

DEVELOPING TOOLS AND HUMAN RESOURCES FOR EMERGENCY CARE IN AFRICA

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Medical student funding for this ultrasound phantom project funded by the UF Medical Student Research Program (MSRP). Sub-Saharan Africa faces a disproportionate burden of acute illness and injury and few facilities are appropriately staffed and equipped to provide resuscitation and stabilization in a coordinated manner. While there are challenges in implementation due to lack of consensus on metrics for regionally appropriate evaluation and lack of coordinated advocacy, emergency care is gaining recognition as a means for providing important and efficient secondary prevention and also providing a mechanism to obtain surveillance data necessary to improve primary prevention. Slowly, Ministries of Health, universities, and other organizations are embracing the concept of integrated prioritization and early resuscitation and stabilization of acutely ill and injured patients by specialty trained emergency care practitioners to improve outcomes for all ranges of patients—from medical to surgical to pediatric to obstetric.

In the past year, I have had the fortune to serve as a faculty member for Rwanda's first emergency medicine specialist training program coordinated by the sidHARTe Rwanda (Systems Improvement at District Hospitals and Regional Training for Emergency Care) and the Human Resources for Health programs implemented by Columbia University's Mailman School of Public Health and Brown University in coordination with the Rwandan Ministry of Health. In addition to providing daily clinical supervision and implementing curriculum for the country's first physicians in training for specialty designation in emergency medicine, I served on committees developing hospital and national policy for the treatment of emergency conditions at the University Teaching Hospital of Kigali and in Rwanda.

Teaching daily in Kigali exposed the need for additional low-cost simulation

materials for teaching procedural skills in Rwanda and other low-resource settings. Specifically, we needed improved models for teaching the use of point of care ultrasound—a low-cost means for rapid assessment of many emergent conditions and also improved ability to provide adequate intravenous access. After returning from Kigali, I worked with Matthew Earle, a UF College of Medicine second-year student, and Dr. Giuliano DePortu, a UF emergency physician with expertise in point of care ultrasound to develop an improved training model for ultrasound guided catheter placement. Our goal was to produce a low-cost model that would allow easy preparation as needed for skills training labs without requiring refrigeration that would also be durable enough to withstand local ambient temperatures and multiple classroom uses. Mr. Earle tested several compounds to improve upon previously described low-cost teaching models utilizing gelatin or perishable components such as deli meat used to simulate human tissue and blood vessels. An agar-agar model was compared to human tissue and gelatin models and evaluated for durability and in various ways for likeness to human tissue utilizing ultrasound in the simulation lab. The optimum model is described in “Agar Ultrasound Phantoms for Low-Cost Training without

Refrigeration,” a manuscript accepted for publication in a forthcoming issue of the *African Journal of Emergency Medicine*. We look forward to continuing to develop opportunities for UF medical students, residents, fellows and faculty to participate in the development of emergency care for Africa by engaging in research and educational projects to meet such local needs.

The Rwandan Emergency Care Association was established this year, and I continue to serve as a mentor for the country's first professional organization representing physicians, nurses and pre-hospital care providers involved in emergency services. The organization joined the African Federation for emergency Medicine this summer and looks forward to developing services for Rwandan practitioners and others in the region. RECA anticipates their first continuing education congress in 2016. I continue to actively participate in the educational endeavors of the African Federation for Emergency Medicine and the Rwandan Emergency Care Association.

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