

Change Is Here: ADEA CCI 2.0—A Learning Community for the Advancement of Dental Education

Anthony M. Palatta, DDS, EdD; Denise K. Kassebaum, DDS, MS; Cynthia C. Gadbury-Amyot, MS, EdD; Nadeem Y. Karimbux, DMD, MMSc; Frank W. Licari, DDS, MPH, MBA; Nader A. Nadershahi, DDS, MBA, EdD; Muhammad F. Walji, PhD; Jeffery C.B. Stewart, DDS, MS; Richard W. Valachovic, DMD, MPH

Abstract: On May 12, 2005, the inaugural meeting of the American Dental Education Association Commission on Change and Innovation in Dental Education (ADEA CCI) was convened. Comprised of thought leaders representative of dental education and practice, the ADEA CCI published groundbreaking white papers that effectively helped bring dental education across the threshold of the 21st century. Twelve years later, a new ADEA CCI has been convened—ADEA CCI 2.0. The ADEA CCI 2.0 is a broad-ranging, strategically interconnected, flexible, and multifarious community of stakeholders situated within and across all facets of oral health education and practice. Whereas the first iteration of the ADEA CCI made the case for change regarding revisions of the dental curriculum and learning environment, the ADEA CCI 2.0 will focus on external domains that are having a global impact on the content and delivery of health care and health professions education and, ultimately, how health care benefits people. The principal work of the ADEA CCI 2.0 will be to create educational and implementation resources and opportunities for dental educators to contemplate, investigate, and ultimately define the future needs of their academic dental institutions in this constantly changing world.

Dr. Palatta is Chief Learning Officer, American Dental Education Association; Dr. Kassebaum is Dean, University of Colorado School of Dental Medicine; Dr. Gadbury-Amyot is Professor and Associate Dean of Instructional Technology and Faculty Development, University of Missouri-Kansas City School of Dentistry; Dr. Karimbux is Professor and Associate Dean for Academic Affairs, Tufts University School of Dental Medicine; Dr. Licari is Dean, Roseman University of Health Sciences College of Dental Medicine; Dr. Nadershahi is Dean, University of the Pacific Arthur A. Dugoni School of Dentistry; Dr. Walji is Professor and Associate Dean for Technology Services and Informatics, University of Texas School of Dentistry at Houston; Dr. Stewart is Senior Director for Institutional Innovation and Development, American Dental Education Association; and Dr. Valachovic is President and CEO, American Dental Education Association. Direct correspondence to Dr. Anthony Palatta, American Dental Education Association, 655 K Street, NW, Suite 800, Washington, DC 20001; 202-289-7201; PalattaA@adea.org.

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How “future-ready” are our dental education programs? It is exciting but also daunting to consider that the students and residents currently in predoctoral dental, allied dental, and advanced dental education programs will be caring for patients through 2050 and beyond. We have the great opportunity and responsibility to prepare them for a future we cannot predict. However, we can look at some external influences that are likely to impact our programs and the future health needs of the populations we serve to create strategies for embracing the changes before us. Fortunately, in dental education a firm foundation for anticipating future change has been built in the last decade, informed by the work of the American Dental Education As-

sociation Commission on Change and Innovation in Dental Education (ADEA CCI). We now have a new ADEA CCI 2.0 to provide a compass and the tools for the journey ahead.

A Firm Foundation: ADEA CCI from 2005 to 2016

On May 12, 2005, the inaugural meeting of the ADEA CCI was convened. Comprised of thought leaders representative of dental education and practice, the ADEA CCI included members from ADEA, the American Dental Association (ADA), the Commission on Dental Accreditation (CODA), the ADA

Council on Dental Education and Licensure (CDEL), and the Joint Commission on National Dental Examinations (JCNDE). Over the subsequent five years, the ADEA CCI commissioned groundbreaking white papers that effectively helped bring dental education across the threshold of the 21st century. Critical thinking skills, humanistic environments, and inter-professional education (IPE) are only a small sample of the pedagogical tools and approaches to learning spearheaded by this influential group.

