentage of women with four or more ANC visits (55% vs. 76%, $p<.01$), health facility deliveries (41% vs. 68%, $p<.01$), and post-natal checks (38% vs. 62%, $p<.01$).[4] We performed a qualitative inquiry to understand pregnant women and nurses' perceptions of incentives employed to reduce barriers to use of ANC and delivery services.

Methods

Evaluation location

The project was implemented in Mbita and Suba Districts in health facilities located within a three-hour radius of the capital, Mbita town. At baseline and follow-up, we used a convenience sample of facilities selected on the following criteria: (1) operated by public sector (MOH); (2) well-maintained ANC registries for the intervention period and the year prior to the intervention; and (3) location permitted travel and return in the same day. We conducted baseline interviews of nurses and mothers at a district hospital, a health centre, and three dispensaries. At follow-up, we interviewed nurses and mothers who participated in the intervention from five low level facilities (dispensary and health centre) and three hospitals (sub-district and district).

Theoretical basis of intervention and evaluation design

Focusing on how one's beliefs shape one's behavior, the Health Belief Model (HBM) explains factors that motivate or inhibit use of preventive health services.[5,6] The HBM hypothesizes that personal health behavior is based on: (1) sufficient motivation to make the health issue salient; (2) perceiving the health problem as a threat; and (3) the belief that the health recommendation would reduce the threat at a low cost.[5,7–9] The HBM has six constructs to explain an individual's decision: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cue to action, and self-efficacy.[6] We shaped the constructs as: (1) women's *perceived susceptibility* to poor pregnancy outcomes; (2) the *perceived severity* of inadequate ANC; (3) how *perceived barriers* impacted women's decisions to seek ANC and to deliver in health facilities; (4) the *perceived benefits* of attending ANC; (5) the extent that incentives provided *cues to action*, and (6) whether women felt capable of performing these health behaviors (*self-efficacy*). We used qualitative data collection to perform a needs assessment[9] to understand better how women felt about ANC and delivering in health facilities, their cues to action and sense of self-efficacy in seeking care, and what barriers prevented them from accessing these services. Furthermore, we considered what role health care providers can play in supporting behavioral modification[9] (i.e., increasing ANC uptake). We interviewed nurses to assess their perceptions of barriers and cues to action.

Sample Selection

To assess perceptions of barriers and cues for action following the Health Belief Model, we selected a small purposive sample of pregnant women and their health care providers, who were all nurses (no physicians staffed these health facilities on a continuous, daily basis). Purposive samples are useful to gather the insights of respondents and understanding the local or "insider" perspective. Specifically, the samples were to include participants from different health care facility settings from the lowest level of the dispensary to the highest setting of the district hospital. Rather than focusing on a single facility, the sample was to reflect the diversity of perspective that could be found across these facilities. In this way, the sample was intended to provide a snapshot of perspectives rather than a more in-depth measure of the magnitude of the problems that a survey of providers and mothers would capture. The time and cost of conducting such an exhaustive survey of the population prohibited that course. In addition, the qualitative data could be quickly collected and analysed to provide faster feedback to the program and to inform the evaluation that was already underway. The sample was of sufficient size and diversity to capture the range of perspectives from key stakeholders.

As noted above, nurses were the primary health care providers. They interact with patients daily and are knowledgeable about their patients' lives, in particular the barriers they may face in accessing ANC. As providers, the nurses could not speak for their patients, and as a result, pregnant women were also included in the sample. Women could speak directly to the benefits they received from ANC and the barriers they perceive.

Data collection

Using semi-structured interview instruments [Appendix 1], two teams consisting of a behavioral scientist and local qualitative research assistants (QRAs) interviewed nurses and pregnant women at ANC clinics participating in the intervention. Participation in interviews was voluntary. No incentives were given to participants. At the beginning of the interview, participants were asked for spoken consent and informed that their responses would be kept confidential. Semi-structured interview guides were used to elicit the perspectives of nurses and pregnant women. Because teams were conducting the interviews, semi-structured interview guides were used to ensure that the same questions were asked in all interviews of nurses and mothers. Moreover, the open-ended nature of the questions allowed respondents to feel free to express their opinions, in contrast to a survey questionnaire.

Baseline data were collected in February 2011. Nurses were asked about the health care system and the care they delivered; expectant women were asked about their previous and anticipated experiences with labor and delivery. All nurses and pregnant women present on the day of the facility visit were eligible to participate. Clinics were visited in the morning, when pregnant women were more likely to be present as they waited for appointments. Interviews were conducted with women using ANC services. Baseline interviews included questions about water treatment, which was part of the larger study. All interviews were individual, except for one group interview. The group interview consisted of five women and was conducted at a district hospital because it was more convenient for the participants to interview the women together rather than individually. The same interview guide was used for both the individual and group interviews. Baseline interviews were conducted with enough mothers to reach saturation, i.e., when no new themes emerged from the interviews.

At the conclusion of the program (March 2012), we repeated interviews with both groups to assess the impact of the incentive program on use of services and perceptions of the quality of care. All nurses present at the facilities were interviewed, regardless of the length of time they served at the facility. Mothers interviewed at baseline were visited in their homes for follow-up interviews by QRAs; mothers no longer in the area were considered lost to follow-up.

Data analysis

All interviews were conducted in the local language, Dholuo, and tape-recorded. The interviews were transcribed verbatim, translated into English, and entered into QSR International NVivo 8.0 (Melbourne, Australia) to facilitate text searching and analysis. The data analysis process was based in grounded theory[10] to examine the contextual factors, both structural and sociopsychological, that supported women's ANC behaviors. Interview texts from all respondents were reviewed by the research team to ensure general agreement on the content. Content analysis was done to identify dominant themes related to barriers to the use of ANC and delivery services.[11] In an iterative process, codes were attached to those themes to identify participants' perspectives and feelings. Analysis was done to the point of saturation, when no new themes emerged. Codes and themes were analysed and linked together to explore the HBM constructs. The results reported in the following section reflect the perspectives of all respondents.

