

Developing an education and evaluation plan for teaching global health
to primary care residents at the University of North Carolina

By

Bethany Hodge, MD

A Master's Paper submitted to the faculty of the University of North Carolina
at Chapel Hill in partial fulfillment of the requirements for the degree of
Master of Public Health in the Public Health Leadership Program

Chapel Hill

2012

(signature)_____

Advisor

(printed name)_____ (date)_____

(signature)_____

Second reader

(printed name)_____ (date)_____

Table of Contents:

Abstract.....	3
Introduction.....	4
Review of the existing models	8
Developing the Program Plan	16
Program Setting.....	16
Program Theory.....	21
Goals and Objectives.....	24
Figure 1: Logic Model.....	30
Program Implementation.....	31
Evaluation Plan	38
Rationale and approach to the evaluation	38
Evaluation study design	41
Table 1: Evaluation methods by objective, evaluation question, and participant population....	43
Evaluation study methods	49
Dissemination of information.....	52
Discussion.....	54
Acknowledgements	56
References	57
Appendix A: Review of existing programs by name and type (table format)	
Appendix B: Descriptions of existing programs by taxonomic category	
Appendix C: GLBE 401 course description	
Appendix D: UNC travel policy	
Appendix E: UNC resident international elective request form	

Abstract:

In the following pages, I outline a global health education program and evaluation plan to be used by primary care graduate medicine programs. U.S. residents are increasingly interested in learning global health concepts and participating in international clinical activities, and many residency programs are seeking to support these interests with a formalized curriculum. In the past, residents in primary care specialties at the University of North Carolina (UNC) have had access to few resources for helping them learn about global health or assist them in planning international electives. Currently, the Office of International Activities at UNC is expanding the existing global health curriculum to meet the needs of residents. As part of this process, I first discuss the models for teaching global health currently in use at other institutions. I then describe the framework in which the curriculum will function and applicable educational theories. Next, I define goals and objectives specific to a program plan suitable for primary care residents at UNC. Last, I outline implementation strategies and a detailed evaluation plan for this program.

Introduction:

Modern life is increasingly global. Increased travel, immigration, and international trade change how medicine is practiced as well. Both health care issues and the delivery of health care are affected by globalization.^{1,2} Physicians in the United States are expected to have knowledge of infectious diseases once thought to occur only in developing countries. Doctors also must function as culturally sensitive providers for patients from a multiplicity of ethnicities and cultural backgrounds.^{3,4} Global health education has been defined as “learning about health issues that transcend geographic borders and commonly present a greater burden to disadvantaged populations.”³ Furthermore, “global health”, integrates not only tropical health and hygiene but aspects of public health, community health and practice adaptation for clinical work in low-resource and multicultural settings. Competence as a physician in today’s world requires recognition of the added complexity brought to clinical encounters due to globalization.^{1,3,5,6}

Doctors-in-training are actively seeking ways to prepare themselves for this reality of global medicine. Over 30% of medical students participate in international electives during medical school.⁷ Rising numbers of residents in primary care specialties are participating in global health electives as part of their graduate medical training as well.⁸ However, in contrast to well-organized global health education experiences available in medical schools, residents often work independently to learn about global health and design their international fieldwork experiences.⁹

At the University of North Carolina, residents are encouraged to seek out opportunities to diversify their health care training through global health experiences; however, no formal preparatory education or debriefing support is in place at this time. Annually, more than fifty

residents enter the UNC graduate medical education programs in the primary care fields of internal medicine, pediatrics, and family medicine. Developing academic and technical support for primary care residents participating in international electives is a practical step the university can take to endorse global health education as an important aspect of training. Additionally, it may be easier to start a new international initiative in primary care than in surgery or subspecialty care because primary care is generally less technology dependent. Therefore, starting global health programming in primary care residencies is easier first step when building a global health education program at an institution. Furthermore, as availability and quality of global health curriculum are increasingly important selection factors for prospective residents, it is advantageous for residency programs that value international experiences to facilitate these opportunities.^{8,10-12}

While global health education may be directly beneficial to the resident while abroad, the skills they obtain often directly apply to practice in the United States as well. As the world population has become more mobile, diseases traditionally thought to be confined to foreign locales sometimes appear in local clinics.^{1,9} Primary care physicians, regardless of their workplace settings, must also show cultural competence and be able to adapt their practices to work with diverse populations.¹³ Appreciation for social and environmental determinants affecting patients' health may easily be seen in the "extreme" settings of developing world poverty, but the sensitivity developed to these issues can also help practitioners make more informed decisions at home.⁵ Furthermore, the process of systematic, values-based resource allocation comes sharply into focus when working in a low-resource, developing world setting, and these lessons are becoming increasingly applicable to working in the financially struggling U.S. health care system.⁴ Last, required graduate medical education in professionalism and

ethical decision making can be enhanced by diversifying the contexts in which residents contemplate their roles in medicine.³

Additionally, while resident interest in international activities is common, little data exists to describe residents' changes in knowledge, skills, or attitudes attributable to participation in global health education.¹⁴ By developing evaluation mechanisms that are built in to program participation, program leaders at UNC will be better able to determine the educational effects of global health curriculum and expand generalizable knowledge in this area. Program evaluation will also be important for tailoring the curriculum to fit UNC residents and maximize the use of locally available resources.

Primary care residents at UNC would, therefore, benefit from expanding global health education integrated into the existing curricula. I propose developing a comprehensive program of didactics, fieldwork, and mentoring in the field of global health. Didactics will include courses of lectures to enhance the graduate medical education for all internal medicine, pediatrics, and family medicine residents at UNC. Additionally, access to relevant online modules and resources should be coordinated for residents who wish to pursue further knowledge and new modules should be developed to meet university-specific learning objectives. Residents in this program will benefit from increased exposure to global health medicine topics and practices prior to international electives. As debriefing becomes routine, returning residents will also further develop their teaching skills they present their new-found knowledge to their peers. Channeling residents through a common university-based pathway would foster collaboration between residents with similar interests, connect residents to faculty who are active in global health, and increase compliance with university procedures for travel and international fieldwork. Last, establishing mechanisms for evaluating the curriculum will allow the university to understand

and demonstrate how residents' knowledge and attitudes change due to participation in the program.

Review of existing models of global health education in graduate medical education:

Before designing the global health education program for UNC, I reviewed existing models of global health education in graduate medical education. However, I found that performing a truly “systematic” review of existing programs in global health education in the United States is difficult for several reasons. First, without a universally accepted definition for global health or standard of practice for global health education, there is no standardize language available to categorize programs.^{3,5,6} Second, global health education programs appear to be developing at many institutions rapidly and organically, responding to resident desires and faculty member interests.^{15,16} This makes any published review of programs likely to be out-of-date by the time it is printed. Third, because of the pace of change and specific tailoring of each program’s components in response to local interest, available resources, and resident needs, few programs have published details about their curricula in the literature. Several authors with experience in global health have published sets of ideas or recommendations for the formulation of a global health curriculum, but most lack sufficiently detailed information about their programs to allow replication.^{3,17-21}

Methods for systematic review of the literature and additional searches:

As a starting place, I performed a traditional literature search of the Medline and ERIC databases for articles outlining existing global health curricula for residents. Because the term “global health” is not yet an accepted MeSH term in the parlance of Medline searches, the chosen term was constructed to be inclusive of variations on this term that may have been applied to articles. Therefore, the databases were searched using the compound term “internship and residency education” AND “world health OR developing countries” AND “curriculum.” The

search was further limited to articles in the English language and dating from 2007-2012. A five year search limit was chosen because descriptions of programs prior to this time frame would not take into account recent work-hour and competency guidelines recently put into place by the ACGME. The result was 172 abstracts (118 from Medline and 54 from ERIC) that were evaluated for inclusion.

I then evaluated the articles for relevance. Articles were included only if 1) participants were part of a medicine, pediatrics, or family medicine residency program, 2) the residency program was based in the United States, 3) the article described in some detail the coursework and travel components of a global health curriculum. Articles were limited by residency type because the RRC requirements and general curricular structure of other residencies, such as surgery, could be too different from primary care residency programs to be comparable. I limited the programs to those based in the United States because programs outside the country would not necessarily be compliant with ACGME recommendations. Additionally, though some articles described personal anecdotes or opinions about global health education experiences, articles were excluded unless they related information about the program components pertaining to four pedagogical domains: curriculum/didactics, practice experience, mentorship, and evaluation.²¹ Last, I performed hand searches of relevant bibliographies to find articles not found by my search terms.

The literature and hand searches yielded six articles that met these criteria. However, in my search, I also discovered a previously performed summary of exemplary global health programs that is part of the document “Developing residency training in global health: a guidebook,” that was published by GHEC in 2008.¹⁵ This summary was performed by the author after contacting residency directors at various institutions and contained more detail about many

programs than was available in the literature. Therefore, I included the information from this document that pertained to primary care residency programs. Furthermore, most programs highlight their global health curriculum and international clinical work on their program websites. Accordingly, in addition to reviewing the published literature and transferring information from the GHEC guidebook, I visited programs' websites to ascertain the most up-to-date information regarding their global health education offerings. Last, I included two more programs (Duke University and Indiana University) based on my personal familiarity with the curricula and similarities to UNC in a particular demographic characteristic such as location or size of the program (See Appendix A).

However, even by these extensive search measures, this summary likely only represents a fraction of the global health education programs in American primary care residency programs. In spite of this, I believe some conclusions about trends within global health education can be drawn from understanding how programs fit on a continuum of curricular complexity. Specifically because of the differences I noted when each program was described in terms of the aforementioned pedagogical domains, I found there is a need for a more robust vocabulary with which to discuss the various types of programs currently in use. Therefore, I stratified the spectrum of models into groupings based on the level of programmatic support given to global health education and labeled the newly defined groups in this novel taxonomic framework as "permissive," "supported rotation," "formal track," "additional certification," and "layered" programs.

In this new taxonomic framework, permissive programs are the least complex (from the perspective of the residency program) whereas layered programs require significant institutional support. A permissive program is, in fact, defined by its lack of curriculum teaching or

supporting global health while still allowing residents to arrange their own international experiences to count as electives in residency. In a supported rotation program, the institution helps the resident in some way (e.g. funding or guidance to approved sites and rotations) but didactics, mentorship, and evaluation are generally minimal. Formal track programs, however, are characterized by intense didactics that may overlap several years of residency and higher expectations for continuing mentorship and production of scholarly work. Additional certification programs have all the rigor of the formal track programs and are further characterized by an expectation that participation in didactics will culminate in the resident earning an additional degree (such as a Masters in Public Health) or certification by a national body. Layered programs are defined by the presence of multiple entry points into global health education activities—typically an intense formal track or additional certification program for residents who are pursuing global health as a major part of their future careers paired with a supported rotation pathway for residents whose chief goal is to add an international elective to their personal learning programs in residency. (See Appendix B for further discussion and analysis of existing programs reviewed using this framework.)

Trends seen reviewing existing models:

Several interesting observations can be made from the diversity of programs summarized. For instance, both small, community-associated programs such as the Lawrence Family Medicine Residency as well as large, academic institutions such as Duke University are able to maintain global health education curricula. Furthermore, both private universities and publicly funded institutions have developed global health curricula for their associated residency programs. Last, some residency programs maintain a global health education program

specifically for the graduate medical students in a particular specialty, while some larger programs have formulated coursework in global health that is available to residents from many specialties.

Different programs also employed various didactic methods. Most incorporated special global health lectures; however, some programs integrated these lectures into existing education activities for the whole residency program, while others required residents to attend sessions outside of the normal work day or take a concentrated elective in global health. Curricula often incorporated web-based learning activities, though some programs developed their own modules while others utilized modules created by global health experts such as USAID or the American Society of Tropical Medicine and Hygiene. Last, programs that require extensive coursework in global health may result in extra degrees earned by the participants and longer time spent in residency.

The global health practice experience varied in duration and focus. The shortest trips, usually two weeks, typically had a clinical focus. Longer rotations were more likely to have research or scholarly projects as part of the work to be completed. Many programs maintained long-standing partnerships with designated foreign sites. Programs that expected scholarly work were more likely to require residents to rotate only at designated sites, possibly in order to maintain continuity with ongoing projects. If greater than two months were allowed away from the residency home, special arrangements were made to fulfill ACGME requirements for continuity clinic participation (such as maintaining a secondary continuity clinic site).

Additionally, the practice experiences took place in many different locations. Most of the listed partner sites were in either Central America or Sub-Saharan Africa. Some partnerships between sites were based on academic exchange, but in some cases an NGO was formed to

financially tie the US-based program to its partner site. Last, in some instances a rotation in an underserved population within the US, such as a Native American group, could qualify as a global health experience.

Mentorship was mentioned, but not well described in many of the program plans. This particular pedagogical domain, while emphasized in the literature as a necessary part of creating sustainable programs that adequately support learners, appears to receive little formal attention in many global health education programs.^{3,17,18,22} It appears that many programs may have a few faculty with leadership in global health as a part of their job descriptions, but for the most part, mentoring takes place in informal relationships between learners and faculty with some global health experience. While this organic approach is less restrictive, it may also be difficult to ascertain the effectiveness of these important relationships when no clear objectives or structure exists.

Interestingly, “evaluation” of a global health program can mean very different things in different settings. In some programs, evaluation appears to pertain to measuring performance of the learners—how well the resident fulfilled predetermined academic criteria or ACGME competencies. In other programs evaluation seems to mean only that the participants and faculty are periodically surveyed to determine if the global health program is meeting their personal desires for education. The academically based evaluation measures of the learners were more often concrete, such as satisfactorily completing a scholarly project or passing a quiz. Additionally, the impacts of the programs on learners’ attitudes and career plans could be measured through the reflective journaling and other descriptive forms of feedback. These evaluations would be more likely to accurately describe the changes in knowledge and competence in the learners, while surveys of the program components would be better for

assessing participants' desires and the overall likelihood that future residents will want to participate in the program.

Strengths and weaknesses of this review:

Using a combination of search methods has strengths and weaknesses when addressing a broad topic such as global health education. As I have shown, using only a strict literature to find published articles about global health curriculum plans would have excluded many programs and resulted in inclusion of outdated information. Because the practices of global health education in residency are fluid and dynamic at each institution, inclusion of web searches gives a more accurate picture of current activities. However, the reliability and truthfulness of things found in web searches should always be questioned because it is altogether too easy to publish things on the internet. In this case, the process of peer review for journal publication would likely result in more detailed and verified information. Last, even using a multiplicity of search methods, it would be impossible to complete a truly systematic review of all the global health education programs available to residents without the input of every primary care residency program—which is beyond the scope of this review. This summary, therefore, represents examples of programs, but is surely not inclusive and may be influenced by publication or familiarity biases.

