

TRAINEE HUB

MURAKOZE: GI FELLOWSHIP & PARTNERSHIP IN RWANDA

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WORDS CANNOT CAPTURE THE BEAUTY OF RWANDA AND ITS PEOPLE. Ernest Hemingway's travel through East Africa described the green rolling hills, rich in flora and fauna, and my experience traveling in Rwanda felt both familiar and unknown. I do not attempt to paint imagery of my experience as magnificent as it felt, but I hope to inspire physicians to consider traveling to become globally minded gastroenterologists.

GI Rising Inc.

Six years ago, ACG MAGAZINE highlighted the first Rwanda Endoscopy Week (REW) organized by Steve Bensen, MD, Fred Makrauer, MD and Vincent Dusabejambo, MD (Bensen S, Makrauer F., Giving Rise to GI in Rwanda. *ACG Magazine*. 2018; 2(2):26-36). This exposure attracted the annual participation of other North American gastroenterologists and the creation of GI Rising Inc., a non-profit organization dedicated to bringing sustainable gastroenterology and endoscopic care to the people of Rwanda, a small country of 14 million in sub-Saharan East Africa. (They even took their name from the ACG Magazine article title!)



GI Rising Inc. is led by Dr. Bensen (Dartmouth-Geisel Medical School), Dr. Makrauer, MD, (Harvard Medical School) and board members including Don Duerksen, MD, (University of Manitoba), Matt Smith, MD, Rebecca Laird, MD, MPH, Lisa Rubenberg, CRNA and Kene Chudy-Onwugaje, MD (Dusabejamba V, Walker T, Makrauer FL. Reply. *Gastroenterology*. 2020 May; 158(6): 1844-1845). Their close 'grassroots' partnership with pioneering Rwandan physicians such as Dr. Dusabejamba and the Rwandan Ministry of Health has led to the creation of Rwanda's first postgraduate training program.

In 2022, the first class of GI fellows was recruited to The University of Rwanda's Fellowship in Gastroenterology and Hepatology. This program is thought to be Africa's first sustainable GI fellowship and a model for the country's efforts to restore physician capacity after the 1994 Genocide. In many ways, Rwanda's partnership with GI Rising Inc. planted the seeds for this growth and development of internal medicine subspecialty programs in Rwanda.

Any program director in North America knows the immense work it takes to develop a new fellowship and this challenge was compounded by limited resources, and lack of in-country specialists. Hanna Aberra, MD, PhD completed her training in Ethiopia and was recruited as the first GI Fellowship Program Director. She is a phenomenal educator, advocate, and leader in a field where few women are empowered to make change. Interestingly, I found the differences in gender inequality less prevalent among Rwandan physicians, with many women holding leadership positions, and three of the first four GI fellows being women.

In collaboration with GI Rising Inc. and the Medical College of Wisconsin, international faculty members from all over the world travel to Rwanda each month to collaborate with local faculty in the education and training of their fellows. In 2023, two university hospitals in Kigali, the capital of Rwanda, were recognized as World Endoscopy Organization Centers of Training, a distinction acknowledging the excellent quality of endoscopic

education. The heart of this fellowship program remains its self-sustainability with strong local buy in and Rwandan directed development. With the advent of hybrid digital education, mentorship and training continues long after faculty leave Rwanda, allowing for an enduring connection.

Historical Context

Rwanda is a country rebuilt with strength and resilience following the 1994 Genocide when a 100-day period of widespread ethnic cleansing accounted for the death or displacement of 1 million people. This genocide was deeply personal, rooted in ethnic hatred and propaganda arising from over a century of European colonization. Neighbors killed neighbors, families were displaced, and the survivors were faced with the enormous responsibility of forgiveness. In the face of this destruction, the Rwandan economy and health care system was decimated, with the loss of 90% of physicians and health care workers who sustained the country's poor health care system. Now a new generation of physicians are being trained in Rwanda, and as the best and brightest from their communities, they represent a new era of hope, as many are first generation physicians guided by the intention of giving back to their communities.

