# EmOC

## Emergency Obstetric Care Program

## FINAL REPORT

**South Sudan**
**Malakal, Upper Nile State**
**October 5, 2012**



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IMA World Health

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**Acronyms**

| | |
|---|---|
| ANC | Antenatal Clinic or Antenatal Care |
| BCC | Behavior Change Communication |
| BPHS | Basic Package of Health Services |
| CHD | County Health Department |
| DG | Director General |
| DHIS | District Health Information System |
| EmOC | Emergency Obstetric Care |
| GLUK | Great Lakes University of Kisumu |
| GoSS | Government of South Sudan |
| HF | Health Facility |
| HISP | Health Information System Program |
| HMIS | Health Management Information System |
| HSSC | Health Sector Steering Committee |
| ICT | Information Communication Technology |
| IDP | Internally Displaced Person |
| IEC | Information, Education, and Communication |
| IMA | IMA World Health |
| MDTF | Multi Donor Trust Fund |
| MGH | Massachusetts General Hospital |
| MNCS | Maternal, Neonatal and Child Survivors |
| M&E | Monitoring and Evaluation |
| MoH | Ministry of Health |
| NGO | Non-governmental Organization |
| OFDA | Office of US Foreign Disaster Assistance |
| OPD | Outpatient Department |
| PHCC | Primary Health Care Center |
| PHCU | Primary Health Care Unit |
| SMoH | State Ministry of Health |
| TICH | Tropical Institute of Community Health and Development (TICH) |
| TOT | Training of Trainers |
| ToR | Terms of Reference |
| UNFPA | United Nations Population Fund |
| WB | World Bank |

# I. PROJECT SUMMARY

The goals of the Emergency Obstetric Care (EmOC) Program were to reverse the trend of maternal mortality by increasing the number of facilities in Upper Nile State that provide Emergency Obstetric Care services and to reverse the trend of home births by providing competent and viable birthing alternatives for isolated communities. Women in five selected counties in Upper Nile State had no access to EmOC services, critically needed for both the indigenous population as well as returnees who continue to integrate into local communities and access health services.

In collaboration with the State Ministry of Health and with funding from the United States Agency for International Development's Office of Foreign Disaster Assistance (OFDA), through this project IMA World Health established EmOC services for returnees and the local population in five targeted counties through the rehabilitation of health facilities, training of health personnel, ensuring the availability of necessary medical supplies, and improving information systems through case management and monitoring practices.


| EmOC in Upper Nile State | |
|---|---|
| **County** | **Facility** |
| Longechuk | Mathiang PHCC |
| Maban | Bunj Hospital |
| Maiwut | Maiwut PHCC |
| Panyikang | Tonga PHCC |
| Ulang | Ulang PHCC |

## II. BACKGROUND

Since the signing of the Comprehensive Peace Agreement in 2005, which brought an end to the civil war, the Government of South Sudan (GoSS) set targets to improve the health status and standard of living of its people, which has the worst health indicators in the world[1] with low immunization coverage 17.03% (<5 years), an estimated infant mortality rate of 102/1,000 live births, under five mortality rate of 135/1,000 live births, and a staggering maternal mortality rate of 2,054/100,000 live births.

Taking the initiative to reverse these figures, the GoSS Ministry of Health (MoH) developed a Basic Package of Health Services (BPHS) to deliver essential health services while achieving set indicators to improve the health status of its people. Such services were to be implemented in an integrated fashion with a focus on cost-effective, evidence-based, high impact interventions, consisting of preventive, curative and promotion services, delivered at health centers (PHCC), health units (PHCU) and at the community level itself.

In 2010 IMA World Health received funding from the Multi Donor Trust Fund (MDTF) to assist the MoH in strengthening such services, starting with support of state and county health offices, coordination of NGO agencies, mapping of facilities, and human resource capacity, and channeling support from international organizations such as UNICEF and UNFPA into SMoH supported facilities.

Through this work in Jonglei and Upper Nile States, IMA World Health noticed alarming trends in maternal mortality. A woman of reproductive age has a greater chance of dying from pregnancy related conditions than any other single cause in South Sudan. Access to reproductive care services is abysmal, and the influx of refugees at the rate of 10,000 per month further strains a system already unable take care of its own.

Statistics from a March 2011 IMA report to the health ministry regarding access to services in Jonglei and Upper Nile States revealed the following:

- **<1 of 2 facilities in these states offers ANC services**
- **<1 of 3 pregnant women receives ANC services**
- **<1 of 4 facilities offers clean or skilled deliveries**
- **<1 of 100 women has access to family planning**

Most alarming among these statistics are those related to reproductive health and, in particular, access to basic obstetrical services. The House Hold Survey (HHS) by LATH showed little change in the maternal mortality rate of 2,054/100,000 births noted in 2006. Related HHS data were staggering: 89% of births happened at home, 17% of births were assisted by a nurse, 4% by a doctor, and the C-section rate was estimated at 0.4%. In essence, women were delivering at home, unattended by skilled personnel, and dying at an unacceptable rate.