Additionally, although the framework of pedagogical domains is informative, the information is incomplete. Program descriptions often alluded to an application process to qualify residents for participation, but this was never clearly outlined. Furthermore, it would be useful for program designers if process components such as finding funding, cultivating leaders, and ensuring sustainability were fully described in the literature. Last, as decisions must be made whether or not these programs are worth the money and time it takes to maintain them, increased

evidence regarding resident outcomes related to participation in global health education programs would be informative for stakeholders.

Overall, this summary of global health education programs for primary care residents indicates that there may not be one “right” answer when developing curriculum. Institutions appear to be tailoring their programs to fit the needs and desires of participants, while keeping in compliance with basic ACGME requirements. Within that framework, there are many possibilities for how the teaching, learning, and service components are shaped. As more evidence is gathered and published, a set of best practices for achieving particular program goals may appear. However, even without established ACGME or medical specialty guidelines for global health education, it is evident that observable trends in programs’ uses of resources and methods of teaching have emerged.

Developing the program plan:

After reflecting on the existing models for global health education in graduate medical education, I next sought to understand the specific context for a program at UNC. By exploring the macro- and microenvironments within which a global health education program would function, I came to better understand the needs that exist at UNC, the resources available to program planners, and the potential obstacles to implementation at this institution. I will next discuss the political setting of the program, its likelihood of being accepted by residents, financial resources available, technical feasibility issues, and potential interests of other stakeholders.

Political setting:

Globally, the world population is experiencing an unprecedented period of “boundary blurring” where shapes on the map no longer represent stable groups that stay within their politically drawn lines. International travel and migration to the United States are significantly altering the potential patient population for health care providers. United States Census statistics indicate that more than 40 million documented foreign-born people currently live in the United States, with more than 3 million people arriving in the past four years. More than 700, 000 of these individuals live in the state of North Carolina.²³ Internationally adopted children constitute more than 70, 000 of the foreign-born individuals who have moved to the United States in the past 5 years.²⁴ More than 60 million people traveled overseas from the United States in the last year, and foreign visitors spending at least one or more nights in the United States exceeded 63 million in 2011.^{25,26} Many more individuals who have lived in other countries may be visiting or living in the United States without documentation. Physicians must be prepared to communicate with any of these individuals and meet their health care needs.

The political environment surrounding residency education is influenced by several factors, including emerging content recommendations, restricted work hours, and limited funding. Several bodies exist that make “best practice” recommendations based on available evidence to guide the development of graduate medical education. When discussing global health education in residency, the recommendations for various competing interests must be considered.

First, it is important to understand how the basic requirements for residency education have emerged. Within the Accreditation Council of Graduate Medical Education (ACGME) Residency Review Committees (RRCs) are assembled to guide educational policy regarding training. All educational activities, no matter the specialty, are competency based.¹³ The competencies outlined by the ACGME include: medical knowledge, professionalism, patient care, interpersonal and communication skills, practice-based learning and improvement, and systems-based practice.²⁷ An emerging challenge is how to evaluate residents’ performance in the areas, such as professionalism, where outcomes are more subjective than in concrete, highly-testable areas like medical knowledge.²⁸ Furthermore, while global health experts have proposed several models for how global health activities can fulfill competency requirements (such as increasing communication skills through interactions with multi-lingual populations), global health activities are not formally recognized by the RRCs as mechanisms to teach competencies.²⁹⁻³²

The ACGME also makes recommendations for policies that affect resident life—such as patient load limits, minimum numbers of procedures to complete, and work hours.³³ Work hour restrictions are meant to protect residents from fatigue and burn-out and promote patient safety by reducing mistakes made by tired providers, but also limit the time that residents have

available for educational activities.³⁴ Thus, the political environment of graduate medical education in the United States is complicated by the need to balance teaching content and respect for time.

Furthermore, much of the funding for residency education is through government-sponsored programs, such as Medicare.³⁵ As tax dollars are then used to pay for the salaries of residents who are in training, programs have a certain level of responsibility to make sure that people living in the United States benefit from the care residents provide. So, though the argument can be made that learning about global health strengthens residents' abilities to take care of travelers, immigrants, and international adoptees, the first priority in residency education and work generally pertains to domestic health care issues and training the next generation of physicians to run the American health care system.

Presently, two organizations are making specific recommendations for how global health can be taught in academic settings. The Global Health Education Consortium (GHEC) and Consortium of Universities for Global Health (CUGH) have each worked to formalize the definition of global health education and develop the structure for comprehensive multidisciplinary curricula in global health. The two organizations have merged in the past year and are working together to create educational materials, advocate for global health education, and evaluate the impacts of global health education integration into many fields, including medicine.³⁶ GHEC has also recently published a guidebook for creating global health education experiences specifically in residency.¹⁵ The UNC medical school has access to these resources as a member of GHEC (and now a part of the new amalgamate group). The Office of International Activities (OIA) at UNC currently serves as the conduit of information from GHEC/CUGH to residency programs.

Acceptability to residents:

Currently, a survey to assess resident interest in global health education is planned for June 2012. Supplementary global health education has generally been met with enthusiasm by medical students and residents at other universities.^{2,12,19} However, in most cases, supplementary activities have been voluntary and, therefore, limited to those who have intrinsic interest in this subject matter. Participation in auxiliary instruction could be made more palatable if it can be shown that global health education, while not required by any RRCs within the ACGME, helps residents score better on licensing exams or increases board exam pass rates. Unfortunately, research on the impact of global health education on measurable outcomes is quite limited at this time.

Financial resources:

At the university level, allocation of funds for global health instruction may be decided according to the strategic goals of the institution. Because UNC is a state-funded college, taking care of the citizens of North Carolina is a fundamental part of the mission. However, as a major institution for learning and research in medicine, expansion into global health could support educational objectives in all the areas listed in the previous paragraphs. Funding global health education for residents working in the system would have to be determined to be complementary to the established goals of university. Additionally, offering global health education may be strategic for recruitment and diversifying the residency programs applicant pools.

The Office of International Activities, as a part of UNC Global and a branch of the Department of Medical Education at UNC School of medicine, has some university funding.

Currently, a self-regenerating pool of funds has been created by the OIA coordinating international medical students' electives visiting UNC (for which there is a fee). The money generated as fees is then used to fund global health education activities for medical students and could be extended to residents as well.

Outside funding from other parties interested in global health is obtainable through specific grants and programs. UNC currently has connections with several organizations that fund medical students' international activities, but none that specifically serve residents. Seeking funding through specific grants or alumni allocations may become more important as the program develops and expands.

Technical feasibility:

The technical feasibility of a global health education program in residency will depend on the types of instruction attempted. Maintenance of a supplementary readings library, instruction via online modules, and accountability through quizzes can all easily be accommodated by existing internet-based education packages such as Sakai. A site manager would need to be appointed to format and upload the materials and manage end-user issues that might arise.

Global health education could also be rolled into existing educational activities. Internal medicine, pediatrics, and family medicine residency programs at UNC maintain regular lecture schedules (morning reports, noon conference, and grand rounds) where supplementary global health lectures could be provided. However, the regularly scheduled lectures also provide the educational forum for teaching other important residency competencies; therefore, the schedule must be carefully crafted to maintain the standard of instruction present while adding global health lectures. Group meeting places and A/V equipment for presentations should be accessible

if planned ahead. Additionally, residents participate in ongoing journal clubs, and articles on global health topics could be incorporated into this schedule.

To expand a global health curriculum beyond modifying existing educational activities, several limiting factors may arise. For example, supplementary evening lectures are difficult to coordinate with resident call schedules. Furthermore, the ACGME carefully monitors resident work hours, and supplementary educational activities (even when voluntary) could cause residents to violate work hour restrictions.

Additional stakeholders:

The other main stakeholders in the process of creating and delivering supplemental global health education to residents in internal medicine, pediatrics, and family medicine are the residency programs themselves. Residency program leadership and clinical faculty members who are interested in global health would make natural leaders in a global health education program. However, changing current educational patterns and expectations would require buy-in from all clinical faculty members. Global health education would need to be promoted as a university priority and an extension of the existing teaching mission.

Program Theory:

The theoretical constructs that may be helpful for developing and integrating a global health curriculum for clinical residents at UNC range from the abstract to the very concrete. As an educational endeavor, curriculum theory can be used to assess the intellectual value of the instructional activities created. Next, because experiential learning and interactions with communities are integral to global health instruction, program planners should explore the

applicability of tenets of service-learning. Last, because incorporation of this new curriculum into the existing graduate medical education for internal medicine, pediatrics, and family medicine residents represents a system-wide change, organization change theory may be useful to determine how to fully integrate global health curriculum at this institution.

According to curriculum theory, global health education currently resides in the “null curriculum” at UNC. Curriculum theory asserts that learners are affected not only by what they are formally taught, but also by what material is absent in a set of courses.³⁷ Therefore, by leaving out global health from the educational experience of residents, programs make statements about the relative importance of global health education compared to the instruction they do provide (e.g. clinical rotations, research methods education, or business practice seminars).

Furthermore, curriculum theory also posits that learners are taught through both overt and hidden curriculum.³⁷ Overt curriculum teaches testable knowledge, and a program in global health should evaluate learners’ absorption of that testable knowledge to assess the curriculum’s efficacy and usefulness. Conversely, the idea of “hidden curriculum” refers to the subconscious changes that occur in the mentality and decision-making processes of learner as a result of being exposed to instruction on particular topics. In the area of global health, this has often meant that learners have developed skills such as greater sensitivity to disparities in health care or become more willing working with poor populations.¹⁵ While changes in these areas may not be attributable to any particular lecture, module, or experience, the presence of the curriculum has a cumulative effect on the learners that is greater than the sum of the individual parts.

Service-learning theory takes this idea of education through overt and hidden curriculum and adds another dimension through experiential learning. Most global health education

programs clearly fit into service-learning models as overseas experiences where the learners implement knowledge to help others in real-world settings are usually a part of the curriculum. Service-learning is, however, different from medical volunteerism.³⁸ While the learning that occurs in a medical volunteer setting may be rich, it can be haphazard. Conversely, service-learning takes place in a structured environment, is grounded in coursework, and post-experience reflection is facilitated by instructors.³⁹ Furthermore, when designing a true service-learning partnership, the goals and objectives of the partner organization are recognized to be equally as important as the learners' educational needs.⁴⁰

Implementing global health curriculum as a service-learning experience in residency programs would require several things on an institutional level. Program planners need to build a foundation of appropriate coursework. Program directors must foster partnerships with specific organizations in the international community. Agreement over the roles of residents in these foreign settings must be reached such that the residents are set up for beneficial learning experiences while the community partners are having needs met. Course leaders must be identified and be prepared to lead residents through structured reflection exercises and facilitate learners' processing of this new kind of educational experience. Last, a mechanism for feedback should be put in place so that the program can adapt as learners' and partners' needs change.⁴⁰

As a fully functioning service-learning program requires a great deal of institutional support, planners should seek out ways to incorporate the new program into the mainstream of the university. Organizational change theory informs the stages of implementation necessary to embed a new program into the existing work of an institution.⁴¹ After program planners define the need and develop a plan of action, the success of a global health education curriculum for residents will still be limited by the ability to put the plan in action. This could come in the form

of finding funding within the university, reallocating faculty to maintain the program, incorporating promotion of the program into advertising, or a variety of other changes. Institutionalization of a program is the last step in organizational change theory and represents the full acceptance of a new idea into the mindset and workings of an organization. As these systematic changes occur in the university establishing global health education within residency curriculum, the program becomes a lasting part of the university.

Goals and objectives:

1) Increase UNC medicine, pediatrics, and family medicine residents' exposure to global health, population health, and community health in diverse settings.

- Within the next 12 months, clinical faculty and the OIA will design or coordinate 6 lectures to be given monthly at resident noon conferences (1 hour each). Proposed topics:

Proposed topics:

Global health and development basics

Social determinants of health

Malnutrition and health

Tropical medicine case studies

Professionalism in multicultural settings

Immigrant and traveler health for the practicing physician

- Within the next 12 months, the clinical faculty and the OIA will design and facilitate 6 additional optional lectures for residents interested in global health.

Proposed topics:

Adapting practice to low-resource settings

Chronic disease management in developing countries

Health and human rights in a global environment

Careers in global health

Personal safety and dealing with “culture shock” while working abroad

Ethics and scope of practice during international clinical rotations

- Over the next 6 months, clinical faculty and OIA will coordinate the development of online modules appropriate for graduate medical education:

Existing modules include: Causes and treatment of childhood diarrhea; Culture, ethics and professionalism; Maternal health; Travel health and safety; HIV; and Global health research. New modules are continuously being developed for the medical school. Many modules and statement papers are available online through global health collaborators at other universities, NGOs, and government offices such as the United States Global Health Initiative and CDC.

1) Support residents’ learning relevant to established ACGME competencies through participation in global health education.

- Increase participating residents’ capabilities to work in multicultural and low-resource settings (systems-based learning, communication skills, professionalism, and practice-based learning and improvement).
 - After 12 months of participation, follow up surveys will show residents report increased efficacy when working with patients from other cultures.
 - After 12 months of participation, residents will have improved their scores on faculty resident evaluation forms for professionalism and communication.

- After 12 months of participation, residents will be able to articulate principles of global health including the role of the physician in population health, identification of social determinants of health, and methods of adapting medical practice to multicultural and low-resource settings.
 - Increase participating residents' knowledge of conditions and presentations of tropical diseases (medical knowledge and patient care).
 - After 12 months of participating in global health education, residents will show measurable increases and retention of information by showing improvement in identifying tropical diseases on module quizzes.
 - After 12 months of participating in global health education, residents will show improvement in knowledge of appropriate treatments for tropical diseases and malnutrition on module quizzes.
 - After 12 months of participating in global health education activities, residents will be able to identify local and international resources for information and treatment guidelines when working with international populations.
- 2) Enhance programmatic support for residents participating in international clinical experiences.
- Mentoring:
 - Over the next 12 months, the OIA will connect residents planning international clinical rotations with faculty members with experience in global health and interest in mentoring residents.

- Over the next 2 years, the OIA will work to develop faculty-resident relationships with a goal of 10 or more interdisciplinary faculty willing to meet with residents before and after their travels in a mentoring capacity.
- Technical support
 - Over the next 12 months, the OIA will enhance residents' access to pre-trip planning information, provide help with paperwork, and direct internationally bound residents toward country-specific resources to help them with the technical aspects of travel and assure compliance with the UNC Travel Policies.
- Funding
 - Starting in 2012, the OIA will start biannual disbursement of travel scholarships to chosen applicants who apply for funding through the OIA.

3) Grow and formalize education pathways in Global Health for residents at UNC.

