Global Dental Education

Going Global: Toward Competency-Based Best Practices for Global Health in Dental Education

Brittany Seymour, DDS, MPH; Elizabeth Shick, DDS, MPH; Benjamin W. Chaffee, DDS, MPH, PhD; Habib Benzian, DDS, MScDPH, PhD

Abstract: The Global Oral Health Interest Group of the Consortium of Universities for Global Health (GOHIG-CUGH) published recommended competencies to support development of competency-based global health education in dental schools. However, there has been no comprehensive, systematically derived, or broadly accepted framework for creating and delivering competency-based global health education to dental students. This article describes the results of a collaborative workshop held at the 2016 American Dental Education Association (ADEA) Annual Session & Exhibition designed to build on the GOHIG-CUGH competencies and start to develop systematic approaches for their practical application. Workshop organizers developed a preliminary theoretical framework for guiding the development of global health in dental education, grounded in published research. Collectively, workshop participants developed detailed outcomes for the theoretical framework with a focus on three educational practices: didactic, experiential, and research learning and how each can meet the competencies. Participants discussed learning objectives, keys to implementation, ethical considerations, challenges, and examples of success. Outcomes demonstrated that no educational practice on its own meets all 33 recommended competencies for dental students; however, the three educational practices combined may potentially cover all 33. Participants emphasized the significance of sustainable approaches to student learning for both students and communities, with identified partners in the communities to collaborate on the development, implementation, evaluation, and long-term maintenance of any student global health activity. These findings may represent early steps toward professional consensus and best practices for global health in dental education in the United States.

Dr. Seymour is Assistant Professor, Department of Oral Health Policy and Epidemiology, Harvard School of Dental Medicine; Dr. Shick is Assistant Professor, Department of Pediatric Dentistry, School of Dental Medicine, University of Colorado; Dr. Chaffee is Assistant Professor, Department of Preventive and Restorative Dental Sciences, School of Dentistry, University of California, San Francisco; and Dr. Benzian is Adjunct Professor of Epidemiology and Health Promotion, College of Dentistry, New York University. Direct correspondence to Dr. Brittany Seymour, Harvard School of Dental Medicine, 188 Longwood Ave., Boston, MA 02115; 617-432-1848; brittany_seymour@hsdm.harvard.edu.

Keywords: dental education, global health, competency-based education, curriculum innovation, global oral health, global health education, global health training

Submitted for publication 9/7/16; accepted 12/18/16
doi: 10.21815/JDE.016.034

In response to present and future health challenges of a globalized society, the Lancet Commission on Education of Health Professionals for the 21st Century called for transformative learning in health professions education to foster leadership and critical thinking within complex health systems. The Lancet commission defined an integrative framework for competency-driven education, assimilated across traditional professional boundaries, with strong emphasis on disease prevention, elevating the health of vulnerable populations, and striving toward equity in health globally. Though dentistry was not explicitly mentioned by the commission, there has nonetheless been increasing recognition of the role of dental education in health and human development at the global level and the substantial challenges in achieving global equity in oral health. More people worldwide live with chronic oral diseases than any other health condition. The United Nations recognized the heavy burden oral disease poses on countries and the potential benefits of addressing shared risk factors between oral and other noncommunicable diseases. Recent and future graduates of dental education programs will face a growing and aging population with more complex oral and general health needs over a lengthening lifespan. Low-income and marginalized populations, especially in low- and middle-income countries, suffer from a markedly higher burden of oral disease.
A growing number of U.S. dental schools are reporting global health-related activities as part of their educational offerings. While the scope and definition of what constitutes "global health" may vary widely, surveys suggest that dental schools engage in a range of undertakings, from didactic courses to international care delivery. Recommended global health competencies for dentists in dental education have recently been proposed. While these competencies overlap with public health competencies in many ways, they also address distinctive aspects of risk and disparities, disease prevention, and health promotion from a broader global perspective. With the rising demand from students and faculty for global engagement, these recommended competencies can support the development of competency-based global health teaching and learning in dental schools. However, there is currently no comprehensive, systematically derived, or broadly accepted framework for delivering competency-based global health education to dental students.

