

# An Adapted Framework for Incorporating the Social Determinants of Health into Predoctoral Dental Curricula

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**Abstract:** Social determinants of health (SDH) impact the overall health and well-being of the entire population. It is imperative to train future health care professionals to develop an understanding of the impact of these determinants, so they can provide contextual treatment more conscious of the culturally, racially, and socioeconomically diverse populations they will care for during their careers. This article, the second in a series of American Dental Education Association Commission on Change and Innovation in Dental Education 2.0 white papers on SDH, introduces a conceptual framework adapted from the original framework presented by the National Academies of Science, Engineering, and Medicine that can be applied to predoctoral dental curricula. This framework is organized into three domains: education, organization, and community. The domains are explained, and examples of current implementation efforts at several academic dental institutions are provided to help dental educators envision how to incorporate these concepts into their own curricula.

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**Keywords:** dental education, social determinants of health, health inequity, diversity, community-based education, person-centered care, behavioral science

doi: 10.21815/JDE.019.015

A physician becomes doubtful that her patient truly cares about his cardiac condition after he cancels the third appointment. The patient is frustrated that his bus company discontinued the only route that can get him to the physician's office. A man hears at his place of worship that childhood vaccines are best avoided since they can result in autism. His nurse practitioner thinks the man is simply ignorant and a threat to his children's health. A dentist chastises a patient for being lazy in maintaining her oral health, while the young woman and her family live in a non-fluoridated water community.

It is not uncommon for health care providers to make assumptions regarding their patients' attitudes and actions about maintaining their health. Providers suggest interventions and treatments based on their extensive education and practice experience, and when those efforts fall short, they may blame the patient's intentional lack of compliance. Yet, over the past decade, research has provided evidence that when treatment modalities fail, there may be another culprit at hand that is not regularly identified during

the doctor-patient intake: social determinants of health (SDH).<sup>1</sup> Defined by the World Health Organization (WHO) as "the conditions in which people are born, grow, work, live, and age and the wider set of forces and systems shaping the conditions of daily life," SDH are frequently the root cause of ill health and disease beyond the person's genetic makeup and medical treatment received.<sup>2</sup> *Closing the Gap in a Generation*, the Commission on Social Determinants of Health's landmark report commissioned by WHO, clearly demonstrates the impact that SDH have on populations and their outcomes that can be either health-enhancing or health-damaging.<sup>3</sup>

Oral diseases like dental caries, periodontal disease, and oral cancer, along with concerns about access to dental care, are all impacted by social, political, and behavioral factors. These conditions will only be improved with initiatives that prioritize improvement in the SDH of populations.<sup>4,9</sup> An important initiative would be to include SDH in dental curricula to educate future dental providers to prioritize these non-medical factors when treating patients. SDH

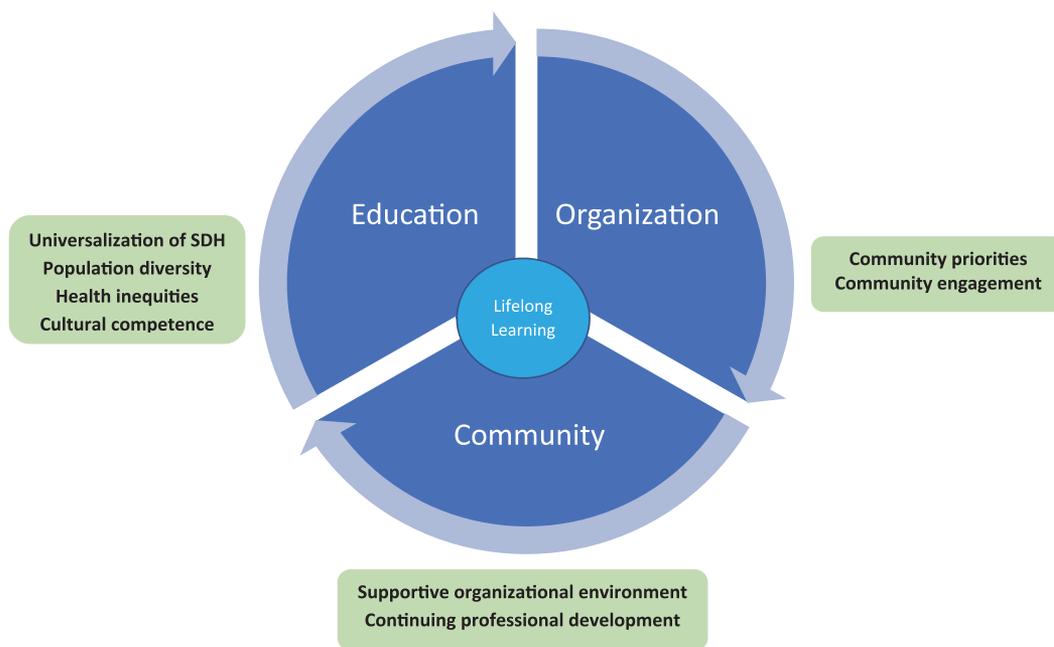
in health professions curricula are often relegated to service-learning programs or elective courses and may be offered piecemeal. Relevant elements of SDH, such as the impact of poverty or race on health, are noted, but lack the necessary comprehensive connection to overall health or to the role that health care providers can play in reducing such disparities.<sup>10,11</sup> Recently, Sabato et al. provided an innovative case study using Tufts University School of Dental Medicine’s interprofessional education program as a vehicle to highlight the importance of SDH as a mechanism to reduce health disparities.<sup>12</sup> Medical, dental, nursing, and social work students participated in that program. Yet inclusion of SDH as a stand-alone object of study, integrated into and woven throughout the curriculum, appears to be a daunting task for many health professions educators.<sup>10,11</sup>

