International Midwife Assistance Report February 2011: Bed Nets

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PRESENTED TO: Against Malaria Foundation

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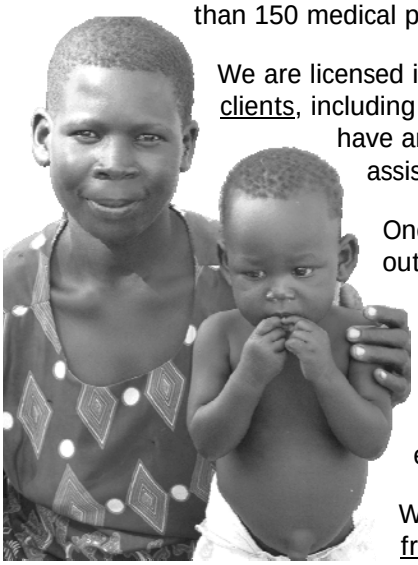
Introduction:

Teso Safe Motherhood Project, directed and funded by International Midwife Assistance of Boulder, Colorado, is a birth center and general medical clinic in the city of Soroti, Teso region, Uganda. We are open for medical patients (men, women and children of all ages) four days a week, and often see more than 150 medical patients per day. Our most frequent diagnosis is malaria.



We are licensed in Uganda to care for low-income people. All services are free to our clients, including drugs and injections to treat disease and maintain good health. We have an on-site dispensary staffed by a pharmacy nurse and nursing assistant.

One day a week, clinic staff travels to one of four villages to conduct outreach clinics. These villages are Lale and Aboket in Soroti, and Acowa and Ajeleik in Amuria. In the outreach clinics, upwards of 200 medical patients might be seen. The medical team consists of a medical doctor, Dr. Eriamu Nathan, and a comprehensive nurse, Apuret Morris. In addition, we frequently have the help of registered comprehensive nurses who volunteer their services while seeking employment.

We have laboratory services, and blood testing for malaria is performed frequently. Laboratory services are available in the outreach clinics. Six midwives are employed, and a birthing center is on site. The midwives have assisted as many as 30 women in a month to give birth. High-risk women are referred to Soroti Regional Referral Hospital, which is less than a mile from the clinic. The midwives do many more antenatal visits than is reflected by the number of births. Many women deliver at home, either due to preference or to the difficulty of finding transportation from outlying villages, and many deliver in the hospital. Up to 30 antenatal visits in a day or more are not unusual.

Each woman receives an allotment of food when she comes for an antenatal visit, usually a couple pounds each of uncooked rice and beans. She also will receive tetanus immunization as needed, iron and folic acid supplement, and treatment for medical conditions. The midwives are comprehensive nurses and are able to test and prescribe for malaria and other common diseases.

Each woman also receives an insecticide treated bed net for prevention of malaria at her initial antenatal visit. In 2010, there were 1,924 initial antenatal visits with bed net distribution and education about the use of a bed net to prevent transmission of malaria. In addition, 10 to 12 bed nets per week might be distributed to vulnerable persons, such as babies or young children who are frequently sick. The peak time for this distribution is during the rainy season when malaria outbreaks are at their highest level. It is estimated that 2,500 insecticide treated bed nets were distributed in 2010, including the 700 nets from Against Malaria which were distributed between October 2010 and January 2011.

Other clinic services are family planning, immunizations for children, and HIV testing. The family planning services have expanded dramatically since the summer of 2009 when the first dedicated family planning nurse was hired. People who are HIV positive are referred to other local agencies for treatment.

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Background:

This young patient at TSMP is suffering from malaria.

The Teso region of Uganda is part of sub-Saharan Africa, which accounts for 86 percent of the world's occurrence of malaria, and 91 percent of the deaths. (Source: www.who.int/topics/malaria, accessed Jan. 21, 2011). There are between 200 and 300 million cases of malaria worldwide each year and between one and two million deaths. Most deaths are caused by one of the four malaria sub-types, plasmodium falciparum, and occur among children under five in sub-Saharan Africa. The fact that repetitive infections do not produce an effective immune response is probably responsible for failure to develop a vaccine against malaria. Prevalence may reach 70 to 80 percent among children in hyper-endemic areas, like Teso, during the rainy season, which is typically March through May and October through December (Source: Cecil Textbook of Medicine, 22nd ed., vol. 2, 2004, pp. 2071-2073). Next to children younger than five, pregnant women are the next most-vulnerable population. Malaria can cause miscarriage, premature labor, and death unless treated promptly.