Ethical review

The institutional review boards at the Kenya Medical Research Institute (protocol 1898) and the U.S. Centers for Disease Control and Prevention (protocol 5996) approved the study protocol. Spoken informed consent was obtained from all participants. Databases excluded personal identifiers.

Results

A total of 40 interviews were conducted (Box 1). At baseline, we interviewed five nurses and six mothers individually, and conducted one group with five mothers. Two nurses approached for interviews declined to be interviewed, and referred the qualitative research team to the charge nurse, who responded to the questions. Nurses had worked for an average of 10 years (range, less than one year to 25 years). Of 11 pregnant women interviewed, two were experiencing their first pregnancy; the other mothers had a median of two previous pregnancies (range one to six). One mother refused to be interviewed at baseline. Follow-up data collection consisted of key informant interviews with nine nurses and 19 mothers. The nurses had worked for an average of nine years (range one to 27 years). The mothers had a median of three pregnancies (range one to six). Three mothers reported experiencing the death of a child in a previous pregnancy.

Baseline data: pregnant women

Perceived susceptibility to poor outcomes and perceived severity of inadequate care—Delivery with a traditional birth attendant was described as bad due to unsanitary conditions, in particular, the use of shared razor blades that could transmit HIV. Participants were unable to identify a member of their family or village resident who would be able to provide specific treatment, if they or their infant fell ill during labor. There were also doubts that the traditional birth attendant attending to them would be able to help in the event of complications. Women feared receiving care from a traditional birth attendant, developing complications, and having a nurse refuse to care for the laboring mother, putting two lives at risk. Half of the women thought that testing to determine HIV status could deter mothers from seeking care and delivering at a hospital. One woman described fear and stigma associated with being HIV positive leading women to risk poor birthing outcomes:

> Sometimes you may be pregnant and you are sickly so if you come to the hospital they will have to know the source of this illness so they will know your status. And then, some people are afraid because if their blood is tested and they are positive, she may be stigmatized and end up dying. She may be worried and this worry may kill her.

Perceived barriers—Money and transportation were cited as major barriers preventing women from accessing care in health facilities. Women frequently described varying costs and modes of transportation, with one mother even reporting that she had taken a boat and a motorcycle to reach the district hospital (her island has no health facility). The price for services varied across facilities. Larger facilities were described as having higher prices for services, although they offered a wider variety. Women reported that services were supposed to be free, but often they had to buy supplies and drugs: "*If they send you to the laboratory*

you have to pay. Sometimes you may use 400 shillings in buying one drug, sometimes even a thousand. So it is not free…" Mothers perceived pricing to be very subjective, with descriptions that sometimes suggested bribery: *"The nurse that attends you is the one that writes these charges. It is just the same as the police because the police that arrest you are the ones who write the charges."*

Distance from health facilities was an important barrier to care. Women who do not live close to health facilities, requiring a long walk or a motorbike ride, may underestimate their labor and end up delivering at home: "*You know, one may not like to deliver at home. But sometimes, you may be in labor and you go to the midwife to touch the baby and when you do there, the baby may end up coming out and you give birth. And sometimes, you may even think that you want to go to the hospital, and you just deliver on the road."*

How the nurses treated women was also a perceived barrier. A number of women reported physical and verbal abuse from nurses. Slapping a patient was reported most commonly, although pinching was also mentioned. These reports were frequently relayed in terms of having friends who had been struck. None of the participants openly indicated that a nurse hit them. There were reports of nurses turning away patients who had come to receive emergency care after failing to deliver with a traditional birth attendant. These patients were described as being in the midst of complicated deliveries and yet denied care.

Perceptions of cues to action and benefits of antenatal care—Many pregnant women viewed hospitals in a positive light. Hospitals were described as being "clean" and "good." Nurses were largely perceived as being knowledgeable about handling complications, preventing HIV transmission, and caring for newborns. Nurses were repeatedly identified as being able to treat mothers or infants who became ill during labor. Antenatal care was primarily valued for determining HIV status and ensuring that the infant was "in a good position" to deliver normally. Knowing that they would be cared for in the event of a complication was a major cue to delivering at a health facility. Moreover, if a mother knew another mother who had a safe delivery and was taken care of at the hospital, she may also have followed suit, using that mother's experience as her cue to action.

Self-efficacy—While women agreed that delivering in hospitals was best for their babies and described delivering at hospitals as safe compared to home births, especially if there are complications, the women had mixed degrees of self-efficacy. A mother, who was also a community health worker, exhibited very high self-efficacy, describing how in her area mothers are helped to deliver at a hospital with a stretcher. She also described mothers being able to save money to pay for the delivery and suggested having a plan available. Women whose family and community members chose to deliver in hospitals had high self-efficacy. While agreeing that hospital deliveries were safe, other women still had home births. The community health worker described religious norms preventing some women from delivering in hospitals:

> …some religious purposes don't allow women to go and deliver in the hospital, so in such cases, the woman now becomes so ill is when now she is taken straight to

> the hospital. Now, after getting the good services in the hospital, this woman will now go and preach the good news to the people back there!

Baseline data: nurses

Perceived susceptibility to poor outcomes and perceived severity of inadequate care—Nurses identified equipment and staff shortages as creating difficulties in administering care: not having sterile gloves, water, and adequate places for the women to deliver, especially at lower level facilities. Some nurses expressed fear over how they would safely provide for their patients in what they knew to be an unsanitary environment due to supply shortages:

> You might be in that room and [you] don't have a proper source of light, if a mother comes at 12 midnight to deliver. You at in this hospital, you might not even have running water in the tap…We don't have regular supply of medication. We don't have regular supplies, stocks of gloves, stock of cotton wool, sterile delivery packs, how to sterilize. Right now we have okay some instruments, and for the last two weeks we've not been able to sterilize the delivery carts.