This article aims to synthesize insights from published research and the experience and contributions of dental educators by outlining key elements for a roadmap towards appropriate inclusion and implementation of global health learning in dental education. We build on the exploratory Competency Matrix for Global Oral Health developed by the Global Oral Health Interest Group of the Consortium of Universities for Global Health (GOHG-CUGH). The CUGH mission is to develop and strengthen interdisciplinary collaborations and efforts to address global health challenges and opportunities through education, research, and service. The GOHG-CUGH is committed to improving access to dental care and prevention, particularly in low-income communities through building capacity, education, and research. Members of GOHG-CUGH collectively worked to publish the matrix that suggests recommended global oral health competencies for health practitioners and health professions students, including dental students. In this article, we describe the results of a collaborative workshop held at the 2016 American Dental Education Association (ADEA) Annual Session & Exhibition designed to build on the competencies and start to develop approaches for their practical application. Our findings may represent early steps toward professional consensus and best practices for global health in dental education in the United States and beyond.

Methods and Workshop Preparation

Institutional Review Boards at Harvard School of Dental Medicine (HSDM) and the University of California, San Francisco (UCSF) reviewed the workshop procedures and deemed this project "not human subjects research" (HSDM protocol: 16-1042; UCSF protocol: 16-18801). Workshop preparation was conducted collaboratively by global health dental faculty members from HSDM, University of Colorado (CU) School of Dental Medicine, UCSF School of Dentistry, and New York University College of Dentistry.

Workshop organizers conducted a literature review of global oral health activities in U.S. dental schools. The aims, structure, scope, and motivations for both students and faculty engaging in global health-related activities varied widely, and evidence of competency-based global oral health educational activities was limited. The literature review led to two broad conclusions. First, global health is a topic of growing interest, and active engagement, in U.S. dental schools. Second, as more dental schools are participating in global health activities, there has been a lack of alignment with core global health principles or standardized best practices. Grounded by the literature review, a preliminary theoretical framework for guiding the development of global health learning opportunities in dental education was developed by the workshop organizers (Table 1). This framework was designed to aid workshop participants in identifying opportunities and challenges for dental schools to develop more practical learning experiences that can meet or begin to meet the GOHG-CUGH competencies for dental students, ultimately working toward standardized best practices.

The workshop session was designed to allow participants to critically discuss global health education and service-learning currently offered at their dental schools and to define important foundational principles to create enhanced global oral health educational programs that are mutually beneficial to students and communities alike. Case examples of global health educational experiences from three U.S. dental schools (HSDM, UCSF, and CU) were identified and presented by panelists to guide discussion, each representing one of three educational practices: didactic learning, experiential/service-learning, and research learning for global health (Table 2). The
examples were based on existing programs that have been successfully implemented. However, the specific details of any program must be adapted to account for available resources, learning needs, and strategic priorities unique to any dental school. We encourage dental schools to document, evaluate, and disseminate their findings related to burgeoning global oral health programs for the benefit of the dental education and global health communities.

The workshop had three primary objectives: 1) to describe the current state of global health education in U.S. dental schools; 2) to assess the strengths and weaknesses of various designs of global health programs for dental students; and 3) to apply important global health competency-based principles to existing or new global health programs in order to optimize both student learning outcomes and maintain a sustainable impact for communities in which they work. Discussions were framed by, but not limited to, the GOHIG-CUGH competency matrix, which consists of three domains: knowledge, skills, and abilities. Workshop organizers suggested using all 33 competencies deemed relevant for dental students and the principles of the GOHIG-CUGH competency matrix as guidance for developing global health learning experiences in the three educational practices (Table 3). Building on the case examples presented by panelists, discussion of additional examples of challenges and successes from participants’ own institutions helped to provide context for a rich group and plenary dialogue. Because the case examples used were primarily to drive discussion and not necessarily to serve as models for others, they will not be discussed further here; instead, we will focus on the broader outcomes of the discussions. For competency-based didactic, experiential, and research learning, group members and panelists identified potential learning objectives, essential elements for implementation, potential challenges, ethical considerations, and examples of success, guided by the framework. Notes were compiled by participants and panelists and were later consolidated.