At the time of the ADEA CCI's first meeting, those U.S. dental schools reporting indicated that 86% utilized a primarily discipline-oriented and lecture-based curriculum, while only 7% had an integrated curriculum, 64% provided some kind of community-based experiences for their students, and attention to IPE was not evident.¹ A decade later, 76.9% of dental schools reported using the ADEA Competencies for the New General Dentist,² the crowning achievement of the ADEA CCI; nearly half of dental schools had a moderate to a fully integrated curriculum; 92% provided community-based patient experiences; and 90% provided their students and faculty with IPE experiences.³

Launch of ADEA CCI 2.0

Twelve years after establishment of the ADEA CCI, a new ADEA CCI in dental education has been convened—ADEA CCI 2.0. This new initiative, under the general direction of the ADEA Board of Directors, was introduced by Chair of the ADEA Board of Directors Dr. Cecile Feldman and ADEA President and CEO Dr. Richard Valachovic in their guest editorial titled “Renewing Our Commitment to the Future of Dental Education” in the March 2017 *Journal of Dental Education*.⁴

Why ADEA CCI “2.0”? Similar to the evolution of the Internet into Web 2.0, the ADEA CCI 2.0 hopes to develop more community-generated content and materials to assist programs with change efforts and to promote greater usability of these materials. And where technology speaks in terms of interoperability between websites and products, CCI 2.0 will work to increase collaboration within dentistry and beyond. Whereas the first iteration of the ADEA CCI made the case for change regarding revisions of the dental curriculum and learning environment, the ADEA CCI 2.0 will focus on how changes and trends within several domains of interest external to dentistry are having a global impact on the content and delivery of health care, health professions edu-

cation and research, and ultimately, how health care benefits patients.

The five domains or broad global constructs identified by the ADEA CCI 2.0 are, in no particular order:

- Technology
- Education
- Demographics
- Health care
- Environment

These five domains emerged from a coalescing of critical topics identified by the previous ADEA CCI Oversight Committee at a meeting in Austin, TX, at the 2015 ADEA CCI Liaisons Summer Meeting, which included invited guests from across dental education, practice, and research. These domains will serve as lenses that will guide the work of the ADEA CCI 2.0 as we anticipate and prepare for the future. Within each of these domains lie numerous subtopics that the ADEA CCI 2.0 will explore through various delivery formats such as white papers, webinars, videos, toolkits, and workshops. Table 1 provides a brief look at some topics of interest that demand investigation. Each domain includes links to resources that we hope you will access and reflect upon.

Goals and Directions

What does ADEA CCI 2.0 seek to accomplish? It aims to fully engage faculty members who are critical to advancing all dental education programs by *providing development opportunities for them to become effective change agents as they engage with change*. We believe that our colleagues in dental education, clinical practice, research, health care, and health professions education are best at determining the changes necessary to optimally position dental education for the future. The role of the ADEA CCI 2.0 will be to provide our colleagues the best evidence available regarding specified domains and topics. Through a semi-structured process of self-assessment, collaboration, and debate, nurtured within a learning community, the ADEA CCI 2.0 aims to forge the knowledge of our colleagues into a path forward. Why attempt to achieve the futile by attempting to predict the future when we can shape it together instead?

Although during this process multiple paths toward the future may emerge, this is not a bridge to nowhere. The destination of this journey can be characterized by these three new goals that guide our thinking:

1. *Person-centered health care* will become the dominant model in health systems.
2. *Future-ready graduates* from health professions education programs will deliver the health care.
3. Graduates will be educated in a *transformative learning environment*.

The principal work of the ADEA CCI 2.0 will be to create educational and implementation resources and opportunities for our colleagues to contemplate, investigate, and ultimately define these

three goals in relation to their academic dental institutions (Figure 1). Person-centered health care will be the first topic of focus for the ADEA CCI 2.0.