Transmission of malaria requires an intermediate host, a mosquito, and a human reservoir of the disease. The anopheles mosquito, which is the host in sub-Saharan Africa, is active from dusk to dawn. Thus the distribution of insecticide treated bed nets is a promising method of malaria control.

The Teso Safe Motherhood Project is located in the Soroti District of Uganda.

The Teso region is in Northeastern Uganda in a savannah area with a high water table and naturally occurring wet-lands. The elevation is between 1,500 and 2,500 feet, so while the temperatures are not so excessively hot as might be found in the coastal regions of the tropics, the climate is perfect for the anopheles mosquito and for transmission of malaria. In the higher elevation areas of Africa, very little malaria is found if any. We are an area in which malaria is hyper-epidemic (90 percent endemic), and it occurs throughout the year, not only during the rainy season, although peak incidence of malaria occurs when it is very wet. We are just a little north of the equator, which runs through southern Uganda.

Treatment and prevention of malaria at Teso Safe Motherhood Project:

The 700 bed nets from Against Malaria were received in October 2010 and were picked up from Kampala by the clinic's finance officer, Oteger Martin. No difficulties occurred in this process. Kampala is around 350 kilometers from Soroti, which is a six-hour drive. We go to Kampala for most of our drugs and medical supplies, and a truckload of supplies is picked up from there every other month.

The insecticide treated bed nets received through this grant were essentially folded into an ongoing malaria treatment and prevention program. Treatment is an integral part of medical services here as elsewhere in sub-Saharan Africa, where it is estimated to consume as much as 40 percent of the public health budget (Source: *The winning formula to beat malaria*, Health and Social Services Dept. of the International Red Cross and Red Crescent Societies, p. 7). It would be impossible to ignore malaria, which is found in one after another of our patients, both medical and antenatal, and is seen many times on every clinic day year round. Boxes and boxes of CoArtem, Duact, Artemethur, Quinine, and other anti-malarials are dispensed daily and weekly. On any given day, we also likely have several staff members taking medicine for malaria.

Our malaria prevention program has been an outgrowth of our malaria treatment program, and has consisted largely of education and of ITN (insecticide treated net) distribution. Antenatal visits always include the question, "did you sleep under a bed net last night?" Fansidar, for prevention of malaria, is given two times during each pregnancy.

Continuing education for clinic staff has also been part of malaria prevention, and in 2010 we received a full afternoon "Update on Malaria" from the local department of health. However, we have never had an on-going assessment of the level of effectiveness of malaria treatment and prevention.

Lessons Learned:

The Against Malaria bed nets were folded into our usual bed net distribution process with little, if any, extra work. It is gratifying to receive help from Against Malaria in our endeavors to bring good health to the population we serve. Also, the processes of applying for the grant and of reporting on the grant raised awareness of malaria prevention among our staff and increased our knowledge of the place bed nets play in this process. For instance, we learned we need to teach our patients more about the proper care of their bed nets to avoid their quick deterioration.

IMA's Executive Director Jennifer Braun and Board Member Dr. Claudia Wyrick visit the relocation camps where TSMP's patients live.

However, the length of time it took the bed nets to arrive was a problem. Because we were expecting them to arrive "any day," there was a long period of time that we went without a bed net supply. Retrospectively, at that point we should have just gone ahead and bought some bed nets locally, as usual, and merged them with the supply from Against Malaria when they arrived. Also, the time it took to apply for the grant and to report on the grant was somewhat excessive compared to the monetary value received. Conducting the bed net survey and composing the report took many hours of staff time, and we have a very busy clinic. So writing and research happen after a long day at work. IMA volunteers also have other projects while in Africa, for instance teaching continuing education classes at the regional referral hospital. Nonetheless, value was achieved in the research and thought that was taken to compose the report, take the pictures, and work with the pictures to present them in a usable form in our report.

Uganda is a predominantly rural country.

Conducting a Survey of Homes for Bed Net Use:

On Jan. 24, 2011, volunteer Marion Toepke and driver/translator Ochen Richard visited Asianut Camp on the outskirts of Soroti to evaluate bed net use among the many clients of TSMP maternity services who live there.

Camps for internally displaced persons were started in Soroti in 2003 at which time there was an invasion by the insurgent Lord's Resistance Army. The outlying farms and villages were attacked; Uganda is a predominately rural country. People were killed, their animals were killed or driven off, their food stores were stolen and their houses and storage facilities were burned. Thousands of people fled to Soroti for protection and constructed dwellings of local materials with thatched roofs.