- Global health pathway:
 - Over the next 4 years, work with the university to formalize a set pathway of educational and practical experiences in global health that will qualify as a Global Health Certificate for residents in UNC GME programs.
 - Over the next 4 years, explore options for a university-accredited the Global Health Certificate Pathway for any interested residents.
 - Proposed requirements for the Global Health Certificate Pathway: attendance at 4/6 preparation lectures, 6 or more online modules, meeting with a mentor at least once before travel and once upon return, international clinical experience at an approved site of at least 4

weeks duration, and a post-trip scholarly project for dissemination of information.

- Development of bilateral international relationships:
 - Over the next 5-7 years, identify 3 or more sites that are strong participators in hosting UNC residents and work to develop bilateral working relationships based on service-learning models to maximize the benefits and stability of the relationship for both parties.
- Continuous program improvement:
 - Starting pre-intervention and recurring annually, the OIA will survey medicine and pediatric residents to determine their interests in global health and improve upon methods for education and support for international electives.
 - Starting with the intern cohort of 2012, track all residents' international clinical activities during medicine or pediatric residency at UNC and build a repository of participant information. This will, in the future, serve as a framework for the collection post-trip scholarly projects.
 - Starting now, the OIA will maintain a database of locations and institutions that have hosted residents along with residents' evaluations of the educational experiences in each place. Information from the database can help direct residents toward experiences that will appropriately fit their needs and expectations.

4) Contribute to general knowledge in the field of global health education.

- At UNC:

- Over the next 4 years, residents will add to global health education within their programs via the scholarly projects created while reflecting on their experiences in international clinical settings.
- In the world:
 - Starting now and continuing, the OIA will track resident trends in career choices and attitudes toward volunteering and working in underserved populations via exit surveys/interviews for residents participating in global health activities.

Figure 1: Logic Model Representation of Resources, Objectives, and Goals



Program implementation:

The three main components in implementing a global health curriculum in residency programs at UNC are: development of appropriate educational activities, programmatic support for residents' international activities, and formalization of global health as an academic area in residencies at UNC.

Implementation resources:

The Office of International Activities (OIA) will serve as the hub for information and coordinate the resources to build and maintain these components. The OIA fits, institutionally, as both a division of UNC Global and a branch of the UNC School of Medicine Department of Medical Education. Additionally, the OIA collaborates with other groups on campus that coordinate students' international activities (UNC Global Health and Infectious Disease Department, the Center for Global Initiatives, and the Office of Global Health at the Gillings School of Global Public Health). Last, in the specific venture of developing global health education for primary care residents, the residency programs themselves will be active participants in developing the components of the curriculum. These collaborations are important because of the interdisciplinary nature of global health and uniquely position the OIA to connect residents with the resources for global engagement at UNC.

Funding for the OIA is currently through a single, creative revenue stream. The OIA, in another capacity, also coordinates electives for students visiting from medical schools overseas. The fees collected from these students make up the source money for projects housed in the OIA. Fortunately, this revenue stream has been fairly consistent in recent years. The OIA staff currently consists of one full time administrative person and two part-time physician leaders.

Many other faculty members who are passionate about global health volunteer their time and skills to global health education activities as well. Some activities and products sourced from the OIA will overlap with their existing programs to support medical students, but this program plan expands upon these to craft coursework and support structures to meet the needs of resident physicians.

Global health educational activities:

Two of the main goals of the program pertain to development of resources that will help residents prepare for international clinical activities and increase medical knowledge. These educational activities will affect residents to different degrees, depending on their voluntary involvement with the program and depth of interests.

Objective 1: Increase UNC medicine, pediatrics, and family medicine residents' exposure to global health, population health, and community health in diverse settings

The main ways that this objective will be reached is through didactic lectures and online modules. Residency programs already maintain a regular schedule of morning reports, noon conferences, and grand rounds lectures. We propose that six lectures over the next twelve months be dedicated to global health topics. Many faculty members on campus have expertise in various areas of global health who may be available to give these lectures. Eventually, residents returning from international clinical experiences will also need to develop a scholarly project to disseminate information they learned from the experience, and this could include presentations to their fellow residents. The OIA would serve as a facilitator to help residency programs connect with specific speakers to fit in their schedules. The end goal would be to include global health in

the lecture series plans every year with topics rotating every three years, so that by the end of residency, most trainees would have had multiple chances for exposure to global health topics.

For residents who have specific interest in global health, the OIA proposes expanding education through online modules. Six online modules currently exist as part of the GLBE 401 class (Appendix C). The modules consist of a video lecture, quiz, and written feedback assignment. The website also has links to relevant articles and documents. The Sakai site for the class is maintained by the OIA and several faculty members have contributed presentations and content. Currently, the target audience of the modules is undergraduate medical students. Therefore, some modules may need to be refined or added to specifically address the needs of residents. The OIA will coordinate the creation of new modules and the technical parts of getting them available online. In the future, completion of modules will be a part of required pre-trip didactics for residents wishing to participate in international clinical activities or complete a Global Health Certificate.

Objective 2: Support residents' learning relevant to established ACGME competencies through participation in global health education.

This objective addresses the need for all resident didactics to relate to the existing guidelines for graduate medical education set for by the ACGME. The ACGME competencies also give a framework for evaluating the educational benefits residents gain through participation in global health activities. Residents are routinely by faculty in their programs, mostly through surveys of the residents' performance over the course of the rotation with the faculty in areas such professionalism and ability to communicate with patients. Residents who view the global health modules will also be evaluated with quizzes that will evaluate their retention of the

clinical information taught in the modules. Last, residents who participate in global health educational activities, including international clinical experiences, will be surveyed by the OIA after their experiences to assess their self-reported changes in efficacy when working with patients from other cultures.

International electives:

Objective 3: Enhance programmatic support for residents participating in international clinical experiences.

The international clinical experience is a key part of global health education and links the didactics to residents' real-world experiences. Arranging and preparing for time away from work can be difficult due to the constraints of residency training. The OIA will facilitate residents' participation in overseas electives through practical assistance and mentorship.

Residents who wish to go on international clinical electives will be directed to the OIA from their residency programs for assistance. The OIA will make sure that necessary paperwork is properly filled out and that the residents' travel plans are compliant with UNC Travel Policies (Appendix D). The OIA is also currently implementing an application and selection process through which to disburse \$2000 travel scholarships to up to ten residents per year (Appendix E).

Furthermore, the OIA will also facilitate residents connecting with faculty mentors. As clinical faculty members with experiences in international settings who are interested in resident education are identified, they will be paired with residents. The end goal will be that residents planning international experiences will meet with a mentor at least once before their trip and once upon return. The purposes of mentorship include helping the resident develop realistic expectations for their electives, deal with culture shock, and debrief from their experiences when

they return home. Mentors will also serve as guides for residents who are seeking careers in global health.

Last, the OIA will serve as a clearinghouse of information to help residents select their international experience locations. By tracking previous students' and residents' experiences, staff in the OIA can guide residents to locations and projects that fit their interests. Tracking the quality of student and resident experiences will also allow program leaders to identify strong institutions with which to foster deeper relationships that may result in bilateral exchange efforts in the future.

Global health as a formal academic program:

Objective 4: Grow and formalize education pathways in global health for residents at UNC.

As a long term goal, the OIA will work towards codifying a set of global health activities that will qualify the resident to obtain a Global Health Certificate. Through completing educational activities, international clinical work, and a follow-up scholarly presentation based on the resident's experiences, a resident interested in global health will earn this special designation. While earning special certificates is not required for completion of residency per the ACGME, it will be a good way for residents to be able to highlight their interest and effort when presenting their resume to prospective employers or fellowships programs. Furthermore, presence of Global Health Certificate pathway helps prospective applicants to the residency programs understand the depth of the resources available to residents at UNC and more clearly envision how their interests may be fostered while being a resident at UNC.

As residents and students continue to build relationships with groups outside of UNC through traveling to international sites, some key connections may emerge. Though it is a

difficult part of the program to plan at this point in time, having a mindset towards establishing bilateral international exchanges in the future may shape how relationships with other institutions are managed now. Bilateral exchange models fit both the service-learning paradigm for global health education as well as supporting the best practices for ethical participation in medical activities in developing countries.^{18,38,42}

Objective 5: Contribute to general knowledge in the field of global health education.

As UNC formalizes the processes for participation in global health education, the OIA will also be positioned to collect new information generated by residents participating in the program. The scholarly projects required of residents in the Global Health pathway will form a body of new work that will contribute to the richness of the curriculum at UNC. The projects will also be available to scholars looking to study trends in what residents see and experience through international electives. Residents' participation in online modules will also give feedback as to what are effective teaching measures (according to residents' scores on module quizzes). Follow-up surveys performed by the OIA to further understand the characteristics of participants and changes in resident outcomes after participation will not only inform additional program development at UNC, but will also contribute to the emerging bodies of evidence important in to understanding the role of global health education for residents nationwide.

Plan for sustainability:

The program to develop global health education activities for primary care residents at UNC will build on existing elements and expand as directed by the needs and desires of the participants. The OIA reported that over 80 foreign students participated in medical elective exchanges last year (bringing funding into the OIA for programs). The exchange program is expected to grow in the coming years, but many factors, including political changes, institutional restrictions, and individual student choices can affect this. Thus, development of program elements by the OIA may be incremental as funding is generated.

At this point in time, it is also unknown how changes in programmatic support for international electives may influence rates of residents who want to participate in global health activities. A baseline needs and desires survey for understanding the current resident cohort's attitudes toward participation in global health is underway and exit surveys for participants are planned for the future. It is expected that streamlining and formalizing the Global Health Certificate pathway could increase the number of current residents who choose to go on international electives. Furthermore, advertising the program to prospective residents may result in future cohorts with higher percentages of residents who are interested in global health and international electives. By implementing continuous improvement initiatives and data-gathering methods as the program develops, the OIA will be able to anticipate trends and tailor the program as residents' needs change. Fortunately, the OIA is well-placed at a cross-section between the medical school, residencies, and UNC Global initiatives to adapt to changes in demand for this program as they arise.

Rationale and approach to the evaluation:

Reasons for evaluating a global health education curriculum at UNC:

Because this is a new program, thoughtful evaluation measures should be used to determine the usefulness and efficacy of the global health curriculum. Outcomes of utility occur on several different levels. For example, the residents' and faculty members' perspectives on how useful the materials provided are for learning about global health would indicate end user-level utility. Assessing the value of the technical assistance supplied by the OIA to assure compliance with regulations and increase safety of travelers would be a university-level utility outcome. Review of the efficacy of methods to perform these tasks would be a form of accountability for the use of resources and inform ways to reduce redundancy in service lines.

Additionally, as this is a relatively new area of formalized education for residents, it is important to gather data about outcome changes to build a repository of information. Without standardization or concrete consensus guidelines, institutions are implementing global health education with a variety of approaches, as was seen in the "semi-systematic" review of programs in this paper. Gathering outcomes data that documents changes in residents' knowledge or attitudes attributable to participating in the curriculum is the first step in determining best practices in the field. Using this information, programs wishing to develop global health education for residents in the future will have an evidence-based framework for designing their curricula. Furthermore, verified outcomes are likely to have more weight with funding and regulatory bodies when decisions must be made about continuation of the program.

Last, review of the successes and challenges of the program at UNC will guide goal setting for continuous quality improvement and future development of the processes and

products that make up the global health curriculum at this university. By understanding the real-world effects of the present program and comparing them to the desired outcomes, planners can adapt the curriculum to better meet the needs and expectations of those involved. Also, the program must maintain awareness of and adapt to any changes from outside the OIA (such as another iteration of work hours regulations from the ACGME) that might affect residents' ability to participate.

Recommendations for who should evaluate the program:

In the earliest years of the program, it may be beneficial to concentrate on internal evaluation methods. Again, because there are no strict guidelines published by a regulatory body, initial definitions of success will be determined by the values and expectations of those participating. An internal evaluator is more likely to be in tune with the culture of the organization and recognize the importance of the acceptance by stakeholders. Additionally, it is likely that there will be a rapid succession of minor changes as the logistics of program implementation are realized. A locally available, internal evaluator would be able to monitor these changes and redirect when needed to keep the program on the intended path.

Participatory evaluation methods will also be important in the initial stages of program implementation. Timely feedback from residents, faculty mentors, OIA staff, and residency program directors will inform quality improvement goals and guide the future expansion of curricular elements such as new online modules. Additionally, by developing mechanisms for participatory evaluation, planners both acknowledge the input from participants (especially faculty members who are acting as volunteer mentors) and cultivate a collaborative ethos within the initiative.

An internal evaluator will therefore need several key skills. He or she will need to be able to understand the interactions between various stakeholders in the program at UNC.

Additionally, listening skills and the ability to integrate multiple perspectives into succinct recommendations will be important. Last, in this instance, it may be useful for the evaluator to be able to act as a supportive individual within the organization as he or she will be among those best informed about what is working in the program and able to relate this in a compelling way to university administration and potential funders.

Stakeholders involved:

As in most educational initiatives, the main stakeholders in this program can be categorized as learners, teachers, and process facilitators. The learners in this instance are primary care residents at UNC. The teachers are faculty members who participate in global health education either through giving lectures, developing modules, or serving as mentors. Process facilitators include those working directly to implement the program, such as the OIA staff members, as well as residency program directors and university administrators who have vested interests in how resources and residents' time are used.

Potential challenges to evaluation:

The main challenges to conducting a comprehensive evaluation involve time factors and the need to integrate the perspectives of diverse stakeholders. Time is an important consideration because all the stakeholders have other demands for their attention, including maintaining clinical work, research, and other educational endeavors. Evaluation exercises must be carefully planned to be efficient uses of time and not overly burdensome. Also, the resident participants

are only at UNC for a limited time (typically three to four years to complete a primary care residency) and usually cannot take an international health elective until their final year.

Therefore the window of time in which evaluators can gather important post-experience feedback before the residents leave the program is relatively short. Last, program coordinators must synchronize the evaluation schedule with the university planning schedule in order to have pertinent outcomes data available when institution-level decisions must be made.

The diversity of stakeholder perspectives presents a challenge to evaluators as well. While residents may be most concerned with improving upon their personal experiences learning global health through the curriculum, residency program directors and university administration must ensure that institutional regulations are followed and resources are used efficiently. At times, these interests may be in direct competition with one another. Evaluation methods must then be chosen carefully to generate the information needed to understand the outcomes important to the various stakeholders. Round table discussions, interviews, and surveys may be good ways to gauge attitudes and overall satisfaction, but more concrete methods will be needed to show significant changes in knowledge or performance.