Noting this challenge, the National Academies of Science, Engineering, and Medicine developed a conceptual framework that health professions educators can employ to incorporate SDH seamlessly into the learning continuum across their curricula.<sup>13</sup> This article, the second in a series of American Dental Education Association Commission on Change and Innovation in Dental Education 2.0 (ADEA CCI 2.0) white papers on SDH, aims to introduce an adapted model of this framework for dental education, based

on the framework’s three domains: education, organization, and community (Figure 1). We also provide institutional examples for each domain to help dental educators visualize how to integrate SDH into their curricula. These examples were chosen from responses to an email sent to all ADEA CCI liaisons requesting information on how their dental schools employed SDH in their curricula. We interviewed those who responded and chose programs to highlight that most closely follow the constructs of the National Academies model. Although the focus of this article is predoctoral dental education, the framework could be adapted and applied to allied dental and advanced dental education as well as other health professions education.

## Domain 1: Education

Incorporating SDH into predoctoral dental curricula can be challenging especially in clinic settings where teaching is focused on surgical techniques and procedures. To compound the issue, many patients who present with complex medical and social histories are routinely screened out of the early predoctoral clinic experiences and referred to senior or advanced education students, thus relegating attention to SDH primarily to the classroom setting.<sup>14</sup> Most commonly,



**Figure 1. Framework for incorporating social determinants of health into predoctoral dental curricula**

*Source:* Based on information in: Health and Medicine Division, National Academies of Sciences, Engineering, and Medicine. A framework for educating health professionals to address the social determinants of health. Washington, DC: National Academies Press, 2016.

SDH are addressed in community health, behavioral health, preventive dentistry, or dental public health courses, which may result in compartmentalization. To avoid creating isolated learning environments, SDH course content should be integrated into both didactic and clinical education.<sup>15</sup> Multipronged approaches suggested to aid in teaching this complex concept to predoctoral dental students have included didactic instruction, community-based learning, student mentorship, teaching the role of advocacy in oral health, community partnership, research, and self-reflection.<sup>16,17</sup>

In the education domain, we provide four sub-domains along with examples from academic dental institutions that can assist in the integrated implementation of SDH. The sub-domains are universalization of SDH in dental curricula, population diversity, health inequities, and cultural competence/cultural sensitivity. These sub-domains could help dental educators visualize an effective way to teach SDH by avoiding stereotyping and “blaming the victims.”<sup>5</sup>

## Universalization of SDH in Curricula

SDH education should be universalized throughout dental curricula. To “universalize” in this context has two meanings: first, to develop a set of core values, knowledge, and skills required for the entire oral health workforce to successfully provide the best possible treatment to all patients, and second, to implement those core values in both didactic and clinical teaching.<sup>11</sup> Discussing the constructs of race, ethnicity, socioeconomic status, and gender and their impact on oral health is critical.<sup>18</sup> However, the take-home message for students should not be that SDH are relevant only when considering oral health inequalities; rather, they are relevant for improving outcomes for all of their patients, both during training and beyond. This message can help mitigate implicit and explicit biases that health professionals may have towards patients who are different from them in race/ethnicity or socioeconomic and other circumstances.<sup>19</sup>

