Strategies for increasing utilization of maternity services in Njeru, Uganda

By Ruth C White and Katherine Camacho Carr

Abstract

This paper describes the success of an ongoing community-based maternal and child health project in Njeru, Uganda. The project is a collaboration between the Njeru Town Council and an American university's social work programme and College of Nursing. The goal of the programme is to increase utilization of clinic-based maternity services i.e. pre-natal care and skilled attendant at delivery. Using community mobilization, education and capacity-building, community health workers (CHWs) were trained by the university-based nursing professors to educate the community about safe motherhood practices. Traditional birth attendants (TBAs) were trained by a nurse-midwife in techniques to reduce infection and maternal haemorrhage, the two main causes of maternal morbidity and mortality in the region. Over a 2-year span the clinic has doubled utilization of pre-natal services and more than doubled utilization of clinic-based labour and delivery services, resulting in more births at the clinic than by TBAs in the clinic's catchment area—an outstanding achievement in a country where more than 70% of women are assisted at birth by an unskilled attendant, including TBAs.

According to the Safe Motherhood initiative (SMI) (2006) a woman dies from pregnancy and childbirth complications every minute of every day, with 99% of these occurring in the developing world. This makes pregnancy-related complications one of the leading causes of death and disability for women aged between 15 and 49 years. Newborn health is also linked closely to the health of the mother during the pre-natal period, labour and birth, and postpartum. The death of a woman impacts on families and communities taking into account her care-giving and economic responsibilities, especially in low resource settings. In the past 10 years research has shown that small-scale, cost-efficient interventions can significantly reduce the health risks of pregnancy, childbirth and the postpartum period, with the key ingredients being access to health care during pregnancy, childbirth and the postnatal period; a skilled birth attendant; as well as emergency obstetrical services (World Health Organization, 2005). This paper describes the methods, outcomes, and implications of a needs assessment and small-scale intervention to improve the maternal and infant health of the semi-rural community of Njeru, Uganda.

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Uganda is located in Eastern Africa, with a population of 24.7 million people and an annual growth rate of 3.4% (Ministry of Finance, Planning and Economic Development, 2006). Unlike many of its African counterparts, Uganda has had rapid and sustained economic growth over the past decade, which has resulted in significant declines in poverty in both urban and rural areas (Ssewanyana and Younger, 2005). However, according to the Ministry of Finance, Planning and Economic Development (2006), from 1995 to 2000 there was an increase in infant mortality from 81 to 88 deaths per 1,000 births, which maintained Uganda's status as having among the highest infant mortality rates (IMR) in Africa and the world.

According to Statistics from the United States (USAID) in 2004 maternal mortality is also high at 505–880 per 100,000 live births (United States Agency for International Development (USAID), 2006). Children under five also have a high mortality rate of 118–141/1 000 live births (Ssewanyana and Younger, 2005). Life expectancy is 45 years of age.

These mortality and life expectancy rates compare to African countries with near collapsed economies or in the midst of severe conflict, with little or no social service infrastructure Ministry of Finance, Planning and Economic Development (2006). During the same period, maternal mortality had a minor reduction from 527 to 505 deaths per 100 000 live births. These indicators are important measures of success of the country's Poverty Eradication Action Plan (PEAP) and therefore present a challenge to the economic indicators that are not reflected in the most basic measures of the population's well-being. The government attributes this high rate of maternal and infant mortality and increased morbidities to lack of access to care, chronically under-funded health centers that result in poor quality care with limited access to drugs and supplies (Ministry of Finance, Planning and Economic Development, 2006).

Reducing maternal and infant mortality and morbidity are two Millenium Development Goals (MDGs) that are often linked with poverty reduction, which is another of the eight MDGs (United Nations, 2006). Although Ssewanyana and Younger (2005) argue that improvement in immunizations and general health care delivery services can lead to an improvement in infant mortality rates, they argue that the MDG for infant mortality cannot be achieved by Uganda, even under the most optimistic scenarios due to inadequate human, fiscal and material resources.

The Ministry of Finance, Planning and Economic Development (2002) has established a five-pronged approach

to improving maternal and infant mortality rates:

- Malaria control
- Sanitation
- Community development
- Family planning
- Improving the quality of health care services.

Major causes for infant mortality include:

- Prematurity and low birth weight (LBW)
- Malnutrition
- Starvation
- Diarrhea and dehydration
- Neonatal tetanus and HIV/AIDS.