Other facilities were experiencing such critically low levels of materials that they were unable to perform tests for common infectious diseases such as malaria. Staff shortages also made nurses feel that they lacked the proper support to administer care.

Perceived barriers—The nurses described their patients as vulnerable women facing many barriers that make accessing care and prioritizing their health very difficult. Costs for ANC and delivery services were important barriers. Nurses offered different accounts of whether women paid for ANC and obstetric services or had them provided for free. Both of the dispensaries that were visited were described by the nurses as offering care free of charge, although the nurses indicated that they were largely unable to provide many services because of a lack of supplies. Prices were painted on the side of the district hospital that was visited, with a normal delivery listed at 680 Kenyan shillings. Nurses also indicated that, in addition to paying for services, women also had to pay for supplies, such as gloves:

> They [mothers] complain, you know they say they're paying hospital money, and what they're paying they say, "Well, that money is a lot," so when they come and they have to buy that, you know it's a pinch for them. They now prefer delivering in homes.

Nurses noted that transportation was another barrier. Mothers often had to pay for motorbikes to take them to health facilities. Health facilities were also described as being far away from where many mothers live. If a mother delivering at a lower level facility developed complications, transporting her to a higher level facility with better equipment and more trained staff posed an additional problem. Poor transportation infrastructure could make complications even worse.

> The road is very bad; we take them to very distant places in the district hospital, sometimes the time you get there, they, they, whatever complication that made you start the journey, you get [there and] it's worsened. If it's ruptured uterus, you get it completely ruptured, maybe the patient is in shock.

Nurses described important socio-psychological barriers that may prevent women from delivering at health facilities, including being respected and treated well. Nurses' attitudes towards their patients were perceived as deterring these mothers from seeking care:

> I think this is where we clearly need to understand: what are the attitudes, what are the problems? Are they the staff issues at the local facilities? Are the staff welcoming? Are the staff taking their time with the patients? …if I go to the health facility will they talk to me as a human being?

Fear from learning their HIV status was also perceived as a barrier, especially from nurses in more remote areas. Mothers would not seek ANC at all or if seeking care, refuse to be tested for HIV. Nurses reported a variety of reasons for refusal of testing, such as not having time, planning to get tested at the next visit, or needing permission from a partner.

Perceptions of cues to action and benefits of antenatal care—Nurses believed that Kenya's mandatory HIV testing of pregnant women encouraged women to seek ANC and perceived mothers as understanding that knowing their HIV status was important for the health of their baby.

Self-efficacy—Nurses perceived supply shortages and inadequate facilities as not only creating the potential for poor outcomes but also leaving them with the dilemma of how to care to their patients given these conditions. Nurses were not confident in their ability to care for their patients. Nurses struggled with being forced to deliver babies and care for mothers in unsanitary conditions. The lack of sterilized equipment made it hard for one nurse at a low-level facility to care for her patients:

> Yeah, not sterile. So I always feel that it is not the correct thing that we were taught and then uh, again, our instruments. They are very few, and uh, at times we even lack something to, like a sterilizer. Yeah, so you find it very hard. At times when you don't, you've not sterilized your equipment, we're even forced to use the old, the old things like maybe thread and things like that, yeah, 'cause maybe you didn't get a sterilizer to sterilize your equipment after delivering a mother, so you, you find it hard to use it on another mother, yeah.

Perceived susceptibility to poor outcomes and perceived severity of inadequate care—Supply shortages were seen as the most significant barrier to care by both nurses and mothers. Mothers were afraid of the rusty razor blades they described as being commonplace among traditional birth attendants, while nurses cited their lack of the most basic supplies of cotton wool, razors, and gloves. Nurses struggled with the dilemma of being forced to deliver in unsanitary conditions, and mothers felt that being charged for care was similar to bribery. There was a clear need to improve the supplies available at facilities, specifically addressing the concerns voiced by participants.

Follow-up data: mothers

Perceived barriers—The mothers' perceptions of their abilities to access ANC services and deliver in facilities were tied to two things: feeling that they would be treated well and costs. Consistent with baseline findings, mothers in follow-up reported poor treatment by

nurses, health care costs, and transportation as barriers preventing them from attending ANC or delivering in hospitals. The mothers described the nurses, and how nurses treated patients, as important factors that influenced whether they sought care. The mothers valued being treated well and fairly. Mothers described being "*handled well*" and *encouraged* and preferred nurses who "*never lied"* and were "*happy*." One mother described nurses who were *"quarrelling and harassing such that if you happened to have a slight mistake, she would quarrel you*." Another mother noted that because of inadequate staffing at the health facilities, mothers would have to wait hours to be seen.

Perceptions of cues to action and benefits of antenatal care—All mothers interviewed received incentives. However, the mothers described their cues for seeking services differently. For one mother, receiving the delivery kit was the reason she delivered at the health facility: "…*the wrap cloth I use to carry my baby when I am going far, and this reduced my budget. And for real, it was a reason for my delivery there*." Most women did not directly tie their decision to access services to the incentives, but all women had positive feelings about the incentives, especially the water bucket. The bucket appeared to have the greatest value for these women. Mothers described how important storing drinking water and having a bucket with a tap was to their families. SWAP staff telling mothers about the incentives was mentioned as another cue to action: "*You told us that there were some presents that they were to get, if they completed the four visits. Then I went to see for myself, and actually it was true."* Most mothers said that they hoped that the incentives would continue.

