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ORIGINAL RESEARCH

Identifying Interprofessional Global Health Competencies for 21st-Century Health Professionals

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Abstract

BACKGROUND At the 2008 inaugural meeting of the Consortium of Universities for Global Health (CUGH), participants discussed the rapid expansion of global health programs and the lack of standardized competencies and curricula to guide these programs. In 2013, CUGH appointed a Global Health Competency Subcommittee and charged this subcommittee with identifying broad global health core competencies applicable across disciplines.

OBJECTIVES The purpose of this paper is to describe the Subcommittee's work and proposed list of interprofessional global health competencies.

METHODS After agreeing on a definition of global health to guide the Subcommittee's work, members conducted an extensive literature review to identify existing competencies in all fields relevant to global health. Subcommittee members initially identified 82 competencies in 12 separate domains, and proposed four different competency levels. The proposed competencies and domains were discussed during multiple conference calls, and subcommittee members voted to determine the final competencies to be included in two of the four proposed competency levels (global citizen and basic operational level — program oriented).

FINDINGS The final proposed list included a total of 13 competencies across 8 domains for the Global Citizen Level and 39 competencies across 11 domains for the Basic Operational Program-Oriented Level.

CONCLUSIONS There is a need for continued debate and dialog to validate the proposed set of competencies, and a need for further research to identify best strategies for incorporating these competencies into global health educational programs. Future research should focus on implementation and evaluation of these competencies across a range of educational programs, and further delineating the competencies needed across all four proposed competency levels.

KEY WORDS global health, global health education, competencies, interprofessional education

Please log on to the Global Health Education Forum on the website of the Consortium of Universities for Global Health (CUGH) to share your comments about this paper or your ideas about developing and teaching global health competencies: http://cugh.org/forums/teaching-global-health-competencies-curricula-methods-and-evaluation.

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INTRODUCTION

The Consortium of Universities for Global Health (CUGH) was formed in 2008 to define the field and discipline of global health, standardize required curricula and competencies for global health, define criteria and conditions for student and faculty exchanges, and promote coordination of projects and initiatives among and between resource-rich universities and less developed nations and their institutions.[1] At CUGH's 2008 inaugural meeting, participants discussed the rapid expansion of global health programs and the lack of standardized competencies and curricula to guide these programs.[1] During the 2013 CUGH Annual Conference, members of the CUGH Education Committee convened a forum to elicit recommendations for educational programs and activities the committee should focus on to address CUGH's mission and philosophical foundation. Participants from a diverse range of institutions all suggested the need for standardized global health competencies to guide the development of global health curricula and programs. As a result of these recommendations, the chair of the CUGH Education Committee appointed a Global Health Competency Subcommittee, charged with "determining if there exists a need for broad global health core competencies applicable across disciplines, and if so, what those competencies should be. In addition The Subcommittee can provide support as needed in the development of discipline-based core competencies through the publicizing and sharing of existing materials and expertise." Based on this directive, the members of the subcommittee set out to develop core competencies applicable across disciplines.

The aim of this article is to describe the work of the CUGH Global Health Competency Subcommittee members and present the sets of interprofessional global health competencies resulting from its efforts. An ongoing goal of subcommittee members is for the interprofessional competencies to be used to guide a broad spectrum of educational programs and to result in the establishment of global health educational products relevant to all trainees and professionals. These competencies are intended to initiate discussion among diverse disciplines globally regarding the focus of effective global health educational programs for different levels of trainees. Furthermore, they can serve as a platform to develop resources to teach and assess trainees using competency-based approaches. Overall, they can help prepare future trainees from a variety of disciplines to address complex global health challenges that demand new methods of thought and implementation.