Dental Educators as Change Agents

Although the ADEA CCI is most known for its transformational output that included 23 commissioned articles published in the *Journal of Dental Education* and the ADEA Competencies for the New

Table 1. ADEA CCI 2.0 domains with select topics of interest, trends, and supporting resources

DOMAIN 1: Technology	
<i>Technology Education</i>	
Trends: implementing a continuous learning system, developing lifelong learners	
<ul style="list-style-type: none"> • Personalized adaptive learning • Learning analytics • Simulation-gamification 	
Klass Data. Learning analytics for education (video). 2014. At: www.youtube.com/watch?v=yijkTDwmln8 . Accessed 17 Apr. 2017.	
Josiah Macy Jr. Foundation. Enhancing health professions education through technology: building a continuously learning health system. 2015. At: macyfoundation.org/docs/macy_pubs/JMF_ExecSummary_Final.pdf . Accessed 17 Apr. 2017.	
Adams Becker S, Cummins M, Davis A, et al. NMC horizon report: 2017 higher education edition. Austin, TX: New Media Consortium, 2017. At: cdn.nmc.org/media/2017-nmc-horizon-report-he-EN.pdf . Accessed 17 Apr. 2017.	
<i>Technology Practice</i>	
Trends: data collection and analysis, personalized and population health	
<ul style="list-style-type: none"> • Biomarkers, salivary diagnostics • Sensors • Electronic health record (EHR) 	
Proteus Digital Health. Your health, powered by you (video). 2014. At: youtu.be/-hhOtjdkU34 . Accessed 17 Apr. 2017.	
<i>Technology Communication</i>	
Trends: creating an active online presence, 24/7 access to information and people	
<ul style="list-style-type: none"> • Social media • Crowdsourcing • Telecommunications 	
How CrowdMed works, for medical detectives (video). 2015. At: youtu.be/p4MLF8tgpvk . Accessed 17 Apr. 2017.	
DOMAIN 2: Education (Higher Education and Health Education)	
Trends: engaged and self-directed learners	
<ul style="list-style-type: none"> • Micro-credentialing • Competency-based • Curricular optimization • Open educational resources • Shared services • Blended learning 	
<ul style="list-style-type: none"> • Continuous improvement of health systems • Populations/systems • IPE/collaborative practice/team-based overall health care • Evidence-based • Quality improvement/measuring performance 	
Mintz S. Status report: the future of higher education. Inside Higher Ed. 2014. At: www.insidehighered.com/blogs/higher-ed-beta/future-higher-education . Accessed 17 Apr. 2017.	
Lucey CR. Medical education part of the problem and part of the solution. JAMA Intern Med. At: meded.ucsf.edu/sites/meded.ucsf.edu/files/documents/bridges-curriculum/luceymededprobsolutionjama-im2013.pdf . Accessed 17 Apr. 2017.	

(continued)

General Dentist, what is not often appreciated is the effort and sheer determination of its leadership and the many faculty members, administrators, and others who collaborated within, across, and outside the profession. These efforts reveal the true power of the dental education community.

Dental education, not unlike other health education professions, is often depicted as slow, if not resistant, to change. “At glacial speed” has often

been used to describe our pace of change. Is this really true? Certainly, we have been slow to adopt change, but as evidenced by the work of the ADEA CCI, perhaps it is truer to say that although we *can* be slow to change, when we are determined, swift and effective change can be accomplished and is one of our most valuable assets. In a period of five years, dental curricula and the dental school environment were forever transformed by the efforts and

Table 1. ADEA CCI 2.0 domains with select topics of interest, trends, and supporting resources (continued)