Evaluation study design:

Study design:

The methods for evaluating the education program must gather data from several key stakeholders and collect qualitative and quantitative information. Although residents may be the primary focus of many of the curriculum activities, other stakeholders such as residency program directors and faculty associated with the OIA may also have important feedback on the structure, content, and usefulness of the program. Additionally, while it is always crucial to evaluate the

subjective, qualitative attributes of a new program (such as user-friendliness and the enjoyableness of the experience), measuring outcomes data and showing quantitative changes reveal the value of the program by objective methods. These “hard” data are more easily tracked over time and are the foundation for evidence-based practice.⁴³

Additionally, while strictly controlled experimental designs may be the best for generating data, observational methods are often more practical when evaluating education programs.⁴³ Outcome changes attributable in part to educational interventions, such as career choices or practice habits, may not be detectable in the short term. Furthermore, as global health education is not mandatory within graduate medical education, it would be difficult to perform a randomized controlled study where participants might be assigned to go overseas when they do not wish to while others who had an interest in the topic were denied these opportunities.⁴⁴ Because of these obstacles, most of the previous studies assessing changes in outcomes after participation in global health education programs have been pre-experimental or observational.¹⁴

Within the scope of observational study design, longitudinal observation and cross-sectional studies may be the most useful for discerning the effects of a global health education initiative. Longitudinal observation requires careful planning and extensive follow up effort, but it can be useful to detecting changes in participants’ attitudes and knowledge before and after the educational intervention. In this way, the participant is compared to his or her “former self” and the effects of involvement in the educational program are isolated against a backdrop of baseline thoughts and feelings. Conversely, cross-sectional studies look at differences within a population at a certain point in time. A cross-sectional study of a group that included those who had participated in global health education and those who had declined could highlight key demographic or philosophical differences in the two parties. By combining the two types of

studies, evaluators could learn a lot about not only about how participants differ from non-participants, but evaluate emerging trends and infer cause-and-effect relationships.⁴³

Evaluation Methods:

The following table summarizes the evaluation questions, who will need to participate in the evaluations, and proposed methods for accomplishing the evaluations. More detailed explanations of the evaluation methods and how these may be used in particular study designs are discussed in the subsequent text.

Table 1: Evaluation methods by objective, evaluation question, and participant population.

Objective: Increase UNC medicine, pediatrics, and family medicine residents’ exposure to global health, population health, and community health practices in diverse settings.

Evaluation question	Participant	Evaluation method
(results) a. Do residents report more awareness of global, population, and community health issues? b. Do residents report enhanced understanding of caring for patients in multicultural or low-resource settings? c. Do participants report increased awareness of career paths in global or community health?	Residents	Pre/post survey

<p>(results)</p> <p>c. Were 6 noon conferences, 6 evening sessions, and appropriate online modules created for the global health pathway?</p>	<p>Program managers and OIA-associated faculty</p>	<p>Faculty focus group</p>
<p>(performance)</p> <p>a. Did residents attend and participate in noon lectures?</p> <p>b. Did residents interested in global health attend evening lectures?</p> <p>c. Did residents access and satisfactorily complete online modules?</p> <p>d. Did interested residents experience barriers to attendance or completion of modules? If so, what were the barriers?</p>	<p>Residents</p>	<p>Evaluate attendance logs</p> <p>Evaluate online access records and results of online quizzes and assignments</p> <p>Pre/post Survey</p>
<p>(learning)</p> <p>a. Do residents have a different attitude toward the importance or relevance of global health education than prior to engaging the curriculum?</p>	<p>Residents</p>	<p>Pre/post survey</p>
<p>(motivation)</p> <p>a. Did residents find that the topics presented were relevant to increasing their understanding of global health?</p> <p>b. Did interested residents find the additional lectures and online modules significantly added to their understanding of global health? Were any particularly weak or strong?</p>	<p>Residents</p>	<p>Post survey</p> <p>Exit interview</p>

(motivation) c. Were OIA and residency faculty satisfied with the quality and quantity didactics created? If not, what can be improved?	Program managers, OIA-associated faculty, and residency program directors	Faculty focus group
--	---	---------------------

Objective: Support residents' learning relevant to established ACGME competencies through participation in global health education.

Evaluation question	Participant	Evaluation method
(results) a. Do participants score higher on questions pertaining to global health on standardized exams? b. Do participants show increased skill in working in multicultural or low-resource health care systems? c. Do participants show enhanced medical knowledge pertaining to proper diagnosis and treatment of tropical diseases? d. Can participants identify local and international resources for information and treatment guidelines for caring for international populations?	Residents and program faculty	Develop pre- and post- tests for residents at UNC Monitor in-training exam performance and board scores Monitor residents' internal evaluation forms (based on performance in ACGME competencies) Pre/post survey
(performance) a. Did participants use new knowledge or skills gained through engaging the curriculum during their international electives?	Residents	Post survey Exit interview

b. Have participants used knowledge or skills gained during practice domestically?		
(learning) a. Do participants believe they acquired new knowledge they would not have learned through other residency activities? If so, what is an example? b. Do participants believe they acquired new skills they would not have learned through other residency activities? If so, what is an example?	Residents	Post survey Exit interview
(motivation) a. Did participants enjoy the lectures and modules? Why or why not? b. Did the participants find the didactics to be a good use of their time? Why or why not? c. Did participants feel didactics were good preparation for international clinical activities? Which parts were most useful?	Residents	Post survey Exit interview

Objective: Enhance programmatic support (mentoring, technical assistance, travel preparation) for residents participating in international clinical experiences.

Evaluation question	Participant	Evaluation method
(results) a. Were all participants	Residents and OIA-associated faculty	Faculty focus group

<p>assigned an appropriate mentor?</p> <p>b. Were all participants compliant with UNC travel regulations?</p> <p>c. Were participants able connect with available funding streams for their trips?</p>		
<p>(results)</p> <p>f. Were 10 or more faculty available for taking of the roles of mentors in global health?</p>	<p>OIA and OIA-associated faculty</p>	<p>Faculty focus group</p>
<p>(performance)</p> <p>a. Did technical support from the OIA meet the logistic needs of traveling participants? Why or why not?</p> <p>b. Did participation in mentorship enhance the quality of scholarly work or post-trip presentations? In what ways?</p> <p>c. Did mentorship enhance participants' understanding of global health? In what ways?</p>	<p>Residents and OIA-associated faculty</p>	<p>Post survey Exit interview Faculty focus group</p>
<p>(learning)</p> <p>a. Did participants learn new knowledge or skills from mentors?</p> <p>b. Did participation in mentorship change participants' attitudes toward working in global health or underserved populations?</p> <p>c. Did participants learn about the technical aspects of</p>	<p>Residents</p>	<p>Post survey Exit interview</p>

<p>planning international clinical collaborative work?</p>		
<p>(motivation) a. Did participation in mentorship result in more satisfactory experience in the global health pathway? In what ways? b. Did participants feel the technical support from the OIA was helpful in planning and executing an international elective? Why or why not? c. Did participants feel they received adequate technical support for accomplishing other requirements (completing modules, creating a post-rotation presentation)? If not, what was lacking?</p>	<p>Residents</p>	<p>Post survey Exit interview</p>
<p>(motivation) d. Did the OIA staff feel that they had adequate resources to meet the technical needs of participants? e. Did faculty enjoy the process of mentoring residents through this process? f. Did faculty feel adequately prepared and supported to be mentors?</p>	<p>OIA and associated faculty</p>	<p>Faculty focus group</p>

Evaluation study methods:

With the goals of generating data for longitudinal and cross-sectional observational studies as well as informing continuous quality improvement of the program in mind, we will use a variety of different evaluation tools (as indicated above in Table 1.). Also, several key stakeholders will participate in the evaluation process including residents, faculty, and administrators.

Pre/post surveys:

Pre- and post-intervention surveys are useful methods for establishing baseline characteristics and following longitudinal changes. All residents participating in the global health education program will complete a pre-intervention survey to assess their knowledge of and attitudes toward global health issues and careers. In the post-intervention survey, changes in attitudes and perception can be directly measured in the same population. Additionally, we will be able to measure participant satisfaction with the quality of program components such as the online modules, mentoring framework, and travel advising with specific questions included in the post-intervention survey.

Pre- and post-intervention surveys will be used to evaluate educational results, resident performance, and learning attitudes. Specifically, surveys can be used to evaluate changes in awareness of global health clinical topics, population health principles, career options, and resources in global health to determine if exposure to the curriculum introduced new ideas in to the participants in an effective manner (listed as “increasing awareness” in Table 1). Pre- and post-intervention surveys would also be useful to examine changes in attitudes about the importance or relevance of learning about global health as part of graduate medical education.

Exit interview:

Qualitative information gained through the exit interviews will add to the quantitative data gathered in the surveys. Exit interviews provide opportunities for participants to elaborate on their opinions of the program components and suggest possible improvements for the future. Additionally, as trends in exit interviews may be identified over the years, structured questions may be added to the interview in such a way that responses can be coded and transformed into quantitative information.⁴⁵⁻⁴⁷

Faculty focus groups:

UNC faculty, including the OIA department members, residency program directors, and global health mentors, should meet regularly to discuss the program and the progress of the resident participants. In part, these meetings will provide the setting for discussing logistical matters such as the development of new modules or coordination of mentors and learners. Also, as the nature of the venture is intentionally interdepartmental and interdisciplinary, these meetings can serve as a hub for collaboration between faculty as we continually seek to expand and improve the program. Last, faculty focus groups will be an important source of feedback to learn about how participation in the global health curriculum is affecting residents' work in domestic settings.

Attendance logs and online records:

On the very practical side, simple record-keeping methods can determine the quantitative impact of the curriculum on participants' activities. By keeping track of the number of lectures

residents attend and modules they complete, the program planners can gauge the implementation of the curriculum components. In the future, levels of participation may be useful to track to discern if a minimum threshold of didactics is necessary in order to see statistically significant changes in performance outcomes.

Pre- and post-intervention tests, standardized exam scores, and competency evaluations:

Finding measurable educational outcomes that can be generalized to larger populations is difficult. However, as in most forms of educational assessments, quizzes or exams are generally accepted as a valid method for appraising how well participants have learned new facts. By creating program-specific tests, program planners can determine residents' baseline knowledge and discern the gains in knowledge due to participation in the global health curriculum didactics. Trends in resident performance on knowledge quizzes are also a form of feedback for program planners to determine the overall efficacy of curricular components in relating important concepts.

Additionally, residents' knowledge is routinely assessed through standardized exams. In-training exams serve as a preparation for board certification examination, and all primary care residents take these preparation exams annually. If specific, measurable increases are noticed between the pass rate of global health students and those who do not learn about global health, this would be powerful and generalizable data showing changes with real-world implications. Additionally, in-training and board examination scores are usually reported to trainees subsectioned by topic. By examining the trends in topic-specific scores, program planners may be able to understand more precisely how participation in global health curriculum influences clinical knowledge. Conversely, if participants in global health education have worse scores or

pass rates on standardized exams, it may be an indicator that participation in this optional curriculum is detracting from residents' core-topic learning.

Last, residents are continually evaluated by residency faculty members to determine competency achievements. As previously stated, the ACGME has created a list of competencies applicable to all residency types to ensure universal evaluation of “soft” skills such as professionalism in addition to the medical knowledge that is assessed with exams.^{13,28} Because each residency program must have systems in place to evaluate all residents in these competency areas, program planners should be able to access data specific to the performance of participants in global health education. Initial research evidence indicates that participation in global health education results in beneficial increases in residents' professionalism, interpersonal communication skills, and ability to adapt to work in various health care systems.^{14,29,46,48} However, these studies are small and very few have evaluated the impact of global health education specifically on ACGME competency achievement. Linking participation in global health to measurable outcome changes in residents' performance on competency evaluations would likely be the best way to prove the increases in the hard-to-measure “soft” skills commonly noted in anecdotal findings.

Dissemination of information:

First and foremost, the information gathered through the evaluation process will be useful at UNC. By understanding the impacts of the curriculum on the residents, the program can be tailored to better meet the educational and logistical needs of participants. This program has the potential to increase the academic potency of international clinical experiences, ensure the safety

of residents through universal enforcement of travel policies, and maximize resource use through coordination the international activities taking place on campus.

It is important, therefore, that mechanisms are put into place for the dissemination of the evaluation information to stakeholders on campus. Because the OIA is accountable to several different departments, it would make sense that an internal review document of this program should be included in the routine departmental reports submitted to the administration. This internal report should also be reviewed at global health faculty meetings and made available to program directors who may wish to know how global health education is affecting their residents.

Second, the information gathered through evaluation of a global health curriculum for residents may be useful to other institutions designing or implementing a similar curriculum. As was shown in the systematic review, many residency programs are in the process of adding global health education to their existing curricular programs. However, historically, outcomes data has been sparse.^{3,14} Outcomes information discovered through scientifically rigorous methods could inform future program design and evaluation research questions. However, if dissemination of outcomes information outside the university is planned, evaluators should coordinate with OIA to obtain Institutional Review Board (IRB) approval for each individual project. The results of IRB-approved studies would then be eligible for publication and dissemination to other universities and contribute to the general knowledge of the impacts of global health education programs in residency.

Discussion:

The new plan for global health curriculum in graduate medical education at UNC presented here is ambitious. Integration of this curriculum into the existing practices of primary care residencies at UNC will require a fundamental shift in perceptions of the role of global health in graduate medical education. Global health education will no longer be just for the few residents interested in spending a couple of weeks abroad but a fundamental part of the curriculum used by the university to train culturally competent, community-minded physicians prepared to treat a wide assortment of pathologies in patients from diverse backgrounds. Developing, maintaining, and evaluating this program will require ongoing institutional investment, but many potential benefits to residents and patients are evident. Furthermore, implementation of rigorous evaluation mechanisms from the outset will ensure good stewardship of resources while also developing UNC as a center of evidence-based practice in this field.

The lack of evidence-based practice in the field of global health education is, in fact, one of the key factors that led me to write on this subject. As a resident, I participated in global health activities and found the time I spent abroad working in a low-resource, multicultural setting was some of the most educational and challenging of my graduate medical education. Additionally, I have recognized how that experience has continued to affect my approach to practice as a pediatrician working in the United States. Many people I know have stories like mine and may feel very passionate about the worth of global health education. However, despite many physicians and students appreciating global health experiences over past decades, there is a paucity of published evidence to guide educators toward best practices and proven methods for teaching global health. Because we lack precise outcomes data for global health education in graduate medical education, it is impossible to show the perceived benefits of learning these

concepts in the academically rigorous manner expected by residency programs and governing bodies.

The Office of International Activities is well positioned to lead both program development and evaluation at UNC. Work has already begun in this area, starting with the survey previously described that will be administered to all incoming interns in July 2012. Through this survey, the OIA will develop a repository of information including resident demographics, previous experiences, current attitudes and interests pertaining to global health that can serve a baseline comparator for future outcomes research. Though UNC will be far from the first university to add formal global health curriculum to resident education, we will start the process in an admirably thoughtful manner.