The first step in developing the core global health competencies was to agree on a definition of global health. The term *global health* is relatively new and overlaps with the preexisting fields of international health, public health, and tropical medicine.[2–10] For the purposes of this project, subcommittee members adopted the definition of global health enunciated by Koplan et al.[10] 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 and promotes interdisciplinary collaboration; and is a synthesis of population-based prevention with individual-level clinical care."[10]

In recent years, there has been dramatic growth in the number of global health programs at both the undergraduate and graduate levels.[11,12] This growth reflects a number of related trends including greater student awareness and interest in global issues; a demand for educational opportunities to meet this interest; heightened public awareness of the global health agenda, secondary to the HIV/AIDS epidemic and influenza outbreaks; and expansion of public and private funding for international health initiatives.[12] Some global health programs exist as stand-alone research and education centers to advise trainees drawing from different schools and professions, whereas other programs have been developed by individual academic institutions or departments. Many of these programs offer trainees opportunities to focus on global health as part of a degree program, or "minor area of study," whereas others grant certificates following the completion of a global health concentration embedded within previously established training programs such as medicine residencies.

Educational competencies are used to set assessable standards for knowledge and performance, and are critical to curriculum development, evaluation, and integrity.[13] There have been several initiatives to identify discipline-specific global health competencies for medicine, public health, and nursing, and these competencies provided important guidance for the current project aimed at identifying broader interprofessional global health competencies.[14–19] As awareness of global health expands, so too does the realization that training and practice must address the complex

interplay between the many factors contributing to the health of individuals and communities. Addressing global health problems requires a broad range of participation from both health-related and non-health professions.[9] The World Health Organization stressed the importance of interprofessional collaboration in a 2006 report that encouraged stakeholders in global health endeavors to "work together through inclusive alliances and networks—local, national, and global—across health problems, professions, disciplines, ministries, sectors, and countries."[20]

The initiative for the subcommittee stemmed from the understanding that global health is a collaborative, interprofessional field. Global health educators must develop a standardized body of global health content for all global health trainees to ensure a shared knowledge base among future global health practitioners. The Association of Schools of Public Health completed a major step in the development of competency-based global health curricula in 2011 when it published a global health competency model specific to schools of public health.[15,17] Recognizing the need for further interprofessional collaboration to improve global health education, the Center for Global Education Initiatives at the University of Maryland, in Baltimore, invited global health experts representing diverse disciplines to confer during a roundtable meeting in October 2013. The goal of the meeting was to begin development of an interprofessional domain of team and communication competencies for global health students.[21] The coordinators of that initiative subsequently joined the CUGH Global Health Competency Subcommittee. The work of the subcommittee builds on the models presented here and includes other discipline-specific competencies to provide a comprehensive competency framework. This framework can be used by training programs at different levels and for diverse groups of students to prepare future global citizens and global health practitioners.

METHODS

The subcommittee's project timeline was divided into 4 phases occurring between April 2013 and April 2014. The first phase consisted of a comprehensive review of literature, Web pages, and contacts with professionals in the global health field. Subcommittee members used a variety of databases and search engines including CINAHL, Scopus, EBSCOhost, Psychinfo, PubMed, OVID, Google Scholar, Google, and Yahoo to search for literature on global health competencies. Subcommittee members searched within the fields of medicine, nursing, public health, nutrition, engineering, health economics, anthropology, psychology, mental health, pharmacy, oral health/dentistry, physical therapy, occupational therapy, and physician assistants. Subcommittee members also reached out to members of the global health and academic communities to determine whether other global health competencies existed. They also reviewed Web pages from a number of professional societies and health organizations for relevant global health education materials listed in Figure 1.

