

# **Health Services in the Lugufu I Refugee Camp:**

**Looking Back Six Years After the Deployment of the  
Basic Health Care Emergency Response Unit**

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2003**

## **Introduction**

*A disaster overwhelms the capacity of the local community to respond to the needs of its people. Over the last decades disasters have become increasingly intractable, often involving civil war, debilitation of infrastructure, human rights violations, and food scarcity. Known as complex emergencies, such disasters endanger the well-being and lives of millions, the poor being the most vulnerable. The international response to complex emergencies has evolved over the last decade in an effort to respond more rapidly and comprehensively to the needs of people enduring calamities. In the wake of such disasters as the Kurdish displacement after the Gulf War and the Great Lakes Crisis which ensued on the heels of the genocide in Rwanda in 1994, the International Federation of Red Cross and Red Crescent Societies (IFRC), designed a package of systems, called Emergency Response Units (ERUs), aimed at expediting the humanitarian response to disasters and, in doing so, mitigating the impact of these crises.*

*This report will chronicle the background of the deployment of the Basic Health Care ERU to Lugufu, Tanzania in February 1997. The ERU concept will be described, the Great Lakes Crisis that necessitated its deployment will be reviewed, and the evolution of the health care system in Lugufu from the arrival of the ERU to the present array of health services available in the Lugufu refugee camp will be described. The performance of the health services at Lugufu will be assessed, and recommendations will be made as to how the initial ERU and the subsequent long-term health services can be improved. This project was conducted under the auspices of the Human Rights Center at the University of California, Berkeley, through the Human Rights Summer Fellowship Program.*

## **Methods**

*The process of information gathering for this report took place in two settings: the IFRC Secretariat Headquarters in Geneva, Switzerland, and on-site in the Kigoma and Kasulu regional refugee camps in Tanzania.*

*While at the IFRC headquarters, desk research was conducted to survey and evaluate all available IFRC and related agencies' documents regarding the development and past deployments of ERUs, as well as the history and current state of the Great Lakes Crisis in Central Africa. Numerous IFRC staff members were interviewed during this*

*In Tanzania, I stayed on site at the Lugufu I refugee camp where I interviewed employees and volunteers of the Tanzanian Red Cross Society as well as the IFRC Health Delegate to the site. The camp itself was surveyed with emphasis on the health services system. Other camps in the area, including Lugufu II, Mtabila I, Mtabila II, and Nyarugusu were also visited for perspective and to provide comparisons.*

*The majority of the health statistics cited in this report come directly from the Tanzanian Red Cross<sup>1,2</sup>. Any other source of data presented in the following text will be specifically referenced. The relief operation is guided by the standards of humanitarian response as established by the SPHERE Project's, "Humanitarian Charter and Minimum Standards in Disaster Response"<sup>3</sup>. The minimum standards established by the SPHERE Project include standards for water supply and sanitation, nutrition, food aid, shelter and site planning, and health services. Wherever possible, the appropriate SPHERE standard will be included on all data tables presented in this report. Values which do not meet these standards will appear in red.*

### **Background of the Basic Health Care Emergency Response Unit**

*The concept behind ERUs is preparedness. ERUs are comprised of ready-packaged and standardized sets of equipment, along with trained and pre-determined groups of specialized volunteers. Currently five types of ERUs have been developed: Basic Health Care (BHC), Logistics, Water and Sanitation (WATSAN), Referral Hospital, and Telecommunications.*

*The Basic Health Care ERU is designed to provide immediate care for up to 30,000 people. Although it primarily aims to address the primary curative and preventive needs of the community, it also includes 20 beds for overnight care. The unit is self-contained for one month – requiring no resupply during this initial period. The BHC ERU is ambitious in its responsibilities. Basic pharmacologic treatment is based on World Health Organization (WHO) protocols and is comprised of WHO Essential Drugs. Maternal and Child Health Care includes immunization and delivery services. Community health care service is initiated including training and supervision on Community Health Workers, Traditional Birth Attendants, and Health Information Teams (HIT, see below). Finally, disease and nutritional surveillance is initiated to gather data guiding further health service activities. The required staff includes one pharmacist/nurse, one midwife/nurse, one curative nurse, and two general technicians.*