The IDP's (internally displaced persons; they are not legally called refugees because they have not crossed an international border) were in need of food and medical care; many died of malnutrition and infectious disease. The clinic that became Teso Safe Motherhood was started to provide medical care for these people by a group of concerned Canadian and U.S. nurses. By 2007, the IDP camps remained but with reduced numbers of people, and there was a great need for antenatal care and birthing services. More than 80 percent of the people living in camps are women and children. The initial founders of the clinic were overwhelmed with the need for medical care and contacted International Midwife Assistance (IMA) in 2006 to ask for help with a maternal program. In 2007, IMA assumed full responsibility for the funding and direction of the clinic. In 2009 Teso Safe Motherhood Project (TSMP) was incorporated as a Ugandan NGO and shares management with IMA. All paid staff are native Ugandan citizens. In 2010, IMA had a volunteer from North America or Europe on site eight out of 12 months, providing oversight, consultation, staff development, and other services as needed.

IDP camps have turned into "relocation camps," and the vulnerable and impoverished people remain in Teso. Many displaced persons have been incorporated into the population of subsistence farmers and fishing people who live west of Soroti; Lake Kyoga is very near in that direction. These people have limited access to medical care and live on very meager incomes. For this reason, Teso Safe Motherhood Clinic remains busy and vital. Asianut Camp was chosen for our visits as it was known many mothers who have come for antenatal visits and delivered at the birth center live there. It would be possible to visit the homes of 30 women who had been given nets in an afternoon because we wouldn't need to drive around in rural areas with few if any road signs, searching for particular homes.

Many of our patients are orphans – older siblings caring for babies. Girls often marry very young to increase their chances of survival, and it is not uncommon for our clinic to see pregnant girls as young as 14.

A defect of this plan is that the families we visited had been given the nets any time from two years ago or more, up through the end of 2010. Probably only a few of these families received Against Malaria nets. However, the survey gives a picture of the ongoing impact of our ITN distribution services.

We first stopped to see Ojur Rosemarie, who is the women's leader in the camp. She took us to all the homes of women who had come for antenatal care at Teso Safe Motherhood and who lived in Asianut Camp. In addition, we visited Margaret Ibiria who had adopted an orphaned grandbaby and was given an ITN when she brought the baby to our clinic for care. We assessed the use of the bed nets in all the homes in which someone was present; this brought us to 29 home visits. To complete our final visit, we went to a nearby home, which was known to Ochen Richard whose baby had recently been born and who came to TSMP antenatally.

Results of the bed net survey and discussion:

SUMMARY

100% of TSMP patients had nets
93% of TSMP patients had hung their nets
26.6% had nets in "good" condition
36.6% had nets in "fair" condition
30% had nets in "poor" condition
7% could not be accurately assessed

On our 30 visits to homes which had received insecticide treated bed nets in recent months or years, we found bed nets hanging in 28 of 30 homes (93%). Many of the families had replaced the nets they had received with new nets from the market, and these new nets were counted and evaluated in the survey.

The nets were classed as in "good" condition if there were either no holes or one to five small holes less than 5 mm in diameter, or if a larger hole was present in the part of the net which would be covered by the mattress when the net was tucked in. The classification of "fair" was given if there were multiple small holes (up to 20) but no large holes except in areas which would be covered by the mattress when the net was tucked in. Anything with more holes or any large holes in the protective part of the net when tucked in was rated as "poor" condition.

We did not collect information about the exact age of each net. Further investigation into this information would be useful, as insecticide treated nets are supposed to reliably repel mosquitoes for up to 18 months and three washings. Many of the nets were older than this, and many people bought a new net, in good shape, but also had their old net still hanging.

COMPLICATIONS

Teso Safe Motherhood's bed net program specifically works to reduce malaria in pregnant women and their babies as these two groups are particularly vulnerable to malaria, including severe malaria and the complications which can arise from it. The theory that bed nets can prevent transmission of malaria because the anopheles mosquito bites only from dusk to dawn, however, is somewhat simplistic as that time period is more than 12 hours in areas, like Uganda, near the equator.

Further, the climate is hot, and the mid-day sun is exhausting. Many women tell us they rise early to start their work, so they can have a period of rest during the hot time of day. They often say they rise "when the roosters crow," which is about 5 a.m., a full two hours before the sun rises. This allows for two hours of exposure to the anopheles mosquito.