One approach to exposing dental students to SDH in didactic courses while addressing them in clinical settings is to embed them in the topic of population health.<sup>17,20</sup> Learning about population health, through large-scale retrospective epidemiological studies or by using the electronic health record (EHR), can help students see how population health is linked to an individual patient’s health. Such educational experiences can help students cognitively

reframe their approach to collecting and applying social history data, while understanding pathways of disease, treatment planning, and shared decision making with their patients.<sup>21</sup>

In the current changing health care system in which accountable care organizations are on the rise and the value-based payment model is gaining attention, the benefit of using EHR for managing the health of populations becomes apparent.<sup>22</sup> Two National Academies reports emphasized that health care providers can effectively influence their patients and population health when providers have access to social and behavioral determinants collected through the EHR.<sup>23,24</sup> These reports also provide methods to capture determinants in the EHR.

An institutional example is a hands-on activity at the University of Colorado School of Dental Medicine that uses EHR data mining to show students how SDH affect the health of all persons seeking care in the clinic. Dental students are calibrated to use the data mining methodologies from the EHR with a rubric designed by a faculty member. By mining charts of patients receiving care at the school’s clinic, students collect data for age, gender, race/ethnicity, number of natural teeth present, systemic diseases reported including cardiovascular disease and diabetes, and any form of tobacco use. Students enter this data into a datasheet and submit it to the faculty, who analyze this information to assess associations with oral-systemic health stratified by age, race, and ethnicity. The faculty members then report back the results to the students. This hands-on activity engages students in collecting the evidence for non-medical factors associated with oral disease. An analysis of this activity found that all patients in that pool were affected by at least one non-medical factor that affected their oral health outcomes.<sup>25</sup> In this activity, students learn about the overall health of the clinic patient community and how individual patient health relates to the larger population’s health. In addition, students develop critical thinking skills related to social history taking while being challenged to rethink the process of taking a history and the health implications if SDH are part of treatment planning.

## Population Diversity

Another SDH-related topic is the changing U.S. demographics and diversity of the populations that students will care for throughout their careers. For example, 25% of all U.S. children in the U.S. are now from immigrant families,<sup>26</sup> and both the

geriatric population and the population's ethnic and religious diversity are increasing.<sup>27,28</sup> Other social identity characteristics such as ability status, gender identity, and sexual orientation add to the diversity of the population and those seeking dental treatment.<sup>29,30</sup> The concept of diversity should not be strictly limited to demographic or socioeconomic classifications, but should also include the diverse experiences people have. There is diversity in life circumstances (e.g., housing, neighborhoods, and job history), in emotional health (e.g., family stresses), in perceptions of health care (e.g., dental treatment anxiety and fears regarding health care and alternative care practices), and in access and utilization of health care (e.g., health insurance status and health literacy).<sup>21</sup> Exploration of such in-depth information could help dental students gain a better understanding of patients' personal and structural barriers to achieving and maintaining good oral health. This increased understanding could influence students to make more culturally conscious recommendations and treatment plans for their patients.

The concept of population diversity should be introduced early in dental school curricula and revisited throughout students' preclinical and clinical education. In addition, discussion of the person-centered care model of delivering oral health care is critical to the teaching of diversity. Such discussions can help students expand their thinking to patients' treatment needs and preferences associated with their cultural, religious, or generational beliefs.<sup>31,32</sup>

An institutional example from the University of Michigan School of Dentistry exemplifies how didactic and clinical settings can be used to educate students about population diversity. In 1994, that school's cultural audit of its curriculum resulted in a recommendation to increase content about population diversity and the practice of culturally sensitive patient care.<sup>33,34</sup> A new course, Behavioral Science II, was introduced that focused on population diversity.<sup>35</sup> Part 1 of this course introduced students to the role of demographic and social characteristics (race/ethnicity, age, gender, sexual orientation and identity, and ability status) in patient health. Part 2 focused on communication skills required in caring for patients afflicted with mental health diagnoses such as depression, alcohol and drug addiction, and anxiety disorders. The themes of the course evolved over time. Curricular hours also increased as new topics emerged and were incorporated into the course over the 20-plus years it has been taught. Recent changes include the addition of post-traumatic stress disorder

and anxiety disorders regarding transgender issues. It is important to note that SDH being addressed in educational programs will change over time as they reflect the social experience of people, underscoring the importance of lifelong learning in health professions education.

