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Maternal – Child Health Needs Assessment in Haiti

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Abstract

Maternal and neonatal mortality in Haiti are among the highest in the world. This study investigated maternal-child health needs in Haiti, using a mixed method approach including qualitative and quantitative data collection. Participants (n=119) comprised of 39 healthcare workers and 80 Haitian women. The focus group centered around three major themes: difficult access to healthcare; health issues affecting mothers-child; and healthcare workers training. The interviews revealed that 60% of the deliveries happened at home, 52.5% of them were assisted by a lay birth attendant, 42% of the women gave their newborn a drink other than breast milk within the first week of birth, 70% of the women had not been, or did not know, if they had been tested for HIV, 92% did not use condoms during sexual encounters, and 47.5% justified violence against themselves from their partner. Considering the dearth of research concerning maternal-child health in Haiti that incorporates the opinions of healthcare workers and Haitian women, identifying their needs is essential to developing programs, such as the following that contribute to improving their health: nurse-midwife programs, training for lay birth attendants, obstetric-pediatric training, breastfeeding training, and programs to prevent intimate partner violence and HIV.

Keywords

women; children; Haiti; health needs; healthcare workers

Haiti has been plagued by natural disasters and an ailing economy. As a result, many healthcare disparities affect the population, including high maternal and infant mortality rates. Haiti is considered a low income country, with 80% of the population living below the poverty line and a gross national income per capita of \$780 (The World Bank, 2012). In 2012, Haiti had a population of 10 million people, with the median age of 21.9 years for the population, and a life expectancy at birth of 61 years for men and 64 years for women (PAHO, 2013; WHO, 2013). In 2011, the birth rate was 23.4 per 1000 people, while the maternal mortality was 350 per 100,000 live births (Central Intelligence Agency, 2013; WHO, 2013). Currently, more women die in pregnancy and childbirth in Haiti than any other country in the Western Hemisphere (PAHO, 2012; WHO, 2013). UNICEF (2013)

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reports a neonatal mortality rate in 2011 of 25 per 1,000 live births in Haiti, which is the highest in the Western Hemisphere and among the highest in the world.

A quantitative study by Anderson et al., (2008) conducted in Haiti with a sample of 379 pregnant women showed that very few had received prenatal care from a healthcare professional, and almost all women delivered at home. In a mix methods study conducted in Haiti with 282 postpartum women and 32 healthcare workers (HCWs), Lathrop et al., (2011) found that 97.9% of women expressed a desire for family-planning counseling, however only 6.0% of women received such counseling, and only 23% of women used contraceptives. In addition, HCWs expressed concern for the volume of induced abortions and maternal deaths within their scope of practice, which many felt could be averted by improving postpartum family planning.

The Pan American Health Organization (PAHO) has identified Haiti as one of the five priority countries in the Americas in need of long-term commitment from the international community to address maternal and infant healthcare (Estupinan-Day & Cohen, 2011; PAHO, 2012).

The progress in combating maternal mortality in Haiti has been slow due in large part to the small size of the country's trained healthcare provider workforce (Estupinan-Day & Cohen, 2011; Ministère de la Sante Publique, 2008; WHO, 2010).

There are about 2.8 HCWs for every 1,000 inhabitants, with 1.8 nurses and one physician per 10,000 inhabitants. Haiti has five nursing schools and three medical schools that graduate approximately 200 nurses and 300 physicians per year. The schools of nursing, which prepare 3-year diploma graduates, have done little to upgrade the curriculum in decades and have mainly trained students for hospital service. Primary care, public health program management, and patient education have often not been stressed. Once the nursing students are graduated, about half leave the country in order to find better employment opportunities elsewhere, while the other half remains in Haiti; 70% of those who remain in Haiti work in Port au Prince, where a third of the country's population lives (Garfield & Barryman, 2012).

The scarcity of research following the earthquake that concerns maternal-child needs in the South of Haiti and incorporates the opinions of Haitian women and HCWs indicate that more research must be conducted to develop prevention programs tailored to this population. Therefore, the purpose of this study was to investigate maternal-child health needs in the South of Haiti.

