As the number of universities offering courses, certificates, and academic programs focused on global health has expanded in recent years, an urgent need exists to identify specific competencies and outcomes to guide the curricula in these programs. To address this need, the chair of the Education Committee of the Consortium of Universities for Global Health (CUGH) appointed a Subcommittee in April 2013, and charged the members of this Subcommittee with “determining if there exists a need for broad global health core competencies applicable across disciplines, and if so, what those competencies should be. A related task is to provide support as needed in the development of discipline-based core competencies through the publicizing and sharing of existing materials and expertise.” The original members of the Subcommittee included the six co-authors of this paper.1 The initial outcomes of the Subcommittee’s work were presented at the May 2014 annual CUGH meeting and will soon be formalized and submitted for publication. The purpose of this paper is to: (a) discuss the benefits of developing interprofessional as well as discipline-specific global health competencies; (b) highlight themes that emerged from a preliminary review of existing literature addressing global health competencies for disciplines that might be involved with global health initiatives; and (c) review the process used by the CUGH Subcommittee to identify two levels of interprofessional global health competencies. The paper concludes with recommendations for next steps in identifying both interprofessional and discipline-specific global health competencies that can guide programs and that ultimately might be incorporated into educational standards and guidelines.

Benefits of Identifying Interprofessional Global Health Competencies
Before identifying global health competencies, it is important to agree on a definition of global health. Subcommittee members reviewed many definitions of global health and ultimately agreed to use the definition proposed by Jeffrey Koplan et al. to guide their work: global health refers to “…an area for study, research, and practice that places a priority on improving health and achieving equity in health for all people worldwide. Global health emphasizes transnational health issues, determinants, and solutions; involves many disciplines within and beyond the health sciences.”


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ences and promotes interdisciplinary collaboration; and is a synthesis of population based prevention with individual-level clinical care. Because global health requires interprofessional collaboration, it is important to ensure that all of the disciplines that engage in global health activities have a basic set of common cross-cutting competencies. Because the highest level of education for some of the relevant disciplines may be at the undergraduate level (e.g., nursing, engineering, nutrition, psychology), identifying competencies for selected undergraduate programs as well as for graduate programs will be important. In addition to the common set of core interprofessional global health competencies, there is also a need to identify discipline-specific competencies important for different disciplines engaged in global health.

It may be useful to develop both types of competencies using a “layered” approach as described by Jessica Meeker et al. in the development of competencies for nutrition in emergencies (NIE) as portrayed in Figure 1.

Figure 1


Developing a set of both interprofessional and discipline-specific competencies could help guide curricula, prepare students for roles in a variety of global health initiatives, and, as noted in the Association of Schools and Programs of Public Health (ASPPH) Global Competency Model, “promote population health, safety, and well-being at local and global levels by enhancing the global health competence of students in schools of public health and related global health educational programs.”

Identifying global health competencies can also improve performance and promote accountability and quality. Peter Walker and Catherine Russ described the role of standards and competencies for the humanitarian sector in “creating a unified system of professional development, accreditation and association, which could increase accountability, raise the quality and consistency of humanitarian service, open up the profession to talented new recruits, and raise the status of the humanitarian service provider to a level on a par with other professional groups. This would support the infrastructure for career paths with lifelong learning opportunities and support the retention of humanitarian workers over decades to come.” Roger Hughes et al. also noted that competencies can assist with continuing professional development as well as job evaluation and design. These authors also presented a helpful overview of the philosophical basis for the competency movement and a summary of arguments for and against competency-based training.

Given the important role of competencies in curricular and professional development, we believe that identifying interprofessional competencies is an important step toward achieving quality and accountability in global health education.

**Themes from Existing Literature on Global Health Competencies in Seven Disciplines**

As a first step in identifying cross-cutting interprofessional competencies, members of the Subcommittee reviewed more than 100 published articles and websites pertaining to global health competencies. We then prepared lists of the competencies that had been proposed for the following disciplines: medicine, nursing, physician assistant, dentistry/oral health, economics, engineering, anthropology, public health, and nutrition. In addition to the more complete summary of the competencies for the disciplines identified above, resources related to global health competencies were identified for the following disciplines: psychology, optometry, pharmacy, occupational therapy, physical therapy, and law. Copies of all of the resources were collected and stored using a web-based file sharing service.