Self-efficacy—For one mother, how the nurses treated her went beyond treatment to how much information and counseling she received with the services she was given. Mothers often described being given incentives or receiving tests without receiving information on how to use the incentives or why the tests were important. The lack of information may have inadvertently created a barrier impacting a mother's self-efficacy. How much confidence will a mother feel in accessing care, if she has no idea what she is receiving and why? The mothers appeared to want more counseling and more information, but did not feel equipped to ask for it:

> To be sincere, me I don't like it. They should first be counseling, then that is what they do the test. You see when someone pricks your hand in the name of nothing, then you get mad because it is painful. Then afterwards you are told to read the lines, which means you might test positive or negative. You test negative the better. When you test positive, tell me how you can walk home. You can be a very disappointed person in the rest of your life.

Mothers also described that they were not in the position to ask nurses about their care or advocate for services they want:

> I do not know because for one, if these are nurses who are willing to share with us I am not in any way qualified for that. What do I know? Secondly, I used to hear my mum say that when she went for clinic, she was being given some injections which when I saw that happen to me, I knew that this would help my growing baby. Again

> being that this was my first experience I could to tell. I believe they offered the best for me. I got three injections on my arms.

From this mother's account, we cannot say if the three injections she received were to treat her for syphilis or injections for other purposes. The nurses were perceived as too busy for the mothers to trouble them with their questions, and the mothers did not feel that they were in a position to fully advocate for their care:

> They will not tell you. They will just treat you and after that they will leave you without letting you know of what it is. Even nowadays even this big disease AIDS, they don't tell you. You will just realize that you are put on septrin and multivitamin to boost your immunity and vitamins and then later ARVS. [anti-retrovirals].

Conversely, all mothers indicated that after their experience with the ANC services and delivering in the health facilities, they would encourage other mothers to deliver in health facilities, modeling this health behavior for other mothers.

Perceived barriers—At follow-up, nurses noted the same barriers of cost and transportation. While they believed that the incentives helped reduce those barriers to care, they were concerned about the sustainability of increases in ANC visits and health facility deliveries when the incentive program ended. While the nurses agreed that the interventions increased awareness on the importance of delivering at a hospital and clinics, they felt that mothers would return to delivering in their communities with traditional birthing attendants if no incentives were provided.

Follow-up data: nurses

Perceptions of women's cues to action and benefits of antenatal care—For the nurses, the incentives served as cues to action for some women. The nurses agreed that more women sought ANC services and delivered in facilities. They saw the incentives as tools to encourage women to seek care but also a source of pride for them:

> It motivated the expectant mothers to come to clinic especially when you find a mother who is 20 weeks pregnant and you give her the kit, you will find every woman there will need the kit and that is when you tell them the order in which they are given and the next day the number will increase. You give a mother a pail at her gestation period, you make her feel proud.

Self-efficacy—Nurses said that they used the incentives to educate women on the importance of ANC: "You cannot just give out something and leave it at that, you need to have humble time to explain to the women why you are giving out the incentives and how they are supposed to be used." For nurses, the intervention presented them with an opportunity to counsel women on health practices and to increase their awareness on how to stay healthy during their pregnancy. Although the nurses noted their workload increased with more women coming in, distributing the incentives, and counseling women, none complained, and most expressed increased satisfaction with their work. One nurse hoped that because of the health education and additional information that mothers received during

ANC visits in this program, they would return to health facilities for future pregnancies even if the incentive program ends.

Discussion

Results of this evaluation suggest that incentives helped motivate pregnant women to seek ANC services. While mothers and nurses described similar barriers that prevented women from accessing services, they also identified different factors that served as cues to action to attend ANC and increased self-efficacy to make that decision. Mothers and nurses both indicated that incentives were important factors in mothers' decisions to attend ANC, consistent with results of evaluations of other ANC integration programs.[12–14] Programs that have provided incentives for immunization services have similar findings.[15–17] The incentives in this intervention were a source of pride for the mothers, and may have given them confidence to access ANC services, thereby increasing their prospects of delivering a healthy baby. Mothers' responses suggested that they wanted more counseling and more time with nurses, which may suggest that their cues to action would have been strengthened by more information about their care and their health.[18] Along with information, being treated well by the nurses was equally important to mothers. For mothers to know that they would be both cared for and treated well appeared to be a major driver in where and how regularly they sought care.

At baseline, mothers and nurses described similar perceived barriers to accessing ANC services and delivering at facilities. Transportation and costs of services were the primary barriers that both groups described, both at baseline and follow-up. The program evaluated in this study did not address transport, but at least one study has shown that transport vouchers can increase use of ANC, delivery, and postnatal care services.[19] Costs of services remained a barrier consistently described by nurses and mothers. The idea that free care is not really free is an important barrier in the health care system. The burden of paying for care, or for essential commodities such as gloves, can be an enormous obstacle for poor mothers who are already at increased risk of adverse outcomes.[19–21] In this study, mothers noted that the prices they were charged varied and likened them to bribery. To reduce the barrier of cost of care, the Government of Kenya recently established a policy that delivery services will be delivered free of charge,[22] but a subsequent newspaper article reported that some facilities were not experiencing an increase in deliveries in response to the policy, largely for reasons noted above by women in this study.[23]

Nurses and mothers differed on other key barriers to use of ANC services. Nurses expressed concern about health facilities, with inadequate supplies and staffing serving as barriers to delivering quality care. Although at least one study has demonstrated that mothers responded to improvements in the quality of antenatal care by increasing their participation,[24] deficits in service provision were a persistent problem observed in this study. While this study sought to increase uptake in ANC and delivery services by providing equipment and additional training to nurses, these improvements did not appear to appreciably improve the quality of ANC services. No additional nurses were hired and no improvements to facilities were cited by nurses. According to the 2010 Kenya Service Provision Assessment Survey, of the 78 facilities offering ANC in Nyanza Province, only

20% had all of the essential supplies for basic ANC and only 54% had supplies needed for infection control.[25] At the time of follow-up in 2012, nurses still expressed concern that inadequate supplies and staffing compromised quality of care.