Major causes of maternal mortality include:

- Hemorrhage (25%)
- Infection (15%)
- Hypertensive disorders (12%)
- Unsafe abortion (13%)
- Obstructed labour (8%)

Major causes of maternal morbidity include:

- Anaemia
- Sexually transmitted diseases and HIV
- Malaria
- Diabetes
- Obstetric fistula (USAID, 2005)

Gender issues are also a factor that affects women's health in Uganda. In this patriarchal society, women bear the burden of agricultural and household labour and have very little of the decision making within the home. There is also heavy pressure placed on girls to marry young and, once married, to produce many children. In fact, 70% of births occur to girls less than 20 years old. Lastly, teenage girls are often the head of orphaned households and are forced to become sex workers to provide financial and other resources for themselves and younger siblings left in their care (Ministry of Finance, Planning and Economic Development, 2006).

Trained birth attendants (TBAs) are lacking in Uganda with only 38% of births attended by a trained health care worker. Over 60% of births are attended by a TBA, who may or may not be a skilled birth attendant (USAID, 2005).

Maama Omwaana Safe Motherhood Initiative

The Maama Omwaana Safe Motherhood Initiative (MOSMI) is a maternal and child health improvement project based in Njeru, Uganda; a town of 53000 people living in 36 villages near the convergence of Lake Victoria and the Nile River. Maama Omwaana means mother and baby in Luganda—the most widely spoken indigenous language in Uganda. This community is located in a district where more than 500 women and 8000 children die for every 100 000 deliveries (Mukono District Health Management Information System, 2006).

MOSMI was founded in the summer of 2004 by Mary Mukajanga Nkalubo, an Njeru-based retired public health nurse and midwife, as well as a member of the management committee of Namwezi Health Center, and Ruth White, her American-based daughter-in-law. MOSMI is managed in Njeru by Ruth Nanziri, Clinical Officer in Charge at Namwezi Health Center, where the project is based. Ephrahim Mweru, retired Health Inspector for Njeru, serves as community mobilizer at the organizational level. Partners in the project include Seattle University School of Social Work and College of Nursing, Njeru Town Council, Jinja School of a public training facility, Jinja Hospital – a regional referral hospital, and St. Francis Health Services (which serves more than 7000 HIV positive clients) and the number of participating groups is growing as the community mobilizes and organizes around this issue.

As stated by the Ministry of Finance, Planning and Economic Development (2006:2):

> *'sustained reductions in infant and maternal mortality rates requires a series of coordinated, multi-sectoral interventions'.*

This coalition of community partners can move forward in a coordinated, sustained effort to identify needs, obtain resources and implement community-based interventions to reduce the maternal and infant mortality and morbidity in Njeru.

The goal of the project is to improve quality, access and utilization of maternal and child health services in Njeru, with a focus on antenatal care, use of a skilled attendant at birth and appropriate utilization of emergency obstetrical procedures. This combination has been shown to improve maternal and infant outcomes (White Ribbon Alliance for Safe Motherhood, (2006). Skilled health personnel or skilled attendants include doctors (specialist or non-specialist) and/or persons with midwifery skills who can diagnose and manage obstetrical complications, as well as normal deliveries. Skilled health personnel may also have additional skills related to family planning and gynaecology.

The primary objectives of MOSMI are as follows:

1) Promote the health of mothers during pregnancy in the Njeru Town Council area
2) Increase the number of women seeking skilled care at delivery
3) Reducing the rate of maternal and infant mortality and morbidity.

The promotion of a mother's health during pregnancy involves more than traditional pre-natal care and blood pressure checks. In equatorial Africa it involves malaria prophylaxis and use of medicated bed nets. Tetanus vaccination of pregnant women is another important aspect of pre-natal health care to prevent neonatal tetanus. In order to increase the number of women seeking skilled care at delivery, a number of elements must be put into place, including TBA training, community-based preparedness for birth, and linkages to the referral centers where emergency obstetrical care may be available. Strategies focus on:

1) Resource mobilization
2) Community organization
3) Community education.

Measurement of the objectives of the programme include two quantitative performance indicators articulated by the Ministry of Finance, Planning and Economic Development (2002) to monitor performance of the health sector: deliveries in a health unit and outpatient utilization per capita. In particular, MOSMI focuses on utilization of antenatal services, use of skilled birth attendants and access to emergency obstetrical care. Nationally, outpatient utilization remained stagnant dur-

ing the 1980s but increased slightly during the 1990s.