In 2011, IMA World Health submitted a request to the Office of Foreign Disaster Assistance for funding for the Emergency Obstetric Care (EmOC) Program, with a one-year plan to increase access to Emergency Obstetric Care in identified areas in alignment with its existing MDTF program.

[1] Sudan Household Health Survey (SHHS) 2006 and included as Appendix 5.

## III. PROJECT COMPONENTS

At project startup, all five targeted health centers were observed to have some medical supplies, drugs, and equipment on hand, but the health care workers at the facilities lacked sufficient skills in the use of equipment and drugs, including family planning commodities. Means of referring women with obstetrical complications was a major challenge. Awareness of reproductive health and safe motherhood was low. Birthing and delivery registers were notoriously incomplete. Based on these observations, IMA recognized a great need to reinforce and enhance basic infrastructure and human resource capacity in order to help meet the great needs of the identified counties.

### COMPONENT A: Training Health Workers in Emergency Obstetric Care

Recognizing a gap in the availability of skilled emergency obstetric care, IMA World Health worked with the Great Lakes University of Kisumu (GLUK)/Tropical Institute of Community Health and Development (TICH) in Kenya to develop a custom 10-month advanced study curriculum for select South Sudanese health workers. Once selected, the students would attend the course in Kenya and then return home to their communities in South Sudan fully equipped with specialized knowledge and skills for managing the complications of labor and delivery.

**Selecting Candidates**

In August and September 2011, the Upper Nile State MoH circulated an invitation to the targeted five counties calling for interested health workers to apply for the training in Kenya. During the screening process, 24 candidates (21 males and three females) completed oral and written interviews with Dr. Stephen Okeyo, Academic Dean at TICH. Based on the test scores and experience, 11 male and two female candidates were selected and given permission by the MoH to attend the training. The 13 participants consisted of medical assistants, nurses, clinical nurses (diploma holders) and maternal and child health workers.

**The 13 South Sudanese EmOC students receiving their white coats, pictured with Dr. Stephen Okeyo (center), Dean of TICH**

**Meeting Students' Needs**

To ensure the students were able to attend and successfully complete the program, IMA made sure to remove as many barriers as possible. Ten of the participants were employees of the Ministry of Health and continued to receive salaries during the training course; IMA World Health financially supported the families of the remaining candidates who were not employed directly by the MoH.

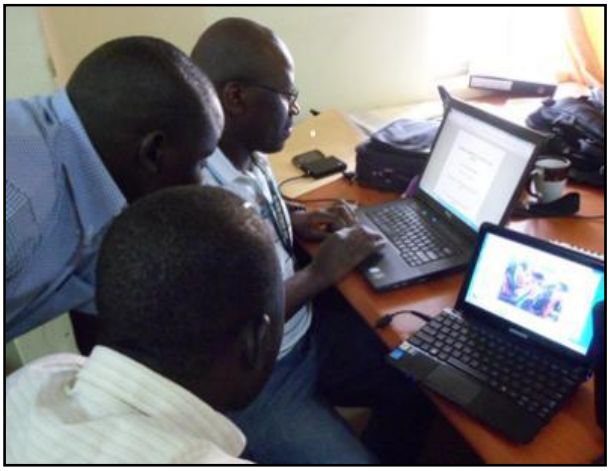
Students also received, aside from their stipend (for local expenses such as transportation, care of uniforms, etc.), a supply of books, scrubs and stethoscopes. GLUK/TICH also provided a furnished home for the comfort of all 13 students. The course began in September 2011 and lasted until June 2012.

**"We learned how to protect the mother. We need to run workshops. We need to engage (women) to come before delivery to help them understand why it is safer to deliver (in a facility) than at home."**

Ojuok Puok Duel, EmOC graduate

**Cost Share**

In order to make the most of the investment in the students, IMA World Health arranged for significant cost share. While OFDA supported the educational oversight, curriculum development, and student supplies, the Multi Donor Trust Fund (MDTF) paid for all fees related to tuition and room and board for the 13 students.