Methods

Design

A mixed methods approach including collection of both qualitative and quantitative data was used for this study. This methodology represented an opportunity to expand the researcher's approach to the phenomena (Bliss, 2001). A qualitative descriptive approach to detail the people's experiences was combined with a quantitative design to explore the

maternal-child health needs of the region (Sandelowski, 2000). The qualitative information was obtained via focus groups (Freeman, O'Dell, & Meola, 2001; Van Eik & Baum, 2003; Duggleby, 2005). The quantitative design was used to explore the healthcare needs of women and infants in the region. Quantitative data was collected using a questionnaire in face-to-face interviews.

Setting

The study was conducted in the South of Haiti. Five health centers, located in the towns of Les Cayes, Aquin, St.Louis du Sud, Cavaillon, Maniche, and Ile a Vache were selected as focal sites for participant recruitment. The South Departmental Office of the Ministry of Public Health and Population (MSPP) collaborated in this research.

The total population of the South of Haiti was approximately 704,760 in 2009, of which 79.5% lived in rural areas with poor access to health centers (PAHO, 2012). Of the total population, 55.8% were 18 years and older and 48% were women. The populations for each of the 6 target towns were as follows: Le Cayes, 137,952; Aquin, 94,773; Saint Louis du Sud, 59,042; Cavaillon, 44,276; Maniche, 21,766; and Ile a Vache, 12,004.

Participants

Participants in the study were comprised of a convenience sample of 39 healthcare workers HCWs and 80 Haitian women, with a total sample of 119 participants. Eligibility criteria for HCWs were as follows: (a) Haitian healthcare worker (e.g., nurses, physicians, technicians); (b) practicing in one of the selected towns. Eligibility criteria for women were as follows: (a) Haitian woman from 18 to 49 years old; (b) residing in one of the towns selected; and (c) having had at least one pregnancy and one delivery in the past 10 years.

Flyers were posted in health centers inviting HCWs to participate in the study. The flyers include the purpose of the study, eligibility criteria, and the time and date when the focus groups would be conducted. Two local Haitian female nurses trained by the research team recruited local women at health centers during local community meetings and events. Using a script, the recruiters approached participants in these settings, introduced themselves, and asked potential participants if they were interested in the study. Once the eligibility of the participants was established, and contact information collected; a time and date was scheduled to participate in a focus group or interview according with the preference of the participant.

Data Collection

For data collection, the following strategies were used: (a) self-reported questionnaires with HCWs and face-to-face interviews with Haitian women and (b) focus groups with HCWs and Haitian women.

The data for this study was collected in community health centers located in the towns of Les Cayes, Aquin, St.Louis du Sud, Cavaillon, Maniche, and Ile a Vache, South of Haiti.

The research team developed two different questionnaires, one for the HCWs and one for the women, based on the U.S. Agency for International Development DH56 and UNICEF

MIC 54 questionnaires. Thirty nine (39) healthcare workers completed a self-report questionnaire with 24 open-ended questions, addressing maternal-child health issues and competencies that the HCWs have in terms of training. Examples of the questions are as follows: Where do most women give birth in the community that you serve? Why women do not receive care during pregnancy, delivery and postpartum? Immediately after the self-report questionnaire was completed, the healthcare workers participated in the focus groups.

Forty (40) Haitian women from the community were interviewed, using a questionnaire with 62 open-ended questions, which addressed maternal-child health issues that Haitian women confronted (e.g., pregnancy and delivery, infant care, abortion, family planning, intimate partner violence, and HIV prevention). Examples of the questions are as follows: Where did you give birth of your last delivered? Did your baby have a health problem after birth? Are you currently doing something or using any method to delay or avoid getting pregnant?

Two local Haitian nurses trained in the Collaborative Institutional Training Initiative (CITI) and data collection techniques conducted the interviews in community health centers for this study. Structured interviews were approximately one hour in length and were conducted in Haitian Creole, the preferred language of the participants.

Eight focus groups, four with HCWs and four with women from the community, were conducted using a semi-structured focus group guide with an emphasis on maternal-child health issues. Saturation was used to determine the sample size for the qualitative component of the study, indicating that the limits of the phenomena had been covered. When this was reached, the focus groups were discontinued (Office of Behavioral and Social Sciences Research, 2001). Saturation of data in this project was achieved with eight focus groups totaling 79 participants, 39 HCWs and 40 women from the community.