In contrast, a number of women noted that poor treatment by nurses, not the condition of the facilities, was an important barrier to using antenatal services. Other research suggests that mothers' interactions with health care workers have important implications for whether mothers seek ANC or deliver in facilities.[26] Although mothers trust nurses and their skills[27] and prefer receiving care from a skilled provider who can handle complications,[28] they may not seek that care if they fear reprimands and punishment from health care workers. It has been shown that mothers want nurses to respect and treat them well.[29] Even though nurses reported that they were motivated by the desire to help, mothers noted that nurses did not explain what tests or treatment were for, appeared to rush through encounters, and often were abusive toward them. It is not clear whether the nurses' behavior was a sign of work stress or lack of respect for clients. Nurses noted that the increased stress they faced in providing care in facilities that were understaffed and lacked the needed equipment and resources. A study of providers from Tanzania reported similar findings about the stress health professionals face when they work in understaffed facilities.[30]

Results of this study confirmed that mothers wanted to deliver healthy babies in safe environments, and nurses wanted to provide their patients with the best care they could. However, while there were clear benefits to accessing care, there was also a barrier associated with the fear of testing positive for HIV and the stigma associated with the diagnosis. Nurses and mothers agreed that this is a drawback to seeking ANC services. It is unclear if incentives could mitigate this barrier, as the problem may lie in cultural and social norms and involve interpersonal relationships with partners that cannot be overcome through incentives. Because preventing mother-to-child transmission of HIV has great public health importance, additional training to providers on how to counsel women testing positive and public health messaging on living with HIV may help to address the stigma that women described. Moreover, addressing cultural norms and fear around HIV may be incorporated into ANC counseling in testing women at their first ANC visit.

At baseline, pregnant women were very clear on expressing their concerns about poor outcomes when not receiving ANC services and delivering with traditional birth attendants. Their perceived susceptibility to those poor outcomes was high. Respondents did not offer any insights either at baseline or follow-up that contradicted this perceived susceptibility. Mothers were aware that they needed ANC services and knew that, for their health and the health of their baby, they needed to deliver in facilities, and yet they faced barriers that reduced the likelihood of their using these services. The timing of delivery and distance from health facilities were often repeated as reasons that women delivered with traditional birth attendants. Improving transportation services to mothers in labor, and encouraging women to get to health facilities as soon as their labor begins could help to address the issue of poor timing that some mothers face. For example, a 2008 study in Suba District explored the link between mobility and maternal health, recommending bicycle and/or motorcycle ambulances with a stretcher, mobile clinics for antenatal and postnatal care, and a community or government-run boat ambulance for remote islands.[31]

This qualitative assessment had several important limitations. First, though the sample of 40 key informants was of sufficient size and diversity to express the range of perspectives on ANC services, these perspectives are not necessarily generalizable to the population of nurses or mothers in western Kenya. A follow-up survey of a representative sample of the population would need to be conducted to capture generalizable data. Second, because women in this study were recruited from health care facilities, they were actively seeking care, and were not likely representative of mothers who do not seek care. Third, at baseline, pregnant women were interviewed in or near healthcare facilities, and may have altered their responses due to concerns that nurses might overhear. Moreover, nurses may not have been frank in their responses due to concerns about losing their jobs, if they were perceived to be complaining.

Using the constructs of the HBM, this qualitative inquiry used interviews with pregnant women and nurses to help illuminate a number of factors that influenced use of health services by pregnant women. Although pregnant women understood that they were susceptible to poor birth outcomes by seeking care outside of health facilities, a number of barriers to care influenced their motivation to use these services. In particular, cost of care, inadequate transportation, distance from health facilities, and poor treatment by nurses all were substantial barriers noted by women. Nurses also recognized that these barriers were important obstacles to care for women and added that inadequately supplied and staffed health facilities contributed to the problem of inadequate care. In contrast, the use of incentives appeared to be an important cue to action to mobilize mothers use antenatal services. Similarly, by educating mothers about pregnancy and providing information about their care, nurses were able to increase a sense of self-efficacy in pregnant women that appeared to motivate use of services.

Findings of this evaluation suggest that a number of structural improvements in service provision—in particular, upgraded health facility infrastructure, adequate staffing, improvement of the treatment of women by nurses, low or no-cost services, the provision of transport, and, budget permitting, the use of low cost incentives—could result in an increased use of services, which would contribute to the most important outcome – improved health of mothers and babies. Addressing the remaining barriers, including inadequate staffing and transportation, would likely require additional resources and, in the case of transportation, local infrastructure, community, and health systems collaborations. The possibility that incentives motivated substantial increases in service use in this project despite the structural deficiencies noted above justifies further exploration of the role of incentives in reproductive health care.

Very little data have been published about the concerns of women in rural Kenya, regarding ANC services or health care in general. Data presented here are unique in that they provide a voice for women in this rural Kenyan area that may add to a greater understanding of women’s concerns around ANC. Furthermore, the concerns expressed by the women in this study sample are similar to those of other rural women elsewhere, and may be helpful to public health officials and researchers in the future in order to help ensure adequate quality of basic, antenatal services that are important in reducing maternal and infant morbidity and mortality.

