

Framework in Global Health
Global Health Scholars Program

February 2009 Fellowship Recipient

Proposal Title:

**“Cervical Cancer Education and Screening in a
Rural Burundian Community and among the
Burundian population of Rhode Island”**

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Introduction / Personal Statement:

I grew up as part of a close-knit, extended family in Boston. My parents both live within a few miles of where they were born, as do all of my aunts, uncles, and cousins. I went to Amherst College, in Western Massachusetts, and at two hours away, that seemed unbelievably far from home. Then, as a college junior, I spent a semester in Costa Rica. Until that trip, I had never been outside of the U.S. The time I spent living and studying in Central America was unlike anything I could have imagined. It showed me a perspective I never knew existed, and completely reframed my world view. My time there taught me a great deal about myself, and I came to understand that traveling and working internationally was something I needed- something central to my life.

I continued to travel and look for opportunities abroad, and as a medical student I had the opportunity to return to Central America to work in Nicaragua. I traveled to the isolated, autonomous region of RAAN in the northeast of the country, first working with local surgeons in the small city of Puerto Cabezas, and then working in the even smaller village of Bilwaskarma, with other volunteers from Partners in Health of Maine. The area was desolately poor, with virtually no health care, no running water or reliable electricity, and none of the trappings of the medicine I was learning about in medical school. The experience was humbling and rewarding, delightful and devastating. I learned to operate 42 times with the same piece of "disposable" surgical equipment, and saw that even with limited supplies and a candle as a light source, you could still make a difference. I learned of the immense need for health care in that part of the world, and of how privileged we are in the US. I saw children debilitated by infections which I knew to be preventable or treatable, if only the medications were available. I saw a 17-year old have both of her ovaries removed and her chance at fertility destroyed, because there was no one to determine if her ovarian tumor was benign or malignant.

Working in Nicaraguan hospitals and clinics, I witnessed care with extremely limited resources, and I knew that most people there did not have access to the health care they deserved. It was incredible to be able to help in my own small way as a skilled medical professional, albeit a medical professional in training. However, what happened to the villagers' health care when our team of professionals left? How could I affect sustainable change in health care for such a low resource region? At the end of one busy day in Nicaragua, my partner and I began discussing how we might contribute to sustainable improvements in health care. Could we do this for a small, remote village? Could we develop ideas that could improve health care for entire countries or the developing world as a whole? That ambitious conversation has continued over the subsequent years, and I am driven to find the answers. That drive motivates me throughout my residency training, and though it is difficult to continue my work overseas during residency, I remain committed to my plans to improve health care for underserved communities in the developing world. I am now fortunate to have the opportunity to travel to Kigutu, Burundi to focus again on the improvement of health care in a developing country. My goal in this trip is not to fix everything in one day – but to start to lay the groundwork for helping to improve women's health care in this small community.

Dates of study period:

Kigutu, Burundi – April 19-May 14, 2009

Providence, Rhode Island – May 21 – June 13, 2009 with ongoing work after that time

Location:

Village Health Works - a non-profit clinic in rural Kigutu, Burundi

Women and Infants Hospital, Providence, Rhode Island

Brown Faculty Mentor:

Susan Cu-Uvin, MD, Director, Clinical Immunology Center, The Miriam Hospital, Brown University, Providence, RI

I will also work with Katina Robison, MD who is currently a third year fellow in the Division of Gynecologic Oncology at Women and Infant's Hospital. She is staying at graduation as a Brown faculty member. Through her work as a Gynecologic Oncology fellow, she has had extensive experience in screening and treatment of cervical cancer. Her specific accomplishments in cervical cancer include publishing a handbook, entitled *Dx/Rx: Cervical Cancer*. She also has spent the past year supervising a project examining cervical cancer prevention among Laotian women in Providence.

Objectives and Specific Aims:

Short term objectives:

- To learn more about the Burundian health care system
- To determine the cervical cancer screening needs, practices, and beliefs in Burundi
- To determine the baseline knowledge of Burundian health care workers in terms cervical cancer screenings
- To educate Burundian health care workers in methods cervical cancer screening and their public health impact

Long term objectives:

- To engage with the local Burundian community in RI to determine their cervical cancer screening practices and beliefs
- To assist in the education of the local Burundian population, initially through education of the community interpreters.
- To develop educational materials on cervical cancer for the Burundian population in RI and abroad
- To develop a sustainable cervical cancer screening program at Village Health Works in Kigutu, Burundi

Background/Significance:

Burundi is a small country in East Africa with a population of approximately 8.7 million people. It is ranked by the World Bank as the poorest country in the world. There are fewer than 200 physicians practicing in the entire country, most of whom are concentrated in urban areas. In rural areas, people often travel by foot for hours or days to reach the nearest health care facility. Once there, they are typically expected to pay for their care and any supplies used. Rural Burundians rely predominantly on subsistence agriculture as a means to survive, and major health problems often go untreated as a result of prohibitive travel distance and expenses.