Through the process of writing this paper, I have developed a greater appreciation for the complex process of turning “good ideas” into a usable educational program. The first challenge was to connect academic theory to real-world action strategies. Though I discovered many gaps in the existing literature, I was able to construct foundation for thinking about this topic that was based on educational theory and current knowledge. Then, by contemplating the actual environment in which the curriculum would function, I learned about the translation of concepts into plausible actions. Additionally, I discovered the importance of reflecting on the goals and objectives of the program when elaborating mechanisms for evaluation. Even if this plan is not used as a blueprint for program development at this institution, it is my hope that the ideas in this paper will help shape and inform future discussions about global health education at UNC and in graduate medical education programs throughout the world.

Acknowledgements:

I'd like to thank Diane Calleson for her help in writing this paper and serving as my faculty advisor. Thanks also to Jonathan Kirsch for additional writing and editing assistance and Mellanye Lackey for search strategy guidance. I'm also grateful to Sam Hawes and Martha Carlough in the Office of International Activities for their helpful insights and encouragement. And, last, to my sister, Elesha Coffman for her hours of astute editing over the past 12 months.

References:

1. Bateman C, Baker T, Hoornenborg E, Ericsson U. Bringing global issues to medical teaching. *Lancet*. Nov 3 2001;358(9292):1539-1542.
2. Drain PK, Primack A, Hunt DD, Fawzi WW, Holmes KK, Gardner P. Global health in medical education: a call for more training and opportunities. *Academic medicine : journal of the Association of American Medical Colleges*. Mar 2007;82(3):226-230.
3. Drain PK, Holmes KK, Skeff KM, Hall TL, Gardner P. Global health training and international clinical rotations during residency: current status, needs, and opportunities. *Academic medicine : journal of the Association of American Medical Colleges*. Mar 2009;84(3):320-325.
4. Grudzen C, Legome E. Loss of international medical experiences: knowledge, attitudes and skills at risk. *BMC medical education*. 2007;7(1):47.
5. Henderson DA. Defining global medical education needs. *Academic medicine : journal of the Association of American Medical Colleges*. May 1989;64(5 Suppl):S9-12.
6. Koplan JP, Bond TC, Merson MH, et al. Towards a common definition of global health. *Lancet*. Jun 6 2009;373(9679):1993-1995.
7. AAMC. Medical school graduation questionnaire 2011 all schools summary. 2011; <https://www.aamc.org/download/263712/data/gq-2011.pdf>. Accessed January 19, 2012.
8. Anspacher M, Frintner MP, Denno D, et al. Global health education for pediatric residents: a national survey. *Pediatrics*. Oct 2011;128(4):e959-965.
9. Houpt ER, Pearson RD, Hall TL. Three domains of competency in global health education: recommendations for all medical students. *Academic medicine : journal of the Association of American Medical Colleges*. Mar 2007;82(3):222-225.
10. Miller WC, Corey GR, Lallinger GJ, Durack DT. International health and internal medicine residency training: the Duke University experience. *The American journal of medicine*. Sep 1995;99(3):291-297.
11. Ramsey AH, Haq C, Gjerde CL, Rothenberg D. Career influence of an international health experience during medical school. *Family medicine*. Jun 2004;36(6):412-416.
12. Kerry VB, Ndung'u T, Walensky RP, Lee PT, Kayanja VF, Bangsberg DR. Managing the demand for global health education. *PLoS Med*. Nov 2011;8(11):e1001118.
13. ACGME. ACGME at a glance. 2012; http://www.acgme.org/acWebsite/newsRoom/newsRm_acGlance.asp. Accessed February 21, 2012.
14. Thompson MJ, Huntington MK, Hunt DD, Pinsky LE, Brodie JJ. Educational effects of international health electives on US and Canadian medical students and residents: a literature review. *Academic Medicine*. 2003;78(3):342.
15. Evert J, Stewart, C., Chan, K., Rosenberg M., Hall, T. et al. Developing residency training in global health: a guidebook. 2008; <http://globalhealtheducation.org/resources/Documents/Both%20Students%20And%20Faculty/GHEC%20Residency%20Guidebook.pdf>.
16. Whitcomb ME. Promoting global health: what role should academic health centers play? *Academic medicine : journal of the Association of American Medical Colleges*. Mar 2007;82(3):217-218.
17. Evert J, Bazemore A, Hixon A, Withy K. Going global: considerations for introducing global health into family medicine training programs. *Family medicine*. Oct 2007;39(9):659-665.
18. Crump JA, Sugarman J. Ethical considerations for short-term experiences by trainees in global health. *JAMA : the journal of the American Medical Association*. Sep 24 2008;300(12):1456-1458.

19. Nelson BD, Lee AC, Newby PK, Chamberlin MR, Huang CC. Global health training in pediatric residency programs. *Pediatrics*. Jul 2008;122(1):28-33.
20. Ahrens K, Stapleton FB, Batra M. The University of Washington Pediatric Residency Program Experience in Global Health and Community Health and Advocacy. *Virtual Mentor*. 2010;12(3):184.
21. Redwood-Campbell L, Pakes B, Rouleau K, et al. Developing a curriculum framework for global health in family medicine: emerging principles, competencies, and educational approaches. *BMC medical education*. 2011;11:46.
22. Kolars JC, Halvorsen AJ, McDonald FS. Internal medicine residency directors perspectives on global health experiences. *The American journal of medicine*. Sep 2011;124(9):881-885.
23. Bureau UC. The newly arrived foreign-born population of the United States: 2010. In: Commerce UDo, ed2011.
24. Affairs BoC. Inter-country adoption statistics. 2012; http://adoption.state.gov/about_us/statistics.php. Accessed February 18, 2012.
25. administration It. US travel abroad declined two percent in 2010. In: Commerce UDo, ed: Office of travel and tourism industries; 2010.
26. administration It. US Commerce Department forecasts continued strong rebound in international travel to the United States: 2011-2016. In: Commerce UDo, ed: Office of travel and tourism industries; 2011.
27. Graham MJ, Naqvi Z, Encandela J, Harding KJ, Chatterji M. Systems-based practice defined: taxonomy development and role identification for competency assessment of residents. *Journal of graduate medical education*. 2009;1(1):49-60.
28. Holt KD, Miller RS, Nasca TJ. Residency Programs' Evaluations of the Competencies: Data Provided to the ACGME About Types of Assessments Used by Programs. *Journal of graduate medical education*. Dec 2010;2(4):649-655.
29. Disston AR, Martinez-Diaz GJ, Raju S, Rosales M, Berry WC, Coughlin RR. The International Orthopaedic Health Elective at the University of California at San Francisco: The Eight-Year Experience. *The Journal of Bone and Joint Surgery. American volume*. 2009;91(12):2999.
30. Campbell A, Sullivan M, Sherman R, Magee WP. The medical mission and modern cultural competency training. *Journal of the American College of Surgeons*. Jan 2011;212(1):124-129.
31. Are C. Global health training for residents. *Academic medicine : journal of the Association of American Medical Colleges*. Sep 2009;84(9):1171-1172; author reply 1172.
32. Howard CR, Gladding SP, Kiguli S, Andrews JS, John CC. Development of a competency-based curriculum in global child health. *Academic medicine : journal of the Association of American Medical Colleges*. Apr 2011;86(4):521-528.
33. Nasca TJ, Day SH, Amis ES, Jr. The new recommendations on duty hours from the ACGME Task Force. *The New England journal of medicine*. Jul 8 2010;363(2):e3.
34. Peets A, Ayas NT. Restricting resident work hours: The good, the bad, and the ugly. *Critical care medicine*. Mar 2012;40(3):960-966.
35. Salsberg E, Rockey PH, Rivers KL, Brotherton SE, Jackson GR. US residency training before and after the 1997 Balanced Budget Act. *JAMA : the journal of the American Medical Association*. Sep 10 2008;300(10):1174-1180.
36. *CUGH background: Consortium of Universities for Global Health;2012.*
37. McCutcheon G. What in the world is curriculum theory? *Theory Into Practice*. 1982;21(1):18-22.
38. Eckenfels EJ. The purpose of service learning. *Family medicine*. 2009;41(9):659-662.
39. Seifer SD. Service—Learning: Community—Campus Partnerships for Health Professions Education. *Acad. Med*. 1998;73:273-277.

40. Nemire RE, Margulis L, Frenzel-Shepherd E. Service Learning. *American Journal of Pharmaceutical Education*. 2004;68(1):28.
41. Rimer BK, Glanz K, Institute NC. *Theory at a glance: a guide for health promotion practice*: US Dept. of Health and Human Services, National Institutes of Health, National Cancer Institute; 2005.
42. Castillo J, Goldenhar LM, Baker RC, Kahn RS, Dewitt TG. Reflective practice and competencies in global health training: lesson for serving diverse patient populations. *Journal of graduate medical education*. Sep 2010;2(3):449-455.
43. Carney PA, Nierenberg DW, Pipas CF, Brooks WB, Stukel TA, Keller AM. Educational epidemiology. *JAMA: the journal of the American Medical Association*. 2004;292(9):1044-1050.
44. Battat R, Seidman G, Chadi N, et al. Global health competencies and approaches in medical education: a literature review. *BMC medical education*. 2010;10:94.
45. Ozgediz D, Wang J, Jayaraman S, et al. Surgical training and global health: initial results of a 5-year partnership with a surgical training program in a low-income country. *Archives of Surgery*. 2008;143(9):860.
46. Wang M, Katz C, Wiegand J. Global mental health as a component of psychiatric residency training. *Psychiatric Quarterly*. 2011:1-8.
47. Brook S, Robertson D, Makuwaza T, Hodges B. Canadian residents teaching and learning psychiatry in Ethiopia: a grounded theory analysis focusing on their experiences. *Academic Psychiatry*. 2010;34(6):433-437.
48. Sawatsky AP, Rosenman DJ, Merry SP, McDonald FS. Eight years of the Mayo International Health Program: what an international elective adds to resident education. *Mayo Clinic proceedings*. *Mayo Clinic*. Aug 2010;85(8):734-741.
49. Puvvula J, Granados G. Developing an international health area of concentration in a family medicine residency. *Family medicine*. Oct 2007;39(9):666-670.
50. Oettgen B, Harahsheh A, Suresh S, Kamat D. Evaluation of a global health training program for pediatric residents. *Clinical pediatrics*. Oct 2008;47(8):784-790.
51. Anandaraja N, Hahn S, Hennig N, Murphy R, Ripp J. The design and implementation of a multidisciplinary global health residency track at the Mount Sinai School of Medicine. *Academic medicine : journal of the Association of American Medical Colleges*. Oct 2008;83(10):924-928.
52. Furin J, Farmer P, Wolf M, et al. A novel training model to address health problems in poor and underserved populations. *Journal of health care for the poor and underserved*. Feb 2006;17(1):17-24.
53. McKinley DW, Williams SR, Norcini JJ, Anderson MB. International exchange programs and US medical schools. *Academic Medicine*. 2008;83(10):S53.
54. Specialities ABoM. http://www.abms.org/who_we_help/physicians/specialties.aspx. Accessed March 16, 2012.
55. Duke Global Health Residency/Fellowship Pathway. <http://globalhealth.duke.edu/education/postdoc-proff-programs-indiv/global-health-residency>. Accessed March 15, 2012.
56. Hubert-Yeargen Center Global Health Elective. <http://dukeglobalhealth.org/education-and-training/global-health-elective-rotation>. Accessed March 15, 2012.
57. Indiana University School of Medicine Residency Track in Global Health. <http://medicine.iu.edu/globalhealth/program-components/>. Accessed March 15, 2012.
58. Indiana University School of Medicine Pediatrics Residency FAQ. <http://pediatrics.iu.edu/residency/frequently-asked-questions/>. Accessed March 15, 2012.

Appendix A: Review of existing programs by name and type (table format)

“Supported rotation” programs

Program (website)	Curriculum/didactics	Practice experience	Mentorship (# of faculty)	Evaluation methods
<p>Yale Johnson and Johnson Global Health Scholars Program (interdisciplinary)¹⁵</p> <p>http://medicine.yale.edu/intmed/globalhealthscholars/about/index.aspx</p>	<p>Elective evening course available, but not mandatory.</p> <p>In country language tutoring available at some sites.</p>	<p>4-6 week international clinical rotations at one of 6 designated sites</p>	<p>In-country mentors available at each site (unknown)</p>	<p>Program evaluations by participants</p> <p>No formal evaluation of participants themselves</p>
<p>St. Joseph’s Regional Medical Center Family Medicine Residency Program¹⁵</p> <p>http://www.saintjosephresidency.com/specialties/global-health-track)</p>	<p>Seminar series over global health topics (10-15 lectures) available; not stated that it is mandatory.</p>	<p>2-8 week clinical rotations in underserved population or participation in global health/tropical medicine courses</p> <p>No affiliated or designated sites</p> <p>Domestic continuity clinic experience in under-served, multicultural population</p>	<p>None stated</p>	<p>Post-rotation presentation required</p>

“Formal Track” Programs

Program (website)	Curriculum/didactics	Practice experience	Mentorship (# of faculty)	Evaluation methods
International Health Area of Concentration at the Harbor-UCLA Family Medicine Residency Program ⁴⁹ (http://www.harborfm.com/)	6-12 months of monthly dinner meetings with lectures over global health topics	2 weeks of international clinical experience	Faculty traveled with teams of residents during international experience (not stated)	“Modified Kirkpatrick’s model” to evaluate curricular outcomes Post-trip debriefing included written narrative of experience and grand rounds presentation
International Child Health Track at the Children’s Hospital of Michigan, Wayne State University Department of Pediatrics ⁵⁰ (http://www.childrensdmc.org/?id=1958&sid=1)	9 months of weekly didactic sessions	1-2 month international clinical or research experience	Faculty supervise scholarly activity (not stated)	Knowledge test Presentation of scholarly project required after international experience
Cincinnati Children’s Hospital Medical Center Global Health Scholars Program ⁴² (http://www.cincinnatichildrens.org/education/clinical/residency/tracks/global/default/)	22 month cycle of global health lectures Evening global health discussion meetings	2-4 week international clinical experience	“Global health advisor” assigned to guide through pre-trip requirements, provide accountability, and conduct debriefing (not stated)	Reflective journaling x 6 entries
Rainbow Babies and	Monthly global health	4 week clinical	1:1 mentorship (6	Post-rotation