DOMAIN 3: Demographics	
Trends:	
<ul style="list-style-type: none"> • Increased racial and ethnic diversity • “Millennialism” • Women on the rise 	<ul style="list-style-type: none"> • Decline of two-parent household • Shrinking middle class • Global aging
Pew Research Center. 10 demographic trends that are shaping the U.S. and the world. 2016. At: www.pewresearch.org/fact-tank/2016/03/31/10-demographic-trends-that-are-shaping-the-u-s-and-the-world/ . Accessed 17 Apr. 2017.	
How will population change transform our world (video). 2016. At: youtu.be/hDoGq3BaR8M . Accessed 17 Apr. 2017.	
Human age 2.0: shifting demographics (video). 2016. At: youtu.be/xXkV1EW8eiA?list=PLiGXGf3K4NYajhaaoTai01uB3uAKKlc_N . Accessed 17 Apr. 2017.	
DOMAIN 4: Health Care	
Trends: more engaged patient, greater access, more responsive delivery	
<ul style="list-style-type: none"> • Commodification • Reactive to preventive • Volume to value • Ubiquitous connectivity • Consolidation 	<ul style="list-style-type: none"> • Affordable Care Act (ACA) • Collaborative practice • Big data • Personalized • Focus on aging
Ronanki R, Jonash B. The convergence of health care trends: innovation strategies for emerging opportunities. 2016. At: www2.deloitte.com/us/en/pages/life-sciences-and-health-care/articles/convergence-health-care-trends.html . Accessed 17 Apr. 2017.	
Kaiser Permanente. The imagining healthcare anywhere vision (video). 2013. At: youtu.be/NZm5gIkhgE . Accessed 17 Apr. 2017.	
DOMAIN 5: Environment	
<i>Environment: Climate Change</i>	
Trends: increased temperatures, precipitation/weather extremes, sea level rising	
<ul style="list-style-type: none"> • Health outcomes • Heat-related illness • Cardiopulmonary illness 	<ul style="list-style-type: none"> • Food/water/vector-borne disease • Mental health consequences and stress
Crimmins A, Balbus J, Gamble JL, et al., eds. The impacts of climate change on human health in the United States: a scientific assessment. U.S. Global Change Research Program. 2016. At: dx.doi.org/10.7930/J0R49NQX . Accessed 17 Apr. 2017.	
Natural Resources Defense Council. This is what climate change looks like 3.0 (video). 2014. At: youtu.be/Bry-Flk2S2c . Accessed 17 Apr. 2017.	
<i>Environment: Political Landscape, Local and Global</i>	
Trends:	
<ul style="list-style-type: none"> • Rise of populism • Dysfunctional Congress • States’ power • Local and state professional licensing boards 	<ul style="list-style-type: none"> • Federal Trade Commission • Accreditation • Citizens United decision
Rauch J. How American politics went insane. The Atlantic, July/August 2016. At: www.theatlantic.com/magazine/archive/2016/07/how-american-politics-went-insane/485570/ . Accessed 17 Apr. 2017.	
Sparer M. The politics of health: from the ACA to ACOs (video). 2015. At: youtu.be/KXAM4SshWCs . Accessed 17 Apr. 2017.	

