Short Report: Collaborative Medical Engagement and Needs Assessment in the Democratic Republic of the Congo: A Preliminary Report from Muanda

Emil Lesho,* Edmond Amisi Okito, Kelly Mann, Michael McCullough, and Elisabeth Hesse

Walter Reed Army Institute of Research, Silver Spring, Maryland; Hospital Militaire de Reference de Muanda, Armées de la République Démocratique du Congo, Muanda Military Base, Muanda, Democratic Republic of the Congo; Tripler Army Medical Center, Honolulu, Hawaii; Office of Security Cooperation, U.S. Embassy, Kinshasa, Kinshasa, Democratic Republic of the Congo; 82nd Civil Affairs Battalion, Fort Stewart, Georgia

Abstract. The Democratic Republic of the Congo is the second largest and fourth most populous country in Africa. More than two decades of ongoing conflicts have degraded its healthcare system. A broad range of tropical diseases, along with opportunities for collaborative medical engagements (CMEs), are prevalent. However, reports from such events in this country are sparse. In June 2013, a CME was conducted in the western town of Muanda. Twenty-two hours of didactic sessions were collaboratively presented, and 158 patients were collaboratively evaluated. Durable dental and respiratory equipment, infrastructure improvements, and training opportunities were the top needs identified by the providers. Whether the regional referral hospital received sustainable benefit remains under investigation. However, the approach and needs assessment described herein provide a framework for future engagements or assistance. This CME established a precedence of medical partnership in the region because it led to the largest multidisciplinary joint collaboration in the history of the Democratic Republic of the Congo.

With a population of more than 65 million persons, the Democratic Republic of the Congo is the fourth most populous nation in Africa and nineteenth most populous nation in the world. It is the second largest country in Africa and eleventh largest in the world, but a lack of infrastructure, including roads, makes travel throughout the country difficult.¹ For much of the past two decades, this country has been torn by conflict. The Second Congo War left almost six million people dead in one of the most violent conflicts in the world and prompted security sector reform and professionalization of the military in the Democratic Republic of the Congo.² Even today, conflicts continue in the eastern provinces of the country.³

As in all nascent states engaged in or recovering from conflict, access to healthcare had been limited throughout the Democratic Republic of the Congo in areas free from conflict, as well as those still engaged in it.^{3,4} These fragile states are often far from achieving health-related Millennium Development Goals, and improving health in these settings is a high priority.^{5,6} This effort often requires a combination of relief and health system strengthening from governmental and non-governmental partners. To direct relief in a timely and relevant manner, needs assessments must be performed before any decision to provide aid had been made. However, in these unstable states, needs assessments are often difficult to complete.⁵

Opportunities in the Democratic Republic of the Congo for assistance and collaborative engagement are plentiful, but because of difficulties inherent in performing these engagements, data and reports from such are sparse. In June 2013, we conducted a collaborative medical engagement (CME) type event outside the western town of Muanda. Muanda was chosen because, compared with Kinshasha or eastern Democratic Republic of the Congo, it provided a low risk/high yield opportunity because of its stability and positive relationship with the United States. Muanda is also the location of a multidisciplinary training center.

Details of the CME model have been described.⁶ That same three-part approach was followed here. In brief, initial meet-and-greet planning sessions, during which mutual objectives and capabilities were discussed, were followed by collaborative patient evaluations and consultations, and then by bi-lateral didactic sessions. Topics for the didactic sessions were derived from the expressed desires of the Congolese and U.S. participants and from suggestions by local Congolese leaders. The U.S. medical team included adult and pediatric infectious diseases specialists, a preventive medicine physician, a public health nurse, and a clinical laboratory officer. In addition, six senior physicians of the Forces Armées de la République Démocratique du Congo (Armed Forces of the Democratic Republic of the Congo) traveled from the capital of Kinshasha to participate. The objectives of the CME were to foster relations between U.S. and Democratic Republic of the Congo partners, to demonstrate the potential value of future engagements, and to conduct a preliminary needs assessment.