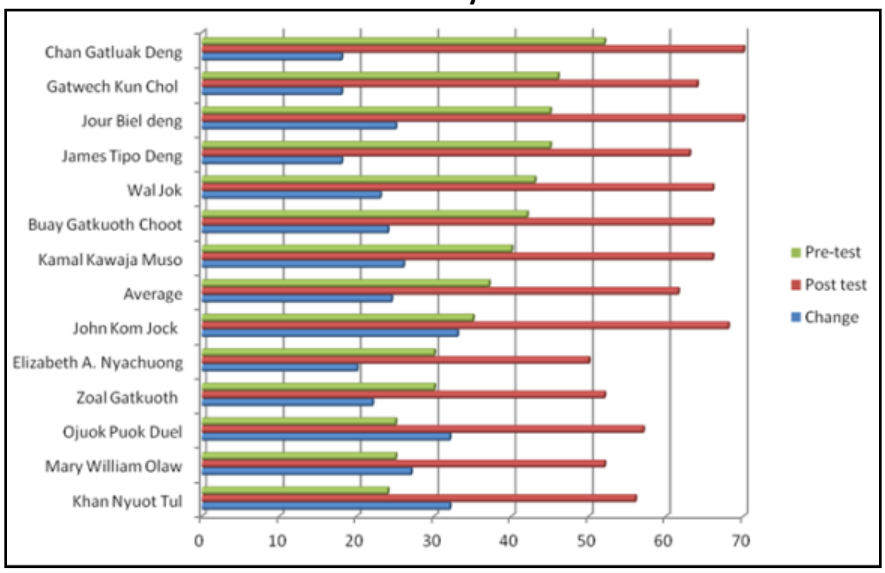


**Curriculum**

The course was a competency-based training comprised of two parts: 1) Didactic theoretical courses (including advanced health sciences, English and IT) at GLUK, and 2) Practical clinical training at the provincial hospital in Nyanza of West Kenya. By February 2012, when IMA sent an educational advisor and technical advisor to visit the students and to meet with University administration, all students had finished the didactic portion of their program and had started clinical training.

All 13 students successfully completed their program, passed the certification examination and received their diplomas on June 30, 2012. Test scores showed that all students showed a significant uptake of knowledge as a result of the 10 month course.

**Test results by student**




In addition to the TICH-designed curriculum, Massachusetts General Hospital (MGH) sent a team of trainers to train all 13 candidates in obstetrical applications of ultrasonography. In order to fully round out their learning, following graduation the graduates stayed in Kenya to complete an additional 10 days of training in advanced ultrasound training, including diagnosis of fetal position, viability, placenta previa, abruption, and poly and oglio hydraminos.

**Returning home**

The graduates returned to their homes and clinics in South Sudan in July 2012 just as the nation was celebrating its first anniversary of Independence – a symbolic time to return home with new skills to provide a new beginning for families in their communities. In addition to their new skills and knowledge in emergency obstetric care, all of the graduates returned home to newly renovated and fully equipped health facilities. Each graduate received an e-pad with District Health Information Systems (DHIS) software as well as training in IT, basic DHIS and various modules to ensure reporting standards are met.

**"IMA should be proud. Just wait and see what happens! We are very motivated to go back and help our communities."**

Gatwech Kun Chol, EmOC graduate

## A Testimony of Dedication

Zoal Gatkuoth Puok was one of the 13 students enrolled in the EmOC course at GLUK. Though torn about the decision, he left his own wife—then six months pregnant—behind to go to Kenya, knowing how important his knowledge would be for the families in his community.

Not long after arriving in Kenya, Zoal received the tragic word that his wife had gone into very early labor. No one in the village could provide the necessary care, and both mother and baby died during delivery.

IMA offered to fly Zoal back home to mourn and to bury his wife. Deeply grieving, he thought for a moment and responded, "My heart is with my family and I want desperately to be with them... but my commitment is to the health of my people, and I must stay and finish this program so others will not die." Though devastated, Zoal told IMA staff, "All things work through the plan of God." On June 30, 2012, he graduated from the training program and returned home. And if he can help it, no one else will have to endure the pain and loss that he and his family endured.

**Training of lab technicians**

In addition to providing for the education of the 13 health workers, IMA World Health trained six laboratory technicians from the five EmOC centers on basic microscopy and blood safety, as well as equipped the labs with cold chain, microscopes and hemoglobinometers.

The six lab technicians were trained on and achieved the following basic microscopy and blood safety skills at Malakal Teaching Hospital in the spring of 2012:

1. Collection of capillary blood
2. Collection of venous blood and separation of serum or plasma
3. Preparation of thick blood smears and thin blood films
4. Staining of blood smears and films using Giemsa stain
5. Examination and blood smears and identification of Malaria parasites
6. Estimation of Hb using the Sahli hemoglobinometer
7. Preparation of stool smears both saline and Iodine preparation
8. Microscopic examination of wet stool smears for parasites (trophozoites and ova & cysts)
9. Urine chemistry using dipstick with 10 parameters
10. Wet preparation of urine smears after centrifugation
11. Microscopic examination of urine samples for pus cells, red cells, casts and parasites
12. Blood grouping – ABO and Rhesus
13. Rapid HIV testing using Determine and UniGold (serology)
14. Rapid tests for Hepatitis B surface AG and Hepatitis C (serology)
15. Rapid test for Syphilis using Determine test strips (serology)

## COMPONENT B: Training Front Line Health Workers

IMA contracted Massachusetts General Hospital (MGH) to design a Maternal, Neonatal and Child Survivors (MNCS) training for front line health workers and traditional birth attendants in each of the five counties. Local master trainers, who speak the same language as participants, adapted the MGH MNCS curriculum for the local context, allowing for greatest engagement, understanding and ownership.

During the six-day trainings, successful trainees learned lifesaving skills and information to respond to the most common causes of maternal and neonatal mortality such as postpartum hemorrhage, neonatal asphyxia, eclampsia, etc. The course was designed to help these health workers identify risk factors in pregnancy and make referrals to EmOC centers, as well as encourage pregnant women to go to health facilities for ANC services and have an assisted delivery at the time of labor. In total, 76 health workers passed the competency exam and received certificates.