APPENDIX A BASELINE INTERVIEW GUIDE

Focus Group Discussion Guide: Nurses

1. What aspect of your job do you like the most?
    a. Are you proud to be a nurse?
    b. Do you feel like you are good at your job?
        i. What could help you be a better nurse?
        ii. What makes your job difficult?
    c. Do you feel like you are well-trained as a nurse?
        i. Are there ways you improve your skills? How?
2. How do you feel about providing obstetrical care?
    a. Do you feel like it is a good thing?
    b. Do you feel like it is a bad thing?
    c. Do you feel that it is necessary? Do you feel that it is important?
    d. Do you feel like you are adequately equipped? *Probe for supplies and education*
3. How many births do you usually do?
    a. How do you feel about that number? Would you like to do less? Would you like to do more?
    b. Do you provide mostly antenatal care, labor services, or postnatal care? Or do you provide equal amounts?
4. If more women came to you for delivery, how would that affect your practice?
    a. How much time do you spend providing obstetrical care
    b. How would that affect your hospital? *Probe for capacity, supplies*
5. How do you feel about giving mothers items like protein-fortified flour or hygiene kits?
    a. Do you like it? Do you dislike it? Why?
    b. Do you receive any incentives for participating in these types of activities? If so, what?
    c. How do you think this program will impact your job? (*Probe for time, capacity)*
6. How many people do you know of that treat their drinking water?
    a. Do they treat their drinking water every day? Most of the time? Some of the time?

- **b.** How often do you treat your drinking water?
- **c.** Do you think it is important to treat your water?
- **d.** Do think there is a connection between drinking water and illness?
  - **i.** If so, do you recommend to your patients that they treat their drinking water?
  - **ii.** Where can people get water treatment protects?
- **e.** What are the difficulties in treating your water?

Focus Group Discussion Guide: Mothers

1. How do you feel about labor?
   - **a.** Where do the women in your village have babies? Where do the women in your family have babies?
   - **b.** How long do you think it will take you to have your baby?
   - **c.** Do you think that having your baby will be hard on you physically? Will it affect your ability to care for your family? *probe for time frame*
   - **d.** Where do you want to have your baby?
     - **i.** What would make a good delivery experience?
2. How do you feel about giving birth at home?
   - **a.** Do you think it is safe?
     - **i.** Is there someone in your family or village who could care for you if you got sick while you were in labor? Who?
     - **ii.** Is there someone in your family or village who could care for your newborn baby if they were sick? Who?
   - **b.** What is nice about giving birth at home?
   - **c.** What makes giving birth at home hard?
3. How do you feel about hospitals or clinics? How do you feel about giving birth at a hospital or clinic?
   - **a.** Do you know anyone who has delivered at a hospital? How many of your friends have delivered at a hospital?
   - **b.** What would be an advantage of delivering at a hospital or clinic?
   - **c.** What would be a disadvantage of delivering at a hospital or clinic?
   - **d.** How would you get to the hospital? How long would it take you?
4. Have you been to the hospital for any antenatal care?
   - **a.** Where did you go?
   - **b.** What was the hospital/clinic like?

c. How would you describe the nurse/doctor you saw?

d. What kind of services did you get? Did you have to wait a long time?

e. Would you recommend this to your friends or family? Why or why not?

5. Where do you think you will give birth (*probe for at home or at a hospital*)?

   a. Why?

   b. Do you think this is the best place for you to have your baby?

6. Do you think you will go to a hospital for any care after your baby is born?

   a. Where would you go?

   b. What kind of services would you go for? Why would you go? Would you go for services for yourself or for your infant?

   c. What would make that a good experience?

7. How do you get to the clinic or hospital?

   a. How do most people in your village get to the hospital?

   b. Is it difficult for you? What makes it difficult to get to the hospital? (*Probe for transportation issues, childcare issues)*

   c. Is it expensive?

   d. What would make it easier to get to the hospital?

8. What is the biggest difficulty in attending clinic visits? *(Probe for transportation, time, other children, cost)*

9. How many people do you know of that treat their drinking water?

   a. Do they treat their drinking water every day? Most of the time? Some of the time?

   b. How often do you treat your drinking water?

   c. Where do you get your water treatment products?

   d. Do you think it is important to treat your water?

   e. Do think there is a connection between drinking water and illness?

   f. What are the difficulties in treating your water?

APPENDIX B

Focus Group Participant Information

Mothers

Age: _____ Occupation: _____

Number of people in household: _____

Number of previous children: _____

Number of previous deliveries at home: _____

Number of previous deliveries outside of home: _____

Location of those deliveries:

_____

Focus Group Participant Information

Nurses

Age: _____

Sex: _____

Years in practice: _____

Where trained: _____

Type of practice: _____

APPENDIX C FOLLOW-UP INTERVIEW GUIDES

NURSES INTERVIEW GUIDE

Overview

The purpose of this interview guide is to uncover barriers that providers may face in testing pregnant women for HIV and syphilis and to determine their level of comfort in testing and treating women who test positive. Providers at selected clinics will be asked to share their thoughts on the testing and treating of pregnant women for syphilis in their clinic. The questions are designed to elicit the provider perspectives. Providers will be assured that their responses are confidential, and will not be attributed to them in the analysis. Notes will be taken, rather than tape recording responses. Respondents will be given an opportunity to ask about the study, describe their roles in the clinic, and the interview will begin.

****

Demographics

Gender (Observed)

Role in the dispensary

Big Picture

1 Do you think the testing pregnant women for syphilis is important?

2 What do you think is contributing to the high rate of syphilis?

The purpose of this question is to assess what providers feel is contributing to the increases in the number of syphilis cases. Their perspectives may help to strengthen the existing program or to expand it.

Perceptions of the Syphilis Testing and Protocol

3 How have the syphilis tests been received in your dispensary?

4 How have the pregnant women responded the syphilis test?

5 What type of problems have you encountered with the testing?

- **a.** How confident with interpreting the test? (might even watch them do this)
- **b.** How Are the syphilis testing supplies
- **c.** How Are the HIV testing supplies?