## **Background of the Great Lakes Crisis**

*Before presenting information on the performance of the ERU and other health care systems utilized in Lugufu, some background information of the historical events leading up to the ongoing refugee crisis in Central Africa should be provided.*

*In 1994, the suspicious fatal crash of a small plane carrying the leaders of both Rwanda and Burundi sparked a genocide in Rwanda of nearly apocalyptic proportions. In just over three months, approximately 800,000 Tutsi were murdered by their majority Hutu compatriots. The subsequent invasion of Rwanda by an exile Tutsi army from Uganda (the Rwandan Patriotic Front), and the resulting influx of over one million Hutu refugees into neighboring Zaire (now known as the Democratic Republic of Congo [DRC]) sparked what is now a multipolar war in the Great Lakes region of Central Africa. This tremendously complex conflict involves several armed groups of Congolese, the now exiled Hutu Power movement, the RPF, the government armed forces of the DRC, the Ugandan army, as well as the strategic or economic backing of various factions by other African nations. While ethnic and political differences play prominent roles in the crisis, a struggle over the vast mineral and timber resources of the DRC is the driving economic subtext of the hostilities. An estimated three million people have died in this war since the end of the genocide in Rwanda<sup>4</sup>. If such a pervasive war were occurring in Europe, it would no doubt be dubbed World War III.*

*The Great Lakes Crisis is a combination of unprecedented refugee movement and internal displacement, unspeakable human rights abuses, famine, disease, and murder on a horrifying scale. Refugees from Rwanda, Burundi and the DRC have spilled into neighboring countries, most notably, Tanzania. Continuing a legacy of openness to accepting refugees that was initiated by the founding father of Tanzania, Julius Nyerere, Tanzania now hosts nearly 700,000 of the over 1 million refugees generated from this complex emergency.<sup>5</sup>*

*Tanzania has been an island of relative calm among neighboring nations who have undergone disastrous civil wars over the last decades. Bordering on Uganda, Burundi, Rwanda, DRC (across Lake Tanganyika), Zambia, Malawi, Mozambique, and Kenya, Tanzania is both politically and geographically vulnerable to the influx of victims of neighboring wars. The Western and Northwestern edges of Tanzania, along Lake Tanganyika and the borders of Burundi, Rwanda and Uganda are dotted with refugee*

*camps where numerous governmental and non-governmental humanitarian agencies have been active providing refugee relief since the beginning of this crisis. While the initial influx of refugees from the Rwandan civil war landed in the northern Ngara region, more recently as the Great Lakes crisis has developed in Burundi and the DRC, refugee camps have been established in the regions of Kasulu and Kigoma. The Lugufu area, in the Kigoma district of Tanzania, approximately 90km from the shores of Lake Tanganyika, received a massive influx of Congolese refugees in 1997, leading to the establishment of the Lugufu I (and eventually Lugufu II) refugee camp.*

*It was under these circumstances that the Basic Health Care ERU was deployed to Lugufu I by order of the IFRC in 1997.*

### **Past Evaluation of Tanzanian Refugee Relief Operation**

*A general evaluation of the health services in the Tanzanian Refugee Relief Operation (RRO) was conducted in 2001 by the TRCS and IFRC<sup>2</sup>. This evaluation included services for five camps: Lugufu I and II, Mtabila I and II, and Muyovosi.*

*First and foremost, morbidity and mortality levels were noted to generally meet or exceed SPHERE standards, with occasional and temporary exceptions (see below). The evolution of the initial tent-based ERU “hospital” to a network of burnt-brick buildings with a combined bed capacity of over 470 (including all camps) was noted and praised. The health services were found to function at the “district level” for Tanzania and to be far and away superior to the services available to the refugees in their home nations as well as the local Tanzanians. Given this fact, it is not surprising that the local population of Tanzanians were allowed free access to camp health services. SPHERE standards describe acceptable mortality in a refugee operation to be no more than 1% per day. In Lugufu I and II, morbidity, as measured by percentage of refugees receiving outpatient care, was just below or in excess of this level in the months preceding the evaluation (Table 1). The validity of this measure is questionable, however. It is often observed that when one family member requires care, others will often accompany him/her and be seen themselves for no other reason than that they made the trip to the clinic.*

**Table 1: Morbidity Rates (expressed as percentage of refugee population/day)**

	<i>January 2001</i>	<i>February 2001</i>	<i>March 2001</i>
<i>SPHERE Standard</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>

<i>Lugufu I</i>	<i>1.19</i>	<i>0.77</i>	<i>0.83</i>
<i>Lugufu II</i>	<i>2.43</i>	<i>1.24</i>	<i>1.58</i>

Similarly, monthly crude mortality rates and under 5-year mortality rates were largely in accordance with SPHERE standards (tables 2 and 3).