Accreditation Council for Graduate Medical Education
American Academy of Family Physicians
American Academy of Pediatrics
American Association of Colleges of Nursing
American Congress of Obstetricians and Gynecologists
American Association of Oral-Maxillofacial Surgeons
American College of Physicians
American College of Surgeons
American Dental Association
American Medical Association
American Medical Student Association
American Psychology Association
Association of American Medical Colleges
Association of Schools of Public Health
Consortium of Universities for Global Health
International Academy of Physician Associate Educators
International Council of Nurses
International Federation of Gynecologists and Obstetricians
International Pharmaceutical Federation
International Union of Psychological Science
Liaison Committee on Medical Education
Movement for Global Mental Health
National League for Nursing
One Health Initiative
Sigma Theta Tau, International Nursing Honor Society
Society for Medical Anthropology
World Federation of Occupational Therapists
World Confederation for Physical Therapy
World Dental Federation
World Health Organization

Figure 1. List of Professional Society and Professional Organization Webpages Reviewed.

For the second phase of the project, subcommittee members recommended core competencies from the literature to include in a final list of interprofessional competencies. In all, 82 competencies, along with their respective sources, were identified and proposed. Following multiple conference calls and

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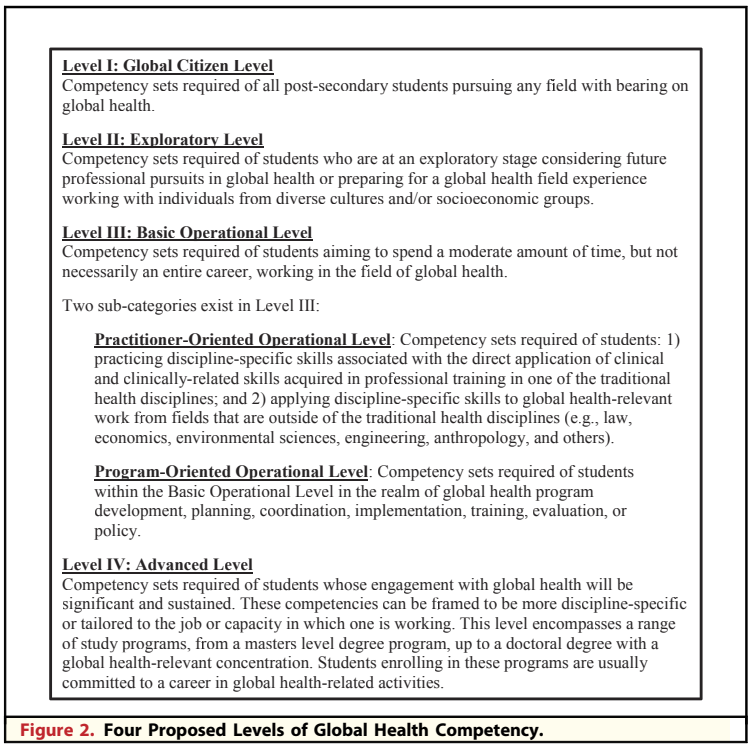

Figure 2. Four Proposed Levels of Global Health Competency.

electronic communications, these competencies were categorized into 12 domains and further categorized as interprofessional or discipline-specific (this initial list of domains and competencies is available on request from the corresponding author).

When discussing the initial list, it became apparent that there was a need to distinguish between levels of competency to reflect differences in the educational and professional goals of trainees. The third phase of this effort involved identifying four proposed competency levels. Subcommittee members proposed 4 levels of global health competency that are applicable across disciplines (Fig. 2).

Subcommittee members decided to categorize the 82 competencies for 2 of the 4 competency levels—the global citizen level and the program-oriented basic operational level. These levels of competency were the focus of the subcommittee for 2 reasons. First, these levels are amenable to interprofessional competency development because they transcend any single discipline. The practitioner-oriented basic operational level and the advanced level inherently require discipline-specific competency sets. Second, the exploratory level is akin to a level of competency necessary before a global health field experience. Existing efforts to delineate predeparture training and related competency development have laid a strong foundation for this level in the literature.[22,23]