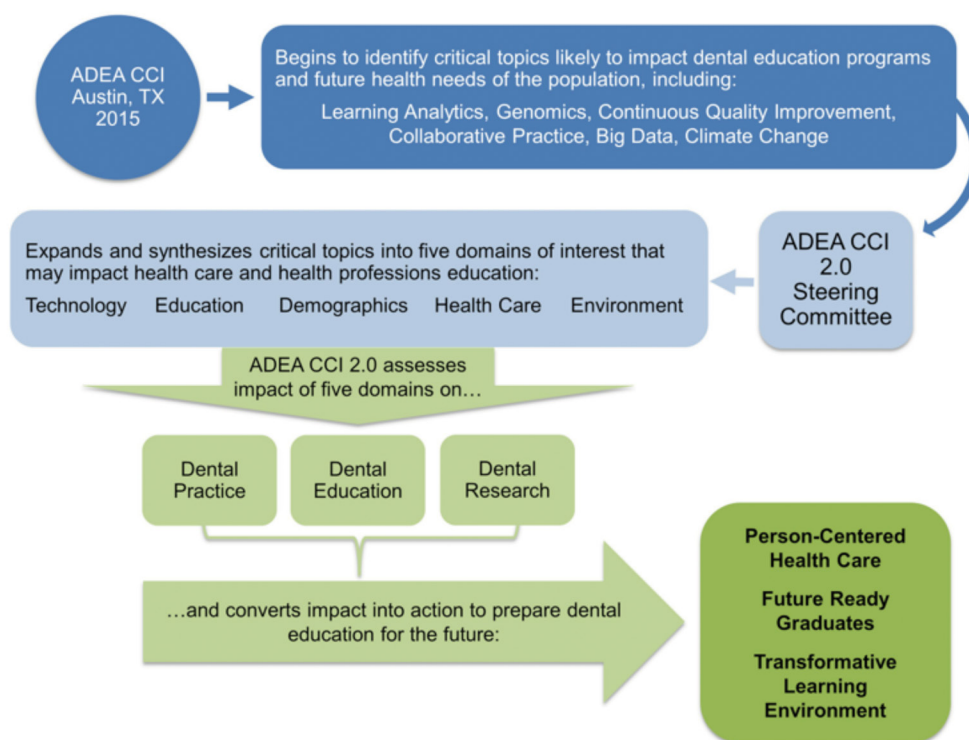


Figure 1. Development of ADEA CCI 2.0 and its five domains of interest

output of the original ADEA CCI. The fact that the phrase “if you’ve seen one dental school, you’ve seen one dental school” has become a veritable aphorism further proves that innovation is in our nature. Imagine what dental education could do if we leveraged this proclivity by crowdsourcing our innovative tendencies.

Our profession can adapt to change when we desire to, but it takes our concerted effort as a profession to lead change—a will that lives in almost every academic dental institution leader and educator. It is the same passion that drove many of us as individuals from private practice, advanced education programs, and research labs to the dental school lab, clinic, and classroom. It is the desire to share with our students and residents—our future colleagues—what we have learned from practice and from life. To imbue them with everything we thought should have been the dental school experience we expected, but at times may have fallen short of our expectations. To ensure that our students and residents enter the world ready to carry forward the mission of our profession so elegantly defined by Dr. William J. Gies in his 1926 Carnegie report: that dentistry is a learned, healing

profession and an essential part of overall health.⁵ We must ensure our graduates are ready to care about people and their well-being; ready to improve the state of oral health and access to oral health for all people; and, finally, ready for the future, whatever it may bring, so that whichever career paths our students and residents take, they are prepared to live successful and joyous lives as dental professionals who are also collaborative members of an interprofessional health care team.

ADEA CCI 2.0 Charge, Structure, and Operations

The ADEA CCI 2.0 is a broad-ranging, interconnected, flexible, and multifarious learning community of stakeholders situated within and across all facets of health education and practice. Our charge is clear—the ADEA CCI 2.0 will:

- Facilitate sharing and engagement with ADEA members and stakeholders by providing opportunities for connecting with colleagues using both traditional and innovative technologies.

- Produce compelling resources that reflect and support emerging trends and practices and are designed to impact dental and other health education stakeholders.
- Strengthen, and further enhance, dental education's critical role in establishing oral health as an integral part of overall health and dental professionals as essential members of the entire health care team.
- Produce and disseminate practical tools that will help the dental education community build capacity for change and innovation.