For each of these disciplines, committee members provided a summary including the following information: (a) search strategies and sources identified; (b) competency availabilities and sources; (c) degree to which competencies relate specifically to the discipline’s contribution to global health; (d) level of detail and specificity; and (e) availability of educational programs focused on application of the discipline to global health. Subcommittee members completed a table consisting of the identified global health competencies, the reference/source for the competency, the general domain represented by the
competency, whether the competency was interprofessional or discipline-specific, and whether the competency reflected knowledge, skills, or attitudes. The domains that were identified in the Global Competency Model developed by the ASPPH were used to guide development of these preliminary templates. These domains are the following: (1) Capacity Strengthening; (2) Collaboration and Partnering; (3) Ethical Reasoning; (4) Professional Practice; (5) Health Equity and Social Justice; (6) Program Management; (7) Social-Cultural and Political Awareness; and (8) Strategic Analysis. If the competency identified did not fit one of these domains, sub-committee members proposed a domain that would be appropriate. Themes identified from the preliminary literature review for the disciplines of medicine, nursing, public health, physician assistant, pharmacy, mental health, health economics, anthropology, engineering, and nutrition are summarized here.

**Medicine**

The greatest number of resources identified related to the discipline of medicine. Many excellent resources were identified including (but not limited to) a literature review published in 2010, a guidebook about global health training in graduate medical education, and several other publications. In 2008-2009, a list of global health competencies for medical students was developed by a Joint U.S./Canadian Committee on Global Health Core Competencies (JCGHC). The competencies were divided into six categories: (a) Global Burden of Disease; (b) Health Implications of Travel and Displacement; (c) Social and Environmental Determinants of Health; (d) Globalization of Health and Health Care; (e) Health Care in Low Resource Settings; and (f) Health Care as a Human Right and Development Resource. The list included sub-competencies or skills at both the basic and advanced levels for each of the major competencies. Most of these competencies have a biocultural focus, with an expanded definition of health to include public/community health and broader issues related to the social determinants of health, advocacy, and cultural competency. Many medical schools and residency training programs now offer global health options that focus on adapting medical care to low-resource settings.

**Nursing**

A total of 23 peer-reviewed articles were identified related to the topic of global health nursing competencies, seven of which were particularly relevant. In 2010, Lynda Wilson and colleagues adapted the medical student competencies for nurses by deleting or modifying the competencies that focused on medical diagnoses or treatments. The final list of 30 competencies were divided using the same six categories as the JCGHC competencies, and included sub-competencies at only the basic level of undergraduate nursing education (rather than at both basic and advanced levels as had been identified in the JCGHC list). The list of competencies was translated into Portuguese and Spanish, and nursing faculty in the U.S., Canada, Latin America, and Caribbean were invited to participate in an online survey to indicate their perceptions about whether each of the 30 competencies should be included in undergraduate nursing programs. Papers have been published presenting the results of the 542 responses to the English survey and 52 responses to the Spanish survey, and the results of 222 responses to the Portuguese survey from Brazilian faculty. Although a number of publications were identified describing study abroad and international exchange programs in nursing schools, only one article was identified that specifically focused on integrating global health into an undergraduate nursing curriculum.

**Public Health**

The most comprehensive description of global health competencies for public health practitioners was the report published by ASPPH following an extensive project that included a three-round Delphi survey. A total of 38 competencies were identified, divided into seven domains, most of which appear to be interprofessional competencies. These domains were used by the CUGH sub-committee to categorize the competencies that were identified for different health-related disciplines.

**Physician Assistants**

In 2012, the Physician Assistant Education Association (PAEA) International Rotation Subcommittee reviewed a list of proposed core competencies for PA global health education which had been extrapolated from the competencies for medical students developed by the JCGHC. The committee concluded that there should be more distinction between the different levels of training (e.g., physician assistant, resident, medical students, etc.), and that “it may not be possible to integrate the global health competencies in the traditional PA curriculum without adding to the curriculum and/or program length.” The committee also noted that “global health competencies may be more appropriate for PA programs with specific global health education as part of their mission.”
Dentistry/Oral Health
Most of the references reviewed focused on the need for global training programs to work toward common competencies based on the European Union/U.S. dental-oral competencies to promote more ready acceptance of training worldwide. The American Association of Medical Colleges identified competencies related to oral health education for medical and dental students that include cross-cultural training, linguistic proficiency, social accountability, access, and social determinants of health. Beltran-Neira and Beltran-Aguilar published a taxonomy for competency-based dental curricula that does not focus specifically on global health competencies, and Donaldson et al., advocated for the development of global dental competencies, but did not specify what those competencies should be. Giannobile identified the importance of promoting global oral health, but did not specify individual global health competencies. The most useful paper that focused on interprofessional and discipline-specific global health competencies was published by Karim, Mascarenhas, and Dharamisi, and included a proposed curricular framework based on the principles of access, affordability, and involvement of the civil society.

Nutrition
Many public health nutrition programs identify competencies relevant to global health, but the most comprehensive reference was a report developed by the World Public Health Nutrition Association which identified specific competencies for global public health nutrition.

Anthropology
Although the field of anthropology in general (and medical anthropology specifically) is very relevant to global health, no specific global health competencies were identified for anthropologists. Several medical anthropology programs were identified, however, that include global health tracks (e.g., University of Pennsylvania and Harvard University).