The focus groups were held at the health centers and were conducted in Haitian Creole. They were led by a trilingual (English, French, and Haitian Creole) co-investigator experienced in focus group facilitation. Examples of the questions used in the focus groups for HCWs include the following: What are the barriers that women confront to access care during, pregnancy, delivery, and post-partum? What are the major health problems that women confront during pregnancy, delivery, or post-partum? Example of questions used in the focus groups for the women include the following: Who provided care to women during pregnancy, delivery, postpartum in your community? Where do most women give birth in your community? Each focus group was recorded using a digital recorder to facilitate the transcription process. Extra precautions were taken to ensure that the transcribed data were linguistically accurate and to protect the participants' privacy. A trilingual (English, French, and Haitian Creole) native Haitian interpreter translated and transcribed the audio recordings directly into English (Cianelli et al., 2013). To help ensure accuracy and fidelity of the transcriptions and verify that there were no discrepancies between the Haitian Creole and English versions, the trilingual Haitian co-investigator meticulously reviewed the transcribed focus group data while listening to the Haitian Creole audio recordings. All focus group information was imported to the NVIVO (9) program, as were field notes with the observations and notes concerning the focus group.

Data Analysis

Qualitative content analysis was used to recognize, code, and categorize patterns from text data (Patton, 2001; Sandelowski, 2000). More specifically, directed content analysis was used to analyze the transcripts from the focus groups. When there is prior literature related to the phenomena of interest that can benefit from further description, directed content analysis is indicated (Hsieh & Shannon, 2005). NVIVO (9) was employed to assist in the analysis and facilitate data storage. Three research team members working independently read through, reviewed, and coded each transcript. Three final emergent themes were identified, from HCWs and Haitian women focus groups, and agreed upon through consensus of the three research team members: (a) issues in accessing healthcare, (b) HCWs need of training in maternal-child health, and (c) health issues faced by mothers and infants. Within each group, saturation was achieved with these themes, as the limits of the phenomena were reached.

Data obtained from the questionnaires were entered into an IBM SPSS version 19.0 for analysis with 100% verification. All data were entered by two members of the research team and two research assistants trained in data entry by the PI of the project. Descriptive statistics were used to analyze the data.

Ethical Issues

This study was approved by the institutional review board of the University of Miami. All participants signed an informed consent form prior to participating in the focus groups or interviews. Participants were compensated 500 Gourdes (U.S. \$12.5) for travel and time expenses, an amount determined based on the recommendation of our partners in Haiti.

Results

Healthcare Workers Focus Groups

Thirty-nine (39) HCWs participated in four focus groups conducted in six towns in the South of Haiti: Le Cayes, Aquin, Saint Louis du Sud, Cavaillon, Maniche, and Ile a Vache. They ranged in age from 23 to 52 years with a mean age of 33 years. Participants included 16 nurses, one nurse-midwife, three physicians, 12 certified auxiliary nurses (CANs), one community healthcare worker, and five personnel from other specialty areas (e.g., laboratory and pharmacy technicians).

Three major themes related to maternal-child needs in the area were included in the qualitative analysis: (a) issues in accessing healthcare, (b) HCWs need of training in maternal-child health, and (c) health issues faced by mothers and infants.

Issues in Accessing Healthcare

All participants agreed that accessibility and transportation are significant issues in providing care to mothers and infants, especially for those who live in rural areas. People in the towns have difficulty accessing the health centers for different reasons, including the lack of roads, the poor condition of existing roads, and minimal public transportation. In cases of obstetric or neonatal emergencies, health centers have few or no ambulances to

transport the mother and/or infant. The island of Ile a Vache faces unique obstacles to access of care. To reach the closest hospital, located in Les Cayes, mothers, infants, and healthcare providers must take a 30-minute boat ride. In an emergency, a mother must wait for a boat to come from Les Cayes to transport her to the hospital there. Moreover, transportation within the rural island community is by mule, making it even more difficult to transport a pregnant woman or an infant in need of emergency services. One healthcare worker observed that:

“Also, most of the time they [mothers] don’t have money to rent a boat that could take them to Les Cayes..... when for a reason or another, we [HCWs] can’t do a delivery properly, we used to send the patient [mother] to Les Cayes.now we can’t do that because our boat ambulance is broken.”

Other towns must contend with environmental issues as well: “The area of Melon is in the middle of two rivers. When they are in flood, it’s very hard for the women who are going into labor to reach the clinic because they can’t cross the rivers.” And for the women who, “... live far in the mountains. They might not be able to find a man to transport them on a chair to the clinic.” And again, “The road that leads to the clinic is not good at all. So, vehicles don’t use it.”