Community assessment and mobilization

In the summer of 2005 our team from Seattle University met with 36 community health workers (CHWs) in Njeru to explore health issues of concern related to maternal and infant health in the community. Because of limitations of time and resources we could conduct only one meeting of the CHWs. A community-empowerment model was employed, which required the team to respond directly and immediately to expressed training and information needs of the group. It should be noted that these CHWs were community volunteers. They had received 6 months of training from nuns who were nurses and teachers and in return they were required to volunteer at least 1 hour per week in the communities. Some had other jobs, while others dedicated themselves to the work on an almost full time basis and played a significant role in community mobilization around various issues including health.

Table 1. Summary of community health workers' discussion of maternal and child health priorities

Problems	Issues	Solutions
Delivery at home	· Anaemia and hemorrhage · Poor care of umbilical cord · Premature baby kept at home · Herbal medicines that accelerate labour and lead to ruptured uterus · Failure to recognize presentation · HIV positive mother · Adolescent mothers · Lack of referral by TBAs · Lack of transport to health facility · Culture that prefers home delivery even if antenatal care received at facility · Women do not want to be 'cut' or operated on	· Educate community about health issues · Promote antenatal care
Unclean environment	· No running water · No boiling of water · Minimal washing of hands	· Promote handwashing · Encourage landlords to build more latrines · Educate community on use of latrines · Use dry banana leaves and burn · Use pine for bad smell
Failure to breastfeed	· HIV positive mother · Working mothers · Poor nutrition and little drinking water · Men want to have sex soon after delivery	· Encourage men to support women in breastfeeding · Cosmetic concerns · Educate community on importance of breastfeeding

The CHWs met in a traditional, thatch-roofed building, where the training would occur. Although the country's official language is English, many people with an elementary education still find it easier to communicate in Luganda. Therefore, simultaneous translation was provided by Mary Mukajanga Nkalubo—the cofounder of MOSMI. At times the large group was divided into small groups of between five and seven participants for discussions. These groups were organized by geographic area: North, West, South, and East Njeru, with one formed by late arrivals from various areas.

When the small groups reported back to the larger group on general concerns related to health the list included:

- HIV/AIDS
- Ignorance
- Malaria
- Poor sanitation
- Lack of awareness.

Maternal and child health issues highlighted included:

- Nutrition
- Sanitation
- Lack of child spacing
- Home delivery with a family attendant
- Unclean environments

The three priority areas selected by the group were women giving birth at home (and what to do about the umbilical cord and placenta), hygiene (environmental and specific to birth) and lack of breastfeeding.

In response the facilitators of the training had the group return to their small groups to discuss possible strategies for intervention. These were listed on sheets of newsprint on the wall and the results are outlined in *Table 1*.

With regard to delivery at home, community health workers reported that problems associated with this practice included:

- Anaemia and haemorrhaging
- Inadequate care of the umbilical cord
- Obstructed labour
- Use of herbal medicines that often lead to ruptured uterus
- HIV positive mothers
- Adolescent mothers
- Lack of referral by TBAs
- Lack of transport to health facility when emergency services are needed
- Inability to pay for a TBA or midwife.

Training focused on empirically-based information on hygiene, breastfeeding and promotion of nutrition. Contraceptive information and the benefits of antenatal care were also briefly discussed to support the CHWs' efforts to mobilize and educate the community. Cord care was raised as an issue with regard to hygiene and this topic received specific attention with a demonstration on proper cutting and care of the umbilical cord.

CHWs were encouraged to share this information with pregnant women. The CHWs also expressed concern that they were lacking credibility within the community as agents of change, as they had no authority from the city administrators to enforce regulations with regard to environmental hygiene. They requested some kind of official badge that would identify them as representing the public health system.

The Seattle University team promised to explore feasibility of such badges with Njeru officials.

In addition to the CHW session, the team met with twelve traditional birth attendants (TBAs) in the board room of the Njeru Town Council. Again the community empowerment model was employed, which required the team to respond directly and immediately to expressed training and information needs of the group of TBAs. The training was concurrently translated by Margaret Hasasha, a well-respected and highly active CHW with two years' nursing training. The TBAs presented the mother and baby problems they handled most frequently and dictated the topics about which they wanted more information. The TBAs were asked to list problems they experienced with mothers or infants during the pre-natal period, labour and birth and the postpartum period. The list included hemorrhage, early delivery, cord care, seizures and other symptoms of pre-eclampsia, among others. Each issue was addressed with specific strategies for intervention and/or recommendations for referral. With regard to haemorrhage, which is the leading cause of maternal death in Uganda, a demonstration of external uterine massage was conducted. TBAs did not have any training in the active management of third stage or utilize any anti-hemorrhagic medications. In addition to haemorrhage, the TBA's asked about slow labour, care of the umbilical cord, hygiene and ways to recognize hypertension prior to an eclamptic seizure.