<p>Children’s Hospital Pediatric Residency International Health Track¹⁵</p> <p>http://www.uhhospitals.org/rainbowchildren/forhealthprofessionals/pediatricresidencyprogram/tabid/642/globalchildhealthtrack.aspx)</p>	<p>lectures integrated in general resident education</p> <p>Global health journal club (4-5 per year)</p> <p>Pre-trip orientation</p> <p>“Preparation to International Health Service” and “Management of Humanitarian Emergencies” courses available but not mandatory</p>	<p>rotation abroad or with Indian Health Service</p>	<p>core faculty in global health, other mentors depending on geographic or practice area of interest)</p>	<p>presentation required</p>
<p>Pediatric Residency Program; University of Washington/Children’s Hospital and Regional Medical Center GLOBAL Health Pathway²⁰</p> <p>http://www.seattlechildrens.org/healthcare-professionals/education/uw-peds/training/pathways/)</p>	<p>Case-based online curriculum</p> <p>Intensive training on social determinants of health</p> <p>Introduction to quantitative community health assessment tools (epidemiology, survey design)</p> <p>Total 2 months</p>	<p>4-8 week clinical experience and working on a project in Kisii, Kenya</p> <p>1 week “vacation” elective in El Salvador at established NGO partner site</p> <p>Domestic clinical work in multicultural settings</p>	<p>Peer mentoring by pairing with Kenyan resident for in-country work</p> <p>Faculty mentoring process not described</p>	<p>Residents must complete program learning objectives and achieve competencies</p> <p>“Mentored Pathway Project” completion</p> <p>Self-assessments after reviewing online cases</p>

<p>The Albert Einstein College of Medicine/Montefiore Primary Care/Social Internal Medicine Program Curriculum in Global Health¹⁵</p> <p>(http://www.montefiore.org/prof/departments/family/rpsm/internal-track/)</p>	<p>A set of courses, rounds, and experiential opportunities within the Primary Care and Social Medicine Residency Programs over 3 years</p> <p>“Health, Human Rights and Liberation Medicine” course (8 seminars)</p> <p>Intensive one month elective in global health as a prerequisite to travel</p>	<p>Participation in domestic clinics with international focus (immigrant health, human rights clinic)</p> <p>International clinical experience in Kisoro, Uganda (up to one month)</p> <p>Global Health research option for field work</p>	<p>Not explained fully (3 core global health faculty)</p>	<p>Curricula evaluated at resident retreats</p> <p>Residents evaluated yearly</p>
<p>Lawrence Family Medicine Residency Global Health Curriculum¹⁵</p> <p> (http://lawrencefmr.org/site/?page_id=431)</p>	<p>10-day Spanish immersion course (required for all residents)</p> <p>6-8 global health lectures as part of residency curriculum</p> <p>“Foundations of Global Health” at the Univ. of Mass.</p> <p>Journal club</p>	<p>1 week experience in the Dominican Republic (required for all residents)</p> <p>Domestic clinic work with primarily Dominican population</p> <p>International work up to 2 months in Ghana, Nicaragua or Nepal</p>	<p>“Structured mentoring” (30 faculty members with global health experience, 1 core faculty)</p>	<p>Procedures checklist for international work</p>

	Online coursework			
<p>University of California, San Francisco Global Health Clinical Scholars Program (interdisciplinary)¹⁵</p> <p>(http://globalhealthsciences.ucsf.edu/education-training/clinical-scholars/curriculum)</p>	<p>3-week intensive didactics over global health topics, research, and community assessment</p> <p>Asynchronous web-based modules</p> <p>Monthly global health network meetings</p>	<p>4-6 weeks international clinical or research/project experience</p> <p>Encouraged but not mandatory to go to established sites in Kenya, Uganda, or Tanzania</p> <p>Domestic clinical experience with local immigrant populations</p>	Not stated (1 core faculty and 15+ member oversight committee)	Participants must complete a scholarly project in global health
<p>Mount Sinai Global Health Residency Track (interdisciplinary)^{15,51}</p> <p>(http://mssm-ghc.org/GHRTapplication)</p>	<p>2 year longitudinal experience overlapping residency</p> <p>“Introduction to Global Health” and other courses through the School of Public Health mandatory throughout (resident may choose to complete MPH but not mandatory)</p> <p>3 day skills workshop</p> <p>Attend Mount Sinai Global Health Conferences yearly</p>	<p>2-3 month fieldwork experience where research or project implementation is conducted</p> <p>Residents coordinate work with partner sites in Honduras, India, Liberia, Uganda, East Harlem or rural North Dakota</p>	Each resident assigned a project mentor (20+)	<p>Periodic surveys of residents</p> <p>Residents tracked after graduation to determine career impacts</p> <p>Residents evaluated by on-site preceptors during international work</p> <p>Residents must complete a scholarly project</p>

	Monthly research seminars and journal clubs			
--	---	--	--	--

“Additional certification” programs

Program/certification earned (website)	Curriculum	Practice experience	Mentorship (#of facult)	Evaluation methods
<p>The Mark Stinson Fellowship in Underserved and Global Health, Contra Costa Regional Medical Center- Family Medicine Residency¹⁵</p> <p>MPH, fellowship certificate</p> <p>(http://cchealth.org/groups/stinsonfellowship/)</p>	<p>MPH coursework completed at UC Berkley (area of interest to be decided by fellow)</p>	<p>2 months to complete research or fieldwork in global health</p> <p>Domestic clinical responsibilities in multicultural setting</p>	<p>Associated with the Faculty Leadership Group (no numbers given)</p>	<p>Completion of MPH degree and scholarly project</p>
<p>The Doris and Howard Hiatt Residency in Global Health Equity and Internal Medicine at Brigham and Women’s Hospital^{15,52}</p> <p>MPH</p> <p>(http://www.brighamandwomens.org/Departments_and_Services/medicine/services/socialmedicine/gheresidency.aspx)</p>	<p>48-month integrated curriculum (overlaps with last 2 years of residency)</p> <p>Coursework leading to an MPH from Harvard School of Public Health</p> <p>Residents create site-specific lessons based on their field experiences and passed on to other students</p>	<p>Up to 14 months abroad (reduced if needed to complete MPH)</p> <p>Fieldwork, research, and clinical work at one of 8 designated sites (a second site continuity clinic is maintained in order for residents to fulfill ACGME requirements)</p>	<p>Described as “comprehensive” but not delineated (7+ domestic faculty and others working at the international sites)</p>	<p>Supervisors evaluated resident performance in all locations</p> <p>The program is periodically reviewed by residents and faculty</p> <p>Completion of scholarly project required for</p>

	<p>Case-studies developed by faculty</p> <p>Participation in seminar, conference or short-course annually</p>			graduation
<p>University of Minnesota Pediatric Global Health Track³²</p> <p>Pediatric global health certificate, American Society of Tropical Medicine and Hygiene certificate (optional)</p> <p>http://www.med.umn.edu/peds/global/globalhealthtrack/home.html)</p>	<p>36 noon conferences over 3 years (integrated into residency curriculum)</p> <p>Six evening journal clubs/seminars per year</p> <p>Annual grand rounds</p> <p>In-person global health course through the Dept of Medicine</p> <p>Web-based cases and clinical scenarios</p>	<p>4-8 week international elective at one of 7 sites</p> <p>(Core curriculum work mandatory prior to international elective)</p>	<p>Individual mentorship for every track resident</p>	<p>Grand Rounds presentation on international elective projects</p> <p>Various methods to measure competency achievement in ACGME core competencies adapted to pediatric global health including:</p> <p>Case study completion</p> <p>Knowledge tests</p> <p>Portfolio/journal writing</p> <p>Faculty evaluation</p>

“Layered” programs

Institution	Program	Curriculum	Practice experience	Mentorship (#of faculty)	Evaluation methods
Duke University	Global Health Residency/Fellowship Program http://globalhealth.duke.edu/education/postdoc-proff-programs-indiv/global-health-residency	MS in Global Health coursework at Duke University Journal club Lecture series Events through Duke Global Health Institute Language training	9-12 months at one of several coordinated sites Clinical and research activity expected at international site	Projects developed in conjunction with mentors and program director (no numbers given)	MS completed Scholarly project completed Residents evaluated based on achievement of competencies Presentation required at end of experience Create a case log of 5 patient scenarios for future teaching
	Global Health Elective Program http://dukeglobalhealth.org/education-and-training/global-health-elective-rotation	Pre trip orientation required	2-3 month international clinical work	None stated	None stated
Indiana University	Residency Track in Global Health http://medicine.iu.edu/globalhealth/program-	24 didactic sessions (lectures, journal club, presentations) Web-based modules	2 months international fieldwork at an approved site Domestic	Each resident is assigned a global health faculty member from resident department (22 listed)	Attend 75% of didactics Co-facilitation of sessions with

	components/	<p>Through GHEC or USAID</p> <p>Travel orientation seminars</p>	<p>continuity clinic in a multicultural setting (optional)</p> <p>20 hours of “local-global” outreach service</p>		<p>faculty members</p> <p>Evaluated based on ACGME competencies by faculty</p> <p>Annual review by faculty mentor</p> <p>5-10 page written reflection of international experience</p> <p>Two case presentations and two teaching lectures on site</p> <p>1 page write up of local-global experiences</p> <p>Residents evaluate curriculum annually</p> <p>Presentation to residency department</p>
--	-----------------------------	---	---	--	--

	Residency International Elective Program http://pediatrics.iu.edu/residency/frequently-asked-questions/ http://medicine.iupui.edu/residency/international/	Four pre-trip orientation sessions	Up to 2 months at an approved international site	None stated	None stated
--	--	------------------------------------	--	-------------	-------------

Appendix B: In depth descriptions of existing programs by taxonomic category

Permissive programs:

At the most basic level, a residency program can choose whether or not to allow international experiences to count towards fulfillment of residency requirements. A “permissive” program, therefore, is any residency program that allows residents to engage in international health activities without loss of salary or benefits. The programs also count the rotations as medical electives, but do not provide pre-trip education or other forms of support.

Because of the cost to the residency program to maintain the salary of a person not physically present and working at their facility and lack of ACGME mandate, residency programs may choose to limit residents international activities during residency.²² This could be accomplished by not allowing sufficient time off from required activities, stopping salary payments when residents are away from the home facility, or discontinuing malpractice insurance coverage when away from the home facility.⁵³ Though a resident could still choose to use his or her own vacation time, funds, and malpractice insurance to visit other countries and participate in medical activities, the lack of support could certainly deter many time- and cash-strapped residents from exploring this option.

Two surveys give evidence that some residency programs take a “permissive” stance toward global health education in residency. For instance, a 2011 survey of internal medicine residency program directors indicated that 160 out of 279 respondents (57.3%) continued the salaries of residents using elective time for international activities. Of these, however, only 17.9% of the responding program directors indicated that there was formal global health education available through their institution. This indicates that about 125 the programs in the survey permit, while not necessarily academically supporting, global health experiences.²² A similar survey of the allopathic medical schools with associated residency programs found that

59% of respondents indicated that their institutions allowed residents to participate in international electives, while only 23% reported that a global health track and/or pre-travel preparatory course were available through their program.⁵³ This indicates that about 40 out of the 109 of the institutions queried in that survey had a permissive stance toward resident global health education at that point in time.

Supported rotation programs:

The Yale Johnson and Johnson Global Health Scholars Program and St. Joseph's Regional Medical Center Family Medicine Residency Program are examples of "supported rotation" programs (See Appendix A). In a "supported rotation" program, the resident is both allowed to participate in international activities as a medical elective, and the home institution provides a minimal level of support in one or more of the four pedagogical domains. For instance, the program may offer some non-compulsory opportunities for didactics or administrative assistance for trip planning. Mentorship and mandatory scholarly work are likely to be missing.

Both Yale's and St Joseph's programs provide pre-trip training through optional lecture seminars. International activities through Yale take part at one of six partner sites, while St. Joseph's residents have no restrictions on where they are able to travel. Both focus on clinical work while abroad. The Yale program reported in-country mentors available at each site, but St. Joseph's did not describe any mentoring process. Last, post-rotation evaluation was minimal.

Formal track programs:

Nine programs I researched fit into a "formal track" categorization. As institutions develop their programmatic offerings pertaining to global health, many codify the activities as a track. In some instances, residents must go through an application process to be allowed to

participate. In all instances, there is greater number and complexity in the curriculum than in “supported rotation” programs. Furthermore, accountability for activities, participation in mentoring, and post-trip debriefing are more common.

Five of the nine programs were collected from the published literature (the remainder was noted in the GHEC guidebook). Limited information was available in each of the programmatic pedagogical domains. In one instance (the Lawrence Family Medicine Residency program), pursuing the most up to date information about the program via its website resulted in re-categorizing the program from a supported rotation program (as described in the GHEC guidebook) to a formal track program.

Didactics:

Duration of in-person didactics ranged from 2 to 24 months amongst the various programs. Distribution of lectures varied from intensive, all-day lectures over a short period of focused global health elective time to weekly or monthly lectures over many months, overlapping with other residency rotations. Formal track programs were more likely than supported rotation programs to report web-based modules as part of the curriculum.^{15,20} One required specific language training prior to the international experience (Lawrence Family Medicine Residency).¹⁵ The residency track at Mount Sinai was unique in that they provided an intensive skills workshop.⁵¹ Five programs noted a requirement or opportunity for research while in the field and four supplied pre-trip didactics in research methods and ethics. The programs at Albert Einstein College of Medicine, Lawrence Family Medicine Residency, and Mount Sinai Global Health Residency Track all required concomitant coursework at their associated university and one (Mount Sinai Global Health Residency Track) stated that classes taken as part of the global health track could be used towards earning an optional master’s in public health.^{15,51}

Practice experience:

The practice experience component varied in duration from two weeks to three months. Most programs allowed between one to two months. Four programs described the work abroad as purely clinical, while the remaining five stated that clinical and/or scholarly work was expected while the residents were abroad. Five of the programs also required or strongly recommended that residents travel only to established partner sites for their international experiences. Expectation of research or scholarly work as a part of the rotation was associated with both longer elective duration and recommendation to travel only to a known partner site. Four programs also mentioned that residents could participate in “local global health” experiences by setting up their residency continuity clinic experience at sites that catered to multicultural, immigrant, or refugee populations.

Mentorship:

Within the formal track program group, mentoring methods also varied. Additionally, this facet of pedagogy was rarely as well-described as the didactic components or international elective parts of the programs. At the Harbor-UCLA Family Medicine residency program, faculty mentors actually travel with the teams of residents during international clinical activities.⁴⁹ In other programs, the role of faculty members appeared to be mainly to guide the resident through the process of completing appropriate scholarly projects. The program at the University of Washington was unique in that it mentioned peer mentoring for residents as they were paired with Kenyan counterparts for the duration of their international elective and scholarly project.²⁰ The reported number of residency faculty formally associated with the global health education programs ranged from three to over 30 per program; however, the mentorship

processes were inadequately described to be able to determine how the roles of these various faculty members might vary.

Evaluation:

A wide variety of evaluation methods were mentioned in the program descriptions. The programs at Harbor-UCLA and Rainbow Babies and Children's Hospital specifically stated that residents must give a presentation to their residencies upon return from their international experiences.^{15,49} Two, Harbor-UCLA and the Cincinnati Children's Hospital Medical Center Global Health Scholars program focused on resident perceptions and attitudes through required written narrative and journaling activities.^{42,49} The International Child Health Track at the Children's Hospital of Michigan and University of Washington programs evaluated residents' knowledge through quizzes and self-assessment exercises.^{20,50} The Lawrence Family Medicine Residency program was unique in that it required completion of a procedures checklist for international work.¹⁵ Four programs listed "completion of a scholarly project" as an end-product of the global health experience, and this could be viewed as a method of evaluating a resident's knowledge and professional development as a result of participation in global health education. However, the criteria for the "scholarly project" were ill-defined in the published work. Last, three programs stated that surveys or exit interviews were used so that the residents could evaluate the global health education teaching they had received.