**MNCS training by County**

| County | Training | Persons trained | Certificates and MNCS kits awarded |
|---|---|---|---|
| Ulang | February 2012 | 18 | 17 |
| Panyikang | February 2012 | 13 | 12 |
| Maiwut | March 2012 | 17 | 16 |
| Longechuk | March 2012 | 19 | 19 |
| Maban | March 2012 | 12 | 12 |
| **Total…** | | **79** | **76** |

**Health workers in Longechuk County receiving their MNCS training certificates**

## COMPONENT C: Community Awareness and Mobilization

Initial assessments showed that awareness of reproductive health and safe motherhood was low in all five counties. Community awareness and promotion campaigns were conducted in conjunction with the MNCS trainings in each county in order to disseminate reproductive health messages to the public and inform authorities about the EmOC services coming to their communities. These campaigns were divided into two categories: 1) Indoor campaigns targeting politicians and local county authorities, scheduled during the opening day of MNCS training, and 2) Open public campaigns as part of the closing ceremony of the MNCS trainings.

Topics discussed during these sessions included the use of medical equipment and drugs and the identification of EmOC facilities. In addition, discussion points included the identification and referral of at-risk pregnant women to Focused Antenatal Care (ANC) services at facilities, the importance of having a normal delivery at health centers, creating the demand for Family Planning services, access to HIV voluntary counseling and testing services, clinical management of rape and further referral to Comprehensive EmOC centers such as Malakal Teaching Hospital and Nasir County Hospital. The county local authorities were given a role and voice to help reduce maternal mortality and morbidity rate in the rural areas by encouraging community access to such health services in every payam.

With health personnel, IMA underlined the major causes of high maternal mortality, including vaginal bleeding during pregnancy and after delivery, obstructed labor, and pregnancy induced hypertension (i.e. pre-eclampsia and eclampsia). County authorities and other stakeholders were informed that nearly all of the direct obstetric complications are preventable and manageable at appropriately staffed health centers (EmOC).

**Select Highlights**

**Ulang County:** Ulang County has four primary health care clinics (PHCC), whose leadership came to Ulang for meetings with the IMA/EmOC team including key stakeholders and authorities such as the County Commissioner with 32 members from different directorates of civil authority and the Paramount Chief of the County with 12 chiefs from different payams. All attended the advocacy meeting in the commissioner's office on November 2011. Following those meetings more than 600 community members, including youth and women of reproductive ages, heard messages related to reproductive health. The team also took advantage of a local wedding reception to deliver key reproductive health messages disseminated in large part from the community HHPs (former TBAs) and our team members.

**Panyikang County:** Panyikang County sent representatives from three (3) PHCUs to Tonga for the same level of meetings. The IMA team met with the Deputy Commissioner, along with 28 members from different directorates including women's groups and the association team. We gathered at the commissioner's office on December 6, 2011. IMA also participated in the general meeting called by the Chief Justice for Upper Nile State (rules of department/directorate). The Chief Justice was visiting all counties in the state to discuss the rules of law enforcement. The Chief Justice gave an order to make sure there is equal protection to women and girls in the counties and that all newborn babies must obtain their birth certificate at a health center. It is estimated that more than 250 citizens received key messages about reproductive health in this county through the campaigns.

**Community Awareness Campaigns**

| County | Dates | Areas | Estim. persons |
|---|---|---|---|
| Longechuk | March 2012 | Town center | 200 |
| Maban | March 2012 | Football field, 2 payams | 1,800 |
| Maiwut | February 2012 | 2 payams and cattle camp | 1,500 |
| Panyikang | December 2011 | General Meeting (Chief Justice/payams) | 250 |
| Ulang | November 2011 | County Commissioner/Wedding reception | 600 |
| **Total…** | | | **4,350** |

## COMPONENT D: Facility Construction and Rehabilitation

After identifying the underserved counties most in need of EmOC support, the Director General of Health in Upper Nile State requested that IMA World Health assess the identified PHCCs in each county. An IMA World Health team comprised of the IMA Country Director, IMA MDTF team leader, IMA EmOC Program Manager, and an engineer assessed the current capacity of the structures, rehabilitation needs and the space for an extra building to accommodate essential EmOC services.

**EmOC rehab/construction projects by supporting partner**

| # | COMPANY | Project Locale | Project Description | Project | NGO Partner | USD | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|
| 1 | LAFO ENGINEERING SERVICES | LONGECHUK (Mathiang PHCC) | Maternity Ward | MDTF-UN | CMA | 87,707 | 9.026550 | 33.550000 |
| | | | Del Room, PP, Lat, Inc | OFDA | | 31,700 | | |
| 2 | CAPITAL BASE LTD | MABAN (Bunj Hospital) | Maternity Ward | MDTF-UN | None | 94,514 | 9.958670 | 33.711720 |
| | | | Del Room, PP, Inc | OFDA | | 17,957 | | |
| 3 | STANDARD for INVESTMENT | MAIWUT PHCC | Del room, PP, Latrine | OFDA | Save | 32,381 | 8.606220 | 33.924060 |
| 4 | LAFO ENGINEERING SERVICES | PANYIKANG(Tonga PHCC) | Maternity Ward | MDTF-UN | None | 87,707 | 9.470000 | 31.049440 |
| | | | Del room, PP, Latrine | OFDA | | 58,697 | | |
| 5 | CAPITAL BASE LTD | ULANG (Ulang PHCC) | Maternity Ward | MDTF-UN | Goal | 45,364 | 8.655950 | 32.720400 |
| | | | Del Room, PP, Fencing | OFDA | | 60,600 | | |

An architect and engineering team designed and planned the rehabilitation of each facility to include updating of delivery rooms with the installation (where needed) of incinerators, placenta pits, and latrines. MDTF agreed to a cost share for the construction of free-standing maternities and to upgrade ANC clinics at select sites to accommodate the anticipated increase in patient utilization.

