GLOBAL ORAL HEALTH:
ITS IMPACT ON DENTAL EDUCATION

SEEING THE FOREST, SEEING THE TREES
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This issue of the *Journal of the Academy of Distinguished Educators (JADE)* focuses on the challenge of global oral health disparities and the importance of preparing students to address the lived reality of communities in need of dental education and care, both globally and locally.

We begin with a guest editorial by Shirley Birenz, clinical assistant professor of dental hygiene at NYU, who offers a dental hygiene perspective on the importance of interprofessional collaborations in mitigating the global burden of oral disease.

Our centerpiece article, by Habib Benzian, adjunct professor in NYU’s Department of Epidemiology & Health Promotion, focuses on the importance of developing sustainable models for student engagement in global oral health while seizing opportunities to implement powerful healthcare strategies at home as well. The *Oral Health Atlas, Second Edition*, of which he is coeditor-in-chief, is discussed as an innovative teaching tool to help achieve this goal.

Commenting on Dr. Benzian’s article are Peter Loomer, clinical professor and chair of the Ashman Department of Periodontology & Implant Dentistry at NYU, and Joana Cunha-Cruz, research associate professor in the Department of Oral Health Sciences at the University of Washington School of Dentistry, and her colleague, Kirsten Senturia, clinical assistant professor in the Department of Health Services, University of Washington School of Public Health.

In his commentary, Dr. Loomer discusses the need for novel solutions to address healthcare challenges in resource-poor communities while potentially adapting such solutions to address health problems in our own resource-rich communities.

Finally, Drs. Cunha-Cruz and Senturia point to the lack of systematic evaluative evidence that international service-learning benefits dental students, universities, and the U.S. healthcare system, and challenge us to create metrics that would enable critical evaluation of global health experiences as a first step in developing equitable partnerships designed to reduce oral health disparities.

I want to thank all the authors for sharing their views and expertise in such a thoughtful manner and the members of the *JADE* editorial board for their insight and commitment to the issues discussed. We hope you enjoy reading the publication as much as we enjoyed bringing it to you.
The inspiration for this issue of the Journal of the Academy of Distinguished Educators (JADE) is the FDI’s Oral Health Atlas, Second Edition (2015): The Challenge of Oral Disease — A Call for Global Action. The Atlas provides an elegant, substantive, and pragmatic review of what it terms the “neglected global oral health issue,” and it does so in a format that makes the sobering and grim details of global oral disease easily accessible. Conceived for use by policymakers and advocates, the Atlas is divided into chapters that build on each other and ultimately present strategies and tactics needed to mitigate the global burden of oral disease.

Chapter two describes the etiology of oral disease and the problems resulting from neglect. Each disease summary is followed by recommendations and strategies designed to arrest or control disease and to regenerate, restore, or maintain health. In all cases, there is a demonstrated need for interprofessional collaboration to get the job done. Notably, recommendations that address the prevention and early detection of oral cancer, nutritional counseling to reduce dietary sugars, access and delivery of fluoride, amelioration of periodontal diseases, tobacco cessation, and disease surveillance are all
within the purview of dental hygienists. Indeed, the Standards for Clinical Dental Hygiene Practice include all of the above assessments and lay the foundation and framework for dental hygiene education across the country.

Dental hygienists are trained to provide extra- and intraoral examinations, and as a direct result of our education in understanding oral tissues and structures, we are keenly aware of the differences between oral health and disease. The Atlas states that “the mouth is the mirror of the body,” and this fact is directly linked to the practice of dental hygiene and the dental hygienist who is also trained to recognize the oral manifestations of unhealthy practices, such as tobacco use and nutritional habits.

Prevention, recognition, and treatment of oral disease are the focus of a dental hygienist’s education and practice. The dental hygienist can be the sole oral health manager, collaborating with other healthcare professionals to coordinate whole person care and ensure follow-up.

The relationship between systemic disease and the status of periodontal health is known, along with tooth loss, as a manifestation of neglect. In many cultures around the world, tooth loss is an accepted outcome, as no recourse is available. Periodontal diseases that include gingivitis and periodontitis are largely preventable with effective oral hygiene education and regular preventive oral hygiene care, which includes biofilm and calculus management, both of which fall within the dental hygienist’s scope of responsibilities.