Additional certification programs:

In "additional certification" programs, participants earn a separate degree or certificate through completion of the didactic components required for participation. The degree or certificate is in addition to the normal requirements for medical board certification, and the

scholarly work performed to obtain the degree pertains to global health. Three programs, the Mark Stinson Fellowship in Underserved and Global Health at Contra Costa Regional Medical Center, the Doris and Howard Hiatt Residency in Global Health Equity and Internal Medicine at Brigham and Women's Hospital, and the University of Minnesota Pediatric Global Health Track, support learners through extensive didactics over several years of training.

Coursework in the Mark Stinson Fellowship or Doris and Howard Hiatt Residency programs culminates in the completion of a master's in public health degree (MPH).^{15,52} Residents in the University of Minnesota Pediatric Global Health Track have the opportunity to complete the requirements necessary to receive the American Society of Tropical Medicine and Hygiene Certificate of Knowledge in Clinical Tropical Medicine and Travelers' Health.³² These programs also award the participants with "certificates in global health." However, because global health is not a recognized medical specialty, there may not be uniformity between the certificate requirements from program to program, making it difficult for those unfamiliar with the programs to ascertain the value of this certification.⁵⁴

Didactics:

Didactics in these select programs incorporate both formal academics and program-specific components. In the two programs leading to completion of an MPH, participants are expected to maintain the clinical duties of a fellow or resident while completing the classes necessary for the degree. The Doris and Howard Hiatt Residency program further requires completion of case-study modules and participation in seminars, conferences, or short courses in global health.⁵² The University of Minnesota Pediatric Global Health Track does not require participants to take graduate school classes, but there are a higher number of activities such as

lectures, journal clubs, and online modules required in this program than in previously described track programs. Furthermore, completion of the American Society of Tropical Medicine certificate requires over 300 hours of coursework via online modules or in-person classes, making completion of this component a rigorous academic exercise.³²

Practice experience:

The practice experience in these more intensive programs ranged from one to 14 months. Because of the extensive time away from the home facility needed to complete a 14 month international experience, the Doris and Howard Hiatt Residency program actually extends a resident's duration of internal medicine residency training from three to four years total. Research was a required part of the Mark Stinson Fellowship and Doris and Howard Hiatt Residency programs. Both Doris and Howard Hiatt and Residency and University of Minnesota programs required residents to rotate at known partner sites.^{32,52} Family medicine fellows in the Mark Stinson Fellowship program also conduct domestic clinical activities in a multicultural setting.¹⁵ Residents in the Doris and Howard Hiatt Residency program must maintain a continuity clinic both in the United States and in their chosen country of international field work in order to meet ACGME requirements for intern medicine residents.⁵²

Mentorship:

The mentorship methods for these intense programs were not well described. The Mark Stinson Fellowship program described guidance for fellow as they complete MPH requirements, but did not describe either pre-trip or in-country supervision.¹⁵ The Doris and Howard Hiatt Residency program stated their mentorship process was “comprehensive,” but did not explain

what that meant.⁵² Each resident is assigned a mentor within the University of Minnesota program, but the literature did not describe what this entailed.³²

Evaluation:

Evaluation methods ranged from simply noting completion of program requirements to extensive methods to quantify the impacts of the curricula on residents' performance based on ACGME competency requirements. For example, fellows in the Mark Stinson fellowship program graduated from their program when all MPH requirements were satisfied, including a scholarly project.¹⁵ However, residents in the University of Minnesota program must complete activities tied to specific ACGME competencies including case studies (patient treatment and systems-based practice), knowledge tests (medical knowledge), journal writing (communication skills), and be evaluated by program faculty (professionalism) in order to complete the track.³²

Layered programs:

As global health programming within an institution becomes more sophisticated and complex, it usually requires more time and effort from the participating resident to complete. This may, in fact, hinder some interested residents from seeking out international health experiences if they feel they cannot complete the whole curriculum. Furthermore, tracks or additional degree programs may need to limit the number of participants per year based on funding or faculty. Some programs appear to deal with this by providing multiple pathways for participation in an international health elective. I designated these "layered programs" because I found evidence that, while a comprehensive curriculum is available for some residents, a simplified "supported rotation" pathway is also available for residents who only participate through involvement in international health electives.

Two institutions, Duke University and the Indiana University School of Medicine, have developed over time to have what I am calling “layered” programs. In both instances, an academically rigorous track is available for a limited number of residents from various medical specialties at the school, but any upper level resident in good standing may apply for permission to use elective time for a supported international experience. However, the Indiana University residency track activities occur concomitantly with the participant’s usual residency activities whereas the comprehensive residency/fellowship at Duke University requires 24 months of dedicated time to complete.

Didactics:

Understandably, the complexity of didactics varies greatly between the comprehensive and simple programs at each school. At Duke, the Global Health Residency/Fellowship Program is a multi-year course of study where the participants complete the coursework for a master’s in science (MS) degree, participate in program-specific activities such as journal clubs, and receive language training specific to the site where they will complete their practice experience. The didactics of the Duke Global Health Elective Program, however, simply consist of a pre-trip orientation seminar. Similarly, the Indiana University Residency Track in Global Health has more intensive didactics (24 didactic sessions, web-based modules, and travel orientation seminars) while the Global Health Elective coursework consists of only four pre-trip orientation sessions.

Practice experience:

The time allotted for international practice experience is greatly expanded in the more comprehensive program at Duke, but is the same (two months) in both the Indiana track and

elective programs. Because the Duke Global Health Residency/Fellowship Program adds 24 months of activities to the resident or fellow's existing curricular plan, participants are allowed 9 to 12 months to complete clinical and research work at their international sites. The electives through both institutions are one to two months and focused on clinical work. Both institutions require that residents choose from approved site lists for their international experiences.

The track program at Indiana University also encourages domestic global health activities. Residents are allowed to change their continuity sites to multicultural clinics. Additionally, residents are expected to complete 20 hours of "local global" service learning by working with multicultural, immigrant, or refugee populations within the US.

Mentorship:

Neither school's elective program mentioned a mentoring process. However, the global health track programs descriptions noted that individual mentoring considered very important for developing and completing meaningful scholarly work. Additionally, faculty mentors were generally experts in a particular medical specialty who had extensive global health experience themselves and could serve as role models for integrating global health work into clinical or research careers.

Evaluation:

No formal evaluation methods were described for the elective programs. Conversely, the evaluation methods for the track programs are very detailed. Completion of the MS degree and scholarly projects are required at Duke, as well as creating a presentation and case log to use for teaching future track students. No additional degree is earned through the Indiana program; however, attendance, participation, presentations within the didactic schedule is expected as well

as written papers over the international experience and local global experience. Furthermore, while track residents at Indiana are not required to conduct research while abroad, they are expected to create and present teaching lectures appropriate for indigenous residents and patient populations. Both programs stated that faculty routinely evaluate residents' performances and that faculty and residents work together to evaluate the curriculum periodically.

Appendix C: GLBE 401 Course Description and Syllabus

Elective Catalog Description: Foundations in Global Health

Sponsoring Department: *(interdisciplinary – through the Office of International Activities of the SOM)*

Sponsoring Chairman: Warren Newton

Course Number and Title: GLBE 201/401

Faculty: Martha Carlough (Martha_carlough@med.unc.edu) and Sylvia Becker-Dreps (sbd@email.unc.edu)

Prerequisites:

1. International travel portion AFTER completion of the first year of medical school for pre-clinical students though may begin on-line work in January of MS1 year (course # GLBE 201)
2. Completion of at least six months of clinical rotations for clinical students for 3rd and 4th year (course #GLBE 401)
3. Students are also required to complete all requirements as for any UNC medical student traveling abroad through the Office of International Activities

Periods Offered: All except 10 for MS4 students. Students should register for the course in the block that they will START the on-line learning materials even if the associated international travel will be later. **THE COURSE WILL BE AVAILABLE BEGINNING JANUARY 2012 (BLOCK 7) and MUST BE COMPLETED WITHIN NINE MONTHS OF STARTING.**

Min/Maximum Enrollment: 20 per block (independent course) with permission of course faculty

Credit Hours: 6

Grading: Honors/High Pass/Pass/Fail

Clinical/Non-Clinical: clinical, research and public health

Duration of Elective/Selective: four weeks

Where/When to report on first day: to be arranged with course faculty

Learning Objectives: (what student will be able to do as a result of this experience):

1. Students will gain a broader understanding of population based global health issues and social determinants of health
2. Students will be able to critically examine various global health topics based on learning from on-line modules, additional readings, interaction with involved faculty and staff, and practical experience
3. Students will be able to identify, describe, and discuss the need for integrated interdisciplinary approaches to global health problems
4. Students will plan/participate in a clinical or community health oriented experience (minimum of 2 weeks) outside of the US which will provide a practical, experiential opportunity in global health
5. Students will develop models for integration of global health into career paths for medicine

Learning Activities: (What the student will do e.g., conferences, rounds, clinic, expected hours, on-call requirements/opportunities):

1. Completion of 6 on-line global health modules (including two mandatory modules – Travel Health and Safety, Professionalism, Ethics and Cross-cultural Issues for global health electives). Each module contains:
 - a. Recorded one hour audio and slides (through Camstasia software) of UNC faculty with expertise in this area presenting on the topic
 - b. Carefully designed objectives for the presentation, integrated quizzes and an assessment of completion
 - c. Additional learning activities – learning activities, case studies, suggested activities and contacts for further learning or suggestions for faculty interview
2. Additional readings (and two short reflection papers of 2-5 pages) from core articles in UNC’s interdisciplinary global health curriculum/reading list (specific to each module), the Essentials of Global Health textbook, and/or select biographies or nonfiction books related to current issues in global health. Details of readings and reflection will be worked out with course advisors and according to individual student’s interest areas.
3. A structured elective experience outside of the USA (minimum of 2 weeks) that is integrated with areas of learning. This may be clinical, research or community health based and interested students will be supported in identifying and arranging opportunities. A resource guide for identifying sites for electives is under development. Students will be expected to prepare a “geo-journal” prior to travel to familiarize

themselves with the country's specific health and economic issues. Preceptor evaluation of experience is required.

Evaluation: (How student will be evaluated e.g., observed administering procedures, interviewing patients, presentation at case conference, participation in rounds, patient write-ups)

Students will be evaluated through assessment of completion of six on-line modules and related learning activities (50%), two short reflection papers from core articles and global health-related books (20%), and preceptor feedback from international elective experience (30%).

THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

OFFICE OF THE PROVOST

Policy Concerning Study, Travel, and Research in Countries

Under U.S. State Department Travel Warnings and

U.S. Centers for Disease Control Travel Notices

As the daily lives of North Carolinians are affected more and more by events around the world, in order to better serve the State and its citizens, The University of North Carolina at Chapel Hill has developed a global focus. Its students take advantage of opportunities for international education and research through organized study-abroad programs, more informal educational trips, and independent study and research funded in whole or in part by the University. Its faculty and staff participate in international educational and research opportunities, both to attain additional knowledge themselves and to share their expertise with other countries. The University is committed to becoming a premiere international institution.

When the University's contacts with the rest of the world expand, additional risk is inevitable as its activities are affected by war, terrorism, political unrest and natural catastrophes in other countries. In addition, a disease outbreak in another country poses both a risk of infection for the student or employee traveling to the affected area and a risk that the student or employee may transmit the disease or health condition to others on returning to the United States. The University endeavors to balance the value of participation in international educational activities against the potential risk to its students and employees of such participation. In balancing these factors, the University relies on information from the U.S. Department of State, most particularly the Travel Warnings issued periodically by that agency,

and information in the Travel Notices issued by the U.S. Centers for Disease Control. Consequently, the University has developed this policy governing its educational and other activities in countries for which the Department of State has issued a Travel Warning and countries for which the Centers for Disease Control has issued a Travel Notice.

I. DEPARTMENT OF STATE TRAVEL WARNINGS

Department of State Travel Warnings fall into two basic categories: (1) warnings of conditions that heighten the ordinary risk of travel to a particular country and (2) more urgent warnings that forbid, restrict or otherwise urge U.S. citizens to defer travel to a country.

A. “Heightened Risk” Travel Warnings: Students

No student shall be required to participate in an educational activity under University auspices in a country for which the Department of State has issued a Travel Warning. A student who wishes to travel, under University auspices, to a country for which the State Department has issued a “heightened risk” travel warning may do so, under the following conditions:

(1) The student must review the Travel Warning and the U.S. Department of State Consular Information Sheet for the country in question. Both documents may be accessed on the web at <http://www.state.gov>.

(2) The student must consider carefully the risks described in the Travel Warning and, weighing those risks against the value of the educational opportunity to the student, make his or her own determination about whether to continue with the planned research or study activity. In balancing these factors, the student should take into consideration the possibility that the existing Travel Warning may be changed to a more urgent type of warning, triggering section I.B of this policy and possibly affecting the student’s ability to receive a refund of monies already expended for the research or study activity. The student should also take into consideration the possibility that,

if he or she encounters difficulties abroad, the University and even the U.S. Department of State may be unable to assist.

(3) The student must sign a release, acknowledging the existence of the travel warning and his/her decision to continue with the planned activity despite that warning, and releasing the University from liability for injuries suffered by the student while participating in the activity. If a student is under age 18, his/her parent or guardian must also sign this release. If an undergraduate student is under age 21, his/her parent or guardian must sign the document merely to indicate that the parent or guardian is aware of the situation and has read the release. For undergraduate students over age 21 or graduate/professional students, no parent or guardian consent is requested. Students who are married do not need to seek parental consent.

B. Travel Warnings Forbidding, Restricting or Urging Deferral of Travel: Students

When the U.S. Department of State issues a travel warning that forbids, restricts, or otherwise urges U.S. citizens to defer travel to a certain country, the following rules apply:

- (1) University study abroad programs in that country shall be suspended.
- (2) No student shall be allowed to travel to that country under University auspices.
- (3) No student shall be given University funding for any activity in that country. If the student has already received such funding prior to the imposition of the travel warning, the funding shall be returned to the University. Where a portion of the funds have already been expended in furtherance of the activity before the travel warning was imposed, the Associate Provost for UNC Global, after consultation with the relevant department, shall decide the amount to be returned to the University.
- (4) If the student is already in the country for which the travel warning has been issued, the Associate Provost for UNC Global shall decide, in consultation with others having knowledge of

the situation, whether the student shall be required to return to the U.S. Where the student is required to return to the U.S. or where the student desires to return to the U.S. under these circumstances, the University will, at the student's request, endeavor to help the student make arrangements for his/her return.