At the University of Michigan, pre- and post-course assessments of the impact of the course on student learning have been conducted for each of the 20-plus years the course has been offered. The results showed that, over time, each cohort of entering first-year students has an increasing desire to learn about diverse populations and how to communicate more effectively with patients from those groups. People with special needs, people from socioeconomically disadvantaged or minority groups, specific needs for children and older adults, learning about addictions and chronic pain, and understanding preferences of gender and sexual orientation have all appeared in the survey results as topics about which students wanted to learn more. Overall, the data showed that engaging dental students in comprehensive education about patients from diverse populations is crucial to ensuring that future providers are knowledgeable and comfortable with providing care for these patients.<sup>35</sup> The University of Colorado School of Dental Medicine also employs a population diversity approach to SDH in its Heroes Clinic program.<sup>36</sup> Publishing research studies on these programs not only shares information among educators but can generate ideas for new methods to educate students in this area.

## Health Inequities

Didactic teaching of SDH in the context of oral health inequities and marginalized populations is yet another approach to educate dental students about specific SDH such as poverty, race/ethnicity, oral-systemic health connections, and social identity-related factors that impact the oral health of a population.<sup>37-39</sup> Highlighting the impact of oral health inequities on a person's well-being can enhance students' understanding of why some populations are at higher risk for specific dental diseases and why prevention efforts should be applied to at-risk populations to reduce inequities. Teaching about these inequities could be approached in several ways, including didactic instructions, activities in clinical settings, case-based learning, and hands-on activities.<sup>40</sup> When educating students about these inequities, educators should consider these three objectives: examining and understanding the attitudes of the provider for

unconscious biases and assessing the patient's level of trust in the provider; assessing the magnitude of health inequities; and teaching cross-cultural communication skills, the use of translators, and communication at a health literacy level appropriate for the patient.<sup>41</sup>

As an institutional example of health inequity education, the University of North Carolina at Chapel Hill School of Dentistry provides a poverty simulation workshop for second-year dental students. The objective of this simulation is to increase students' empathy for the patients they treat in community-based rotations in underserved areas. During the simulation, students are assigned to play the role of one member of a low-income family. Roles include single parents, unemployed individuals, homeless individuals, senior citizens living on Social Security, and other scenarios. In the simulation, students roleplay the challenges of being in a low-income family. A study found that this simulation was effective in raising students' understanding of the challenges in accessing dental care that low-income families face.<sup>42</sup>

A similar poverty simulation session is included in the first-year dental curriculum at the University of Colorado School of Dental Medicine as a part of the Community Engagement course, which simulates the life of patients and community members with limited financial resources.<sup>43</sup> As part of that course, first-year students also attend a workshop called "Loose Change," a theatrical presentation in which actors share real-life stories of the challenges and biases people living on limited financial resources face in health care settings. Actors portray and react to the biases and stereotypes projected onto low-income people by those with whom they interact in trying to gain access to health care. After each vignette, members of the theatrical troupe engage students in a discussion focusing on what they observed, how they felt, what key messages they took away, and how insights gained might influence their views and behaviors. The objective of the exercise is for students to identify effective practices regarding compassionate care while inculcating in them skills for active listening. Through this exploration and over time, students develop the ability to mitigate projections of their unconscious bias onto their patients.<sup>44</sup>

## Cultural Competence/Cultural Sensitivity

Educating dental students about cultural sensitivity and providing them with experiential opportunities to develop skills relevant to cultural

competence serve to complement the knowledge gained in the population diversity and health inequity sub-domains. Cultural competence, defined as the "provision of appropriate services that are respectful of and responsive to the health beliefs, practices, and needs of diverse patients," can be operationalized in dental curricula and experienced in the clinic setting by the use of self-reflection activities and group discussions that help students develop and internalize respect for the importance of providing health care in a multicultural and increasingly diverse society.<sup>45</sup> Cultural competence education is also required as a predoctoral dental accreditation standard of the Commission on Dental Accreditation (CODA).<sup>46</sup>

In an institutional example, at the University of Minnesota School of Dentistry predoctoral dental students learn to examine human diversity, its relationship to oral health inequities, and the development of cultural humility and competence through a series of courses. In the Dental Public Health I course, small groups of students are required to perform an assessment of a Minnesota community by identifying existing resources that address the social determinants of health there. Overall, the goal of this assignment is for students to internalize an appropriate picture of the assets and challenges faced by a community seeking improved oral health and the relationship between SDH and the community's oral and general health. In the following semester in the Dental Professional Development II course, students participate in a semester-long community project that operationalizes the knowledge gleaned in the Dental Professional Development I course. In this blended learning course, students learn about health inequities via online cultural competence modules and then interact directly with persons living in the community by volunteering time in social and cultural community settings. The project culminates with students' poster presentations that offer improved dental delivery models for the community. These experiences allow students to explore and clarify their values regarding diversity and to contemplate what it means to be a health care provider in a socially responsible society.