Following standard procurement guidelines, each project was advertised for bidding, with over 40 companies bidding. Contractors were then selected in an open process attended by the MoH, taking into account factors such as cost, experience, recommendations, registration, and equipment. Tenders were sent out in November 2011 and the selection process was completed in January 2012.

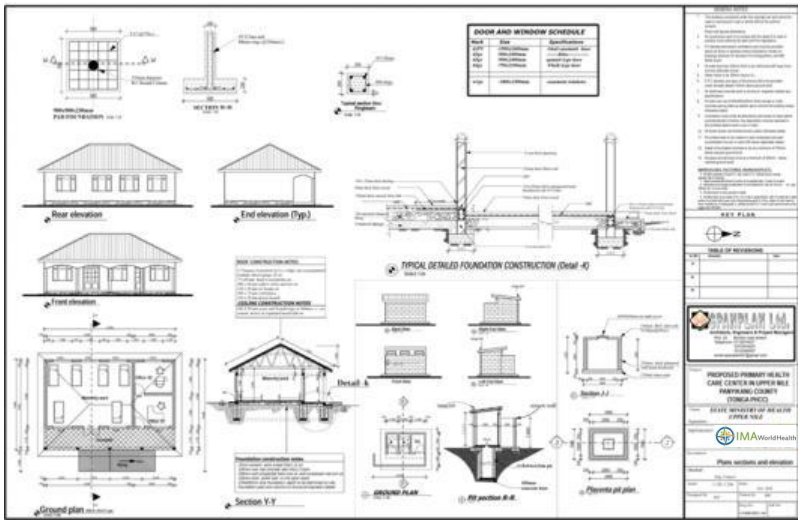
Construction of the five counties' maternity wards and delivery rooms started in January 2012, as soon as the road opened, and was completed at all sites by the first week of July 2012.

**Cost Share**

The rehabilitation of existing PHCCs and the building of new maternities was truly a team effort. OFDA directly funded the rehabilitation of five delivery rooms, five placenta pits, two incinerators, one fence, and four latrines. MDTF funded the construction of four free standing maternities in four of the five centers where there were insufficient maternity beds to accommodate the anticipated increased use of reproductive health services with the creation of EmOC services.

**BEFORE: Tonga PHCC in Panyikang County**

**Architectural plan**




**AFTER: Tonga PHCC in Panyikang County**

## COMPONENT E: Equipment, Supplies and Drugs

Following the initial assessment of equipment and supplies at each of the five PHCCs, orders for hospital and surgical equipment were processed in August 2011 from companies in the US and Europe. The first container arrived the first week of January with solar lighting, solar refrigerators, laboratory supplies, microscopes, and 5,000 IMA Safe Motherhood Kits™ (provided by private IMA World Health donors). A second container from Europe arrived in February with surgical equipment, delivery and hospital beds, scales, IV poles, mayo stands, and more.

Delivery and installation of these supplies occurred upon completion of the rehabilitation and construction projects. Meanwhile, EmOC students were enrolled in their training program in Kenya to learn how to properly utilize the equipment and supplies.

**Ultrasound Equipment**

Through a partnership with Massachusetts General Hospital and Global Public Health in Seattle, IMA World Health procured five portable ultrasound units adapted to the conditions in South Sudan. These ultrasound units will allow for the prompt diagnosis of emergency obstetrical conditions such as placenta previa and abruption, as well as identify fetal lie. Anecdotal evidence from developing countries has shown a significant uptake in both ANC and delivery services when such equipment is available at reproductive health clinics. To ensure proper use of the equipment, MGH provided a two-week supplemental training module for the 13 EmOC trainees at GLUK/TICH.


**Left:** Nanomax Portable Ultrasound (center) as procured for 5 OFDA supported EmOC facilities;
**Right:** An EmOC student practicing ultrasonography following MGH training at GLUK

**UNFPA Reproductive Health Kits**

IMA World Health submitted a requisition to UNFPA for reproductive health kits (pharma-ceuticals and supplementary equipment) for all five facilities. We requested the following kits, sized for a population of 10,000 persons for three to nine months to supplement and sustain the anticipated high volume of obstetrical patients at each facility:

**Kit 6:** Clinical Delivery Assistance
**Kit 9:** Suture of tears (cervical and vaginal) and vaginal examination
**Kit 10:** Vacuum extraction delivery

UNFPA provided kits 6 and 9 for all facilities and kit 10 for two facilities. Such requests will be ongoing after OFDA assistance.