Healthcare Workers Need of Training in Maternal-Child Health

Healthcare workers across the four focus groups requested training in maternal-child health to improve health outcomes, with some mentioning that they have only basic training in this area. Nurses, nurse midwives, and physicians requested advanced training in high-risk and emergency maternal-child healthcare. The need for more nurse midwives and the need to train CANs in maternal and infant care were discussed by the participants; maternal-child care in rural areas is provided by nurses and CANs with no training as nurse midwives, with a significant portion of the care provided by lay birth attendants also called *matrons* in the Haitian community.

It is important to note that there are only nine nurse midwives in the entire South of Haiti, and all but one work at hospitals and not at community health centers. Regarding the training of *matron* HCWs stated, “The *matron* who is well trained will tell the mother about the importance of the follow up after the delivery. The one who is not trained will not tell anything to the women.” Additionally, a healthcare worker noted, “But if a well trained *matron* did the delivery she will tell the mother to go to the hospital with the baby if there is a complication. If the *matron* is not well trained, she will tell the mother that the baby’s sickness is due to a supernatural cause”.

In another focus group, a healthcare worker noted, “The *matrons* who are not trained cut the baby’s umbilical cord with non-sterilized instruments.”

Healthcare workers stressed the importance of incentivizing lay birth attendants to bring women to the health centers or hospitals to receive prenatal, labor, and delivery care. They emphasized the need to train lay birth attendants, the majority of whom do not have formal health training. Most lay birth attendants are trained by family members who also work as lay birth attendants, and who have limited knowledge of how to manage complications

during labor, delivery, and the postpartum phase. One HCW noted, “A healthcare professional will educate you, and tell you to come back with the baby in a month and a half. She also will do a checkup in order to find out if you are anemic, if your blood pressure is high, and if you are healed, but if the *matron* is not well trained she will never tell you to go to the hospital.”

Health Issues Faced by Mothers and Infants

Healthcare workers discussed the health issues faced by women in the region during pregnancy, delivery, and postpartum; these include anemia, infection, hemorrhage, and preeclampsia/eclampsia. They also addressed health issues that affect infants, including prematurity, low birth weight, infections, umbilical cord tetanus, and diarrhea. Also discussed were complications from abortions (e.g., infection and hemorrhage), and the need for comprehensive school-based sex education for girls and boys, as schools do not provide sex education: “You should educate the teenagers, talk to them about sexual relationships, and advise them to use condoms.” Another participant noted, “There are girls who have their period since nine years old. If they start having sex early, they can get pregnant. Since they don’t want their parents and their schoolmates or teachers to know about it, they try to find a way to get rid of the fetus. When they talk to their friends about that, they advise them to do an abortion.” Another noted, “The girls! They don’t think before having sex. They just want to have fun. When they get pregnant, they get scared and that’s when they want to do abortion.”

Haitian Women Focus Groups

Forty women (40) from the community participated in four focus groups of 10 participants each. They ranged in age from 19 to 56 years, with a mean age of 32 years. Twenty-nine (29) women had a partner. Twenty-four (24) resided in rural settings while 16 lived in urban settings. Level of education ranged from grades two through eight, with a mean grade of 3.79.

The qualitative analysis included two major themes related to maternal-child needs in the area: (a) issues in accessing healthcare, and (b) health issues confronted by mothers and infants.

Issues in Accessing Healthcare

The women expressed concern about the availability of healthcare providers. Because most community health centers are open Monday to Friday from 9 a.m. to 5 p.m. and cannot be accessed at other times, the women requested extended hours for overnight emergency services. They also discussed the absence of appropriate maternal-child care resources (e.g., the lack of vitamins, antibiotics, laboratory tests, food supplementation) in the health centers. The women requested that the health centers focus on community outreach, as accessibility and transportation were significant issues for all participants, especially for those living in rural areas. To address this problem, the women suggested a mobile clinic that could go into the community: “Long time ago, there used to have mobile clinics with physicians, nurses, CANs. We don’t have that anymore.” Additionally, one woman said, “It would be great if you could come back with mobile clinics. They would take care of women

who live in the remote areas.” Other suggestions included “Build [ing] more clinics in the rural areas; hire health agents and healthcare professionals to give primary care to pregnant women.” Another noted, “In order to deliver better services, there should be doctors and nurses available all the time at the hospital. Sometimes you arrive at the hospital and there is no one to take care of you. I believe there should be more medical personnel.” Another participant added, “The nurses and physicians need more material in order to work more efficiently. For example, there should always have gloves available at the hospital. Sometimes they ask patients to go buy their own gloves. That should never happen.”