Following the workshop, progress on the framework was presented for comment at the 2016 GOHIG-CUGH business meeting, which took place April 11, 2016, during the Annual CUGH Global Health Conference. Participants in the ADEA workshop and GOHIG-CUGH meeting included deans, faculty, and global health program directors, representing approximately 30 U.S. dental schools. Participants were informed that outcomes from the meeting sessions would be disseminated to facilitate a broader discussion about standardized, competency-based global health education for dental students.

Results

Collectively, workshop participants developed detailed outcomes for the theoretical framework toward global health best practices in dental education (Table 1). No educational practice individually met all 33 competencies. However, the three educational practices combined potentially covered all 33. Major themes arose for each of the three educational practices.

Didactic learning has the potential to meet up to 23 identified GOHIG-CUGH competencies and thus can serve an important role in establishing the foundational principles and guidelines for global health prior to student engagement in global communities. Examples include applying ethical principles for volunteer activities, designing research questions and approaches, describing how epidemiologic and demographic trends may impact the current and long-term needs of community members, and developing sustainable solutions for addressing these long-term health implications. Reflection in the classroom upon returning from a global community can further assist students in synthesizing didactic learning objectives with field experiences.

Experiential learning has the potential to meet and reinforce up to 25 of the competencies. Primary themes that arose for experiential or clinical learning opportunities in a global community included partnering with local leaders and community members every step of the way, such as setting priorities and developing treatment strategies together and co-conducting impact evaluation approaches to measure outcomes and make modifications as needed. Health, risk management, and safety preparations for students were also considered essential.

Research learning may meet up to 16 competencies and reflected the themes, as well. Specifically, identifying a research mentor from both the community and the student’s home institution and integrating student research projects into larger existing priorities and programs were considered important principles of global health research learning. Processes for reviewing student research proposals for scientific and ethical rigor were discussed.

For all three educational practices, workshop participants emphasized the significance of sustainable approaches to student learning for both students
Table 1. Theoretical framework for global oral health educational practices developed by workshop organizers

<table>
<thead>
<tr>
<th>Educational Practice</th>
<th>Learning Objectives</th>
<th>Keys to Implementation</th>
<th>Ethical Considerations</th>
</tr>
</thead>
</table>
| Didactic learning    | 1. Explain the history of global health (sanitation, public health, international health, etc.) and how the Western view of health impacts global health today.  
2. Describe the global burden of diseases and their risk factors, including oral diseases and quality of life impact, and discuss disparities and vulnerable populations.  
3. Identify the range of global oral health research questions and implications of research in the global setting.  
4. Compare and contrast health systems at the global level and how they impact individual and population health.  
5. Explain how oral health fits into interdisciplinary efforts, including primary care, disease prevention, and health promotion.  
6. List the roles and functions of global oral health institutions and organizations, including for advocacy, funding, policy, education, and health literacy.  
7. Demonstrate professionalism and competence for interacting in new and different settings. | 1. Must have an understanding of the curriculum and how the course will integrate into it (or not).  
2. Buy-in and support from necessary parties (curriculum committee, dean of education, etc.).  
3. Vision for how the course fits in the mission and values of the school/existing initiatives, etc.  
4. Timeline and strategic plan for implementation and evaluation of course content (short and long term), including feedback from students, faculty, and administration on the plan and pilot phases.  
5. Measure student interest; identify student champions.  
6. Plan for a course design that will meet pre-approved learning objectives. | 1. Respect existing demands on students and within the current curriculum.  
2. Lay the foundation for ethical implications associated with experiential/service-learning activities and research in global settings.  
3. Be willing to pilot small didactic pieces and demonstrate positive outcomes if necessary early on as “baby steps.”  
4. Implement mechanisms for regular critical appraisal of ethical challenges involving all stakeholders, including host communities. |
| Experiential learning | 1. Describe the main components of global experiential learning for students (see Keys to Implementation).  
2. Assess the pros and cons experiential learning provides, including opportunities and challenges it presents to both students and the communities involved.  
3. Discuss ethical considerations when designing and participating in global experiential and service-learning activities.  
4. Identify ways to meet the needs and goals of both local host communities and students engaging in experiential learning. | 1. Develop a proposal and evaluation plan for any clinical experiential or service-learning activity, detailing what services will be provided (education, prevention, counseling, teaching, care, etc.); maintain U.S. and local standards of care and practice and have referral plans in place for oral and non-oral health providers.  
2. Identify partners: local/host community/county leaders and any other departments or schools at your own institution who are working in the community/region.  
3. Obtain a memorandum of understanding or other written cooperation agreements, even for short-term collaborations. | 1. Research and adhere to local dental practice laws and licensure requirements; secure approval and permission from local partners for all activities performed.  
2. Maintain optimal standards of care at all times; when this is not possible, consider undertaking a different activity. Do not compromise standard of care.  
3. Consider local customs, health cultures, and local health care systems when providing clinical care and clinical decision making (informed consent, language, health literacy).  
4. Avoid duplication of efforts, wasted resources, undermining of local health care workers or efforts, or unintended/negative disruption of local practices. Contributions and activities should strive to strengthen the local health care system as much as possible. |