6 From your perspective, how much additional work was required to do the syphilis testing? Was it feasible? Is this program something that you think you would be able to do all the time?

Perceptions of Syphilis Treatment

7 How comfortable are you with counseling patients?

- **a.** When patients test positive for syphilis, how much/what type of counseling do you provide?

8 How comfortable do you feel treating women?

- **a.** Do you have adequate doses of penicillin?
- **b.** Have you had any problems with providing the penicillin injections?

Other Challenges

9 Are you testing and treating partners?

- **a.** What are the challenges in dealing with partners?

10 Is there anything else about testing and treating pregnant women for syphilis that I should know about?

PATIENT QUESTIONS FOR FOCUS GROUP

Overview

The purpose of these questions is to understand women’s experiences being tested for syphilis. The questions should also help to better understand why they were screened or not screened.

1. Is this your first pregnancy?

The purpose of this question is to understand hopefully some sense of what testing was like before and after the intervention.

2. Do you like coming to this dispensary for care when you are pregnant?
3. How do you feel about taking blood tests?
4. Were you tested in your previous pregnancy?
    a. Do you remember what you were tested for?
5. Were you tested for syphilis with this pregnancy?
    a. Do you remember what you were tested for?
    b. What was the experience like?
6. If tested, what did the provider tell you about the tests?

    Is there maybe a better way to assess what pregnant women know about why syphilis testing is important and especially treatment for positive results?
7. If there was an additional test available, would you take it?
    a. Why?
8. How can we get more women tested?

    Something about counseling (did they understand issues?) and partner treatment?

References

1. Kenya National Bureau of Statistics and ICF Macro. Kenya Demographic and Health Survey 2008–09. Calverton, Maryland: KNBS and ICF Macro; 2010. http://www.measuredhs.com/pubs/pdf/fr229/fr229.pdf. Accessed on May 20, 2013
2. World Health Organization. WHO recommendations on Postnatal care of the mother and newborn. 2013. http://apps.who.int/iris/bitstream/10665/97603/1/9789241506649_eng.pdf?ua=1. Accessed on December 10, 2015
3. O'Connor, K., Sadumah, I., Kola, S., et al. The impact of targeted incentives and enhanced services on use of maternal health services in rural western Kenya [abstract]; Proceedings of the 61st Annual Epidemic Intelligence Service Conference; 2012 Apr 16–20; Atlanta, GA: EIS; 2012. p. 18
4. Fleming E, Oremo J, O'Connor K, et al. The impact of integration of rapid syphilis testing during routine antenatal services in rural Kenya. Journal of Sexually Transmitted Diseases. 2013; doi: 10.1155/2013/674584
5. Rosenstock IM. Why people use health services. Milbank Q [1966]. 2005; 83:1–32.
6. National Cancer Institute. Theory at a Glance: A Guide for Health Promotion Practice. Second. Washington, DC: U.S. Department of Health and Human Services; 2005.
7. Rosenstock IM. Historical origins of the health belief model. Health Educ Monogr. 1974; 2:328–335.
8. Becker MH. The health belief model and personal health behavior. Health Educ Monogr. 1974; 2:324–473.
9. Rosenstock IM, Strecher VJ, Becker MH. Social Learning Theory and the Health Belief Model. Health Educ Q. 1988; 15:175–183. [PubMed: 3378902]
10. Strauss, A., Corbin, J. Basics of Qualitative Research: Grounded Theory Procedures and Techniques. Newbury Park, CA: Sage Publications; 1990.
11. Miles, MB., Huberman, AM. Data Management and Analysis Methods. In: Denzin, NK., Lincoln, YS., editors. Handbook of Qualitative Research. Thousand Oaks, CA: Sage Publications; 1994. p. 428-444.