The women stated that they prefer to use lay birth attendants instead of healthcare professionals because the cost is lower and can be paid over time, and because giving birth at home allows their own mothers and other women in the family to be present to assist them: “Some women would like to go to the clinic, but they don’t have the economic means that would allow them to do so.

They prefer to call a *matron* to do the delivery because she is closer and more affordable.” Another noted, “The service offered by the *matron* is more affordable. Furthermore, if you are the *matron*’s friend you don’t have to pay all the money right away when she does the delivery. You can make the payment two or three months later. At the clinic it’s different.”

Participants also mentioned that nurses and physicians do not know “how to take care of them.” In light of these comments, it is important to note that four of the six target towns lack nurse midwives who could provide care to mothers and children.

Health Issues Faced by Mothers and Infants

The women discussed the most common health problems that affect mothers during pregnancy, delivery, and the postpartum phase (e.g., infection and anemia) as well as other health issues (e.g., abortion, tuberculosis, cholera, and HIV). The most common infant health problems discussed in the focus groups were stomach aches, fever, diarrhea, tetanus, eye problems, umbilical cord infections or bleeding from the umbilical cord, and diarrhea: One woman observed, “Sometimes, in the environment where the baby lives, the air is polluted; which makes it difficult for him to breath.”

The women also discussed family planning services, many saying it was common for partners to either refuse to allow or to prevent women from accessing and using different birth control methods, often for religious reasons: “They [men] want to have as many children as they can. Those who are Christians don’t want their wives to participate in this program. They say it’s against their religious beliefs. It’s forbidden by the church.” Another stated, “Some men don’t want their wives to do planning because they think that planning will encourage them to have sex with other men.” Another participant added, “They say if God wants you to have ten children, you must have ten children.”

Haitian Women Interviews

Forty women from the community participated in individual interviews with Haitian research nurses. They ranged in age from 22 to 49 years, with a mean age of 31.78 years. Sixty-two point five percent (62.5%) of the women lived in rural settings while 37.5% lived

in urban settings. Eighty-seven point five percent (87.5%) had a partner. Level of education ranged from grades 1 through 8, with an average grade of 3.7 years of education. Seven participants were from Les Cayes, 9 from Maniche, and 8 each from Aquin, St. Louis du Sud, and Cavaillon.

Family Planning

All participants had at least one child, with the number of children ranging from 1 to 9. Thirty percent (30%) of the sample was 18 or under at the time of the first pregnancy, and 35% stated their first pregnancy was unplanned. When asked if they were currently taking or had previously taken steps to prevent pregnancy, 72.5% responded “yes.” The most frequently cited form of birth control that participants used was injectable contraceptives (26%). Only one participant used male condoms. When asked if they wanted more children, 57.5% said they did not, 27.5% said they wanted more children but not in the near future, and 12.5% were undecided. The most common sources of information about family planning were healthcare providers (85%) and friends (57.5%).

Prenatal Care and Deliveries

Twenty-five percent (25%) of the women had a preterm labor in some of their pregnancies. Forty-two percent (42%) had seen a nurse during their most recent pregnancy. During their first delivery, 50% were assisted by a lay birth attendant, 20% by a nurse, 17.5% by a physician, and 2.5% by CAN. Sixty-five percent (65%) of these deliveries took place at home. During their most recent delivery, 52.5% were assisted by a lay birth attendant, and 60% had given birth at home.

Postpartum Care and Breastfeeding

The majority of women followed up with lay birth attendants postpartum (38.9%), followed by nurses (30.6%), physicians (19.4%), CANs (8.3%), and a combination of providers (2.8%). Thirty-five percent (35%) stated that they began breastfeeding immediately after giving birth, 10% began within hours of giving birth, and 52.5% began within days of giving birth. The duration of breastfeeding ranged from 8 days to 36 months, with the majority breastfeeding for 24 months.