The CME was held at Kitona Military Referral Hospital, which functions as a 200-bed tertiary care center for the Ministry of Defense Health Zone of Kitona and the Rural Health Zone of Kitona, one of the few locations where the military hospital serves as a health zone center. The hospital is usually staffed by six Forces Armées de la République Démocratique du Congo physicians and four post-doctoral civilian physicians seeking advanced training. There are a total of 50 nurses of varying levels of training. There were also three Congolese clinical laboratory officers, one pharmacist, one radiographic technician, one physical therapist, and a dentist.

The structure of the healthcare system in the Democratic Republic of the Congo is three tiered: national, provincial, and operational levels. Policy and benchmarks are established at the national level, and the provincial level functions as an intermediary between the national and operational levels, somewhat akin to state health departments in the United States. The operational level contains zones, which correspond to a territory covered by a referral hospital and approximately 10–15 referring primary healthcare centers. Kitona Rural Health Zone, 1 of 6 military health zones and 1 of 515 operational health zones, consists of a population of 90,024 persons

*Address correspondence to Emil Lesho, Walter Reed Army Institute of Research, 503 Robert Grant Avenue, Silver Spring, MD 20910. E-mail: carolinelesho@yahoo.com

in an area of 180 km². This health zone is further divided into six health areas: four military areas (Banana, Baki-Ville, Troupe, and Camp Permanent) and two civilian (Nteva and Kibamba) areas.

In addition to clinical and academic activities, health statistics for the hospital and the Kitona Health Zone were obtained from briefs and presentations by hospital leaders and specialty staff. Throughout Kitona Health Zone, there were 28,594 patients with malaria in 2012, which was 24.9% of the population of the health zone. Eighty-one cases resulted in death. There were also 139 new cases of tuberculosis, of which 36 were co-infected with human immunodeficiency virus (HIV). The Military Referral Hospital of Kitona has been offering HIV counseling and testing since August 2005. Since that time, 9,280 patients have been counseled and screened, and 1,606 (17% of the screened population) patients were positive for HIV. A total of 631 patients were given anti-retroviral therapy in during that time. Overall, the prevalence of HIV in the Kitona Health Zone is estimated to be 1.8%.

In February 2013, the Kitona Health Zone saw the end of a cholera epidemic that lasted 12 months; there were 226 patients and 4 deaths. Leaders and administrators at the hospital credit strict attention to hygiene and aggressive resuscitation protocols. There were confirmed outbreaks of infection with Ebola virus, yellow fever, human monkey pox, and measles in other parts of the Democratic Republic of the Congo, but no cases were reported in this health zone.⁷ During the CME, the U.S. team and the Congolese health care providers evaluated 158 patients (81 male and 77 female) side by side as co-attending physicians. Most patients had infection-related disorders. The top ten presumptive diagnoses were malaria, upper and lower urinary tract infection, intestinal parasites, influenza, tuberculosis, HIV/acquired immunodeficiency syndrome (AIDS), meningitis, diarrheal/dysentery disorders, constipation, and dyspepsia.

Throughout the engagement, the U.S. team conducted needs assessments by asking every available physician and healthcare worker what they identified as the top three needs for the hospital. At least half of the 65 staff members and nearly every physician were available for interview and responded. Responses to the needs assessment varied and can be broken into categories of equipment, training, and infrastructure. Equipment needs included nebulizers, updated ultrasound and x-ray machines, a computed tomography scanner, better beds, stethoscopes for the providers, more books for the medical library, a new dental chair, tools, cameras, educational materials, and hemoculture. Training needs identified include opportunities to train abroad, and how to maintain and repair existing equipment, and better training was stated by many without specific ideas of how to go about providing this training. Finally, infrastructure needs identified included stable electricity, generators, running water, computers with internet access, increased laboratory capabilities, and more frequent insecticide treatment on the hospital grounds.

