Land of a Thousand Hills

The challenges of medical care at a hospital in the mountain foothills of Musanze, Rwanda

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This is the first of two related articles describing a new One Health Initiative collaboration between the UC Davis Department of Internal Medicine and the UC Davis School of Veterinary Medicine.

HIGH IN A VOLCANIC MOUNTAIN range in northwestern Rwanda are some of the rarest primates in the world: mountain gorillas. While most of the thousands of people who live in the foothills surrounding the Parc des Volcans will never see the gorillas in person, their presence affects every aspect of their lives.

One of these effects is doubtlessly beneficial: the flow of money that foreign tourists pump into a local economy that otherwise depends on subsistence farming and cottage industry.

Despite the access of near-universal health care provided by the national government, the rural health clinics and the district-level hospital in Musanze suffer from lack of resources, lack of staffing, and lack of physicians. The goal of the One Health Initiative in Rwanda is to integrate the health of the endangered mountain gorillas, whose medical care is provided by the Mountain Gorilla Veterinary Project, with the health of the local environment and the local people.

Supported by the UC Davis Department of Internal Medicine and School of Veterinary Medicine’s Wildlife Health Center’s One Health program, two internal medicine residents spent one month in Musanze in June 2010. They worked with interns and physicians at Ruhengeri District Hospital and with Comprehensive Community Healthcare Initiatives and Programs (CCHIPs), an American NGO that has been coordinating capacity-building in multiple rural health centers in the hospital’s catchment area.

The Ruhengeri District Hospital is an acute care facility with departments of surgery, internal medicine, pediatrics, and obstetrics. For internal medicine, mornings begin at “7 a.m. sharp,” when the overnight intern presents patients admitted to the hospital since yesterday’s rounds. There are three interns here, and during the course of the week, they take turns staying overnight for admissions. They provide most of the care to the patients.

Graduates of the single Rwandan medical school become general practitioners after completing a one-year internship rotating through internal medicine, surgery, obstetrics and gynecology, and pediatrics at one of five teaching hospitals in Rwanda. In this country of 9.3 million, there is one doctor per 18,000 citizens and 1 nurse for every 1700.

Although the hospital’s Internal Medicine department has a 100-bed capacity, the acuity of illness warranting hospitalization is much lower than what we see in the U.S. Over 90 percent of Rwandans are covered by the national health insurance plan, Mutuelles de Santé, that costs $2.00 per year. To receive care in the district hospital, the patient must be referred from a rural health center.

A patient with cough and fever may have to walk many miles to reach the clinic. Once there, the patient may remain briefly in the clinic’s 3–6 bed inpatient ward, or be referred to the district hospital for more treatment. If there is no family member to provide nursing care and meals, patients are expected to do this on their own, and will have to walk to town to purchase food. Therefore, the beds are often filled with patients sick enough to be hospitalized but well
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At the same time, like anywhere in the world, there are plenty of very sick patients in the district hospital. On one particular morning, rounds included a young adult with possible bacterial meningitis, a handful of severely anemic malaria patients, and several tachycardic, hypotensive patients with suspected typhoid fever.

Interns present the overnight cases inside a small room — which also serves as the utilities room because it has a functional sink — surrounded by the doctors and nurses who staff the hospital wards. As is done in medical education around the world, there is some gentle pimping (questioning) by the attending staff, and then the teams set out for bedside rounds to see all 80 patients on the wards. This census, we are told, is relatively light.

Rounds are conducted in English, even though the patients and nurses speak only Kinyarwanda (and sometimes French) and the interns themselves only began to learn English when they started medical school. Here in Musanze, there are also several Cuban physicians who see patients and supervise rounds, so Spanish has been added to the language fray. The bedside presentations begin in slow and carefully articulated English, but it is not long before the medical debate that follows quickly picks up in a fast, colorful mixture of Kinyarwanda, French, English and Spanish.

Many familiar elements on rounds cross the language barriers and continents. The doctors sometimes speak gruffly, remove patients from their bed to expose their naked bodies or various deformities for everyone to see, and do not explain diagnoses or treatments because they are in a hurry. The patients stare blankly ahead, make no eye contact, and are absolutely gracious about the care they receive. Procedures like lumbar punctures and thoracenteses are done at bedside, quickly and without explanation or anesthetic.

The large volume of patients and significant staff and resource constraints result in nearly identical medical care for the critically ill and the walking sick. Labs are often checked once at the time of admission; results take a day or two to come back. Vital signs, if necessary, are monitored once or twice daily. There is an x-ray machine on site, but it has not worked for several weeks, so patients who need an x-ray must pay for transportation to a different town to have it taken and then return for treatment. The EKG machine ran out of paper a few months ago, and replacement paper is no longer available — if it ever was — in Rwanda.

Despite the many differences between our medical systems, the overall culture and practice of medicine is surprisingly similar. Interns struggle through rounds and whisper answers to each other, attendings capitalize on teaching moments, and patients often serve as a mere background for medical education.

Yet, as soon as rounds end, patients become the focus again, and one can see the concern in their doctors’ faces, as they sadly discuss a dying patient or make frustrated references to the financial constraints that prevent them from providing their patients with the tests or medications they need.

While participating in rounds, we American outsiders struggle to grasp limited wisps of
We have not just become dependent on expensive tools for making even a simple diagnosis, we have lost our comfort with the ambiguity that — though glaringly blatant in a resource-limited place like Rwanda — remains present in every clinical encounter.

In the face of these challenges, the nurses and physicians, often overworked and as frustrated as we were with the resource limitations, performed their duties with great humility and courage. In the hospital, we saw several young patients recover from bouts of presumed typhoid fever and severe malaria with timely treatment with antibiotics and Coartem (artemether/lumefantrine) provided by the Global Fund to Fight AIDS, Tuberculosis and Malaria.

In the rural clinics, we saw first-hand the beneficial effects of investments in the clinic infrastructure and the improvements in clinical management through training and capacity-building facilitated by the CCHIPS team. The pride and cohesion among the clinic staff was clearly leading to beneficial outcomes for the community's public health, with community health workers improving immunization access for children and many more women making use of the clinic’s birthing rooms for childbirth instead of attempting less safe home births.

As a resident training in the resource-rich hospitals of Sacramento, the stark differences in health care in rural northwestern Rwanda were immediately apparent. However, as we spent more time with our Rwandan colleagues, the similarities in our training became more evident. History-taking, physical exam skills, and the treatment of asthma attacks, hypertensive urgencies, and heart failure exacerbations were more similar than different from our practices here in California.

One of the most rewarding opportunities we had was in developing teaching sessions for the nurses in the CCHIPS clinics and more informal teaching with interns in the hospital. These exchanges convinced us that, with increased investment in medical education, Rwandan health care has the potential for great improvement.

We hope that more residents and faculty from UC Davis will have the chance to return to Musanze for the kind of bilateral education that we experienced in Rwandan hospitals and clinics, and that these relationships will be beneficial to Rwandans as well as to the health of the mountain gorilla community.

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1 http://gorilladoctors.org
2 http://wvhps.org
3 http://www.moh.gov.rw
4 www.nytimes.com/2010/06/15/health/policy