FDI policy calls for collaboration between oral health and other healthcare professionals. FDI policy also includes specific language that addresses supervision of allied dental personnel. I would argue that this latter policy perspective is restrictive in that in many states and globally, dental hygienists work collaboratively with other healthcare providers, often without supervision and with direct access. Understandably, the FDI’s goal is to ensure optimum quality care. But it is important to note that dental hygienists are legally employed in a variety of settings around the world and that the dental hygienist’s education in preventive oral health and maintenance can be relied on to have a significant impact in expanding areas of access and delivery of oral health care across life spans and improving quality of life around the world.

Prevention, recognition, and treatment of oral disease are the focus of a dental hygienist’s education and practice. The dental hygienist can be the sole oral health manager, collaborating with other healthcare professionals to coordinate whole person care and ensure follow-up. In this area, our expertise would be most beneficial. Through active oral health education and regular oral hygiene care, the manifestations of oral disease can be mitigated in all nations and populations.
Focus on Global Oral Health: 
*What It Means To Be Globally Competent and Locally Relevant*

By
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**Going global** is a hot topic these days — on university campuses, among faculty, and even more so among students. In an increasingly globalized world, health disciplines are part of a rapidly expanding web of global connections and interrelations. This is true for oral health in the broadest sense, though global oral health as a distinct and defined topic area is perhaps not yet comparable to other biomedical disciplines in terms of global reflection, research, and analysis. Nevertheless, the exponential increase of global programs, international collaborations, and global (oral) health courses testifies to the power of the “going global” trend.¹

While global oral health is complex, with many layers, stakeholders, challenges, and potential solutions, the fact is that increasing numbers of students — motivated by a desire to address pressing oral health needs of less fortunate populations or countries — are seeking volunteer opportunities to provide care abroad. Combining such engagement with educational goals for dental students is appealing and would appear to be a win-win.²
The Need to Develop Sustainable Models for Student Engagement in Global Oral Health

Much has been written about the ins and outs of such volunteer interventions, be it on a personal, NGO, or academic basis. The challenges and limitations inherent in making meaningful contributions to weak local health systems are huge, and the impact on the burden of oral diseases through clinical interventions is rather minimal on a population basis. Faculties and organizations are still searching for consensus concerning sustainable and impactful models for didactic, service, or research learning in global oral health, including during the March 2016 ADEA workshop on global best practices (see http://bit.ly/1RhbWZv).

Fundamental to the development of sustainable models for student engagement in global oral health is a profound understanding of the complexities that shape and determine global oral health, the disease burden, the various health systems around the world, and, eventually, possible solutions. Moreover, while the basics of global public health, international health policy, health systems research, and health economics apply to global oral health as well as to other healthcare disciplines, there are a number of topic areas and challenges that are specific to oral health that must be identified and addressed. For the dental educator this poses a distinct challenge, as the availability of basic textbooks and additional teaching materials has been limited at best. However, with the publication last year of the second edition of the FDI’s *Oral Health Atlas: The Challenge of Oral Disease — A Call for Global Action*, finding appropriate global oral health teaching materials has become much easier.

The FDI’s Oral Health Atlas: An Innovative Learning Tool in Global Oral Health

Published by the FDI World Dental Federation in Geneva, Switzerland, in October 2015, the Atlas was originally conceptualized as an advocacy tool for policy and decision makers, as well as interested professionals and lay people. Publication of the 2015 Atlas builds on and expands the relevance of an earlier work, the first *Atlas of Oral Health — Mapping a Neglected Global Health Issue* (2009), which reflected recognition by the FDI World Dental Federation, the professional umbrella organization representing dentistry worldwide, of the need for a broader understanding of oral health and dentistry. The original book was a huge success, particularly in the context of teaching global oral health in an academic setting. The second edition, which has been completely revised and updated, is available in Spanish and French, as well as English.

The new edition aims to facilitate understanding of the various areas of global oral

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*Estimated Number of People Affected by Common Diseases, 2010*

health, the global challenges, and underlying causes. It presents information, data, and facts on a broad range of topics from a public health and population-focused perspective, and outlines areas for action and solutions.