Over the last 30 years, Rwanda has made inspiring strides to reimagine health care. From 2012 to 2019, the Rwandan government led the Human Resources for Health Program (HRH Program), a bold initiative to allow international physicians to help fill the shortage of health professionals. During this time of rebuilding, Rwanda made the intentional decision to provide universal health insurance to all citizens. With this innovation, strides have been made across the health care sectors, with community health partnerships decreasing the access time for rural villagers, with impressive increases in life expectancy and deaths in children under age 5. Universal health care grew from a pilot project of health insurance funded by the Ministry of Health, called *Mutuelle de Sante*, providing free care to the poorest 25% of Rwandans. To this end less than 10% of all Rwandans are uninsured today.

There are four national referral hospitals in Rwanda: Kigali University Teaching Hospital (CHUK), King Faisal Hospital Kigali, Rwanda Military Hospital, and Butare University

Teaching Hospital. Currently, the GI fellows spend time providing care and performing endoscopy at CHUK and King Faisal Hospital. The notable limitation is that access to GI care outside of Kigali is limited. During my time in Rwanda, I met patients who traveled by foot, motorcycles, and buses to reach a doctor's appointment. Four GI fellows are prepared to graduate in 2024 and have committed to remaining in Rwanda to become faculty and provide patient care. Over the next 5-10 years endoscopic care will continue to expand from the main teaching hospitals in Kigali to district hospitals to improve access.

Rwanda Endoscopy Week (REW)

In 2016, the Rwanda Society of Endoscopy was formed with a group of North American faculty and local Rwandan internists. In 2017, the first REW was held, and the following year GI Rising Inc. was created. Today, REW has become a yearly collaboration between GI Rising Inc., the Rwanda Society for Endoscopy, and the University of Rwanda to increase access and knowledge of GI diseases. During REW gastroenterologists, GI fellows, CRNAs, anesthesiologists, endoscopy technicians, nurses, and biomedical engineers travel from around the world to Rwanda to provide high-level patient care while teaching Rwandan physicians. Through fundraising, grant applications and donations, GI Rising Inc. has been able to outfit the various sites with endoscopic equipment and consumable devices allowing for development and delivery of endoscopy services in urban centers and remote district hospitals.

In 2017, they performed 250 procedures at four sites, and by 2023 expanded to 1069 procedures at ten sites. As the number of procedures has increased so has access to anesthesia supported sedation. Lisa Rubenberg, CRNA has led initiatives to create a sustainable education for Rwandan nurse anesthetists. Similarly, Conrad Worrell, RN and President of the American Board of Certification for Gastroenterology Nurses has been dedicated to helping nurses obtain the

skills they need to assist in procedures and care for endoscopic equipment. The cultural implications of sedation for a medical procedure are far-reaching and as GI Rising Inc. works to increase access to endoscopy, they believe ongoing collaborations with Rwandan health care professionals are essential.

My Journey in Rwanda

In October 2023, I traveled to Rwanda for a month-long clinical elective planned to coincide with Rwanda Endoscopy Week. Every day in Rwanda was a new adventure filled with opportunities for direct patient care, teaching, and connection. The first week of REW was a conference led by Rwandan physicians to provide case-based teaching to the forty-two internal medicine residents and five GI fellows. During the second week, I traveled to Butaro District Hospital with Conrad Worrell, RN, (Brigham & Women's Hospital) and Don Duerksen, MD, (University of Manitoba). As we traveled on the unpaved roads from Kigali to Butaro, I felt nervous, alone with my thoughts and uncertain of what we would encounter, though somehow freer having left the chaotic city of Kigali. We arrived as the sun set with rain teeming from the skies, but the significance of our arrival was palpable. In the next week we would perform the first endoscopic procedures at this site.