**Table 2: Crude Mortality Rate (CMR) (per 1,000/month)**

	<i>January 2001</i>	<i>February 2001</i>	<i>March 2001</i>
<i>SPHERE Standard</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>
<i>Lugufu 1</i>	<i>0.68</i>	<i>0.36</i>	<i>0.69</i>
<i>Lugufu 2</i>	<i>1.19</i>	<i>0.48</i>	<i>1.69</i>

**Table 3: Under 5-year Mortality (<5MR) (per 1,000/month)**

	<i>January 2001</i>	<i>February 2001</i>	<i>March 2001</i>
<i>SPHERE Standard</i>	<i>3.0</i>	<i>3.0</i>	<i>3.0</i>
<i>Lugufu 1</i>	<i>2.06</i>	<i>1.07</i>	<i>2.31</i>
<i>Lugufu 2</i>	<i>4.47</i>	<i>2.42</i>	<i>0.06</i>

Nevertheless, several problem areas were noted. A number of staffing issues caused problems. First, the lack of senior level clinicians was pointed out. While Tanzanians comprise the majority of health care providers, refugee professionals, be they Congolese or Burundian, are also utilized. The vast majority of patient encounters were conducted by “Clinical Officers”, not physicians. While these Clinical Officers have several years of training (3 to 4, depending on country of training), they do not possess the expertise that physicians generally do. This discrepancy in skill was particularly noted in inappropriate use of the referral chain and over-prescribing of antibiotics. Furthermore, the senior clinicians who are present are often burdened with administrative duties that further diminish their involvement in direct patient care. Staff retention was also noted to be a problem. The remuneration level for Red Cross staff was generally less than that of other humanitarian organizations working in the area, resulting in loss of staff who are lured away by better compensation.

Compounding these staffing issues was a massive workload. The estimated caseload in 1999 allowed for 1.5 minutes per outpatient evaluation. This is not enough time to adequately gather even the most focused history and physical exam, and likely leads to incorrect diagnoses, and perhaps over use of antibiotics. The UNHCR

*recommends that clinicians see no more than 50-60 patients per day – significantly less than that being seen in the Tanzanian refugee camps.*

*Perhaps the most significant shortcoming identified in the evaluation of the Tanzanian Refugee Relief Operation was malnutrition resulting from cuts in aid by the World Food Program (WFP). SPHERE standards dictate a mean population requirement of 2,100 kcal per day per person. In mid-2000, WFP ration cuts of approximately 40% resulted in a supply of only 1,450 kcal per day per person. The results were not surprising – malnutrition rates rose significantly (table 4).*

**Table 4: Malnutrition Rates in Lugufu I and II, percentage of population**

	<i>July 2000</i>	<i>December 2000</i>
<i>Severe</i>	<i>0.60</i>	<i>2.10</i>
<i>Moderate</i>	<i>3.00</i>	<i>7.10</i>
<i>Global</i>	<i>3.60</i>	<i>9.20</i>

### **Current Health Services and Facilities at Lugufu**

*From the initial ERU supplies of ten medical tents and a 20-bed overnight capacity, the health facilities at Lugufu I have grown impressively. Now comprised of one main “dispensary” (a misnomer as this is the hospital for the camp), and three health posts, Lugufu I health services now boast approximately 160 patient beds and over two dozen permanent structures. Lugufu II has an additional 80-bed hospital (without an operating theater), and one health post.*