This fourth and final phase of the Identifying Interprofessional Global Health Competencies project consisted of allocating the 82 competencies by level for global citizen and the program-oriented basic operational levels. Eleven members of the subcommittee scored each competency as a 1 for *yes, include the competency for the given level*, or 0 for *no, do not include the competency for the given level*. Additional comments regarding specific competencies and their placement within the 2 categories were proposed throughout the competency scoring. Comments and suggestions were addressed on regular conference calls, promoting discussion and consensus within the subcommittee. These discussions resulted in similar competencies and domains being collapsed to improve clarity and limit redundancy. Competencies with "yes" votes by 8 or more subcommittee members were included in the final list. Competencies with 6 to 7 "yes" votes were discussed further, and decisions regarding inclusion into the final list were confirmed by verbal consensus. Competencies without a majority vote or verbal consensus were excluded from the final list.

RESULTS

The final list (Table 1) included 13 competencies across 8 domains for the global citizen level and 39 competencies across 11 domains for the program-oriented basic operational level. The 8 domains for global citizen are: global burden of disease; globalization of health and health care; social and environmental determinants of health; collaboration, partnering, and communication; ethics; professional practice; health equity and social justice; and sociocultural and political awareness. In addition to the 8 domains listed for the global citizen level, the program-oriented basic operational level included the following 3 domains: capacity strengthening, program management, and strategic analysis. Each competency was categorized as knowledge, an attitude and/or a skill according to Bloom's Taxonomy for educational objectives.[25,26] Table 1 illustrates the final proposed list of competencies, organized into common domains, with citations to the references used for developing each of the competencies. The competencies' proposed domains are also defined within Table 1. Seven of the domains were adapted directly from the work of the Association of Schools of Public Health,[15] and 3 were adapted from work to develop global health competencies for medical and nursing students.[14,18] The adaptation of the work of these groups reflects the subcommittee's

Table 1. List of Competencies Categorized into 8 Domains for Global Citizen and 11 Domains Basic Operational Program-Oriented Levels

Domains and Competencies	Knowledge (K), Attitude (A), Skill (S)	Global Citizen Level	Basic Operational Program-Oriented Level
DOMAIN: 1. Global Burden of Disease. Encompasses basic understandings of major causes of morbidity and mortality and their variations between high-, middle- and low-income regions, and with major public health efforts to reduce health disparities globally.[16,20]			
1a. Describe the major causes of morbidity and mortality around the world, and how the risk for disease varies with regions.[16,20]	K	X	X
1b. Describe major public health efforts to reduce disparities in global health (such as Millennium Development Goals and Global Fund to Fight AIDS, TB, and Malaria).[16,20]	K	X	X
1c. Validate the health status of populations using available data (e.g., public health surveillance data, vital statistics, registries, surveys, electronic health records, and health plan claims data).[24]	K, S		X
DOMAIN: 2. Globalization of Health and Health Care. Focuses on understanding how globalization affects health, health systems, and the delivery of health care.[16,20]			
2a. Describe different national models or health systems for provision of health care and their respective effects on health and health care expenditure.[16,20]	K		X
2b. Describe how global trends in health care practice, commerce and culture, multinational agreements, and multinational organizations contribute to the quality and availability of health and health care locally and internationally.[16,20]	K		X
2c. Describe how travel and trade contribute to the spread of communicable and chronic diseases.[16,20]	K	X	X
2d. Describe general trends and influences in the global availability and movement of health care workers.[16,20]	K		X
DOMAIN: 3. Social and Environmental Determinants of Health. Focuses on an understanding that social, economic, and environmental factors are important determinants of health, and that health is more than the absence of disease.[16,20]			
3a. Describe how cultural context influences perceptions of health and disease.[16,20]	K	X	X
3b. List major social and economic determinants of health and their effects on the access to and quality of health services and on differences in morbidity and mortality between and within countries.[16,20]	K	X	X
3c. Describe the relationship between access to and quality of water, sanitation, food, and air on individual and population health.[16,20]	K	X	X
DOMAIN: 4. Capacity Strengthening. "Capacity strengthening is sharing knowledge, skills, and resources for enhancing global public health programs, infrastructure, and workforce to address current and future global public health needs."[17]			
4a. Collaborate with a host or partner organization to assess the organization's operational capacity.[17]	S		X
4b. Cocreate strategies with the community to strengthen community capabilities, and contribute to reduction in health disparities and improvement of community health.[17]	K, S		X
4c. Integrate community assets and resources to improve the health of individuals and populations.[24]	K, S		X
4d. Identify methods for assuring program sustainability. (Proposed by members of the CUGH Global Health Competency Subcommittee.)	K, S		X
DOMAIN: 5. Collaboration, Partnering, and Communication. "Collaborating and partnering is the ability to select, recruit, and work with a diverse range of global health stakeholders to advance research, policy, and practice goals, and to foster open dialogue and effective communication" with partners and within a team.[17]			
5a. Include representatives of diverse constituencies in community partnerships and foster interactive learning with these partners.[17]	S		X