**Sample manifest for OFDA-supported EmOC facility in Upper Nile**

| Item | PO | Units | Project | kg |
|---|---|---|---|---|
| **Solar Lighting System** | | | | |
| Lighting kit | 5354-1 | 1 | OFDA | 3.90 |
| Lighting charging system | 5354-2 | 1 | OFDA | 11.10 |
| Fastener kit | 5354-2 | 1 | OFDA | 11.10 |
| Sunwize 110 watt panel | 5354-5 | 1 | OFDA | 12.68 |
| Deka solar gel battery | 5357 | 1 | OFDA | 29.45 |
| **Solar Refrigeration System** | | | | |
| Frig charging system | 5356 | 1 | OFDA | 2.54 |
| Frig wiring kit | 5356 | 1 | OFDA | 2.54 |
| Fastener kit | 5356 | 1 | OFDA | 2.54 |
| Sundanzer refrigerator | 5356 | 1 | OFDA | 58.89 |
| Sunwize 110 watt panel | 5356 | 1 | OFDA | 12.68 |
| Deka solar gel battery | 5355 | 1 | OFDA | 29.45 |
| **Equipment/Supplies** | | | | |
| Cetrimide/Hemoglobinometer | 1136029 | 1 | OFDA | 24 |
| Medical Supplies (A and B) | 1136029 | 2 | OFDA | 44 |
| Medical Equipment (A and B) | 1136029 | 2 | OFDA | 43 |
| Delivery bed (1 per carton) | 1136029 | 2 | OFDA | 64 |
| Vacuum aspirator | 1147008 | 1 | OFDA | 12 |
| Hospital bed (2 per carton) | 1136030 | 3 | OFDA | 344 |
| Adult scale | 1136030 | 2 | OFDA | 4 |
| Baby scale | 1136030 | 2 | OFDA | 3 |
| Mayo stand | 1136030 | 3 | OFDA | 24 |
| Medicine cabinet-thin top | 1136030 | 2 | OFDA | 60 |
| Medicine cabinet-fat bottom | 1136030 | 2 | OFDA | 50 |
| Medicine cabinet-heavy shelves | 1136030 | 2 | OFDA | 15 |
| Sterilizer | 1136030 | 2 | OFDA | 2 |
| Stove | 1136030 | 2 | OFDA | 2 |
| Basket | 1136030 | 2 | OFDA | 2 |
| **Specialized Equipment** | | | | |
| Obstetrical Ultrasound | sono-site | 1 | MDTF | 15 |
| Microscope (oil immersion/solar) | invoice | 1 | OFDA | 5 |
| Inverter (power) + battery | invoice | 1 | OFDA | 65 |
| **Pharmaceutical Kits** | | | | |
| RH kit # six | MOU | 1 | UNFPA | 15 |
| RH kit # nine | MOU | 1 | UNFPA | 15 |
| RH kit # ten | MOU | 1 | UNFPA | 15 |

### COMPONENT F: Site Activation, Operation and Supervision

The IMA World Health EmOC Team—consisting of the IMA Country Director, MDTF Project Manager, OFDA Program Manager, and the Program Engineer—conducted at least quarterly site visits to ensure that project progress stayed on track, to engage stakeholders, to supervise trainings and awareness campaigns and/or to troubleshoot any challenges that arose.

**Q1:** The first quarter assessment was completed in September 2011 by the IMA World Health EmOC Team. Each of the five targeted health centers were visited, and the team took the opportunity to meet with county authorities including CHD officers and the staff of the health centers to discuss the MNCH work at the PHCCs and in the county.

**Q2:** In November and December 2011, a second round of supervision was carried out by the EmOC Program Manager in conjunction with EmOC advocacy and awareness campaigns. This supervision to the health centers was intended to identify the major need for increased uptake of services of each health center and an assessment of supplies and equipment on hand.

**Q3:** All five sites were supervised by the IMA World Health EmOC Team and members of the SMoH to follow up on the progress of facility rehabilitation and rollout of activities. County Commissioners and other local authorities helped to facilitate the transport, lodging, security, and promotion of the project, showing that it has the full support of stakeholders from all sectors of society.

**Q4:** All sites were supervised by IMA EmOC Team members for data collection, follow up on facility rehabilitation, equipment installation, and preparation for site activation.

## IV. Challenges

Challenges occur in every context and in every project. Those related to the EmOC program included:

1. **Accessibility.** Poor paths/roads in Upper Nile State are the major challenge, as three of the five EmOC facilities are accessible by road only during the dry season from January to May. Every organization implementing projects in this region suffers the same challenges; even if you have adequate facilities and resources, flooding and travel challenges make them difficult to utilize. Following a carefully planned timeline for all activities, designed around the dry season, was critical to meeting deadlines and meeting project goals.

2. **Security and population flux.** The security situation in Maban County was heightened during tension and conflict between South Sudan and Sudan, resulting in a large influx of IDPs to the area. Fortunately this situation did not impede progress.

3. **Fuel costs.** Due to the non-importation of fuel from Khartoum, fuel costs—and therefore supervision costs—rose dramatically. The cost of the IMS boat to conduct monitoring and supervision in Ulang and Panyikang Counties also skyrocketed, greatly raising costs.

