

Framework in Global Health
Global Health Scholars Program

February 2009 Fellowship Recipient

Proposal Title:

**“Therapeutic Feeding in Pediatric Populations in
Rural Zimbabwe”**

I. Introduction

Since 2006, I have been heavily involved with the work of Howard Hospital, in rural northwestern Zimbabwe. Having first worked in Zimbabwe in 2003, I have since developed a significant professional and personal relationship with the people of the small village of Nyachuru, where Howard is located, and have come and gone several times over the past three years. My work at Howard spans both the clinical and public health arenas, and I have become an important member of the Howard team, both from a domestic (Zimbabwean) and international (American) position.

In May and June of 2009, I will return to Howard to continue my work there. While my role at Howard will (as always) be multi-factorial in its breadth, I will spend the majority of my time working with the CESVI pediatric therapeutic feeding program, for which I have been the coordinator of research for the past three years. In addition, given my capacity as a medical student, I will also be working in various clinical roles, both to assist the staff there, while also furthering my own education.

To these ends, I present the following proposal to the Framework in Global Health to support living, working, and travel expenditures related to this work. I greatly appreciate the consideration of the committee, and will be happy to answer any questions or provide further information if necessary.

II. Project description

Howard Hospital is the primary hospital for a rural catchment area of approximately 400,000 persons in northwestern Zimbabwe. A collaboratively funded facility with both Zimbabwean Ministry of Health support and international donor aid as well, it is the most comprehensively-equipped rural medical facility in the entire country. In regards to maternal-child healthcare in particular, Howard is currently the highest-volume facility in the country, with over 3,000 hospital births per year. In the past several years, with the social, political, and economic situation in Zimbabwe rapidly declining, Howard has become even more important to the people of the region, as every other hospital within 250km has either shut down or is functioning without the staffing of doctors and nurses due to the continual strikes of their respective unions.

Due to the persistent poverty and poor infrastructure development in much of Zimbabwe, pediatric malnutrition is a consistent problem for the patient population of Howard. Since 2003, the Italian NGO CESVI ("*Cooperazione e sviluppo/Cooperation and Development*"), in collaboration with the Zimbabwean Ministry of Health, has funded a pediatric therapeutic feeding program (TFP) at Howard. This program initially financed the construction of a separate wing of the Pediatrics ward, such that these severely malnourished children could be attended to by specially trained nurses. The TFP manages these patients in an intensive inpatient program whereby not only their malnourishment, but also the significant medical complications thereof (hematologic, endocrine, dermatologic, etc.) may be managed more appropriately than the general Pediatrics wards would regularly be able to do.

In addition to the clear medical benefits of this program, the TFP has the goal of developing protocols and contributing to the operational research regarding malnutrition and re-feeding, specifically within the sub-Saharan context. To that end, staff from Howard have attended various regional and international conferences for further training in this particular area of pediatric clinical care, and have, at many of them, taught sessions with regards to the Howard experience. Further, over the past three years, I have been the coordinator of an extensive clinical and operational research project to effectively document the progress of the TFP, with the goal of eventually developing best practices protocols for both our own particular clinical setting and other similar regional medical settings as well.

Utilizing the extensive malnutrition research that has been done elsewhere in the developing world, we have implemented a system of thorough clinical documentation for each child, standardizing the malnutrition medical management at the hospital. Groups such as the

WHO, UNAIDS, and UNICEF have been instrumental in providing templates and program design materials for the Howard TFP, but since the initiation of the project in 2006, all materials have been tailored specifically for the Howard experience, thus enabling the Howard staff to most effectively attend to the particular issues facing the patients who present to Howard.

Recently, I completed an audit of the TFP charts of those patients enrolled in the program between January 1st and December 31st of 2005, which is the first time that the Howard TFP has been reviewed. This data has provided us with insight into the efficacy of the TFP prior to the implementation of the more extensive clinical documentation that began in 2006. While the review clearly indicated that the program had been successful during that time period (with a 50% cure rate of all-comers), it also highlighted several rather significant implementation issues (gender-based clinical outcome differentials, difficulties with transportation, and an overwhelming burden of mandated follow-up visits for the families) and numerous smaller problems as well.¹ With this initial review of the 2005 data, we have already begun to modify programmatic guidelines for the TFP, but are now faced with the much larger task of reviewing the documentation for the years of 2006-2008, which should provide immense insight into the program across a much larger time period and patient population. Specifically, given the unfortunate decline of the country over this time period, we are interested to investigate how the patterns of patient management and clinical outcomes may or may not have changed, and what programmatic revisions can be implemented in order to more appropriately accommodate Howard's patient population.

Given that all the TFP charts at Howard are paper-based, I have recently designed an Excel database for the hospital, into which charts are now being entered by two students from the University of Bindura (a small city approximately 60km from Howard). Charts in this database will include all patients enrolled in the TFP during the time period of January 1st, 2006 to December 31st, 2008. While I am not directly involved in the current data entry, the database will be forwarded to me upon completion, which we expect to be in early March. Upon receipt of this database, I plan to do a preliminary analysis of the data prior to my arrival in Zimbabwe in May.

During my time at Howard in May and June, my primary goal will be to work with the nursing staff of the TFP and the administrative assistants in the records department to design new programmatic guidelines to address issues that have been highlighted in these two chart reviews. Given that these staff will be the eventual implementers of these new protocols, it is our hope that their direct involvement in the design of these guidelines will facilitate their subsequent success.