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Table 1. continued

Domains and Competencies	Knowledge (K), Attitude (A), Skill (S)	Global Citizen Level	Basic Operational Program-Oriented Level
5b. Demonstrate diplomacy and build trust with community partners.[17]	A		X
5c. Communicate joint lessons learned to community partners and global constituencies.[17]	S		X
5d. Exhibit interprofessional values and communication skills that demonstrate respect for, and awareness of, the unique cultures, values, roles/responsibilities and expertise represented by other professionals and groups that work in global health.[17,29]	S	X	X
5e. Acknowledge one's limitations in skills, knowledge, and abilities.[29]	S, A	X	X
5f. Apply leadership practices that support collaborative practice and team effectiveness.[30]	S, A		X
DOMAIN: 6. Ethics. Encompasses the application of basic principles of ethics to global health issues and settings.[17]			
6a. Demonstrate an understanding of and an ability to resolve common ethical issues and challenges that arise when working within diverse economic, political, and cultural contexts as well as when working with vulnerable populations and in low-resource settings to address global health issues.[16,24]	K, S, A	X	X
6b. Demonstrate an awareness of local and national codes of ethics relevant to one's working environment.[31]	K		X
6c. Apply the fundamental principles of international standards for the protection of human subjects in diverse cultural settings.[17]	K, S		X
DOMAIN: 7: Professional Practice. Refers to activities related to the specific profession or discipline of the global health practitioner. (Domain definition proposed by members of the CUGH Global Health Competency Subcommittee.)			
7a. Demonstrate integrity, regard, and respect for others in all aspects of professional practice.[17,29,32]	S, A		X
7b. Articulate barriers to health and health care in low-resource settings locally and internationally.[16,20]	K, S	X	X
7c. Demonstrate the ability to adapt clinical or discipline-specific skills and practice in a resource-constrained setting.[16,20]	S, A		X
DOMAIN: 8. Health Equity and Social Justice. "Health equity and social justice is the framework for analyzing strategies to address health disparities across socially, demographically, or geographically defined populations."[17]			
8a. Apply social justice and human rights principles in addressing global health problems.[17]	K, S		X
8b. Implement strategies to engage marginalized and vulnerable populations in making decisions that affect their health and well-being.[17]	K, S		X
8c. Demonstrate a basic understanding of the relationships between health, human rights, and global inequities.[16,20]	K	X	X
8d. Describe role of WHO in linking health and human rights, the Universal Declaration of Human Rights, International Ethical Guidelines for Biomedical Research Involving Human Subjects.[16,20]	K		X
8e. Demonstrate a commitment to social responsibility.[18]	A	X	X
8f. Develop understanding and awareness of the health care workforce crisis in the developing world, the factors that contribute to this, and strategies to address this problem.[33]	K		X
DOMAIN: 9. Program Management. "Program management is ability to design, implement, and evaluate global health programs to maximize contributions to effective policy, enhanced practice, and improved and sustainable health outcomes."[17]			