Although children may sleep up to 12 hours in a night, most adults get 6-8 hours of sleep, especially mothers who have a family to care for. Workers are often required to rise before dawn to get to work on time. Practically speaking, few adults are going to spend 12 hours out of 24 under a bed net.

Perhaps the wide-spread use of window screens and screen doors, which is almost universal in the United States, would be a useful adjunct to night time use of bed nets in the prevention of transmission of malaria. Nevertheless, we believe the provision of a new insecticide treated net to each pregnant women at her first antenatal visit is useful in reducing the burden of severe malaria in that population. We do believe it keeps the littlest and most-vulnerable babies healthy at an age when they are most susceptible to malaria and its resultant problems.

The management, staff, and patients of Teso Safe Motherhood Project would like to thank Against Malaria for helping us provide protection from malaria to our vulnerable population. You have helped us bring health to our people, and for that we are grateful.

Survey of Homes
TSMP Maternity Clients
Bed Net Use

	Name	Bed net hung?	Condition	Remarks
1.	Eliano Manuel Alaso Melissa	yes	fair	Two large holes in bottom; covered when net tucked in
2.	Ojur Rosemarie	yes	good	TSMP bed net was torn and replaced
3.	Among Esther	yes	fair	several small holes
4.	Okello Joeffrey Isidi Josephine	yes	poor	large holes in back
5.	Alumo Grace	yes	fair	1 net TSMP, 1 from market
6.	Atim Betty	yes	poor	Many small holes
7.	Ibiria Margaret	yes	fair	Holes in bottom of net
8.	Akello Grace	yes	good	
9.	Acen Mary Catherine	yes	good	TSMP net burned & replaced
10.	Apiso Teresa	yes	poor	Several large holes
11.	Akello Rose	yes	good	net from market, TSMP
12.	Okure Anna Grace	yes	fair	old net poor, new one fair
13.	Aibo Sarah	yes	fair	old net poor, new one fair
14.	Arebo Christy	yes	poor	two big holes, several small
15.	Isaku Rose	yes	poor	One big hole, several small
16.	Akol Gladys	yes	fair	several small holes
17.	Akelo Paulino	yes	good	replace net from TSMP
18.	Asau Elda	yes	poor	many holes in net
19.	Asio Sarah	yes	fair	has mended net; still has holes
20.	Acero Maculet	no	N/A	Net not up yet. She's "saving it." Baby is 2 months old.
21.	Igwei Kristine	yes	fair	small holes in net
22.	Ikwo Beatrice	yes	fair	few small holes in net
23.	Chegem Florence	yes	good	couple small holes only
24.	Irongu Mariam	yes	fair	few small holes
25.	Amito Mary	yes	good	new net, she bought it
26.	Alupo Sarah	yes	poor	big holes
27.	Inyamu Helen	no	N/A	many holes in net. She's embarrassed, hiding net
28.	Nabiro Florence	yes	poor	Has two nets hanging, both have many holes
29.	Amuga Agnes	yes	good	Few small holes at base
30.	Itwal Sarah	yes	poor	several large holes in net

Photo Essay

Outside of TSMP clinic, patients wait in the shade under shelter.

TSMP staff proudly stand beside a new shipment of medical supplies that were bought in Kampala.

Mothers are encouraged to bring in their babies and children for vaccinations.

Registered Comprehensive Nurse Apuret Morris greets patients at an outreach visit.

More than 80 percent of the patients in our catchment area are women and babies.

The need for our services is great. Hundreds of patients are seen at each outreach visit.

Doctor In-Charge Dr. Eriamu Nathan assesses dispensary supplies during an outreach visit.

Midwife In-Charge Akello Petua hands an AMF bed net to a new prenatal patient.

Two proud expectant mothers hold their new AMF treated bed nets.

Along with soya, rice and beans, each prenatal patient receives a bed net from TSMP.

Clinic Translator and Driver Ochen Richard (striped shirt) visits families to see how they're using their bed nets from TSMP.

There are many, many children living in the camps – most of whom are orphans.

Only the fortunate children have clothing – even if ill fitting and worn out. Almost none has shoes.

A child sits beside her bed net during one of our home visits.

A mother nurses her baby in her home next to her bed nets.

We learned that most of our patients are challenged to maintain the integrity of their nets.

Eyalama Noi Noi, AMF! (Thank you very much, AMF!) A happy family rejoices at having a bed net under which to sleep.