In addition to this charge and to ensure a state of continuous quality improvement, the ADEA CCI 2.0 will operate under three prevailing conditions: responsiveness, practicality, and collaboration. All efforts will be designed to be:

- *Responsive*: to remain current as well as forward-focused, the Commission must be sufficiently agile to respond to immediate issues and change course if necessary.
- *Practical*: the knowledge produced by the Commission must have practical application that stakeholders can understand and apply to their everyday issues.
- *Collaborative*: the Commission must not function in a silo but instead should be collaborative in its

efforts by maintaining an integrated network of communication with all stakeholders—intraprofessionally and interprofessionally.

Component Groups and Plan of Engagement

The ADEA CCI 2.0, when fully constituted, will be comprised of five component groups. The first three groups, to be known as the Commission, are 1) a Steering Committee, 2) Knowledge Teams, and 3) Liaison Work Groups (Figure 2). Two additional groups—the academic dental and health community and the practice and community partners—complete the full vision of the ADEA CCI 2.0.

ADEA CCI Steering Committee. The ADEA CCI Steering Committee (ADEA CCI SC) is comprised of six to 12 dental and health professions experts who will commit to serving a minimum of two years. Its charge is as follows: The ADEA CCI SC will be responsible for overall strategy and direction of the Commission's work. This includes:

- Identifying topics for investigation that support innovation and change in dental and health professions education.
- Collaborating with ADEA to define processes to achieve change in dental education.

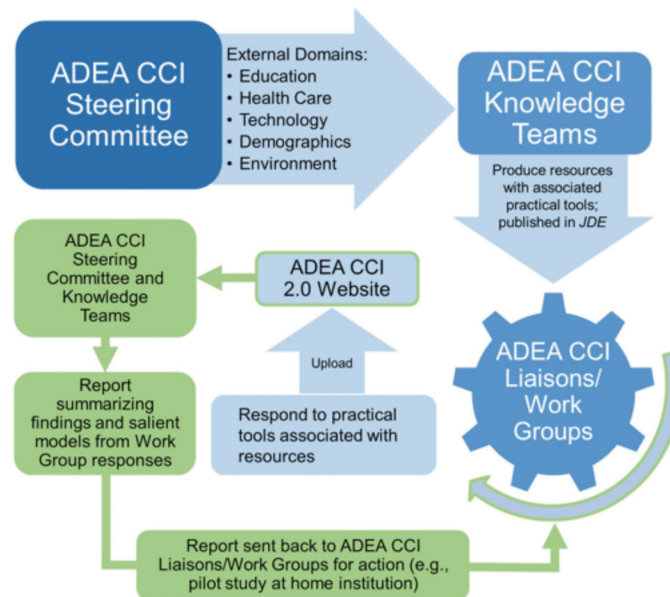


Figure 2. Structure and processes of ADEA CCI 2.0 Commission

- Providing substantial intellectual contribution as a lead author or lead person of a topic-specific Knowledge Team.
- Identifying the best experts from within and beyond dental education to serve on Knowledge Teams.
- Shepherding the development of new resources to completion.

The current ADEA CCI SC has six members, who are coauthors of this article. The three ADEA staff members listed are ex-officio members. The size and composition of the ADEA CCI SC has the flexibility to grow and change members to meet ongoing needs and expertise.

ADEA CCI Knowledge Teams and Liaison Work Groups. ADEA CCI Knowledge Teams will be small groups of topic experts, identified by members of the ADEA CCI SC, who will be commissioned to research and produce scholarly white papers and practical tools that will provide evidence-based information for the community. ADEA CCI SC members will manage the work of the Knowledge Teams.

The ADEA CCI Liaisons will play the critical role of organizing their home institution communities to engage around various tools provided with each commissioned resource. ADEA CCI Liaisons are faculty members from each of the 66 U.S. and ten Canadian dental schools who serve as their institutions' "change and innovation" experts. ADEA CCI Liaisons will lead their home institution communities in conversations regarding the information provided in the most currently released resource and will assemble and manage work groups within their institutions in responding to the associated tools. The ADEA CCI Liaison Work Groups will be comprised of additional interested faculty members and students selected by the ADEA CCI Liaisons to engage with and respond to the topics and tools created by the ADEA CCI Knowledge Teams. All completed tools and worksheets will be relayed back to the ADEA CCI SC and Knowledge Teams via an electronic database situated on the ADEA website.