Implementation year two: 2006

In 2005, CHWs were given a mandate to mobilize the community around the issues they raised in the training and to use the training to educate the community. In early 2006, each CHW received a laminated name badge with the logos of Njeru Public Health Department and Seattle University at the top and the title 'Community Health Worker' on the bottom. According to Namwezi clinic staff, this greatly increased morale among the group and increased their activity and presence within the community.

In 2006 the main strategy of the initiative continued to be community mobilization and education using community health workers (CHWs), but this was expanded to include community-based organizations (CBOs), health institutions, village women's groups, and a music, dance and drama youth development and performance group called 'Bright Actors'.

In 2006 a manual adapted from 'Awareness, Mobilization, and Action for Safe Motherhood: A field guide,' published by the White Ribbon Alliance for Safe Motherhood was used to train forty CHWs and fifteen representatives of CBOs in Maama Omwaana's safe motherhood messages. Prevention and danger sign messages were printed on small (3 by 5 inches) laminated cards in English with copies in Luganda also available. (The latter were on double-sided 8.5 by 11 inches due to the longer translation into Luganda). These cards were titled, 'The Maama Omwaana Safe Motherhood Card', with the subtitle: 'Preparing for birth because every pregnancy should result in a healthy mother and baby' as they promoted planning for a healthy labour and birth. Prevention messages presented on one side of the card were: 'good nutrition with a focus on anemia prevention, malaria prevention, tetanus toxoid immunization, good hygiene, HIV/STD prevention through use of a condom, delivery with a skilled attendant, and a plan for transportation with questions such as: 'Who will take me?'; 'How much will it cost?'

On the other side of the card, danger signs focused on both the pre-natal and the labour/delivery period. During the pre-natal period danger signs listed include:

- Severe headaches
- Bleeding
- Vision problems
- Vomiting/dehydration
- High fever

During the labour and delivery period danger signs for the mother listed are:

- Early labour
- Long labour
- Excessive bleeding
- Dehydration/severe vomiting.

Danger signs for the infant are:

- Pre-term delivery
- Breathing difficulties
- Jaundice (yellow coloring)
- Bleeding from cord
- Fever or not eating
- Lots of mucous or fast breathing.

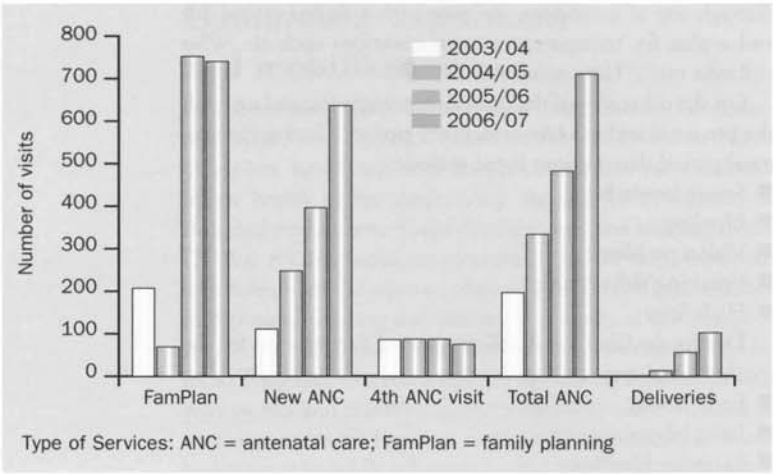
At the bottom of that side of the card is the question, 'What to do if you see these signs?' with the answer: 'Transport immediately to the next level of care. Or get medical attention if transport not possible'.

These messages were developed using the results of the discussions of TBAs and CHWs from the previous year. To support these messages, Seattle University donated two hundred birth kits containing cord tape, one-sided razor, a pair of gloves, a plastic sheet and an information card to be distributed to women who are least likely to use antenatal care of a skilled attendant at birth. The goal is to be able to provide each woman with a kit in her third trimester no matter where she goes for care, given that patients are often required to bring their own supplies to hospitals or to provide them when a TBA cares for them during labour. If any of the items are not needed they can return them to Namwezi to be used in clinic-based deliveries.