## V. Building the Foundation for Long Term Results

IMA World Health realizes the true benefits of this program (including increased access to and utilization of antenatal services, increased assisted delivery, increased referrals, and decreased morbidity and mortality of women and children) will come after the completion of OFDA assistance—assistance which has funded health worker training (MNCS), facility rehabilitation, equipping of facilities, and campaigns and mobilization of county authorities and health care providers. Those numbers will be realized after OFDA assistance has ended, and will not be reflected in the reporting of the EmOC grant.

However, we know morbidity and mortality of women and children will be decreased, stakeholders who have invested in this process (including the State Ministry of Health) will take ownership of the program, and thousands will benefit from emergency services provided through the initiative and foresight of OFDA—the principal funder and mobilizer of this project.

**Community members digging the foundation for a new maternity**

***A full indicator chart for the OFDA EmOC Program can be found on page 17.***

## EmOC Indicators (August 2011 - August 2012)

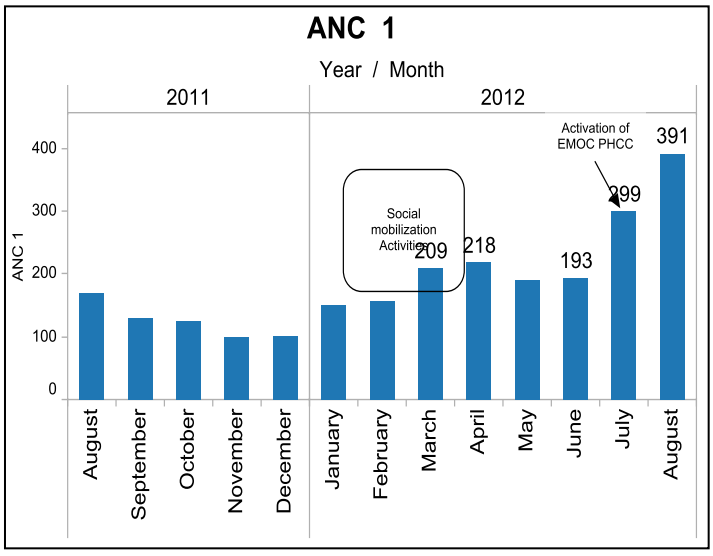
| S/N | County | PHCC | Indicator | Aug | Sept | Oct | Nov | Dec | Jan | Feb | March | April | May | June | July | Aug | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Maban | Bouny | OPD Cases | 258 | 232 | 360 | 390 | 101 | 477 | 996 | 639 | 1,529 | 1,139 | 426 | 783 | 612 | **7,942** |
| | | | ANC 1 | 21 | 28 | 19 | 27 | 20 | 28 | 10 | 75 | 71 | 82 | 40 | 148 | 90 | **659** |
| | | | Delivery | 3 | 0 | 6 | 25 | 15 | 14 | 17 | 18 | 19 | 21 | 18 | 17 | 14 | **173** |
| 2 | Longchuk | Mathiang | OPD Cases | 1,518 | 1,155 | 967 | 1,148 | 1,298 | 897 | 1,173 | 1,596 | 1,426 | 1,803 | 1,100 | 1,280 | 1,422 | **16,783** |
| | | | ANC 1 | 37 | 11 | 6 | 9 | 8 | 2 | 12 | 18 | 19 | 15 | 21 | 42 | 69 | **269** |
| | | | Delivery | 30 | 0 | 0 | 20 | 10 | 14 | 24 | 20 | 13 | 22 | 13 | 3 | 21 | **190** |
| 3 | Maiwut | Maiwut | OPD Cases | 632 | 680 | 634 | 1,116 | 1,053 | 1,427 | 704 | 1,083 | 1,136 | 1,169 | 999 | 947 | 967 | **12,547** |
| | | | ANC 1 | 13 | 22 | 14 | 23 | 12 | 30 | 12 | 26 | 31 | 37 | 31 | 26 | 136 | **413** |
| | | | Delivery | 10 | 16 | 15 | 8 | 15 | 8 | 18 | 12 | 11 | 12 | 10 | 9 | 17 | **161** |
| 4 | Panyikang | Tonga | OPD Cases | 1,115 | 703 | 388 | 480 | 286 | 302 | 447 | 477 | 524 | 440 | 502 | 514 | 472 | **6,650** |
| | | | ANC 1 | 55 | 42 | 38 | 14 | 15 | 21 | 10 | 20 | 26 | 14 | 25 | 31 | 39 | **350** |
| | | | Delivery | 0 | 22 | 19 | 17 | 21 | 16 | 4 | 10 | 13 | 16 | 14 | 11 | 2 | **165** |
| 5 | Ulang | Ulang | OPD Cases | 856 | 866 | 1,489 | 1,061 | 1,291 | 1,298 | 2,960 | 1,686 | 2,328 | 1,130 | 1,384 | 1,273 | 1,469 | **19,091** |
| | | | ANC 1 | 44 | 28 | 49 | 27 | 47 | 70 | 112 | 70 | 71 | 41 | 76 | 52 | 57 | **744** |
| | | | Delivery | 6 | 6 | 6 | 9 | 13 | 10 | 15 | 12 | 14 | 18 | 18 | 13 | 16 | **156** |

**Trending Upward**

Though the most compelling results are expected in the long term, the graph below, charting the data for Antenatal Care during the four quarters of the EmOC program, clearly shows the positive impact of two distinct phases of EmOC implementation:

1. **Social mobilization campaigns (March-April 2012).** The EmOC Team had three main strategies for its social mobilization campaigns to improve community participation: 1.) Training of Trainers on MNCS for traditional birth attendants, 2.) Community Leaders awareness campaigns, and 3.) Community awareness campaigns. The impact of these completed activities is reflected in the increase of ANC utilization observed during March and April.