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## Domain 2: Organization

The National Academies framework has two sub-domains under the organization section: supportive organizational environment and continuing professional development. These sub-domains

represent the role of the organizations—the school, university, or associations—that provide support to SDH efforts.

## Supportive Organizational Environment

Health professions education and practice associations can take a leading role in fulfilling the role of the organization domain by embedding the values of health equity into their mission statements and strategic initiatives, by supporting pathways to academic careers for underrepresented community members, and by providing robust faculty development related to SDH to their academic institutional members. ADEA has implemented programs that address the critical importance of understanding the impact of SDH on oral health and provide leadership training to transform dental educators into enlightened change agents: the Summer Health Professions Education Program (SHPEP) and ADEA CCI 2.0.

The SHPEP is a no-cost, six-week academic enrichment program aimed at rising second- and third-year college students interested in exploring a career in the health professions. SHPEP is a collaborative program of ADEA and the Association of American Medical Colleges (AAMC) funded by the Robert Wood Johnson Foundation. Data from 2006 to 2015 showed that, of the 64.4% participants who applied to dental schools, 69.8% were accepted and matriculated and that 60% of the 495 SHPEP dental school matriculants have successfully graduated from dental school, thereby positively contributing to the diversification of the dental workforce.<sup>47</sup>

ADEA CCI 2.0 was convened in 2017 to provide white papers, educational programming, and leadership development opportunities to dental educators in an effort to spur change and innovation in academic dentistry in response to multiple external changes emanating from five global domains: education, health care, technology, demographics, and sociopolitical environmental impacts including climate change.<sup>48</sup> The first phase of ADEA CCI 2.0 includes the formation of a national learning community in dental education that includes a diverse group of members from academic dental institutions as the ADEA CCI liaisons.<sup>49</sup> These liaisons, through resources provided by ADEA, influence their home institutions to consider changes needed in academia to support the concept that oral health is a critical component of overall health and that the dental provider is an essential member of the health care team.

The ADEA CCI 2.0's estimation that person-centered care will be the prevailing delivery model of health care, delivered by a future-ready graduate who is educated in a transformative learning environment, strongly supports the foundational elements of the National Academies' SDH framework.

## Continuing Professional Development

In addition to the resources provided by ADEA, academic dental institutions can invest in their faculty members' knowledge of SDH by providing institution-specific professional development opportunities.<sup>50</sup> Dental school personnel may perform a cultural audit of their learning environments to examine the need for cultural change in the curriculum and the institutional environment. Buy-in from senior leadership is essential in creating a positive environment for change. All faculty members must be involved in understanding the goals associated with the teaching of SDH concepts via an integrated approach. Utilizing early adopters and faculty champions as role models and mentors for other faculty members has proven to be a successful model.<sup>51</sup> Academic dental institutions can also take advantage of numerous conferences, workshops, and webinars offered locally and nationally that disseminate SDH information and associated toolkits. However, schools should provide adequate resources and time for their faculty members to receive training and develop skills in this specific area.<sup>52,53</sup>

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## Domain 3: Community

Partnerships between communities and academic dental institutions can make an essential contribution to dental students' education in SDH.<sup>54</sup> Community members can become equal partners in teaching students and faculty members about local experiences and how social determinants of health shape their lives and impact their health. Two subdomains in the community domain are community priorities and community engagement, discussed together since they are typically integrated in practice.

### Community Priorities and Engagement

Understanding a community's priorities, needs, and values is imperative when teaching dental stu-

dents about SDH and the importance of ongoing community engagement during and especially after they graduate. One way to introduce this concept is by doing an environmental scan or health impact assessment of the communities surrounding the academic institution. The scan collects and brings together comprehensive data regarding local demographics and economic, cultural, and community characteristics to make strategic decisions that will either improve the outcomes of current training programs or can be used to create new programs in the school that connect and offer dental services to the community.<sup>55,56</sup> The dental schools at the University of Colorado and the University of Iowa have recently completed environmental scans to understand either the needs of their surrounding communities or to demonstrate how current programs are targeting community priorities.