Related COHIC-CUGH Global Oral Health Competencies

- 1.1.1, 1.1.3, 1.1.4, 1.2.1, 1.2.2, 1.2.3, 2.1.2, 2.1.5, 2.1.7, 2.2.1, 2.2.2, 2.2.3, 2.3.1, 2.3.2, 2.3.3, 2.4.1, 3.1.1, 3.1.2, 3.2.1, 3.2.2, 3.2.3, 3.3.1, 3.3.2
Research learning

1. Define and describe research.
2. Identify when and how research can strengthen global health activities.
3. Explore a given question(s) or topic(s) in depth to create a contribution to new knowledge.
4. Design a research question and approach(es) to answering that question.
5. Describe the process of research dissemination and communication of findings.
6. Discuss how new knowledge can be used for capacity building and program strengthening.
7. Identify opportunities for interprofessional collaboration and teamwork during research practices.
8. Demonstrate an understanding of the history of research ethics and current best practices for research in global settings.

1. Develop a rigorous application process for student research projects that includes a set structure, standards, and faculty/peer review; proposals should meet expectations for deliverables, be methodologically sound, and aimed at a significant problem agreed upon by host partners/community leaders.
2. Mentors at the students' home institution and the host community should be identified and agreed upon by all parties.
3. Research projects should align with and be integrated into existing programs and efforts, not stand-alone siloed efforts.
4. Projects should involve reflection and iteration over time; they should not be short-term experiences, but rather a continuous commitment with an agreed upon end goal.
5. In addition to a research proposal, student researchers should develop a health and safety plan (see Experiential Learning).
6. Students and faculty should gain institutional support and approval, including review by the internal review board and, where necessary, an ethics committee in charge at the host setting, funding as necessary, recognition of milestones and accomplishments by both the university and host community participants.

1. All principles for human subjects research should be followed (e.g., respect for persons, justice, beneficence).
2. Review and approval processes for both the students' institution and the host community/institution.
3. Research undertakings should be appropriate and significant, and address a legitimate and mutually agreed-upon community need.
4. "Helicopter" projects are unacceptable (drop in, do, leave); host community partners should be involved in the research project from inception to conclusion (see Experiential Learning).
5. Benefits for students and communities should be maximized, and unintended negative consequences mitigated through adequate planning, partner collaboration, and leadership.
6. Research results must be shared with host communities and partner institutions, following a jointly agreed upon plan for knowledge management, ownership of data, and intellectual property.
7. Scientific and other publications of research results must reflect the contributions of all partners and should strengthen research and publication capacities in host communities.

Note: See Table 3 for global oral health competencies.
and communities, with identified community partners engaged in the development, implementation, evaluation, and long-term maintenance of any student global health activity. Student and faculty expectations should be developed and managed through appropriate teaching and preparation, so that students and communities are equally satisfied with their experiences. Finally, participants recognized that many of these themes for didactic, experiential, and research learning applied to any community, whether students were engaging locally or globally—an expression of the inclusiveness of global health.