(*continued on next page*)

Table 1. continued

Domains and Competencies	Knowledge (K), Attitude (A), Skill (S)	Global Citizen Level	Basic Operational Program-Oriented Level
9a. Plan, implement, and evaluate an evidence-based program.[17]	K, S		X
9b. Apply project management techniques throughout program planning, implementation, and evaluation.[17]	K, S		X
DOMAIN: 10. Sociocultural and Political Awareness. "Sociocultural and political awareness is the conceptual basis with which to work effectively within diverse cultural settings and across local, regional, national, and international political landscapes."[17]			
10a. Describe the roles and relationships of the major entities influencing global health and development.[17]	K	X	X
DOMAIN: 11. Strategic Analysis. "Strategic analysis is the ability to use systems thinking to analyze a diverse range of complex and interrelated factors shaping health trends to formulate programs at the local, national, and international levels."[17]			
11a. Identify how demographic and other major factors can influence patterns of morbidity, mortality, and disability in a defined population.[17]	K		X
11b. Conduct a community health needs assessment.[17]	S		X
11c. Conduct a situation analysis across a range of cultural, economic, and health contexts.[17]	S		X
11d. Design context-specific health interventions based on situation analysis.[17]	S		X

CUGH, Consortium of Universities for Global Health; WHO, World Health Organization.

endorsement of the work completed by these groups to identify overarching domains in which interprofessional global health competencies can be categorized.

DISCUSSION

The competency framework presented here proposed 4 levels of global health competence and inclusive sets of interprofessional competencies for global health practitioners. With the recent rapid growth of global health, many academic departments, universities, or consortia have begun to develop their own global health emphases and educational programs based on faculty expertise, experience, institutional partnerships, and resource availability. However, each has done so without a broad, unifying set of competencies. Subcommittee members understand the challenge of trying to incorporate all of the listed competencies into academic courses and areas of study. Although every competency will not be met by any given global health program, the competency sets are intended to serve as educational guides and will likely need to be achieved by cumulative exposure to global health.

Competencies are often framed in terms of knowledge, skills, or attitudes and represent the goals of the learning process.[25,26] Competency statements describe an expected level of performance as well as the attributes needed to perform at that level.[13] A list of competencies is not a curriculum by itself; rather the competencies provide a framework to facilitate the process of curriculum development.[13] Once a set of competencies is accepted, institutions must decide how the competencies will be taught and design their own curricula accordingly to achieve those competencies.

As institutions develop their own global health curricula, the focus moving forward in the global health movement should be on interprofessional collaboration. Subcommittee members worked to ensure that all identified competencies are interprofessional, and included a specific team-building competency domain. Subcommittee members hope that this interprofessional approach will encourage global health programs to move toward a cross-discipline problem-solving method of education. This interprofessional approach to competency and curricula development will be necessary to prepare global health trainees to address current global health challenges.

Although this framework offers a novel interdisciplinary approach to competency-based global health education, subcommittee members acknowledge several limitations to this work. One limitation is that the list reflects competencies that have been developed with a focus on North American trainees. There is a need for further work to validate this list in

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other countries. Wilson and colleagues have begun work to identify perspectives of global health competencies needed by undergraduate nursing students by surveying nursing faculty from diverse geographic regions including Latin America, Canada, and Africa.[18,19,24] A similar approach could be used to ask faculty representing diverse disciplines around the world to respond to a survey indicating the extent to which they agree with the competencies proposed here, and inviting them to share ideas about additional competencies or modifications to this list. A second limitation is that although the subcommittee members represented diverse disciplines and conducted a comprehensive literature review to identify global health competencies developed by different professions, there is a need for further work to seek validation from multiple disciplinary perspectives.