An institutional example is based on the idea that introducing dental students to the priorities of their school's surrounding communities can be done most effectively by immersing students in the communities themselves, outside the confines of the school. A course on Community Engagement for first-year dental students at the University of Colorado uses this approach.<sup>57</sup> Classroom sessions address such topics as health equity, social and cultural determinants of health, implicit bias, telehealth, effective communication, and motivational interviewing. As recommended in the Sullivan Commission report,<sup>58</sup> the experiential part of the course connects students with the diverse community surrounding the campus, thus increasing their understanding of community priorities. Students are introduced to organizations that serve underserved or underrepresented populations to learn about the barriers and challenges to health care their patients face and the impact of social, cultural, and economic forces on health care.

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## Recommendations for Incorporation of Framework

These domains and sub-domains with their institutional examples illustrate how SDH can be incorporated into dental curricula in a variety of ways. These examples are only a small sample of SDH programming being incorporated in academic dental institutions. However, we did not find a single example of the seamless inclusion of SDH across the

learning continuum as recommended by the National Academies. Clearly, there is much more work to be done. Toward that end, we provide some recommendations on how to begin incorporating SDH into the curriculum at your institution.

**Early start.** Most U.S. dental schools provide a community-based learning component for dental students in their third and fourth years.<sup>59</sup> However, one study found that students' attitudes towards treating underserved populations became less positive as they progressed through the four-year curriculum.<sup>60</sup> These negative attitudes can deter future dentists from offering treatment to members of underserved communities, such as patients from ethnic minority groups and senior patients. Dental education, therefore, must strategize to avoid such consequences and prepare a workforce that not only offers treatment for all sectors of the population but understands their needs as well. Teaching the concepts of SDH early in the curriculum provides valuable experiences and an understanding of diverse populations, different needs, and wider perspectives before students come face-to-face with patients in the clinic.

**Use multiple approaches.** All the sub-domains can be taught using multipronged approaches such as an integrated curriculum, interprofessional education, and experiential learning. Integration of SDH concepts into basic science courses helps to establish a crucial synthesis of biological pathways with non-medical factors. Introducing race, culture, ethnicity, and environmental factors into biological models can help students better understand how these determinants affect disease pathways.<sup>61</sup> Collaborating with medicine, nursing, social work, pharmacy, public health, and other fields can help students to critically think about the determinants of overall health.<sup>62,63</sup> Learning the concepts of health inequities and cultural competence in an interprofessional team can have a long-lasting impact. A better understanding of oral-systemic health connections can be developed and may facilitate the understanding of medical and non-medical factors linked to oral health.<sup>64</sup>

**Involve students through their own stories.** Merging SDH with context from students' own lives can actively engage them in learning this complex concept.<sup>44</sup> Such a "grounded" method can increase active participation and motivate students, hopefully having a lasting impact.<sup>42</sup> Also, increasing diversity in the student and faculty population would bring different perspectives into the classroom and clinic and could assist students in learning from others' personal stories and experiences.

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## Future Considerations

Elevating non-medical factors such as SDH to serve as critical aspects of improving overall health is a paradigm shift for most health professions.<sup>11</sup> This reframing of the current health care model will require health professions educators to examine their curricula for any disparate SDH topics and to connect them to a broader narrative that includes health inequities, population health and diversity, and cultural competence. In addition, accreditation standards across the health professions should be revisited to ensure that SDH are explicitly indicated as a curriculum requirement. As health care reimbursement shifts to a value-based model, as person-centered care emerges as the predominant lens through which health care providers view people seeking their services, and as oral health providers expand their clinical perspective to include not only the whole person but the person's family and community in addition to their dentition, understanding the impact of the social determinants of health on oral health will demand a higher priority in the provision of compassionate and effective health care.

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## Acknowledgments

We would like to thank Dr. Marita Inglehart, University of Michigan School of Dentistry; Prof. Christine Blue, University of Minnesota School of Dentistry; and Dr. Deidre Callanan, University of Colorado School of Dental Medicine, for their contributions to this article.

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## Disclaimer

This article is one in a series of invited contributions by members of the dental and dental education community commissioned by the ADEA Commission on Change and Innovation in Dental Education 2.0 (ADEA CCI 2.0) to focus on how changes and trends in several domains of interest external to dentistry are having a global impact on the content and delivery of health care, health professions education and research, and, ultimately, how health care can benefit patients. This article, which was reviewed internally by the JDE editorial staff, is by authors associated with ADEA CCI 2.0, but it does not necessarily reflect the views of ADEA, individual members of ADEA CCI 2.0, or the *Journal of Dental Education*.

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