Challenges discussed included the existence of long-standing programs and organizations that have set a precedent for international and global health experiences in dental schools but may not align with current global health goals and principles. Constraints in the curriculum and allowing students the time necessary to master new and complex concepts for engaging adequately in global settings were discussed. These challenges represent key barriers for implementation and sustainability of programs and are difficult for many schools to address fully. Other barriers included the costs and

Table 2. Case examples used to guide workshop discussion

<table>
<thead>
<tr>
<th>Didactic Learning: Harvard School of Dental Medicine's Global Oral Health Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Harvard School of Dental Medicine (HSDM) developed an elective didactic global health course &quot;Global Oral Health: Interdisciplinary Approaches.&quot; The course was developed as part of HSDM’s Global Health Initiative launched in 2010 and consists of 28 hours of in-class time over seven weeks, with additional preparation time ahead of each class session. Course learning objectives are grounded in principles of global health, such as interdisciplinary collaboration, local capacity building, sustainability, disease prevention, and health promotion. Overarching thematic concepts remain the same each year, while specific content, lectures, required readings, and in-class activities are updated annually to keep pace with the rapidly evolving global health and development agenda. Students are evaluated on attendance, in-class participation, and a final exam. Over the first five years of the course, 32 residents and students have participated. All students reported they are very likely (64%) or somewhat likely (36%) to use the concepts of global health taught in the course in their careers. Students who have participated in the course since report through surveys that the course had &quot;a lot&quot; or &quot;a tremendous amount&quot; of impact on their development of relationships with global health professionals and mentors, prompting them to consider additional career options and to collaborate with professionals beyond dentistry in the care of their patients and communities. For more information, see Seymour B, Barron J, Kalenderian E. Results from a new global oral health course: a case study at one dental school. J Dent Educ 2013;77(10):1245-51.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Experiential Learning: University of Colorado School of Dental Medicine's Global Health Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>The University of Colorado (CU) School of Dental Medicine and the Center for Global Health at the Colorado School of Public Health have partnered with Agro-America, a private family-owned Guatemalan banana and palm oil agro-business, in an innovative private sector/university partnership. The primary goal is to operate a community health clinic to promote health and development and conduct health research in a rural, impoverished region of southwest Guatemala. The clinic serves approximately 5,000 workers and family members and 30,000 residents in the area surrounding one of Agro-America’s largest banana plantations. This inter disciplinary clinic provides primary medical care, prenatal and maternal health services, and comprehensive dental care to children and adults, as well as laboratory services. The CU School of Dental Medicine is committed to taking groups of faculty and dental students to work in the clinic 3-4 times/year. Essential aims of the program are 1) development of a school-based oral health and education program following the WHO model, 2) development of a community oral health and education program, and 3) the offering of comprehensive dental care including prevention, basic restorative, and extractions. Students are always supervised by CU dental faculty who maintain active temporary licenses issued by the Guatemalan Dental Board. The program implements U.S. regulatory standards of care regarding charting, sterilization, radiographs, and clinical protocols. The program is entrenched in the local culture by the local partnership, and community oral health programs are being developed to make population-based changes to improve oral health. This is a sustainable permanent program that its supporters believe will have a positive long-term effect on the community.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Research Learning: University of California, San Francisco Global Oral Health Community Partnership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over the last four years, dental students and residents at the University of California, San Francisco (UCSF) School of Dentistry completed over 20 faculty-mentored global health research projects in 12 countries through the UCSF Global Oral Health Program. This program strives to add a rigorous evaluation or investigation component to an existing program, not to support one-off dental volunteering. Projects are selected after competitive review and require ethics board approval. Global oral health research fellows must meet progress milestones, must formally present their finished projects, and are encouraged to disseminate their findings through publications and international conferences. Trainees need not travel overseas to engage in a global health experience; many projects take place in California, for example, focusing on the oral health needs of migrant families or other disadvantaged communities. To prepare for their global health research experiences, students and faculty mentors alike can take didactic courses in clinical research design or program evaluation. Ultimately, these programs aim for sustainable oral health improvements by focusing on the structural causes of poor oral health around the world and in our own neighborhoods.</td>
</tr>
</tbody>
</table>
lengthy processes for developing formal partnerships and long-term collaborations with communities, dedicating time in an already demanding curriculum for learning concepts that are not currently required for accreditation, and limited resources for new program development.