2. **Activation of the EmOC Centers (July-August 2012).** The Activation of EmOC PHCC started the first week of July, we can observe a marked improvement—almost 100%—from June to August, and this improvement was observed across all five counties.



## Annex I: Success Story

***Multiple Stakeholders join OFDA initiative to create five EmOC centers in Upper Nile State***

The OFDA-supported EmOC program was initiated following a request from the State Ministry of Health in Upper Nile State for help in establishing EmOC services in five of their 13 counties which had no physician services, near-impossible access to hospital services in neighboring counties, and high maternal mortality rates.

Under the OFDA-funded program, EmOC services were established in the five counties of Panyikang, Ulang, Maban, Longechuk and Maiwut, with a combined population of between 350,000-450,000 persons (with numbers continually increasing with the influx of IDPs). Since OFDA agreed to fund this ambitious project, many other stakeholders joined in and broadened both the impact and sustainability of this project:

1. MDTF: Although not originally envisioned in the MDTF contract, approved work has included the construction of four maternities and the rehabilitation of one (adjoining the OFDA-rehabilitated delivery rooms) as well as the procurement of durable equipment such as hospital beds and solar lighting for the ward and purchase of delivery and surgical equipment.

2. Great Lakes University of Kisumu/Tropical Institute of Community Health (GLUK/TICH): Under a separate line item of funding from MDTF, 13 mid-level health care providers from the five targeted counties were enrolled in a specially designed training program in the provision of EmOC services (management of complicated labor, puerperal sepsis, retained placental products, eclampsia, post-partum hemorrhage, etc.)

3. State Ministry of Health, Upper Nile: The SMoH continued to provide salary support for 10 of the thirteen mid-level providers who were working full time in the targeted PHCCs before enrolling in full time studies in Kisumu, Kenya, at GLUK/TICH. The SMoH pledged to integrate all 13 into the new EmOC facilities and cover their salary and support following OFDA program assistance.

4. MGH: MGH realigned their MNCS (maternal neonatal child survival) training program to focus on referral to EmOC centers and incorporating a system to encourage and validate patient referrals. MGH also sent staff to Kisumu, Kenya and provided the 13 South Sudanese EmOC students with a two-week hands-on supplemental training course in obstetrical ultrasonography (at no cost), highlighting the utility of portable ultrasound units in the identification and management of obstetrical emergencies such as transverse lie, placenta abruption, placenta previa, oligo- and poly-hydraminos.

5. Sono-Site: A company in California provided five refurbished ultrasounds to the five sites at a 50% reduction in cost (paid by MDTF) to ensure that all sites had access to portable ultrasonography.

6. IMA World Health and Member Agencies: Through its member agencies, IMA secured a donation of over 6,000 Hygiene Kits which were shipped through support from Church World Service. In addition, through its Safe Motherhood Kit™ (SMK) program, IMA donated 5,845 SMKs

to the EmOC project which will be used in part to strengthen ANC and delivery services in these sites.

7. UNFPA: IMA solicited five reproductive health kits (kits 6, 9, and 10) from UNFPA for unique use at these five centers. IMA is a registered and past recipient of UNFPA assistance in South Sudan.

8. PSI/Global Fund: IMA received a $2.8M grant from PSI/Global Fund for the reception and distribution of over 600,000 long lasting insecticidal nets in Upper Nile State, and through this grant will prioritize pregnant women and children in the five counties served by EmOC-OFDA.

**EmOC Program Cost Share Table**

| Agency | What | Means of Calculation | Amount |
|---|---|---|---|
| MDTF-UN | Construction of maternities | Contracts | $394,000 |
| TICH | Training of 13 students | Contract | $115,000 |
| SMOH | Support 11 students | 11 x $250 x 10 months (estim.) | $27,500 |
| Sono-Site/MDTF-UN | Humanitarian Program | List price: $110k (reduced 50%) | $110,000 |
| MGH/Harvard | Ultrasound training (basic and advanced), 2 weeks | Technical assistance valued at $15k | $15,000 |
| IMA World Health | 5,835 Safe Motherhood Kits™ | $15 each | $87,525 |
| UNFPA | UNFPA Kits 6, 9 and 10 (5 each) | Estimated | $40,000 |
| Total… | | | **$690,025+** |

**A Project of Partnerships**


USAID
FROM THE AMERICAN PEOPLE

IMA World Health



Great Lakes University of Kisumu



MASSACHUSETTS GENERAL HOSPITAL