(5) Where the student has pre-paid the costs of a University-sponsored study abroad program the student may be eligible for a refund of all or a portion of the payment, but the availability of a refund is not guaranteed and will depend on the circumstances of each case.

(6) If a student elects to travel and participate in the activity despite the subsection B Travel Warning and the University rules set out above, section 3 above pertaining to use of University funds applies. In addition, if the student participates in research or other educational activity in a country while that country is under the subsection B Travel Warning, the student will never receive any academic credit from the University for that research or educational activity.

C. Employee Travel to Countries under Travel Warning

The University recognizes that, in times of international crisis, its employees may possess valuable expertise that is needed to assist with the resolution of the crisis. Consequently the University does not prevent its employees from traveling to countries for which the State Department has issued a Travel Warning described in subsection A and B above. However, the following rules and conditions apply to such travel:

(1) No employee shall be required to travel to a country for which a Travel Warning has been issued.

(2) Employees who wish to travel to such a country are urged to review the Consular Information Sheet and Travel Warning at <http://www.state.gov> and other available material about the conditions in the country in question and to consider carefully whether the value of the travel to them outweighs the risks they will face if they choose to travel.

(3) The Employee shall take precautions with respect to his or her personal safety. He or she must recognize that the University, and even the U.S. Department of State, may be unable to help in the event he or she encounters difficulties abroad.

II. CENTERS FOR DISEASE CONTROL (CDC) TRAVEL NOTICES

There are three categories of CDC Travel Notices that are relevant for purposes of this policy: (1) Outbreak Notice—issued when there is an outbreak of a contagious disease in a limited geographic area; (2) Travel Health Precaution—issued when a disease outbreak of a greater scope is occurring in a more widespread geographic area; and (3) Travel Health Warning—issued when there is a widespread, serious outbreak of a disease of public health concern. (At this warning level, the CDC recommends against non-essential travel to the area.)

A. CDC Outbreak Notice or Travel Health Precaution—Students

No student shall be required to participate in an educational activity under University auspices in a country for which the CDC has issued any of the Travel Health Notices set out above. A student who wishes to travel, under University auspices, to a country for which the CDC has issued an Outbreak Notice or a Travel Health Precaution may do so, under the following conditions:

1) The student must review the Outbreak Notice or Travel Health Precaution, as well as the Travel Notice Definitions, Criteria, and Rationale for such notices and warnings. These documents can be accessed on the web at <http://wwwn.cdc.gov/travel/default.aspx> .

(2) The student must consider carefully the risks described in the Outbreak Notice or Travel Health precaution, and weighing those risks against the value of the educational opportunity to the student, make his or her own determination about whether to continue with the planned research or study activity. The student should also take into consideration the possibility that, if he or she encounters difficulties abroad, the University and even the U.S. Department of State

may be unable to assist, and that the student may be obliged to “shelter in place” in the event that commercial airlines drastically curtail or even cease operations, and/or travel restrictions prevent people from returning to the United States or leaving the affected country. “Shelter-in-Place” information can be found at the U.S. government’s pandemic influenza website: www.pandemicflu.gov , the World Health Organization website www.who.int/en , and the Centers for Disease Control website www.cdc.gov .

(3) In balancing these factors, the student should take into consideration the possibility that the existing Outbreak Notice or Travel Health Precaution may be changed to a Travel Health Warning, triggering Section II.B. of this policy and possibly affecting the student’s ability to receive a refund of monies already expended for the research or study activity.

(4) The student must sign a release, acknowledging the existence of the Outbreak Notice or Travel Health Precaution and his/her decision to continue with the planned activity despite that warning, and releasing the University from liability for injuries suffered by the student while participating in the activity. If a student is under age 18, his/her parent or guardian must also sign this release. If an undergraduate student is under age 21, his/her parent or guardian must sign the document merely to indicate that the parent or guardian is aware of the situation and has read the release. For undergraduate students over age 21 or graduate/professional students, no parent or guardian consent is requested. Students who are married do not need to seek parental consent.

(5) Students who travel to a country for which the CDC has issued an Outbreak Notice or Travel Health Precaution may be requested to monitor their health upon return, or be subject to screening at the port of entry, a process that may include voluntary or involuntary isolation or quarantine of the traveler.

B. CDC Travel Health Warnings—Students

When the CDC issues a Travel Health Warning that recommends postponing nonessential travel to the area, the following rules apply:

- (1) University study abroad programs in that country shall be suspended.
- (2) No student shall be allowed to travel to that country under University auspices.
- (3) No student shall be given University funding for any activity in that country. If the student has already received such funding prior to the imposition of the travel warning, the funding shall be returned to the University. Where a portion of the funds have already been expended in furtherance of the activity before the Travel Health Warning was imposed, the Associate Provost for UNC Global, after consultation with the relevant department, shall decide the amount to be returned to the University.
- (4) If the student is already in the country for which the CDC Travel Health Warning has been issued, the Associate Provost for UNC Global shall decide, in consultation with others having knowledge of the situation, whether the student shall be required to return to the U.S. Where the student is required to return to the U.S. or where the student desires to return to the U.S. under these circumstances, the University will, at the student's request, endeavor to help the student make arrangements for his/her return. However, students should be aware that the University, and even the U.S. Department of State, may be unable to assist, and that they may be obliged to "shelter in place" in the event that commercial airlines drastically curtail or even cease operations, and/or travel restrictions prevent people from returning to the U.S. or leaving the affected country. "Shelter-in-Place" information can be found at the U.S. government's pandemic influenza website: www.pandemicflu.gov, the World Health Organization website www.who.int/en, and the Centers for Disease Control website www.cdc.gov.

(5) Where the student has pre-paid the costs of a University-sponsored study abroad program the student may be eligible for a refund of all or a portion of the payment, but the availability of a refund is not guaranteed and will depend on the circumstances of each case.

(6) If a student elects to travel and participate in research or other educational activity in a country while that country is under a CDC Travel Health Warning, the student will never receive any academic credit from the University for that research or educational activity. The student will be subject to screening at the port of entry, a process that may include voluntary or involuntary isolation or quarantine of the traveler. Further, the student will not be permitted to return to campus until he or she has completed appropriate health monitoring and/or screening to determine that he or she is not infected with the disease in question. The monitoring and screening required will be decided on a case by case basis by the Associate Provost for UNC Global in consultation with appropriate Public Health officials.

C. Travel to Countries under CDC Travel Notices: Employees

The University recognizes that, in times of international health crisis, its employees may possess valuable expertise that is needed to assist with the resolution of the crisis. Consequently, the University does not prevent its employees from traveling to countries for which the CDC has issued an Outbreak Notice, Travel Health Precaution or Travel Health Warning. However, the following rules and conditions apply to such travel:

(1) No employee shall be required to travel to a country for which any of the CDC Travel Notices listed above has been issued.

(2) Employees who wish to travel to such a country are urged to review the Travel Notice and the CDC Travel Health Warning, Definitions, Criteria and Rationale at <http://wwwn.cdc.gov/travel/default.aspx> , as well as other available material about the conditions

in the country in question, and to consider carefully whether the value of the travel to them outweighs the risks they will face if they choose to travel.

(3) Employees who travel to a country for which there is an Outbreak Notice, a Travel Health Precaution, or a Travel Health Warning are urged to prepare to “Shelter-in-Place” in the event that commercial airlines drastically curtail or even cease operations, and/or travel restrictions impede people from returning to the United States or leaving the affected country. “Shelter-in-Place” information can be found at www.pandemicflu.gov; www.who.int/en, and www.cdc.gov.

(4) Employees shall take precautions with respect to their personal safety, recognizing that the University and even the U.S. Department of State may be unable to help in the event employees encounter difficulty abroad.

(5) Employees who travel to a country for which the CDC has issued an Outbreak Notice or a Travel Health Precaution may, and in cases where the CDC has issued a Travel Health Warning, will, be requested to monitor their health upon return, or be subject to screening at the port of entry, a process that may include voluntary or involuntary isolation or quarantine of the traveler. Further, an employee will not be permitted to return to campus until he or she has completed appropriate health monitoring and/or screening to determine that he or she is not infected with the disease in question. The monitoring and screening required will be decided on a case by case basis by the Associate Provost for UNC Global in consultation with appropriate Public Health officials.

IV. AUTHORITY OF THE ASSOCIATE PROVOST FOR UNC GLOBAL

Where it is not clear from its wording whether a Department of State Travel Warning falls into category (1) or (2) as set out above, the Associate Provost for UNC Global shall have the discretion to decide the issue, after appropriate consultation.

In any situation involving a Travel Warning or a CDC Travel Notice, the special conditions that caused the warning or notice to be issued may result in further rules and responses by the University. The Associate Provost for UNC Global shall have the authority to establish such rules and responses in consultation with such other people as the Associate Provost deems appropriate under the circumstances.

For areas designated in a CDC Travel Health Warning, the rules and procedures issued by the Associate Provost for UNC Global may differ for employees traveling to the area on business not connected with the disease outbreak, and employees traveling to the area to assist and/or study the disease outbreak.

Warnings similar in effect to Travel Warnings may be issued by other organizations such as the World Health Organization. In such situations the University as a whole may impose additional or different rules and procedures affecting international travel and study. In these cases the Associate Provost for UNC Global will collaborate with other University officials in developing such rules and procedures.

Amended 10/25/2010



**2011-2012 UNC RESIDENT PHYSICIAN SCHOLARSHIPS – GLOBAL HEALTH
ELECTIVES**

This is a universal application for UNC/H resident physicians (and fellows under GME office) for scholarships for global health electives. Scholarships will be funded for up to \$2000 per resident offered on a biannual funding cycle through the SOM Office of International Activities. In order for a resident to apply, he/she must have completed at least the first year of postgraduate training, be in academic good standing, have the approval of the Program Director (including approval of away dates) and Departmental chair, and have completed all other requirements according to the Policy and Procedures of the GME office for international rotations. Electives must be a minimum of two weeks in duration and four weeks is encouraged. Applications are available on the OIA website (www.med.unc.edu/oia) under the residency section and will be considered according to the following schedule:

- Applications available Jan 15th and due February 15th, with decision by March 15th
- Applications available August 15th and due September 15th with decision by October 15th

For any questions about this process, please contact the Office of International Activities before completing the application.

Overview

Descriptions should outline a substantial educational experience that is well thought out and would not be possible in the U.S. Applicants should demonstrate a unique advantage to their travel to a particular site, state a realistic goal or goals, explain the merit and feasibility of their project and explain how the experience will be supervised and is related to their personal educational goals. Applicants should address how they intend to deal with any potential language barriers that may be encountered. Preference will usually be given to residents applying for the first-time and without other sources of support, but a subsequent award may be considered for follow up on or continuing a prior project. All applying residents must be in good academic standing and funded experiences must occur before official completion of residency or fellowship. All scholarship recipients must complete travel health and safety requirements through the Office of International Activities, including obtaining emergency evacuation insurance and signing a UNC travel health waiver (see www.med.unc.edu/oia for details) as well as completing the two required on-line preparation modules through the OIA.

Protection of the Rights of Human Subjects

During the scholarship experience residents may participate in direct patient care and/or engage in other types of learning or research which includes confidential patient information. Whenever obtaining information that is not directly related to a patient's care -- for example, when a resident conducts interviews with patients or with health care providers, administers surveys or questionnaires, or takes part in clinical research -- respect for the rights and interests of others obliges the protection of private information according to HIPPA policies.

All scholarship applicants must discuss the relevance of IRB approval with their program director and any involved faculty and if appropriate (i.e. if the experience involves human subject research) submit any research proposal to the Office of Human Research Ethics (OHRE) to confirm compliance regarding the rights of human subjects and the IRB. Please review the IRB site at www.ohre.unc.edu for more information.

Requirements

All parts of the application must be submitted together. Individual pieces will not be accepted. May be submitted as a single PDF document via email (shawes@med.unc.edu – OIA Program Manager) or hard copy to: Office of International Activities (CB# 9535, 1066 Bondurant Hall, UNC School of Medicine)

1. Completed UNC Resident Physician Global Health Scholarship Application
2. A detailed description (2 page maximum) of the experience that specifically addresses:
 - a) the purpose of the educational experience;
 - b) the background and unique significance of the experience, including the advantage of traveling to the particular site;
 - c) educational objectives with regard to the experience;
 - d) potential language barriers and how they will be overcome;

e) the dates of travel and length of project (must be a minimum of 4 weeks, excluding any additional sightseeing or travel) and meet the resident's program requirements regarding maximal away time from continuity clinic and/or other clinical responsibilities;

f) other monetary support you have obtained or for which you have applied.

g) if research-based experience, describe project, faculty support, and plans for IRB approval

3. Letter of support from the residency program director which includes a statement of whether or not the resident will receive credit for this rotation towards completion of the program and if not, any residency/fellowship extension required for completion.

4. Letter of agreement between UNC/Health Care System GME office and the receiving program/institution (copy of letter required by GME office for international rotation), including information on the plans for physician supervision at the host institution in compliance with GME policy

5. The special projects liability coverage form (available through the GME office or the OIA website), with all required signatures.

6. An updated CV.

The resident physician's signature on the scholarship application authorizes the selection committee to query the Program Director regarding the resident's standing in the program to ensure that a global health experience does not jeopardize a resident's ability to successfully complete training.

When accepting a scholarship, the resident agrees to submit to the Office of International Activities, within SIX WEEKS of his or her return, a short written report demonstrating the important aspects of the scholarship experience (see OIA webpage for a link to this form), and an evaluation by the on-site faculty (which will also be submitted to the Program Director).

APPLICATION FOR UNC RESIDENT PHYSICIAN GLOBAL HEALTH SCHOLARSHIP

Resident physician name:

Training Program:

Address:

Email:

Phone:

UNC Program Director :

UNC Department:

Date of anticipated completion of residency/fellowship:

Sponsoring Institution Abroad (name, title, *full* mailing address and email address, if available):

Name:

Title:

Elective Dates:

Travel Dates:

Mailing Address:

Email Address:

Other monetary support received or applied for:

(include name of funding agency or UNC Program, name of award, period of award, and amount)

By my signature below, I authorize the selection committee to query the residency Program Director and UNC's GME office my standing in the program. I give my permission for the committee to review all materials pertinent to my application for this scholarship. Furthermore, I signal my understanding that if I do not complete the required report and on-site evaluation of the rotation, I also agree to purchase the required insurance policy providing repatriation and medical evacuation for a period covering the

duration of my travel abroad and complete any additional requirements. I understand I must meet with a designee in the Office of International Activities to purchase this travel insurance complete a UNC Travel Waiver Policy and complete any other requirements of UNC School of Medicine residents for international travel. _____

Signature

Date