Table 3. Global oral health competencies relevant for dental students

<table>
<thead>
<tr>
<th>Competencies Relevant for Dental Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1. Explain the global burden of oral diseases with regard to prevalence, distribution, and the relationship among oral disease, population trends, and global disease patterns.</td>
</tr>
<tr>
<td>1.1.3. Describe the impact of oral diseases on well-being and quality of life, as well as its social and economic impact.</td>
</tr>
<tr>
<td>1.1.4. Identify and assess relevant oral health information and make sound decisions (oral health literacy).</td>
</tr>
<tr>
<td>1.2.1. Identify and describe common risk factors of oral diseases.</td>
</tr>
<tr>
<td>1.2.2. Identify and describe common (social) determinants of oral disease.</td>
</tr>
<tr>
<td>1.2.3. Identify and describe reciprocal links among oral disease, systemic diseases, and general health.</td>
</tr>
<tr>
<td>2.1.1. Conduct an assessment to define oral health needs of the population.</td>
</tr>
<tr>
<td>2.1.2. Understand and apply health promotion and risk reduction strategies (such as healthy eating, cessation of tobacco, and reduction of harmful alcohol use).</td>
</tr>
<tr>
<td>2.1.3. Promote general oral hygiene knowledge and skills, including toothbrushing twice a day with fluoride toothpaste and cleaning between the teeth.</td>
</tr>
<tr>
<td>2.1.4. Promote and apply other appropriate fluoride interventions.</td>
</tr>
<tr>
<td>2.1.5. Identify patient populations at increased risk for oral diseases and ensure regular attendance through oral health professionals.</td>
</tr>
<tr>
<td>2.1.6. Promote essential oral health knowledge and skills for expectant mothers and parents to enable appropriate self-care and care for their children.</td>
</tr>
<tr>
<td>2.1.7. Educate, counsel, recognize, and act on the links between oral health/disease and systemic health/disease.</td>
</tr>
<tr>
<td>2.2.1. Understand the burden and distribution of oral and associated diseases in specific community and country.</td>
</tr>
<tr>
<td>2.2.2. Understand and be familiar with the health care system in the community/country.</td>
</tr>
<tr>
<td>2.2.3. Identify barriers to access and use of health and oral health services (e.g., affordability, lack of insurance or providers, cultural and geographic issues); facilitate solutions to overcome them.</td>
</tr>
<tr>
<td>2.3.1. Advocate for relevant strategies to prevent and reduce risk factors based on an advocacy strategy to identify, mobilize, and connect relevant stakeholders/actors.</td>
</tr>
<tr>
<td>2.3.2. Identify and advocate to address specific oral health needs, and reduce inequities and health care system deficits.</td>
</tr>
<tr>
<td>2.3.3. Understand and utilize political processes as well as roles/functions of national/international stakeholders (e.g., use global and national policy frameworks to guide local action).</td>
</tr>
<tr>
<td>2.3.4. Translate research data into meaningful information tailored for communication and advocacy with specific target audiences.</td>
</tr>
<tr>
<td>2.4.1. Identify and assess the range of global oral health research questions.</td>
</tr>
<tr>
<td>2.4.2. Be able to design effective and appropriate survey tools/data collection methods.</td>
</tr>
<tr>
<td>2.4.3. Collect, evaluate, translate, and disseminate data.</td>
</tr>
<tr>
<td>2.4.4. Monitor and evaluate actions taken to ensure transparency, effectiveness, and impact.</td>
</tr>
<tr>
<td>3.1.1. Demonstrate an interdisciplinary, team-oriented, integrated, and multilevel approach to patient-centered health and oral health care.</td>
</tr>
<tr>
<td>3.1.2. Recognize the different roles and responsibilities of medical and non-medical professionals in oral health promotion, disease prevention, and, if applicable, treatment, care, and referral.</td>
</tr>
<tr>
<td>3.1.3. Recognize the areas of specialization in medicine and dentistry.</td>
</tr>
<tr>
<td>3.2.1. Demonstrate ethically and culturally competent actions, and show awareness and respect in community settings, customs, differences in values, opinions and practices, cultural norms, and medical cultures (local perceptions of oral health care, attitudes toward dental health, oral care, and seeking professional care).</td>
</tr>
<tr>
<td>3.2.2. Demonstrate responsive and respectful communication with patients and families, within the oral health team and with other health professions colleagues.</td>
</tr>
<tr>
<td>3.2.3. Identify, evaluate, and use culturally relevant media and technology.</td>
</tr>
<tr>
<td>3.3.2. Demonstrate leadership in providing information, education, and planning for oral health to non-dental professionals and community members.</td>
</tr>
</tbody>
</table>