Individual institutions and programs in both developed and developing countries must evaluate their own educational assets and focus on the competencies that can most effectively be implemented and measured. Academic leaders should not see the comprehensive list in this paper as the sole determinant they use to identify and implement competencies into their educational programs. Rather, most institutions already have key competencies partially or fully in place. By reviewing and recombining curricular elements, faculty can achieve a significant number of the identified competencies and begin the process of standardizing global health programs.

We recognize that not all competencies are equally important, not all are necessarily the primary responsibility of programs specifically directed at global health trainees, and not all are readily and economically teachable, or amenable to evaluation. Ideally, a competency should not be proposed if it cannot be taught and its attainment evaluated. However, subcommittee members agreed that it might be difficult to evaluate several of the more abstract competencies (e.g., competencies dealing with attitudes). However, these competencies are important to incorporate in global health curricula.

The framework presented here paves the way for academic institutions and consortia to begin specific curricula development. Further global health curricula advancement will occur as individuals and institutions test the efficacy of curricula to teach the specific competencies and share their results through various public and academic platforms. This will give the broader global health education community ongoing opportunities to share their effective curriculum models and outcome measures with one another, and further refine the global health interdisciplinary competency framework.

The emphasis is on providing a general overview of global health at the global citizen level (level I) and of basic program and policy preparation for trainees aspiring to spend part of their careers in global health (level III). Academics seeking assistance in ensuring their programs are effectively preparing students will note that subcommittee members did not address the level II exploratory level competencies because competencies aimed at preparing trainees for initial global health field experiences have already been developed. Because the focus of the Subcommittee was to develop crosscutting interprofessional competencies, subcommittee members did not develop level III discipline-specific competencies. Future work on competencies for level IV, advanced level, must be done in collaboration with other academic and professional experts in a variety of health-related disciplines for future advances in global health education.

Measuring outcomes is a large deterrent to competency implementation but is a necessary part of global health curriculum improvement. Subcommittee members did not focus on curricula development or tools for competency measurement, but instead focused on preparing the competency framework that can be used to guide development of curricula and measures of educational outcomes. There is a need for further work to develop curricula for the different competency levels, to develop and validate tools to assess the outcomes of these curricula, and to evaluate the long-term outcomes of these curricula to ensure that they prepare trainees with transferable knowledge, attitudes, and skills. This long-term assessment, along with competency-based continuing education materials, is necessary to promote lifelong global health learning, so that individuals can thrive in global health, regardless of their career duration.

Subcommittee members recommend ongoing dialogue and discussion of the proposed set of interprofessional competencies through purposeful use of the CUGH website, other technologies, and with diverse groups and disciplines whose contributions will be important to achieve health equity goals globally. CUGH has established a specific website for an interest group focused on Teaching Global Health: Competencies, Curricula, Methods, Evaluation (http://cugh.org/forums/teaching-global-health-competencies-curricula-methods-and-evaluation). This website will provide opportunities for discussion forums to share comments about the competencies proposed here, and also for participating in next steps such as identifying resources and strategies for teaching and evaluating each of the proposed competencies. Future research should focus on implementation and evaluation of

these competencies across a range of educational programs, and further delineating the competencies needed across all four proposed competency levels. We hope that the CUGH interest group on Teaching Global Health might provide a forum for networking and collaboration in the development of this type of research.

A set of global health-specific competencies ideally represents the full range of knowledge, skills, and attitudes that trainees should possess when they obtain a degree or certificate in global health. However, until a licensing or certification body requires assessment of these competencies, the competency statement will represent an aspirational list designed to guide curriculum development and consistency within the field. The subcommittee's proposed list of global health interprofessional competencies is intended to serve as a guide for program development, on which further curricular development and program and trainee evaluation can be built.