Butaro District Hospital is a unique 240-bed hospital and cancer center developed in collaboration with Dr. Paul Farmer, Partners in Health, and the Rwandan Ministry of Health. Patients from East African countries travel to seek specialized cancer care. This is a special place deep in the rural green hills of Rwanda; a peaceful land of healing and caring for the whole person. After only a few minutes on campus, it was easy to see how Dr. Paul Farmer had chosen this location and spent his final hours here before his passing in 2022. Currently, patients with suspected GI malignancy are referred to Kigali for diagnostic endoscopy, increasing patient burden of travel, finances, and time-to-diagnosis which limits treatment options. Over 5 days, about 200 patients were self-referred for evaluation



Katie Dunleavy and Steve Bensen present iPads and Mayo Board Review textbooks to program director Hanna Aberra and Rwandan GI Fellows.

and we performed 81 unsedated EGDs with indications ranging from epigastric pain to weight loss. While most patients had non-ulcer dyspepsia with a normal endoscopic assessment, five patients had masses concerning for malignancy.

This pilot project demonstrated a significant demand for GI endoscopy in rural Rwanda, which could only be achieved with the support from Butaro Hospital physicians, staff, and administrators. We stayed on campus at the enchanting University of Global Health Equity (UGHE) located within walking distance of the hospital. UGHE has created an innovative medical university focused on delivering high quality health care by addressing social and systematic inequities in health care delivery. Watching the sun rise as the mist lifted over a nearby volcano is a memory I will cherish forever.

INTRODUCING THE RWANDAN GI FELLOWS:

Solange Mukanumviye ('24), Shikama Felicien ('24), Dynah Nyampinga ('24), Zainab Ingabire ('24), Cedric Kwitonda ('25)

During my time in Rwanda, I cultivated a love for teaching students and trainees, and as a first-time endoscopy instructor, I mirrored techniques used by my valued mentors. During my last two weeks in Rwanda, I spent as much time as I could getting to know the GI fellows who sacrificed to pursue this sub-specialty training. A generous donation from a gastroenterology consultant at Mayo

Clinic helped provide the fellows with new iPads, which will be essential to providing access to online textbooks, GI fellowship curriculum and board review. Most importantly, these iPads will provide a direct link to continue our friendship and mentorship from afar.

I witnessed the direct impact of medical education as lessons taught were applied to patient care in the moment. Patients were correctly diagnosed or medically managed because of teaching and mentorship. When I spent an afternoon in GI clinic with a fellow, one patient stood out to me because it was so clear how a lack of locally available GI training had directly impacted her care. Although a young woman, after the pregnancy of her last child she started noticing bleeding per rectum. She was treated with cycles of antibiotics for over 9 months before being referred to the teaching hospital in Kigali. She traveled to the capital with her husband and a backpack, unclear of when or if she would return home. A simple digital rectal examination had never been performed, though within minutes of her physical examination a rectal tumor was found. Days later, following urgent colonoscopy with biopsy she was diagnosed with a new unresectable rectal cancer. One of the GI fellows hopes to use this experience to teach community health workers the value of physical exam to help expedite patient care.

Amidst much uncertainty, and my limited understanding of the national language, Kinyarwanda, I quickly

learned that the Rwandan GI fellows are exceptional. As individuals they are compassionate, curious, and intelligent, but as a collective they are the future leaders and a symbol of hope for their country. There were times during my stay I felt powerless because the medicine I knew could help treat the diseases of poverty and social exclusion were out of reach. In these moments, I looked across the exam room and saw faith in the fellows' eyes. I'm confident that their optimism, drive, and unique understanding that health is impacted by social circumstance will empower change in Rwanda.

Already, Rwandan physicians are providing trauma-informed care as they work to understand the impact of collective trauma on health disorders. I will never forget the moment I realized that chronic epigastric pain in Rwanda may be a symptom of distress relating to the aftermath of the genocide. When seeing a patient in Butaro Hospital with a wonderful Rwandan physician, Ruth Mukeshimana, MD, the patient described how her abdominal pain started when she was little girl hiding in the forest. The physician explained to me that this is how many people refer to their time trying to escape captors during the genocide. Following this patient's normal endoscopy, we spent time discussing and drawing the gut-brain interaction. While the stressors of life may be different in Rwanda, I learned not to overlook the connection between social circumstances and physical symptoms.

Reflection

It's difficult for me to describe how this adventure began, but I am hopeful that it is not yet at its end. Ernesto 'Che' Guevara may have expressed this best in Motorcycle Diaries when he said, "The first commandment for every good explorer is that an expedition has two points: the point of departure and the point of arrival. If your intention is to make the second theoretical point coincide with the actual point of arrival, don't think about the means - because the journey is a virtual space that finishes when it finishes, and there are as many means as there are different ways of 'finishing.' That is to say, the means are endless."