Discussion

From this workshop, a general consensus emerged among participating U.S. dental educators. Global health practitioners in the dental profession, including students and faculty, should possess knowledge of the general state of global health, specific knowledge and skills in the realm of oral health, and collaborative capabilities for sustainable health improvement at the global level. The recently published interprofessional competencies produced by the Educational Competencies subcommittee of the CUGH emphasize similar baseline knowledge and skills necessary for all global health practitioners, including dentists, as do the GOHIG-CUGH oral health competencies. There are many similarities between the proposed GOHIG-CUGH global oral health competencies and the dental public health competencies for predoctoral dental and dental hygiene programs proposed by Mascarenhas and Atchison in 2015. Comparison between topic areas was beyond the scope of this report, which examined implementation practices for an existing set of global oral health competencies. However, it is worth considering whether dental education might in the future pursue combined competencies to address both public health and global oral health. Expanding public health competencies to encompass global health topics has the potential to reduce silos and broaden the perspectives of learners initially more engaged in either area. Disadvantages of combined competencies include the potential for diluting content and dedicating emphasis to information perceived as extraneous by specialized learners. Additionally, global health programs may be attractive to some learners interested in global experiences who may forgo training in social determinants, ethics, and implementation science if those topics were offered only under the umbrella of public health or health policy. Continued examination of the interconnectedness between public health and global health education in dentistry is worth addressing in future research, practice, and consensus building in the process of further defining global oral health competencies.

This report has limitations. Just as the GOHIG-CUGH competencies are preliminary and exploratory in nature, the outcomes reported here are as well. The recommendations are not necessarily representative of the views and opinions of the dental profession in general; instead, they represent initial thoughts and themes for conversation about practical application of competency-based global health learning in dental education, expressed by a self-selected sample of dental educators. As student and faculty interest and demand for engagement in global health increase, a deeper understanding of global health activities in dental schools, including their full scope, aims, and objectives and their impact on students and communities, is required and should be part of a research agenda. Organizations like ADEA, CUGH, and the International Federation of Dental Educators and Associations (IFDEA) would be appropriate platforms to provide leadership and venues for systematic approaches towards building expert consensus and best practices for global health in dental education.

This exploratory report focused on U.S. dental students. Moving forward, it is worth exploring the position that the dental profession is a part of the larger, interdisciplinary global health environment within the broader framework of both disease-focused clinical treatment and prevention and health promotion programs. This approach may allow us to enhance more traditional short-term global health volunteer programs and develop new, sophisticated, sustainable, and better-integrated educational models for global health in dental education. Additionally, next steps for consensus-building should involve global community partners who can provide key insights from the community partner perspective on student learning and student impact, both short and long term.

Conclusion

The tremendous global burden of oral diseases and current trends in behavioral, nutritional, and economic risk factors make it unrealistic to adequately address oral health challenges and disparities through clinical care alone. Enhancing dental curricula with principles of global health promotion may help the profession to supplement clinical care and service provision with sound preventive, sustainable approaches. Based on the exploratory report conducted, a coordinated combination of competency-based didactic, experiential, and research learning opportunities could be an important step in ensuring the dental profession’s competence and relevance for the global health and development agenda. Equally important is management of student and faculty expectations, as well as those of global host communities before, during, and after student engagement. Due consider-
ation should be given to engaging with communities locally and globally, and a strong emphasis should be placed on professional conduct and the entire spectrum of ethics related to volunteering, research, community outreach, and global engagement. This report aimed to contribute a better understanding of how the educational and competency requirements related to global health can be integrated into dental education. Recommendations from the literature and participating dental educators call for movement from models of pure clinical service delivery to more prevention-driven partnerships for long-term capacity-building and sustainable approaches for oral health improvement of our global population. This report’s results may be useful in the context of best practice recommendations for global oral health education, curriculum and pedagogy design, program development, and identifying implementation barriers. The findings highlight crucial areas for further discussion, consensus building, and research as dental education is increasingly “going global.”

Acknowledgments
We wish to acknowledge participants in the 2016 ADEA Annual Session & Exhibition workshop “Going Global: Toward Global Health Best Practices in Dental Education” and the 2015 members of the Consortium of Universities for Global Health Global Oral Health Interest Group for their contributions in the development of this report.

REFERENCES