#### *Physical Resources*

*The Lugufu I hospital has individual freestanding burnt-brick wards for females, males, and children. Three separate wards house the pediatric patients by age group (0-8 months, 9-24 months, greater than 24 months), and a partitioned room is available in the 0-8 month old ward for premature infants. Two isolation wards are available: one for tuberculosis patients and one for other highly communicable diseases such as meningococcal meningitis. In addition, there is a maternity ward, an operating theater with a room for major procedures and another for minor, an inpatient and an outpatient pharmacy, a maternal and child health center, and an observation unit for administering oral rehydration therapy. For nutritional services, there is a supplemental feeding unit for pregnant and nursing mothers, infants less than 90 days old, and patients suffering from wasting illnesses such as AIDS and tuberculosis. There is also a therapeutic feeding*

center for children suffering from acute malnutrition. The main hospital also has a large outpatient facility with several evaluation rooms. Three health posts are spread among the sprawling camp and offer basic outpatient, laboratory and pharmacy services. Laboratory services available for the hospital include several basic tests to screen for endemic infectious diseases such as typhoid, HIV, syphilis, malaria, helminth infections, and tuberculosis, as well as broader body fluid evaluations for cerebrospinal fluid, complete blood count, and urinalysis. A small refrigerator is available to maintain cold chain dependent drugs and vaccines as well as for the blood bank. Blood for transfusion is generally obtained from patients' family members and is routinely screened for blood type, HIV and malaria, although not for hepatitis C. Notable exclusions from the laboratory capacities include chemistries (such as potassium, sodium, chloride), renal function tests, liver function tests, and toxicology screening. While the scope of services at Lugufu is impressive considering the limitation of resources available to the TRCS, certain critical diagnostic and therapeutic tools are missing such as a pulse-oximeter, x-ray machine, ultrasound machine, ECG machine, mechanical ventilator, infant incubator, and slit lamp.

### *Personnel*

There are currently four Tanzanian MDs available to cover both Lugufu I and II. All four are fully capable of performing emergency caesarian sections and laparotomies, as well as elective surgeries such as tubal ligation, and lipoma removal. The nursing staff and midwives are hired from among the Congolese refugees as well as Tanzanian nationals. Likewise, the staff of Clinical Officers, (roughly the equivalent of physician's assistants in the United States) are comprised of both Congolese and Tanzanians.

### **Recent Indicators of Health Service Performance**

Morbidity and mortality data are rigorously compiled in Lugufu. The following statistics are all from the official monthly report from Lugufu in October, 2003<sup>1</sup>. At the time of this report the population of refugees was:

<i>Lugufu I:</i>	57,309
<i>Lugufu II:</i>	33,778
<i>Total:</i>	91,087

*Morbidity in the camps is measured by outpatient visits (see tables 1 and 2 above). Relative to the 2001 data, morbidity in Lugufu was significantly improved in October 2003 (Table 5), and exceed SPHERE standards.*

**Table 5: Morbidity in Lugufu Refugee Camps, October 2003**

	<i>Total Morbidity</i>	<i>Morbidity Rate (percentage of population per day)</i>
<i>Lugufu I</i>	<i>10,004 outpatient visits</i>	<i>0.56</i>
<i>Lugufu II</i>	<i>6,918 outpatient visits</i>	<i>0.66</i>
<i>SPHERE</i>	<i>--</i>	<i>1.0</i>

*Crude mortality and under-five year mortality rates also improved between 2001 (shown in tables 2 and 3, above) and 2003 (shown in tables 7 and 8, below), and exceeded SPHERE standards.*

**Table 6: CMR (per 1000 population/month), October 2003**

	<i>CMR</i>
<i>Lugufu I</i>	<i>0.4</i>
<i>Lugufu II</i>	<i>0.41</i>
<i>SPHERE Standard</i>	<i>1.5</i>

**Table 7: <5 mortality (per 1000 population/month), October 2003**

	<i>&lt;5 Mortality Rate</i>
<i>Lugufu I</i>	<i>1.13</i>
<i>Lugufu II</i>	<i>1.04</i>
<i>SPHERE Standard</i>	<i>3.0</i>

*In general, then, in October 2003, significant morbidity and mortality indicators within Lugufu I and II exceeded SPHERE standards, and improved since the last evaluation in 2001.*

## **Current Issues**

*The health facilities at the Lugufu camps have evolved from the modest yet effective Basic Health Care ERU, deployed in 1997, to a network of health facilities comprising well over 200 beds and exceeding SPHERE standards in morbidity and mortality indicators. Still, there are ongoing challenges to the health services and areas ripe for improvement.*