In creating this second edition, the editors asked themselves: “Are we really developing the ‘generalist’ skills of our students by emphasizing minute details and facts? How do we best provide a broad bird’s-eye view of topic areas and foster a sense of their deep interconnectedness?” The response was to provide information in a comprehensive yet executive style by presenting only the respective key facts — an approach that is often overlooked in creating ambitious curricula and dense teaching schedules in dental education. It is therefore not surprising that certain dentistry textbooks targeted to allied personnel featuring exactly this kind of simplified and less detailed presen-
tation of knowledge are also extremely popular among dental students.

The second *Oral Health Atlas* brings together data and insights from various disciplines and fields, including health, economy, clinical care, and health and development policy, and shows how interconnected the areas are. This approach helps to reduce complexity since readers would otherwise need to refer to specific mono-thematic publications. The Atlas removes this barrier by breaking up the scholarly silo thinking that all too often prevails within the dental subdisciplines.

**Structure and Design**

The book opens with a body map of relations between oral and general health, thereby placing oral health directly into the broader landscape of health. The book’s eight chapters deal with global oral diseases, risk factors and determinants, inequalities, prevention and management, the global health agenda, and global challenges in education and research. The final chapter is a call to action with comprehensive and concise recommendations for advocacy and policy.

A contemporary visual and graphic approach is used to present oral health content in the context of the broader international health and development discourse. By complementing all sections with a succinct bibliography and data sources, as well as additional suggested readings, the Atlas provides an entry point for further study. Readers are encouraged and guided to study their particular areas of interest in more detail.

For readers who do not have an international background or perspective, many of the facts presented may be new and unanticipated. The key overall message is that there are a multitude of realities and settings, all with different challenges for oral health. Though the majority of readers from high-income countries or students from the U.S. may not be familiar with the challenges that exist in low- and middle-income countries or underserved populations, these different realities exist alongside one another and are affected by similar determinants that shape health and well-being in general. The traditionally perceived division of the world into developed and developing countries is no longer in accord with reality. Indeed, inequalities are everywhere, and they are growing.

The classic public health and health promotion topics, such as inequalities, disease burden, risk factors, and the international policy context, all play a central role in the Atlas. But
these are not simply topics for the study of global oral health, as they are equally relevant within the context of national and domestic oral health. Since public health is a niche topic within the typical dental curriculum, the Atlas also provides a perspective on oral health and dentistry that may be new to students who are typically focused on the clinical aspects of their studies. The broader population and public health view taken in the Atlas may provide for interesting and surprising new insights and a deepened understanding of the broader context of providing oral health care.

That it has become such a popular tool for teaching and student self-study in global health indicates the relevance and importance of the information, as well as the accessibility of the format in which it is presented.

**Thinking Global, Acting Local: A Valid Paradigm?**

What might happen if reflection on global oral health and its challenges were to initiate a thinking process that recognizes similar problems in our own communities and settings? After all, uncovering inequalities, understanding the role of risk factors and wider health determinants, as well as the relevance of preventive and protective public policies, is no different when analyzing oral health contexts in Honduras, Rwanda, Mongolia, or New York. Maybe we, as dental educators, should emphasize that “going global” is not always the best way or first choice for responsible public health engagement. Instead, we may want to promote a culture of “thinking global but acting local,” thereby developing the necessary broad understanding of the complexities and challenges in a globalized and interdependent world, while at the same time offering realistic entry points for each and every one to engage sustainably and realistically in improving oral health in the immediate environment.

The call to “act local” has long been included in the context of overdue action on the determinants of health. Such local engagement ideally goes beyond providing free clinics for the underserved or participating in school screenings in a nearby community. Acting on the determinants of general and oral health creates a much greater impact but requires a different type of engagement and skills. Advocating with decision makers, mobilizing communities for healthier environments, or acting to ban unhealthy foods and drinks from schools are just a few examples of meaningful oral health promotion that has nothing to do with the traditional approach confined to a dental chair and a clinical setting.