During the CME, there were academic sessions, which included lectures from U.S. and Congolese medical personnel. This was preferred over a model in which the U.S. team gave all presentations because it enabled the national directors of the HIV/AIDS, malaria, and tuberculosis programs to ensure that the medical staff of Kitona was aware of these national programs, which helped them achieve compliance. It also enabled the staff in Kitona to demonstrate their experiences and difficulties with these diseases and programs, as well as to present their

recent experience and final data from the cholera outbreak that ended in February 2013. Other topics included antimicrobial stewardship, best laboratory practices, measles, wound infections, and medical dispositioning of military service members who are HIV positive. The length of the CME was seven days, although some U.S. team members were in the area more than two weeks (EH), and others live there permanently (MM and EAO). A notable strength of this exercise was the collaboration between the U.S. and Congolese, thereby meeting the diplomatic guidance and overarching goal of doing things with African partners instead of for them (Entwistle JF, Embassy of the United States Kinshasa, 2013, unpublished data).

At this time, the follow-up period is not sufficient to determine if the public health and infectious disease capabilities of the Referral Hospital of Kitona have been sustainably improved, but the needs assessment provides a guide for future engagements, donations of supplies, and other aid to help achieve this objective. Through the participation of the senior-level Congolese medical officers and regional program directors, the medical staff at Muanda and Kitona received updates on their programs for HIV/AIDS, malaria, and tuberculosis. Discussions were immediately undertaken among staff and directors to correct identified deficiencies in those programs. Finally, the CME appeared to foster good working relationships between the U.S. and Congolese because further engagements between the two countries are in planning and underway. It is unlikely that a traditional unidirectional donation and assistance type mission, where primary medical care was provided without further education, training, or needs assessments, would have achieved these same objectives.

The Muanda CME established a precedence of medical engagement that has led to the development of the first U.S. interagency, joint, multidisciplinary engagement in the history of the United States and the Democratic Republic of the Congo. The fact that such a complex follow-on event could be coordinated and linked to the CME in such a short period suggests that the CME and needs assessment performed therein were successful.

Received September 12, 2013. Accepted for publication January 14, 2014.

Published online February 17, 2014.

Disclaimer: The views expressed in this paper are solely those of the authors and should not be construed as official or as representing those of the U.S. Department of Defense, Department of State, or the U.S. Army.

Authors' addresses: Emil Lesho, Walter Reed Army Institute of Research, Silver Spring, MD, E-mail: carolinelesho@yahoo.com. Edmond Amisi Okito, Hospital Militaire de Reference de Muanda, Armées de la République Démocratique du Congo, Muanda Military Base, Muanda, Democratic Republic of the Congo, E-mail: okitoamisi@yahoo.fr. Kelly Mann, Department of Infectious Diseases, Tripler Army Medical Center, Honolulu, HI, E-mail: kelley.m.mann5.mil@mail.mil. Michael McCullough, Office of Security Cooperation, U.S. Embassy Kinshasa, Kinshasa, Democratic Republic of the Congo, E-mail: mcculloughms@state.gov. Elisabeth Hesse, 82nd Civil Affairs Battalion, Fort Stewart, GA, E-mail: elisabeth.m.hesse.mil@mail.mil.

REFERENCES

1. CIA, 2013. *Democratic Republic of the Congo*. Langley, VA: Central Intelligence Agency. Available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/cg.html>.

2. Profile C, 2013. *Democratic Republic of Congo*. Security Governance Group. Available at: <http://www.ssresourcecentre.org/countries/drc/>.
3. Van Herp M, Parque V, Rackley E, Ford N, 2003. Mortality, violence and lack of access to healthcare in the Democratic Republic of Congo. *Disasters* 27: 141–153.
4. Newbrander W, Waldman R, Shepherd-Banigan M, 2011. Rebuilding and strengthening health systems and providing basic health services in fragile states. *Disasters* 35: 639–660.
5. Casey SE, Mitchell KT, Amisi IM, Haliza MM, Aveledi B, Kalenga P, Austin J, 2009. Use of facility assessment data to improve reproductive health service delivery in the Democratic Republic of the Congo. *Confl Health* 3: 12.
6. Lesho EP, Jawad NK, Hameed HM, 2011. Towards a better approach to medical humanitarian assistance in Iraq and future counterinsurgency operations (editorial). *Mil Med* 176: 1–3.
7. Waogodo J, 2013. *Democratic Republic of the Congo*. Geneva: World Health Organization. Available at: <http://www.who.int/countries/cod/en/>.