*As previously mentioned, the WFP decreased the food supply per person from the standard 2,100 kcal/person/day to 1,450. This drop in supply was followed by an*

*expected rise in malnutrition rates. Thankfully, by October 2003 this food supply had increased to 1,857 kcal/person/day, nearly meeting the SPHERE standard. There is no guarantee, however, that this supply will endure. The consequences of a decrease in food supply are clear and supported by the malnutrition surveillance data gathered in Lugufu and presented above.*

*The staffing and workload problems have not improved despite the findings and recommendations of the evaluation conducted in 2001. As funding for the camps decreases annually from the primary donor (European Commission Humanitarian Aid Office [ECHO]), while the population of the camps steadily rises, services will lose support, and the ongoing struggle to maintain and recruit staff through attractive remuneration packages will continue to be a futile effort.*

*An interesting issue that was raised in several interviews and meetings conducted during the preparation of this report was the impact of Congolese cultural beliefs and practices on health care in Lugufu. The socio-cultural preference to deliver babies at home has been addressed with success through the efforts of the HIT members. Other cross-cultural challenges, however, have been less successfully met. Numerous traditional healers work in Lugufu and are often the first source of health care for ill refugees. This has been observed to result in delayed care for numerous conditions and is responsible, in the eyes of many health care providers in Lugufu, for increased severity of patient conditions and even deaths. Herbal medications supplied by traditional healers within the camps have resulted in numerous significant pediatric intoxications as well as several deaths.*

*While it is not productive to simply enumerate all of the diagnostic and therapeutic tools that are not available in Lugufu, there are a handful of items that have the potential to have a significant positive impact on the health of the refugees. Absolutely no radiological services are offered in Lugufu. Although referrals can be made, in reality, this is not commonly done, and several cases that could be better managed with some imaging modality are simply handled as best as possible without them. For example, no plain radiographs can be obtained. While in extreme cases referrals are made, in more basic cases (a wrist fracture, for example), management is performed without imaging (fracture reduction, for example), with significant risk of suboptimal care. Plain radiographs, of course, require a large and expensive array of machinery as well as a continuous supply of film and chemicals for development. An*

*equally useful, but more easily maintained imaging tool for Lugufu would be an ultrasound machine. Requiring only electricity and gel, an ultrasound machine provides a quick, painless and safe method for imaging in numerous clinical scenarios.*

*The ultimate question surrounding the well-being of the refugees in Lugufu, of course, is when will they be repatriated safely. Unfortunately, the civil war in the DRC is maddeningly complex, and no clear end is in sight.*

### **Health Care in Lugufu in Retrospect/Recommendations**

*The health services in Lugufu have clearly come a long way since 1997 when the Basic Health Care ERU was deployed by order of the IFRC. The ERU was functional reasonably rapidly and successfully treated huge numbers of patients shortly after arrival on site. While numerous issues regarding the interaction between the Federation, the Operating National Society (Tanzanian Red Cross) and the Participating National Society (German Red Cross) arose, the ERU still functioned to expedite delivery of critical health services to the refugees in Lugufu, and to set a successful trajectory for the development of more permanent health services in Lugufu. It appears clear that a more concrete integration/handover mechanism would have improved the ERU performance. A memorandum of understanding between the IFRC, ONS and PNS is required to codify the roles of all agencies.*

*The significant cultural barriers to health care were an unexpected finding at the outset of the current evaluation. A cultural liaison or advisor from the Red Cross Society of the nation of origin for refugees could prove to be a useful source of insight into these issues. The ERU team members could also benefit from being well versed in concepts of medical anthropology that would enable them to better anticipate and recognize cultural barriers to health care delivery. Recognized early during ERU use, these insights could then be passed on and built upon as the health care services develop.*

*During a meeting of health service personnel at Lugufu, one team member mentioned that he was frustrated as to why some children die (of pneumonia, for example) despite proper treatment. Several explanations were offered to explain this, including undiagnosed conditions and advanced stages of disease. Notably missing, however, was the concern that antibacterial resistance to antibiotics might explain clinical worsening despite apparently appropriate treatment. Given the availability and indiscriminate use of antibiotics in the DRC (where they can be obtained inexpensively*