Specific tasks that I aim to accomplish include:

- In conjunction with the Nurse Training Manager and Chief Medical Officer, the conduction of training updates for all TFP-involved nursing staff, detailing the information found in the chart reviews and proposed programmatic changes for the future;
- In conjunction with the nursing staff, a revision of all TFP charting documents, making allowances for gaps in current documentation and stream-lining the documentation process for the nurses involved;
- In conjunction with the administrative assistants, the design of a local (Howard) Excel database that will be updated monthly for all new and current TFP patients henceforth.

¹An abstract of this chart review, submitted to the Global Health Council Conference (May, 2009), is included as Appendix I. A manuscript is currently being drafted for submission for peer-reviewed journal publication as well, but has not yet been completed.

Finally, while not the primary focus of my time at Howard, I plan to spend significant time assisting the clinical housestaff, with the hopes of both aiding them (given the extreme shortage of clinical human resources at Howard), and also furthering my own personal education. In the past, I have spent extensive time in both the inpatient wards and the surgical operating theatre, and have received training from my Zimbabwean colleagues such that I am able to perform at a much higher level of clinical responsibility at Howard than I am typically able to within the American medical system. Specifically, I typically take q3 call shifts on the surgical anesthesia team, and serve as a clinical officer on the male, female, and/or pediatric wards for daily rounds.

III. Educational relevance of the project

As a current third year medical student, I intend to apply for a Med-Peds residency, with the long-term goal of working as a primary care provider in underserved areas domestically and abroad in developing nations. Following the completion of my third year (April, 2009), I will be taking a year leave from Brown to complete my MPH degree, focusing on the development and implementation of primary healthcare systems in developing nations and underserved areas.

To this end, it seems clear that the proposed work at Howard Hospital will be relevant to both my current studies and my future goals as a clinician. My continued involvement in the work of Howard Hospital, both from abroad in the United States and also domestically in Zimbabwe, aims to further develop my burgeoning understanding of medical infrastructures and clinical care delivery in developing nation settings. Moreover, this work will help to build on my understanding of how to most effectively integrate myself into these settings, which I plan to work within for the rest of my career.

On a more specific level, the proposed work will benefit my education in the following ways:

- Public health management of rural, community-based medicine in a developing nation
- Clinical care delivery within developing nation medical infrastructures
- General clinical skills development while working on both the inpatient wards and in the surgical operating theatre
- Specific clinical skills development with regards to the management of pediatric malnutrition and re-feeding
- The role of socio-political factors in healthcare management, ie. financial, cultural, and social barriers to healthcare
- Specific socio-political factors involved in the management of pediatric malnutrition, ie. gender-based financial dependence, lack of access to diverse foodstuffs (vitamins/mineral supplementation), lack of education regarding nutrition
- How all of these topics relate to an overall philosophy of international aid and development, particularly in regards to motivations, effectiveness, and competence; cross-cultural relationships; expatriate presences and the utility and effects thereof; and finally, the future goals and realities of such work in regards to my own education and career goals.

IV. Project timeline and mentorship

I intend to be at Howard for approximately seven weeks between mid-May and early July. I expect to fly from either Logan or JFK, via Europe and South Africa, to Harare, during the third week of May, and return to United States in time to begin my MPH course of study in early July.

Clearly, seven weeks is not a very long period of time, but I do think that it should be sufficient for the anticipated work. Given my history of working at and with Howard for over three years now, I do not anticipate the typical "acclimatization time" that is commonly necessary for international volunteers new to a community. Furthermore, my relative proficiency (but not quite fluency) with the local Shona language will help to facilitate the

work I will be doing, and to diminish the overall logistic complications that can often face work such as this.

In regards to mentorship, my long-term advisors and colleagues, Dr. Paul Thistle (Chief Medical Officer, Howard Hospital) and Dr. Adrienne Chan (Infectious Diseases, University of Toronto/Howard Hospital) will both be present for the duration of my time at Howard to oversee my work and offer guidance as necessary. I am in continual communication with both of them, and we have discussed extensively the goals and methods of the proposed work, and both are confident in my ability to accomplish it within the proposed timeframe.

Dr. Timothy Flanigan will continue to serve as my mentor at BMS. He and I have had numerous conversations regarding my work at Howard, and he has overseen my previous work at Howard during my time at BMS. He has had a great deal of input into my work, and we have extensively discussed the currently proposed work as well. I look forward to his continued input in the coming months, and feel confident that his support prior to my departure and upon my return will be, as it has been in the past, of great value.

V. Relevance of proposed work to the mission of the Framework in Global Health

I believe that the proposed work should be in line with the overall goals of the Framework in Global Health. Specifically, I think that it should be clear that my work aims to a) promote the overall healthcare and human rights of the populations of developing nations, and b) acknowledges and takes into consideration the disproportionate burden of disease and health affliction on the populations of developing nations. My work will also further my own education, which is, while perhaps not as important on a broad scale as the aforementioned aspects, certainly in line with the overall goals of the Framework in Global Health.

VI. Proposed budget:

	Cost
<i>Travel costs</i>	~\$2400.00
<i>Living expenses (food, lodging)</i>	\$125.00 per week; total \$875.00
<i>Educational materials for staff training sessions</i>	\$100.00
Total Budget:	\$3475.00 USD

Based on current price quotes from Boston to Harare, the flights that I have been able to find are approximately \$2300.00 USD (range: \$2000.00 - 2600.00). Once in the country however, I will have only modest local travel costs using busses (to travel between Harare and Nyachuru, where Howard is located) totaling approximately \$100.00 USD

Thus, in total, I anticipate the travel budget to be ~\$2400.00 USD. While I have not currently obtained any additional sources of funding for this work, I do have several other grant applications currently being considered. I will of course understand if there is not sufficient funding to assist with my work, but any amount will certainly be appreciated.

Thank you for your consideration, and please do feel free to contact me with any further questions or comments.