Forty-two percent (42%) gave their newborn something to drink other than breast milk within the first week of birth, including plain water (7.5%), sugar or glucose water (10%), gripe water (its ingredients vary, and may include alcohol, bicarbonate, ginger, dill, fennel, and chamomile) (2.5%), sugar-salt water solution (2.5%), infant formula (7.5%), infant formula with sugar or glucose water (5%), and infant formula with sugar combined with gripe water (2.5%).

HIV, Condoms, and Sexual Debut

Seventy percent (70%) of the women reported that they had not been, or did not know if they had been, tested for HIV during their most recent pregnancy. Of these, 52.5% were not provided information about HIV prevention, 32.5% were not provided information about HIV testing, and 37.5% were not offered HIV testing. Sixty percent (60%) of the sample reported a sexual debut at age 18 or earlier, with 16 being the most frequent age reported

(15%). Eighty-five percent (85%) of first-time sexual encounters did not include condoms. Although 12.5% of participants' current partners had an additional known partner, 92% of the women reported that they did not use condoms in their most recent sexual encounter.

Intimate Partner Violence

When assessing attitudes and beliefs about violence, participants were asked a series of questions that targeted when they believed intimate partner violence was justified. Forty seven point five percent (47.5%) of respondents said a husband was justified in hitting or beating his wife if she argued with him, 32.5% said he was justified if she neglected their children, 25% said he was justified if she went out without telling him, 17.5% said he was justified if she refused to have sex with him, and 12.5% said he was justified if she burned their food.

Discussion

The study findings contribute to the knowledge base regarding maternal-child health needs in the South of Haiti. Given the absence of research concerning the experiences of mothers and infants in Haiti, gathering this information directly from HCWs and Haitian women is essential in order to develop programs to improve maternal-child health. Needs and barriers related to maternal-child health exist at multiple levels in Haiti, from households to health services, and throughout different political and physical environments.

Improving the health care system by incorporating programs based on the needs of the community is a critical component in reducing maternal mortality and improving the general health of Haiti. There is clear consensus that a strategic vision, including political commitment, human capital development, financial resources, research, and evidence based interventions is needed to improve the health of mothers and infants in developing countries such as Haiti (Laditka, Laditka, Mastanduno, Lauria, & Foster 2005; Filippi et al., 2006; Costello, Azad, & Barnett, 2006; Victoria & Rubens, 2010).

Having skilled attendants present at all births is the single most critical intervention for ensuring safe delivery of infants and safeguarding motherhood, because it makes the timely delivery of emergency obstetric and infant care more likely when life-threatening complications arise. Skilled attendants include midwives and other professionals with midwifery skills (e.g., nurses, nurse-midwives, and physicians) (United Nations Population Fund, 2011).

Findings from this study provide a starting point for motivating the scientific community to conduct further research with Haitian women with a focus on maternal-child risk and to develop feasible culturally appropriate strategies to contribute to mother and infant health in Haiti. This will contribute to the Millennium Development Goal for maternal health (MDG-5), which is to reduce maternal mortality by two-thirds by 2015.

Limitations

This study targeted a subgroup of the Haitian community women and HCWs, who resided in the South of Haiti; therefore, findings cannot be generalized to other regions of Haiti.

Conclusion

The results of this study, the first study post-earthquake to investigate the maternal-child health needs in the South of Haiti that incorporates the opinions of Haitian women and HCWs, can help fill the gaps that exist in the knowledge, policy, practice, and research related to mothers and infants' health issues in Haiti.

In addition, these findings can motivate the scientific community to conduct further research with members of the Haitian community, such as community leaders, lay birth attendants, and families to provide a range of perspectives when trying to understand the health needs confronted by mothers and infants and when attempting to design culturally appropriate prevention strategies. This study provides a valuable contribution to the development of feasible strategies to improve maternal-child health in the South of Haiti. The feasible strategies are as follows: 1) create a nurse-midwife program offering a postgraduate certification for nurses with a comprehensive, clinically-current, competency-based curriculum; 2) develop and implement maternal-child health training focused on morbidity-mortality prevention and specifically designed for the lay birth attendants; 3) implement training for HCWs in obstetrics and pediatrics complications; 4) develop partnerships between lay birth attendants and nurse-midwives to work collaboratively to improve the health of mothers and infants; 5) implement breastfeeding training programs for HCWs and mothers to increase exclusive breastfeeding and thus decrease infant diarrhea and malnutrition; and 6) develop women's health programs to prevent intimate partner violence and to increase condom use to prevent HIV.

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