The health care system in Burundi is burdened by high rates of infectious diseases; specifically HIV, malaria, TB, typhoid fever, hepatitis A, and infectious diarrhea. In March 2005, the UN reported that one out of every five Burundians dies from water-borne diseases and poor sanitation. Given the country's

few doctors and even scarcer resources, other areas of health care are often underdeveloped. In 2003, The United Nations ranked Burundi as one of the five worst places on the planet for women and children. Almost 20% of Burundian children die before the age of five. Burundi has one the world's highest rates of death from childbirth, with a 1-in-9 lifetime risk of dying due to pregnancy or childbirth. There is no formal Ob-Gyn residency training in the country, and despite the overwhelming number of STDs, there is little education, screening and treatment done.

Village Health Works (VHW), a non-profit community health center in rural Kigutu, Burundi, was founded in an attempt to meet the needs of a population whose people have had virtually no access to even basic health care. The center was founded by Deogratias Niyizonkiza, an American citizen who was born in Burundi, and built in collaboration with Kigutu village leadership. To staff the clinic, VHW recruited and trained local health care workers. VHW operates in partnership with the Burundi Ministries of Health and HIV/AIDS as well as a number of private and intergovernmental organizations, including Partners in Health. VHW is able to provide care to all people presenting to the clinic, regardless of their ability to pay.

Village Health Works is based on a patient-centered model of treatment and care. Their work focuses both on meeting the immediate health needs of an impoverished and underserved population, as well as understanding and addressing the broader public health issues of the community. They have begun providing health education, preventive health measures, and nutritional support in an attempt to improve the overall health of the community. They recently began a number of Women's Health Programs, including family planning, prenatal care, prevention of mother-to-child HIV transmission, and STD screening and treatment. One area that they have been unable to address thus far is screening and treatment for HPV infection and cervical cancer.

Cervical cancer represents a unique public health opportunity as it is preventable when precursor lesions are detected and treated before they develop into cancer. If diagnosed in an early stage, it can be cured. In many *developed* countries, the introduction of pap smears for early detection has led to significant reduction in incidence and mortality, with a more than 70% reduction in US mortality since 1950.

Cervical cancer is now predominantly a disease of the developing world, with 85% of cases annually being diagnosed in women in developing countries. In the developed world, cervical cancer accounts for 7% of all female cancers, as compared to 24% in developing countries. An estimated 500,000 new cases are diagnosed every year. Of the women diagnosed with cervical cancer, 275,000 will die from it this year- the vast majority being women in the developing world. In countries such as Burundi, the morbidity and mortality of the disease is alarmingly high. There are many reasons for this- there is little access to health care and women's health has been traditionally undervalued. The burden of disease in Burundi, as in many developing countries, is misunderstood and often overshadowed by other health priorities, including AIDS, tuberculosis, and malaria. Health policies to implement effective prevention programs are not in place in Burundi, and effective new technologies and screening methods are not well understood. The costs of launching an effective cervical cancer prevention program are assumed to be out of reach.

It is true that Pap smear screening, the method widely used in developed countries to detect early lesions which may lead to cervical cancer, is very costly. In the United States alone, over \$6 billion is spent yearly on Pap smears and follow up. Pap smear screening is also very labor intensive, requiring consistent supplies, uniformly trained providers, reliable transportation of specimens, sophisticated laboratory equipment, and highly trained cytopathologists. For these reasons, Pap smear screening is difficult to implement in most developing nations. However, other methods of screening and cervical cancer prevention and treatment have been studied, and implemented with good success in developing countries. Two excellent methods are Visual Inspection with Acetic Acid (VIA) and Visual Inspection

with Lugol's Iodine (VILI). They have been shown to have a sensitivity similar to that of Pap smears, but are much less expensive - \$0.22 per person with VIA as opposed to at least \$3 per person with Pap - and much easier to implement as a community-wide screening tool.

With visual inspection methods, health care providers can be trained quickly to perform the test and identify areas that need biopsies and further evaluation. Community health care workers can do the testing, and the only equipment needed is an exam table, a speculum, a light source and acetic acid or iodine. Large scale programs have been set-up in other countries using VIA with the addition of digital photography through with consultation with other physicians, referrals, and teaching can be done.

My long term goal is to make cervical cancer screening technologies available in Burundi. Studies have shown that even 1 or 2 screening visits with VIA can lead to 25-30% reduction in lifetime cancer risk, with costs less than \$500 per year of life saved. However providing the technology alone is not enough. Extensive financial support and training is needed for local health care providers, and local women need to be educated as to the importance of screening. It is also important to identify and seek out resources for where women identified with positive screening can be referred. Without proper avenues for treatment, screening is futile.

