

Humanitarian cardiac surgery outreach helps build a better health care system in Rwanda

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Ralph Morton Bolman III, M.D. (left) and Robert Oakes, M.D., Lincoln, Nebraska (right), assist Maurice Musoni, M.D. (center), a Rwandan surgeon-in-training, in a valve operation. Dr. Musoni will be the first Rwandan cardiac surgeon trained through this program. Credit: Team Heart

Providing adequate cardiothoracic surgical care in a resource-limited setting presents a unique cluster of challenges. A shortage of doctors or specialists, inadequate access to necessary medications, and patient limitations are just some of the myriad issues that make treating heart disease in places like sub-Saharan Africa incredibly difficult. This year's AATS Centennial, the annual meeting of the American Association for Thoracic Surgery, features a presentation from a team of doctors and other medical professionals who have been travelling to Rwanda for the past 10 years as part of a surgical outreach program aimed at treating patients affected by rheumatic heart disease (RHD) and building a foundation for sustainable cardiothoracic care throughout the country.

In sub-Saharan Africa, RHD dominates as a leading cause of death. RHD results from untreated strep infection and, when left unchecked, can do great damage to heart valves. Many individuals who die from RHD are very young and each year the disease is responsible for more than one million untimely deaths.

The Rwandan genocide in 1994 crippled the country's [health care](#) system, leaving many RHD patients without any chance for treatment. Even today, Rwanda still only has one doctor per 10,500 people and the ratio of specialists is even worse; there are only five cardiologists to serve a total population of 11.5 million.

In order to help relieve some of the pressure on an already stressed health care system, a humanitarian health organization, Team Heart, began sending surgical teams annually to Rwanda starting in 2008. Every year, 35-50 medical and non-medical volunteers travel from the United States to Rwanda to diagnose and treat RHD.

"The goal of Team Heart is to facilitate a partnership with the Rwanda Ministry of Health to establish a sustainable, independent, dedicated [cardiac care](#) center for children and adults with all forms of [heart](#)

disease, which would be a center of excellence in the country and for all of East Africa," said Team Heart physician JaBaris D. Swain, MD, Clinical Fellow in Surgery, Brigham and Women's Hospital, Boston, MA. "This report represents the first account of a long-term humanitarian effort to develop sustainability in cardiothoracic surgery in a resource-limited setting with superior outcomes. We have demonstrated the effectiveness of utilizing volunteer teams to deliver care, transfer knowledge, mentor local personnel, and train key individuals to assist in mitigating the burden of cardiovascular disease in sub-Saharan Africa."

To date, the team has operated on 149 patients 11-47 years of age. Overall, the 30-day mortality rate of patients treated has been 4-5%, with long range mortality at around 10%. Many of the surgeries involved mechanical valve replacement, as well as valve repair, including double and triple valve surgeries. Because of the poor conditions in Rwanda, most patients faced major post-surgical challenges, including systemic anticoagulation and barriers to follow-up care.

"In addition to delivering life-saving surgery, our efforts from the outset have focused on improving screening and diagnosis to allow early treatment of strep throat in order to prevent the development of RHD. Also, we have concentrated on knowledge transfer and education of our Rwandan colleagues, with the eventual goal of establishing a Rwandan-staffed cardiac center," explained Team Heart co-founder Ralph Morton Bolman III, MD, Professor, University of Vermont College of Medicine, Burlington, VT. "From the beginning of our involvement in Rwanda, we have sought to establish a sustainable program in cardiac care."

Team Heart has had lasting, positive effects on the state of health care in Rwanda. Along with the many lives saved by their direct surgical efforts, their work will live on through continually improving cardiac care for the country. The team has helped to identify a new Rwandan surgeon

who is currently living in South Africa, training in general and cardiac surgery. The group is also actively working with the government to set up a new cardiac center.

"Through the method of consistent yearly humanitarian surgical trips for a decade with good patient outcomes, and now with demonstrated improvement in quality of life for postoperative [patients](#), a platform has been created that can hopefully be leveraged for the creation of the desperately-needed next level of care for this neglected part of the world," emphasized Dr. Bolman.

Provided by American Association for Thoracic Surgery

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