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REFERENCES

1. Consortium of Universities for Global Health. Available at: www.cugh.org. Accessed April 24, 2015.
2. Ablah E, Biberman DA, Weist EM, et al. Improving global health education: development of a Global Health Competency Model. Am J Trop Med Hyg 2014;90:560–5.
3. Beaglehole R, Bonita R. What is global health? Glob Health Action 2010;3:1–2.
4. Campbell RM, Pleic M, Connolly H. The importance of a common global health definition: how Canada's definition influences its strategic direction in global health. J Glob Health 2012;2:010301.
5. Frenk J, Gomez-Dantes O, Moon S. From sovereignty to solidarity: a renewed concept of global health for an era of complex interdependence. Lancet 2014;383:94–7.
6. Khubchandani J, Simmons R. Going global: building a foundation for global health promotion research to practice. Health Promot Pract 2012;13:293–7.
7. Rowson M, Wilcott C, Hughes R, et al. Conceptualising global health: Theoretical issues and their relevance for teaching. Global Health 2012;8:1–8.
8. Velji A. Editorial: Transforming global health, global health education, infectious disease, and chronic conditions in the 21st century. Infect Dis Clin North Am 2011;25:485–98.
9. Velji A, Bryant JH. Global health: evolving meanings. Infect Dis Clin North Am 2011;25:299–309.
10. Koplan JP, Bond TC, Merson MH, et al. Towards a common definition of global health. Lancet 2009;373:1993–5.
11. Merson MH. University engagement in global health. N Engl J Med 2014;370:1676–8.
12. Merson MH, Page KC. The Dramatic Expansion of University Engagement in Global Health: Implications for US Policy. Washington, D. C: Center for Strategic and International Studies; 2009.
13. Gebbie KM. Competency-to-Curriculum Toolkit: Developing Curricula for Public Health Workers. New York: Columbia University School of Nursing and Association of Schools of Preventive Medicine; 2004.
14. Arthur MA, Battat R, Brewer TF. Teaching the basics: core competencies in global health. Infect Dis Clin North Am 2011;25:347–58.
15. Association of Schools of Public Health. Global health competency model final version 1.1. 2011. Available at http://www.aspph.org/educate/models/masters-global-health/. Accessed April 24, 2015.
16. Battat R, Seidman G, Chadi N, et al. Global health competencies and approaches in medical education: a literature review. BMC Med Educ 2010;10:94.
17. Calhoun JG, Spencer HC, Buekens P. Competencies for global heath graduate education. Infect Dis Clin North Am 2011;25:575–92. viii.
18. Wilson L, Harper DC, Tami-Maury I, et al. Global health competencies for nurses in the Americas. J Prof Nurs 2012;28:213–22.
19. Ventura CAA, Mendes IAC, Wilson L, et al. Global health competencies from the perspective of nursing faculty from Brazilian higher education institutions. Rev Lat Am Enfermagem 2014;22:179–86.
20. World Health Organization. The World Health Report 2006—Working Together for Health. Geneva, Switzerland: World Health Organization; 2006.
21. Rowthorn V, Olsen J. All together now: developing a team competency domain for global health education. J Law Med Ethics 2014;42:550–63.
22. Cheung E, Abelson J, Matthews D, Anderson K. Going global: approaching international medical electives as an institution. In: Evert J, Drain P, Hall T, eds. Developing Global Health Programming: A Guidebook for Medical and Professional Schools. 2nd ed. San Francisco: Global Health Collaborations Press; 2014:179–97.
23. Peluso MJ, Encandela J, Hafler JP, Margolis CZ. Guiding principles for the development of global health education curricula in undergraduate medical education. Med Teach 2012;34:653–8.
24. Wilson L, Pena LM, Tami-Maury I, et al. Identifying global health competencies for undergraduate nursing students in the Americas and in Africa. X Conference of the Network of WHO Nursing and Midwifery Collaborating Centers; July, 2014; Coimbra, Portugal.
25. Anderson LW, Sosniak LA, Bloom BS. Bloom's Taxonomy: A Forty-Year Retrospective. Chicago: University of Chicago Press; 1994.
26. D'Eon M. A blueprint for interprofessional learning. J Interprof Care 2005;19(suppl 1):49–59.