Methods:

Given the constraints of my residency elective time, I am only able to be away from Providence for 3-4 weeks. I plan to spend this entire time in Burundi, working closely with the community in education and access to care issues. I have already begun gathering as much information as possible about the health care system and gynecologic care in Burundi, and specifically at Village Health Works. Once in Burundi, I hope to educate the trained community health workers, or abaherekeza, on the importance of cervical cancer screening and prevention. At this time, they have established sexually transmitted infection (STI) curricula through which the outreach workers educate women in the community as to the importance of STI screening. My hope is that through the abaherekeza, in conjunction with the established STI screening education program, I will be able to reach a large number of women and help them to understand more about cervical cancer and the importance of screening and treatment. I also aim to seek out and identify individuals available within the community to start training in VIA screening, through clinical teaching, educational materials and textbooks.

In Burundi, I will spend my first week learning about the healthcare system, gathering information about patient visits, exams and exploring the abaherekeza's depth and breadth of knowledge about gynecologic exams, cervical dysplasia, and cervical cancer. I will spend the following week integrating this information into my educational curriculum for the health care workers. The third and fourth weeks I will teach intensively, working with abaherekeza and nursing staff. The final week I will spend developing my plans for ongoing education, and solidifying contacts so that I can continue to make progress on my projects.

The second half of my project proposal involves work in Rhode Island with the local Burundian community. I plan to collaborate with the Refugee Health Center to perform education through the community interpreters. The hope is that by educating the interpreters this will be the most effective way to adequately educate the community members. We will initially perform surveys regarding cervical cancer awareness and education. In particular, I want to get a better sense of the community's knowledge of cervical cancer and the HPV vaccination, as well as prevailing attitudes and opinions on screening and treatment. I will use this information to aid my work with members of the Burundian community in Rhode Island, and to better inform the project in Burundi in the future.

Data Collection Procedures:

As this is a pilot educational study, I will continually try to improve my teaching of cervical cancer screening, and adapt it to the needs of the abaherekeza and local women. To this end, I will distribute pre and posttests to abaherekeza who go through the general education program on cervical cancer screening and to those who go on to participate in the educational curricula on VIA screening. In general these pre and posttests will be administered verbally to best assess knowledge and have it not become lost through translation. With these tests, I hope to identify strengths and weaknesses of our program, specifically as they relate to local, cultural understandings. I will use this information to improve health care worker educational curricula for future trips. In regards to the Rhode Island –based portion of this project, I plan to distribute surveys to the interpreters to best understand their baseline knowledge. I will also consider performing posttests to determine if our educational sessions are effective.

Analysis:

My long-term goal is to establish widespread cervical cancer screening at Village Health Works. In order to meet this goal, rapid, effective screening needs to be widely available, women need to be educated as to the importance of screening, local health care workers need to be trained in screening procedures, and referral mechanisms need to be in place for positive screening results.

This first trip to Burundi will lay the groundwork for ongoing collaboration with this community. During this trip, I will use pre and post training surveys to analyze whether the educational aims of my teaching are met, and areas for improvement in the future. As this is a pilot project, I anticipate the results to be a descriptive analysis of my findings.

Plan for Dissemination:

I have two colleagues traveling to Burundi ahead of my project time line. They will assist me by gathering more information about gynecologic care at present, and informing community health workers of when I will be arriving and the details of my project. I plan to communicate with these women through email which exists at this clinic in order to specifically identify their questions and needs before arriving in Burundi. Once I complete my project, I plan to present my work at Brown-related conferences, including noon-time conference at Women and Infants. I will also look for venues outside of Brown, including public health conferences, at which to present my findings and plan for the future.

Budget:

Travel expenses:

Airfare - \$2000, Visa - \$160

Total: \$2160

Health care worker curriculum expenses:

A Practical Manual on Visual Screening for Cervical Neoplasia (IARC Technical Reports)

by R. Sankaranarayanan, R. S. Wesley

2 copies: \$60

Colposcopy of the Cervix, Vagina, and Vulva: A Comprehensive Textbook by Michael S. Baggish

1 copy: \$190

Handouts/Survey/Copying Expenses: Estimate \$150

Educational Poster Development: Estimate \$300

Total: \$450

VIA initial teaching expenses:

150 Plastic Speculums – \$100

5 16oz bottles of 3% acetic acid – \$120

5 Head lamps – \$75

1,000 count Scopettes - \$300

Total: \$595

Grand Total: \$3455

Additional expenses include translational services which will be provided through the clinic translators, and paid for out of pocket as necessary. I also plan to bring my own digital camera for teaching purposes to show/teach about digital cervicography. I plan to cover any additional costs, including day to day living expenses, unforeseen project costs, and any additional travel costs.