12. Loharikar A, Russo E, Sheth A, et al. Long-term impact of integration of household water treatment and hygiene promotion with antenatal services on maternal water treatment and hygiene practices in Malawi. Am J Trop Med Hyg. 2013; 88(2):267–274. [PubMed: 23243106]
13. Sheth AN, Russo ET, Menon M, et al. Impact of the integration of water treatment and handwashing incentives with antenatal services on hygiene practices of pregnant women in Malawi. Am J Trop Med Hyg. 2013; 83(6):1315–1321.
14. Wood S, Foster J, Kols A. Understanding why women adopt and sustain home water treatment: insights from the Malawi antenatal care program. Soc Sci Med. 2012; 75:634–642. [PubMed: 22051403]
15. Briere E, Ryman TK, Cartwright E, et al. Impact of integration of hygiene kit distribution with routine immunizations on infant vaccine coverage and water treatment and handwashing practices of Kenyan mothers. J Infect Dis. 2012; 205(Suppl 1):S56–S64. DOI: 10.1093/infdis/jir779 [PubMed: 22315387]
16. Ryman TV, Briere EC, Cartwright E, et al. Integration of routine vaccination and hygiene interventions: a comparison of 2 strategies. J Infect Dis. 2012; 205(Suppl 1):S65–76. DOI: 10.1093/infdis/jir777 [PubMed: 22315389]
17. Mathanga DP, Luman ET, Campbell CH, et al. Integration of insecticide-treated net distribution into routine immunization services in Malawi: a pilot study. Trop Med IntHealth. 2009; 14:792–801. DOI: 10.1111/j.1365-3156.2009.02295.x
18. Conrad P, De Allegri M, Moses A, et al. Antenatal care in rural Uganda: missed opportunities for good-quality care. Qual Health Res. 2012; 22:619–629. [PubMed: 22232296]
19. Ekirapa-Kiracho E, Waiswa P, Rahman MH, et al. Increasing access to institutional deliveries using demand and supply side incentives: early results from a quasi-experimental study. BMC Int Health Hum Rights. 2011; 11(Suppl 1):S1–S11.
20. Nanda P. Gender Dimensions of User Fees: Implications for Women's Utilization of Health Care. Reprod Health Matters. 2002; 10(20):127–134. [PubMed: 12557649]
21. Simkhada B, van Teijlingen, Porter M, et al. Factors affecting the utilization of antenatal care in developing countries: systematic review of the literature. J Adv Nurs. 2007; 61(3):244–260.
22. Maternal care free, President Kenyatta announces. Daily Nation. Jun 1. 2013 http://www.nation.co.ke/News/Govt-rolls-out-free-maternal-care/-/1056/1869284/-/gywvvrz/-/index.html. Accessed on June 17, 2013
23. Gathigah, M. Kenya's Mothers Shun Free Maternity Health Care. Jul 9. 2013 http://www.ipsnews.net/2013/07/kenyas-mothers-shun-free-maternity-health-care/. Accessed on December 9, 2015
24. Brazier E, Andrzejewski C, Perkins ME, et al. Improving poor women's access to maternity care: Findings from a primary care intervention in Burkina Faso. Soc Sci Med. 2009; 69:682–690. [PubMed: 19596165]
25. National Coordinating Agency for Population and Development (NCAPD) [Kenya], Ministry of Medical Services (MOMS) [Kenya], Ministry of Public Health and Sanitation (MOPHS) [Kenya], Kenya National Bureau of Statistics (KNBS) [Kenya], ICF Macro. Kenya Service Provision Assessment Survey 2010. Nairobi, Kenya: National Coordinating Agency for Population and Development, Ministry of Medical Services, Ministry of Public Health and Sanitation, Kenya National Bureau of Statistics, and ICF Macro; 2011. http://measuredhs.com/pubs/pdf/SPA17/SPA17.pdf. Accessed on June 17, 2013
26. Pell C, Meñaca A, Were F, Afrah NA, Chatio S, et al. Factors affecting antenatal care attendance: results from qualitative studies in Ghana, Kenya and Malawi. PLoS ONE. 2013; 8(1):e53747.doi: 10.1371/journal.pone.0053747 [PubMed: 23335973]
27. Parker AA, Stephenson R, Riley PL, et al. Sustained high levels of stored drinking water treatment and retention of hand-washing knowledge in rural Kenyan households following a clinic-based intervention. Epidemiol Infect. 2006; 134:1029–1036. [PubMed: 16438747]
28. Worku AG, Yalew AW, Afework MF. Factors affecting utilization of skilled maternal care in Northwest Ethiopia: a multilevel analysis. BMC Int Health Hum Rights. 2013; 13:20. [PubMed: 23587369]

29. Kumbani LC, Chirwa E, Malata A, et al. Do Malawian women critically assess the quality of care? A qualitative study of women's perceptions of perinatal care at a district hospital. Reprod Health. 2012; doi: 10.1186/1742-4755-9-30

30. Mrisho M, Obrist B, Schellenberg JA, et al. The use of antenatal and postnatal care: perspectives and experiences of women and health care providers in rural southern Tanzania. BMC Pregnancy Childbirth. 2009; 9:10.doi: 10.1186/1471-2393-9-10 [PubMed: 19261181]

31. Wilson A, Hillman S, Rosato M, et al. A systematic review and thematic synthesis of qualitative studies of maternal emergency transport in low- and middle-income countries. International Journal of Gynecology & Obsterics. 2013; 122:192–201. DOI: 10.1016/j.ijgo.2013.03.030/

Box 1

Themes from 40 Interviews of Mothers and Nurses Regarding Antenatal Care and Delivery Services, Nyanza Province, Kenya, February 2011 and March 2012.

	NURSES	PREGNANT WOMEN/MOTHERS
BASELINE	**5 INTERVIEWS**	**7 INTERVIEWS**
PERCEIVED SUSPECTIBILITY TO POOR OUTCOMES	Equipment shortages in facilities Staff shortages	Delivery with traditional birth attendant (TBA) perceived as bad due to unsanitary conditions
PERCEIVED SEVERITY OF INADEQUATE CARE	Equipment shortages in facilities Staff shortages	Doubts that TBA would be able to help in the event of delivery complications
PERCEIVED BARRIERS	Women as vulnerable, facing many barriers that make prioritizing health very difficult Costs of antenatal services and delivery Transportation to facilities Fear of learning HIV status	Money (costs of antenatal services) Transportation to facilities Distance from health facilities
PERCEIVED BENEFITS	Mandatory HIV testing	Hospitals viewed as being clean and providing good care
CUES TO ACTION TO ACCESSING ANTENATAL CARE AND DELIVERING AT HOSPITAL	Mandatory HIV testing	Nurses identified as being able to treat mother and infant who become ill
SELF-EFFICACY	Nurses struggle to feeling confident in the provide care they provide due to unsanitary conditions	Delivering in hospital was best for their babies and safe compared to home births
FOLLOW-UP	**9 INTERVIEWS**	**19 INTERVIEWS**
PERCEIVED SUSPECTIBILITY	No change from baseline	No change from baseline
PERCEIVED SEVERITY	No change from baseline	No change from baseline
PERCEIVED BARRIERS	No change from baseline	Believe that they would not be treated well by the nurses Costs Inadequate staff at hospitals
PERCEIVED BENEFITS	Incentives	Incentives helped reduce barriers to care, but barriers could return if incentives stopped
CUES TO ACTION	Incentives	Delivery kit Buckets “Presents” (ie, incentives)
SELF-EFFICACY	Incentives as an opportunity to counsel mothers	Counseling and information from nurses