Looking at the broader, global picture of oral health will depend on such upstream, integrated action if we want to achieve a substantial reduction in the burden of oral diseases. If a sugary drink is cheaper and more easily available than a healthier option, people will always tend to choose the easier way, even if exposing their general and oral health to risks. The Atlas shows in many different ways how such factors and interventions shape oral health, and how the barriers to effective action can be overcome. It is thus also a tool for refocusing our thinking about the basic principles of health promotion by putting the generally dominating clinical “drill and fill” mentality into perspec-
Focus on Global Oral Health: What It Means To Be Globally Competent and Locally Relevant

References
As Dr. Habib Benzian notes in his essay, global health, including global oral health, has become a topic of great interest and tremendous growth in higher education in recent years. Indeed, the number of universities and colleges offering opportunities to participate in international, health-related projects and even degree programs has been growing exponentially. New York University is at the forefront of this movement. NYU has adopted a multifaceted approach to educating students and reducing health disparities globally through programs offered by its colleges and campuses in New York City and across the globe. The University’s commitment to addressing complex global health problems is especially apparent in the recent establishment of the NYU College of Global Public Health, which has fostered interdisciplinary approaches to these problems. The attraction for both faculty and students to global health is obvious, altruism aside: The opportunity to visit exotic locales; help those in need in resource-limited communities; and empower them with the so-called wisdom of the West.

While programs to address health disparities in economically developing nations can at times be misguided — however well-intentioned
— vehicles that are thoughtfully designed to educate and perform research activities in resource-limited communities can be effective on many levels for the participating communities as well as for the students and educators. Notably, such programs may also foster a desire to assist people with oral health disparities in the students’ own communities. Indeed, educational and research experiences in global health can provide tremendous opportunities to learn from the communities being served, if the knowledge gained includes insights into how healthcare challenges can be addressed with limited resources using novel solutions, something that could potentially be adapted to addressing health problems in our own resource-rich communities. In all cases, the key to any solution holding the promise of long-term positive impact on the health of a community is sustainability.

While solutions addressing oral diseases, in particular dental caries and periodontitis, may appear conceptually to be simple (“focus on prevention”), devising programs that succeed both in improving the health of populations and are self-sustaining over time is highly challenging. Fortunately, there are no limits to the creativity and passion of researchers committed to developing such solutions. Clearly, a one-answer-fits-all approach does not work, and programs focused on prevention must take into account foremost the unique characteristics of each community. This goes far beyond merely making adjustments for population socioeconomic demographics; one must also consider the healthcare workforce, healthcare delivery model, availability of materials and supplies, and governmental policies and controls, among other factors.

One aspect colleagues and I have concentrated on to address these global health challenges is enhancing the training of the oral healthcare workforce in developing nations, in particular in East Africa. Both the capabilities of the healthcare workforce to meet the needs of the community and the capacity of the healthcare educational training institutions have been evaluated. The data revealed a severe shortage of trained healthcare professionals with significant need for additional skills to manage oral diseases in their communities. Hence, the project focused not only on growing the size of the workforce but also on enhancing the training of healthcare professions students to enable them to better address the current oral healthcare needs of their com-
munities, primarily through prevention and the use of economically viable solutions. This capacity-building approach has been further expanded to involve nontraditional, community-based workers in health promotion through the training of teachers, community leaders, allied health professionals, and others to perform simple preventive procedures and provide education to a wide range of the population. Accordingly, it is predictable that with an end-goal of educating everyone in the community about prevention and management of oral health, improvements in the overall health of the population will ensue.

Given the complex challenges of treating oral diseases, both locally and globally, preventing disease from occurring should be the method of choice for maintaining health. Educational and research programs in global oral health have furthered the dental community’s interest in strengthening their focus on prevention and improving the health of our patients, our communities, and the world. Multi-faceted solutions have yielded the most favorable results, and innovation in science, technology, behavior, and many other areas will help achieve even better results. While most scientific methodologies for improving global oral health have been small in magnitude (one community, one university, one school system), implementation science may help guide the scaling up of these evidence-based prevention approaches to improve oral health on a truly global level.
Moving Beyond Charitable Dental Missions:
The Pursuit of Equitable Partnerships to Reduce Oral Health Disparities

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“The plain fact is that the planet does not need more successful people. But it does desperately need more peacemakers, healers, restorers, storytellers, and lovers of every kind. It needs people who live well in their places. It needs people of moral courage willing to join the fight to make the world habitable and humane. And these qualities have little to do with success as we have defined it.”
— David W. Orr
Earth in Mind: On Education, Environment, and the Human Prospect

In “What It Means to be Globally Competent and Locally Relevant,” Dr. Habib Benzian discusses educational aspects of global oral health and highlights the importance of developing sustainable models for student engagement. The author presents the Oral Health Atlas: The Challenge of Oral Disease: A Call for Global Action as a learning aid that can help achieve global health competence among dental students. He concludes by emphasizing that competence in
global health could bring more awareness to local problems because contextual factors in a low-income country may be similar to contextual factors in underserved communities in this country. The take-home message is a call for action: Think globally and act locally, and do so beyond clinical dental settings.