I am appreciative for the travel grant from the Mayo International Health

Program that made this trip possible. When I see the sacrifices the Rwandan GI fellows have made to become leaders of GI in their country, I feel so proud to be a small part of their journey. I now recognize that no matter where my path leads me in academic medicine, I must always have a space in my heart for global health work. Dr. Paul Farmer was right when he said, "with rare exceptions, all of your most important achievements on this planet will come from working with other - or in a word, partnership."

Returning home to finish my final year of GI fellowship at Mayo Clinic has made me count my blessings. I was honored to be offered a position on the Board of Directors for GI Rising Inc. and hope that this is the beginning of a long enduring relationship. In the future, I hope the Rwandan GI fellows can be afforded the opportunity to visit international institutions just as I was afforded the opportunity to learn from them. I enthusiastically encourage all GI fellows to participate in a global health experience (Luft S, Makrauer F. How (and Why) to Get Involved with Global Health as a GI Fellow. *Dig Dis Sci* 2022 Aug;67(8):3485-3486. doi: 10.1007/s10620-022-07577-7). A huge thank you to the incredible people I met during REW who traveled across the world to take part in this enriching experience! I learned to triage patients with unfamiliar and advanced pathology in a resource-limited setting as I navigated language and cultural barriers. There is no doubt that I returned to the States, a better person, physician, endoscopist, and educator.

HOW CAN YOU HELP?

1. Connect with GI Rising Inc. at our website: gi-rising.org or email us for more information.
 - Dr. Katie Dunleavy: Dunleavy.katie@mayo.edu
 - Dr. Steve Bensen: Steve.P.Bensen@hitchcock.org
 - Dr. Frederick Makrauer: fmakrauer@bwh.harvard.edu
2. Donate at gi-rising.org/about-5 All funds support fellowship education, maintenance of endoscopic equipment, medical non-physician professionals and scholarship support for Rwandan physicians to travel to conferences.
3. Educate & Mentor GI Fellows and Internal Medicine Residents.
4. Volunteer to travel to Rwanda as faculty for the GI Fellowship program or during Rwanda Endoscopy Week. We would love to see more GI faculty, fellows, residents, students, and non-physician medical professionals join us! It is vital to have partnership with nursing, endoscopy technicians, IT support, BioMed, anesthesia, surgeons, etc.
5. Partner with GI Rising Inc. to enlist support from private and industry donors.





(#)Pictured Left to Right: Peter Bensen, Shikama Felicien, Matt Bryan, Rukaiya Bashir-Hamidu, Ivy Riano Monsalve, Hanna Blaney, Katie Dunleavy, Steve Bensen, Kuldeep Tagore, Erik von Rosenvinge. (#)The new endoscopy unit supported by The Ministry of Health and hospital administration at The University Teaching Hospital of Kigali. (#)Dr. Katie Dunleavy and Dr. Steve Bensen celebrating a successful 6th Annual Rwanda Endoscopy Week! (#)The beautiful and transformative University of Global Health Equity Butaro Campus. (#)Pictured Left to Right: Conrad Worrell, Alex Zhornitskiy, Joseph Romine, Beth Pflanz, Kristin Sprenger, Lisa Rubenberg, Arlina Aviles, Michelle Kennett. Katie Dunleavy, Donald Duerksen, Ruth Mukeshimana (Rwandan resident), Conrad Worrell, and Jean Leonard Mugisha (Rwandan nurse) perform the first EGD at Butaro Hospital in November 2023. (#)Erik von Rosenvinge, Rukaiya Bashir-Hamidu, Vincent Dusabejamba (Rwandan gastroenterologist), and Kuldeep Tagore at Charite Digestive Clinic in Kigali, Rwanda. (#)Patient physical examination prior to endoscopy shows significant nutritional decline and wasting due to lack of medical access. Patient permission obtained. (#)Second year GI fellow, Shikama Felicien, performing endoscopy with nursing team at CHUK hospital.