*and without a physician's prescription), the Congolese refugees are a set-up for acquiring antibiotic-resistant bacterial infections. Presently, there is no ongoing surveillance at Lugufu of sensitivity of disease-causing bacteria to the antibiotics being used to treat them. While employing such a surveillance system would incur a capital investment including a supply of culture media, an incubator, and technician training, the benefits of such a system could include easier, more directed, and more successful treatment of bacterial infections ranging from pneumonia, to sexually transmitted diseases, to sepsis.*

*Some basic radiologic tools would be useful in Lugufu and would likely improve patient care and decrease the need (and, therefore, cost) of referrals to outside regional facilities. Ultrasound may prove to be the most practical as it does not require significant supplies to run (such as film or developing chemicals), and has multiple applications. One of my personal aims is to search for donors of ultrasound machines and to return to Lugufu with colleagues to help instruct the health care providers in Lugufu on their use.*

*Finally, malaria is the single greatest cause of morbidity and mortality in Lugufu. The development and use of a malaria module designed for ERU deployment, and continued for long-term use, could be helpful in addressing this threat. This module could contain insecticide treated nets (ITNs), residual spraying chemicals, and possibly even malaria test strips. Focused surveillance for anti-malarial resistance should be an ongoing effort.*

### **Reflections on the Project and Personal Significance**

*In retrospect, the original idea behind this project was ill-conceived. My supervisor at the IFRC wanted me to evaluate the performance of the ERU as it was deployed in 1997 from the standpoint of the current health system in Lugufu. Upon arrival in Lugufu, however, it became clear that any connection between ongoing services and the ERU services from six years ago was faint at best. Only a few of the personnel currently working in Lugufu were there in 1997, and they are not directly involved in healthcare. My Tanzanian hosts seemed somewhat baffled when I explained shortly after my arrival that my intent was to analyze the ERU with the goal of improving it for future deployments. "Well you're six years late", I could sense them thinking.*

*From previous experiences I recognized that, especially when working abroad, projects have a tendency to "drift" as plans confront reality, and what is ideal succumbs*

*to what is possible. I tried to adapt my project to tracing the evolution of the health services in Lugufu from 1997 to the present and making recommendations as to how the current services could be cost-effectively improved. When possible I have attempted to relate back to the ERU deployment in order give some fulfillment of the original idea behind the project.*

*Still, from a personal standpoint, the project has been a great success. Over the last several years, as my interest in humanitarian issues and complex emergencies has developed, I have spent a great amount of time reading about the issues, history, controversies, and theories about the subject. Witnessing a massive refugee relief operation firsthand grounded all of this learning in reality. I gained a real sense of the complexities of delivering aid. Dimensions of relief operations such as ecological management (where are 60,000 refugees to obtain firewood to cook their food?), funding (the Tanzanian Red Cross has to jump through a different set of hoops to secure ongoing funding from each of its vast array of international donors), camp security (rape and assault are common occurrences), and numerous other facets, are immediately appreciable when witnessed firsthand.*

*While in Tanzania I also established several relationships with Tanzanian Red Cross staff which I will maintain. While in Lugufu I noticed that no ultrasound machine was available to the physicians. Upon my return to Berkeley, I contacted a representative of the ultrasound manufacturer that supplies my department and they agreed to donate at least one machine to this effort. I now plan to return to Lugufu this spring to deliver the machine and to conduct a workshop for the physicians on its use.*

*I also had the luck of spending a day with Dr. Seif Rashid, the national director of health for the TRCS. We discussed the possibility of establishing an institutional relationship between the TRCS and the residency program in which I teach. Residents could have rare and fascinating experiences working at Lugufu while providing the physicians and patients with much needed assistance.*

*My project in Lugufu has been a monumental learning experience for me, and a substantial building block in my career. There is no clearly defined professional path in International Health. Step by step, each experience I have had has moved towards a better understanding of the field and of potential roles for me to play in it.*

## References

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## Discussants/Interviewees

**Note: Principal sources of information noted below. An enormous amount of valuable and interesting information and many opinions were obtained from dozens of IFRC and TRCS personnel whose names are not mentioned below.**

*Dr. Hakan Sandbladh  
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