The objective for the participation of CBOs is to integrate consistent safe motherhood messages in their daily activities, when presented with women who are pregnant. Health and social services are accessed through various venues in Njeru. The list of CBOs who participated in the training included an adult education center, drug shop operators, HIV/AIDS care providers and women's groups, among others. Through their participation, women and their partners will be exposed to these messages even if they do not access a health facility specifically for maternal care.

In 2006, Maama Omwaana also celebrated their membership into the White Ribbon Alliance for Safe Motherhood with several events that brought the community together to learn about the safe motherhood message. In Kasanja village, a village of less than 2000 people, the Bright Actors—a group that uses music, dance and drama to educate—wore white ribbons while entertaining more than 300 people with

Figure 1. Namwezi Health Center Maternity Services, 2003–2007



Type of Services: ANC = antenatal care; FamPlan = family planning

a skit promoting antenatal care, good nutrition and delivery by a trained attendant. A 1-hour radio talk show featured a discussion of Maama Omwaana, safe motherhood, Namwezi Health Center services and the upcoming health fair which was to be the official launch of Maama Omwaana Safe Motherhood Initiative.

The first Annual Njeru Town Council/Maama Omwaana Health Fair, which received political support at all levels, brought together 12 exhibits from community-based organizations in health and social welfare, including clinic-based services, drug shop operators, women's groups and community health workers and more than 100 members of the community, who accessed health services such as HIV, blood pressure and diabetes testing and counselling. The chief guest, Dr Stephen Mallinga, Minister of Health, was absent but was represented by Dr Fred Katumba, Head of the Reproductive Health Section. All participants wore white ribbons. As the official visited each table, each agency did an oral presentation explaining their exhibits which focused on their health activities, with an emphasis on their offerings in maternal and child health.

Outcomes

In the 2 years of its existence, utilization of antenatal care and the use of a skilled attendant at birth has doubled at Namwezi health Centre, from 197 antenatal visits in 2003 and 2004 to 396 visits in 2005 and 2006.

This is striking in the context of a 10% increase in total outpatient visits in the same time period.

Deliveries at the clinic, attended by a trained midwife, for the July 2005 to June 2006 fiscal year (n=56) outnumber those of the traditional birth attendants (n=43) in the area: in an area where most births are attended by a relative or a traditional birth attendant.

Discussion

Through use of community empowerment methods, the Maama Omwaana Safe Motherhood Initiative has been able to show significant increases in utilization of maternal services within 2 years, and particularly in the past year, when community health workers had been mobilized. From anecdotal reports there has been no similar increase in utilization across the district. We plan to collect data across health facilities in the future to substantiate this information. There has also been no corresponding reduction in use of hospital based antenatal care services as reported by Mukono District in which Njeru is located.

We will acknowledge that having the 'blessing' and support (through donations of supplies, equipment and even curtains/sheets which were not previously available) of an American university may have contributed to the desirability of services at Namwezi Clinic, but the comparison to outpatient services in general reflects that there is an increased awareness of the importance of maternity services to a healthy mother and baby following birth that is not reflected in broader health service utilization trends.

We have not been able to follow up with TBAs to see how the training impacted their practice and there is no tracking system for referrals to see if they used the knowledge they gained to refer clients to higher levels of care as necessary. This is a limitation of the health service system as TBAs are entrepreneurs with limited official connection to the existing health care system. We plan to access the Health Management Information System of the Ministry of Health to examine whether the increase in utilization of maternity services in Njeru is reflected throughout the health care system, i.e. in private settings and/or the referral hospital. Good data collection is an area for future research and implementation as Maama Omwaana grows. Good data would also allow us to measure outcomes in the clinic's catchment area.

We expect that as MOSMI moves forward in the community and various community-based stakeholders, such as community health workers, traditional birth attendants and community-based organization in health and human services begin to organize, maternal and child health will become more visible in the town, in the district and at the Ministry level. The Coordinator of MOSMI hopes to get these organizations off the ground and establish regular meeting and reporting that will not only improve assessment of health-related activities in the area but improve collaboration and cooperation to solve health issues, as well as systemic and policy barriers to effective and efficient service delivery.