Systematic evaluative evidence is lacking that international service-learning benefits dental students, universities, and the U.S. healthcare system. Moreover, we could not find any research evidence of the impact of global oral health experiences on the institutional partners from the host country or on the communities being served.

Students who provide care to underserved communities in other countries may be exposed to a new culture, new ways of doing things, and sometimes a new language. This cultural experience is unique when the student is immersed in the community and must learn how to function in another environment, one that may be overwhelming and which places the student in the role of cultural outsider. Students also gain valuable clinical experience, practicing new skills and facing a range and severity of oral health problems that may not be seen in the academic clinical setting. The expectation is that the experience abroad will nurture resilience, confidence, and, above all, empathy — the sense of “being in another person’s shoes.” Meanwhile, the underserved communities in other countries that receive visiting dental students welcome the needed dental services being provided and are also exposed to the visiting students’ culture and language. They can learn from these experiences as well, and local capacity may be built or nurtured.

However, systematic evaluative evidence is lacking that international service-learning benefits dental students, universities, and the U.S. healthcare system. Moreover, we could not find any research evidence of the impact of global oral health experiences on the institutional partners from the host country or on the communities being served. Without critical evaluation of global health experiences, we may be contributing to practices that are culturally inappropriate, reproduce colonialist traits, fail to engage with host partners, create health or care expectations that cannot be met by the host partners alone, and result in the untimely departure of the visiting team. Considering these issues, contemporary global health experiences require U.S. students and institutions to consider the host institutions or country as equal partners, and to carefully plan, implement, and evaluate the initiative. We propose a framework for global health initiatives with five steps (five As):

1. Ask:
   a. Identify the global health problem collaboratively with host partners, based on the self-identified needs of the community.
   b. Develop objectives and goals collabora-
tively to answer the five W’s: “Who, What, Where, When, for Whom?”

2. Access:
   a. Search for the best evidence available not only for the clinical procedures being proposed but also for methods for effective, equitable, and sustainable partnerships.
   b. Conduct an environmental scan of the current conditions of the host partner to identify the burden of oral health problems and available resources such as the healthcare system and institutions.

3. Appraise:
   a. Consider the best evidence and environmental assessments to conduct a root cause analysis and develop a theoretical framework with barriers and facilitators to dental care.
   b. Select feasible and sustainable components of the intervention and mode of delivery that can overcome the modifiable barriers and enhance the facilitators, in conjunction with host partners.

4. Apply:
   • Implement the initiative with shared leadership and continuous problem-solving, prioritizing the host partners’ educational needs to build or nurture local capacity and sustainability of the initiative.

5. Assess:
   • Evaluate the process of implementation and the impact of the initiative on true and carefully chosen outcomes from different stakeholders (host and visiting institutions, students and health workers, patients and community).

Structuring such initiatives would require operational, financial, and human resources with the active engagement of both partners. Until initiatives like these become standard, there will still be space for charitable missions. For example, highly specialized services such as cleft lip and palate repair surgeries may be welcomed in low-income countries that lack this expertise. Other countries experiencing humanitarian crises will welcome dental professionals and students as part of health teams providing emergency care in refugee camps and elsewhere.

As we move beyond the charity model and build true equitable partnerships in global health, students and professionals from visiting and host countries will be rewarded with deeper learning experiences and the opportunity to produce a bigger impact within the communities. While those of us arriving from U.S. dental programs share our technical expertise in dental research, education, and quality improvement of clinical practices and health systems, we will learn innovative local solutions from our partners. Beyond the institutional responsibility to teach global health to dental students, being global also means leaving our silos and fully participating in the communities we serve, both teaching and learning across languages and cultures. Global health initiatives give us the opportunity to be active partners in the pursuit of health equity in the world, be it down the street or miles away.