Pharmacy
The only set of global health competencies found for pharmacy students was developed by the International Pharmacy Federation. These competencies are not directly related to global health competencies, but competencies that every pharmacist should demonstrate. Key concepts focus on pharmaceutical public health, pharmaceutical care, organization and management, and professional/personal competencies.

Mental Health
No specific global health competencies were identified for psychology or other mental health disciplines, although several useful documents were identified that explored contributions of the mental health disciplines to global health.

Engineering
No specific global health competencies were identified for engineering, but an extensive search of the Internet suggests that many engineering schools across the country offer courses that are globally focused or allow their engineering students to take courses offered through other global health campus programs. Overall, it seems that these courses focus on promoting: leadership development, international and cultural understanding, application of engineering skills to low-resource settings, knowledge of global economics and supply chain development, and civic engagement.

Health Economics
Health economics programs in public health schools often list learning objectives relevant to work in both high and low-income countries, but most websites describing these programs did not list specific global health competencies.

Process Used by the Subcommittee to Identify Global Health Competencies
Following the initial literature review and preparation of the summary tables, Subcommittee members proposed interprofessional competencies that should be included in 12 broad competency domains. Eight of these domains were borrowed from the work of ASPPH. Figure 1 illustrates the 12 domains that were selected. The Subcommittee chair developed a composite list from the competencies identified by members that deleted redundancies and combined similar competency statements. The final list included 83 competencies in 12 domains.
In the first stage of competency ratings, Subcommittee members indicated whether or not they believed that each of the 83 competencies that were identified should be included in the final list of interprofessional global health competencies. Several of the competencies in the Interprofessional Collaboration and Communication category were subsequently revised to reflect discussions at the October 2013 University of Maryland Baltimore roundtable to identify interprofessional global health competencies, and the revised list included 74 competencies. Following the initial competency rating, Subcommittee members recognized the need to identify competency education levels for different categories of students in disciplines that may be involved in global health. Members agreed on the following definitions for the four different levels of students who might subsequently be engaged in global health work:

**Level I: Global Health Citizen Level**
Competencies that all post-high school students in disciplines that have some potential bearing on health should know about the world they live in. This level makes no assumption about future involvement in global health jobs or activities.

**Level II: Exploratory Level**
Competency sets required of students who are at an exploratory stage considering future professional pursuits in global health or preparing for a global health field experience working with individuals from diverse cultures and/or socioeconomic groups.

**Level III: Basic Operational Level**
This level addresses the educational needs of trainees wishing to spend at least some time, but not necessarily a career, working in the field of global health. Because the type of work can vary significantly, so too will the suggested amounts and types of required training. Two distinct types of global health-related work can be identified, labeled here as “practitioner-oriented” and “program/policy-oriented.”

**Level IV: Advanced Level**
Competencies at this level pertain to those whose engagement with global health will be significant and sustained. These competencies are likely to be highly specific to the discipline and tailored to the job or capacity in which one works. This level encompasses a range of study programs, from an M.P.H. or other Masters-level degree program up to a doctoral degree with a global health-relevant concentration. Students enrolling in these programs are usually committed to a career in global health-related activities.

In a second competency ranking, 11 Subcommittee members rated each of the 74 competencies for two levels of students: the Global Citizenship Level and the Basic Operational Level. Analysis of the data from these rankings is in process.

**Recommendations for Next Steps in Identifying Interprofessional and Discipline-Specific Global Health Competencies**
The final list of the two levels of global health competencies identified by members of the CUGH Subcommittee will provide a framework for designing educational programs to prepare 21st century global health professionals. The Global Citizenship Level competencies can be used by institutions of higher education as a basis for ensuring that students in all disciplines have some basic exposure to global health issues. Such exposure may stimulate many students to explore careers in global health that they would not otherwise have considered. The Basic Operational Level competencies can be used by programs with students engaged in beginning-level global health work. Subcommittee members plan to submit the preliminary list of competencies for publication and to share their work with a wide variety of professional organizations with an interest in global health.
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References
1. In addition to the co-authors, the following individuals are members of the CUGH Subcommittee on competencies: Virginia Adams, Director of National League for Nursing Center for Diversity and Global Initiatives; Dr. Jessica Evert, Executive Director, Child and Family Health International; Elise Fields, University of Washington; Dr. Jody Olsen, University of Maryland School of Social Work; Virginia Rowthorn, University of Maryland Carey School of Law; and Sharon Rudy, Director, Global Health Fellows Program II, Public Health Institute, Jiabin Shen, University of Alabama at Birmingham, and Lisa Simon, Harvard University.
7. See ASPPH Global Competency Model, supra note 4.
14. See ASPPH Global Competency Model, supra note 4.
15. Memo to the PAEA from the PAEA International Rotation Subcommittee, March 2013, provided to the CUGH Subcommittee by Kathy Pederson.
16. Id.
17. Id.
23. See Meeker et al., supra note 3.
26. See ASPPH Global Competency Model, supra note 4.