As requests for MOSMI come in from other areas in the district, there is a need to develop a standardized implementation strategy that allows for maximum flexibility across locales. We believe that the key to MOSMI's success to date is community ownership and leadership of the project. Visits from Seattle University only occur for 2 to 3 weeks once each year. In the meantime, the faces of the project are male and female members of the community who volunteer in the community and have gained the community's respect. The ideas, the issues and the strategies were determined by clinic staff at the very beginning of their relationship with Seattle University and by community health workers and traditional birth attendants as the project progressed. The budget is small (less than USD$10,000 in 2006), with a large proportion of it being related to travel costs for one USA-based staff to travel to Uganda.

Sustainability is therefore not limited by regular infusions of

cash from outside the country. The local leaders of the project are seeking local support for activities from service clubs such as Rotary, Lions, Kiwanis, and by one of the nation's largest employers located right in the community: Nile Breweries, which has also come on board MOSMI through their company-based clinic, which provides a wide range of health services to their employees but does not include labour/delivery. Seattle University collaborators will fundraise and seek donations of medical supplies and equipment that focus on maternal health with the hope that Uganda's plan for health system upgrades will eventually make such donations unnecessary. It should be noted that the 56 deliveries conducted between 1 July, 2005 and 30 June, 2006 were not dependent on Seattle University contributions. So although we have boosted access to supplies, clinic-based care does not require such inputs. The birth kits are primarily to give women the power to choose where they get care and know that they will have what is necessary to receive care in a hygienic environment and with some access to crucial life-saving knowledge.

The data in *Figure 1* suggest that although women are coming for pre-natal care, less than 20% of them deliver at the clinic. Further research is needed to find out why the women are not coming to the clinic to deliver as well as why there is no related increase in the number of women who make it to the fourth visit. In response to this data, community health workers are being trained to educate women about coming early to pre-natal care and following through on the visit schedule so that any early symptoms can be addressed. Delivery by a trained health professional is also the term we want to use so they do not confuse 'trained attendant' with 'traditional birth attendant'. Lastly, a wireless table-top phone was donated to the clinic and the number is being communicated through the community so that women who are delivering at home may call for assistance and advice.

Although there is no reason to believe that these findings occurred by chance, it is important to continue observing the data to ensure that this trend continues. It is also necessary to observe, in the future, whether similar interventions elsewhere result in the same findings.

Conclusion

National initiatives to improve health outcomes in heavily rural developing countries are by their nature, top-down initiatives designed by bureaucrats for implementation by local healthcare providers whose efforts are often hampered by socioeconomic and cultural factors which were not considered when these programs were being designed.

Expecting poor village women in labour to travel on bad or non-existent roads to a clinic on the back of a bicycle or motorcycle is asking a lot, with regard to her desire and ability to access pre-natal care and a skilled attendant at birth. Having community-based (i.e. home-based) maternity services may be a strategy that needs to be explored with regard to maternal services the way it has become institutionalized for HIV/AIDS care. Maama Omwaana is exploring how we can utilize the bicycles donated to the clinic to go beyond outreach in basic care and immunizations to include maternity care. We are also exploring the feasibility of a community-based training programme (Home Based Life Saving Skills) for TBAs, family members and women themselves related to basic maternal and infant life-saving skills.

Nursing schools, such as the Jinja School of Enrolled Comprehensive Nursing, have changed their training strategy to focus on community-based, rather than clinic-based nursing, so that interns are affiliated with a clinic, but spend most of their time in the community. Furthermore, their new model of comprehensive nursing training means that all graduates are both nurses and midwives ensuring that there will be more skilled attendants who can provide maternity services at the community level. With poor infrastructure and lack of money to facilitate transportation to the clinic, this is a timely strategy that will be reflected in higher utilization rates of maternity services and better outcomes for both mother and baby. As these students graduate with both nursing and midwifery skills, it is hoped that with an education, a bicycle and a bag, a home delivery will not mean an unsafe delivery. AJM

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Key Points

- **Among underserved populations, community health workers are a necessary plug to the 'brain drain' of more highly skilled health care professionals.**
- **Ground-up programme strategies provide an information and participation foundation for building successful community initiatives.**
- **To build capacity and maximize sustainability, 'outside' projects should be fully integrated within publicly funded health care systems.**
- **Low cost projects that focus on accurate and practical health information are very effective in changing health behaviours and promoting service utilization.**
- **Community-based, instead of clinic-based, skilled birth attendants such as midwives challenge the economic and structural infrastructure deficiencies that are outside the scope of most maternal and infant health interventions.**