Currently, ADEA has requested that the dean of each of the 76 North American dental schools identify two or more liaisons to represent their institution. ADEA CCI Liaisons have traditionally been faculty members from predoctoral programs. However, beginning July 2017, all dental schools that have an allied dental or advanced education dental program onsite or through affiliation will be asked to identify at least one allied dental and one

advanced dental educator to join the liaison team. The 2017 ADEA CCI Liaisons Summer Meeting will be held June 6-8 in Baltimore, MD, and will engage liaisons in how to be effective change facilitators at their institutions.

ADEA CCI Knowledge Teams will analyze the data received by each academic dental institution, similar to the process of crowdsourcing, and then share the most salient findings with the community, preferably in models that can be tested back at the ADEA CCI Liaison Work Group institution. Once the ADEA CCI Knowledge Team has completed its assigned work, that group will "spin off," and another ADEA CCI Knowledge Team will be sought to commence research on a new topic that will become the focus of the ADEA CCI Liaisons' next project. Multiple ADEA CCI Knowledge Teams may be functioning simultaneously.

Academic dental and health community and practice and community partners. External to the Commission but essential to the success of the ADEA CCI 2.0 mission, the academic dental and health community and numerous other community partners are also part of the ADEA CCI 2.0 enterprise. The level of involvement of these communities will depend on common interests in various subtopics on which the Commission is focused. Members of these groups will also serve on reactor panels that will provide the Commission feedback and insight necessary to maintain continuous quality improvement.

The ADEA CCI academic dental and health community includes all predoctoral, allied dental, and advanced dental education members, other health professions education associations and institutions, and other health professions education experts. The ADEA CCI practice and community partners include, but are not limited to, organizations such as the ADA, the American Dental Hygienists' Association (ADHA), CODA, the American Association for Dental Boards (AADB), the JCNDE, and the ADA CDEL. In addition, feedback from other health professions such as medicine, nursing, and pharmacy, as well as non-health professions such as law, business, and engineering, will be sought and valued.

Input from Reactor Panels

To adhere to the conditions of our charge regarding continuous quality improvement, the draft manuscript of this article was circulated to over 300 individuals in the health professions education, practice, and research communities, in the form of

in-person, email, and virtual reactor panels. The feedback has been robust, and many of the suggestions and critiques from the community have been adopted into this final article. Several highly significant changes include prominently identifying dental research as a critical aspect of the profession that is being impacted by change, combining climate and political landscapes into one domain titled “environment,” and addressing the impact of finances and resources on the viability of emerging innovative ideas.

It was clear from responses from the reactor panels that finances and resources necessary to implement innovation are a primary concern for our community and critical for its success and sustainability. Although in the original conception of this process, finances were considered a cross-cutting theme that impacts all innovation, there was no identified method to assess the financial impact on outcomes. To rectify this issue and ensure that any outcomes from this process are properly assessed for cost in dollars and human resources, the ADEA CCI 2.0 will convene a Finance Knowledge Team. The charge for this team will be to consider the financial challenges and opportunities created by each innovative model that emerges from the ADEA CCI 2.0 process.

Core Beliefs and Conclusion

Change is here. The five domains identified by the ADEA CCI 2.0 are already impacting our global society in significant ways. How these forces will shape the health care, education, and research landscape and how dental education can best respond to and influence these forces are still in play. The ADEA CCI 2.0 believes that each academic dental institution holds the capacity to investigate, discuss, and debate how its community will accommodate, innovate, or simply remain unperturbed by changes in these domains. In other words, each dental education institution will have the opportunity to determine how to respond—or not respond—to changes. By producing and disseminating tools related to the ADEA CCI 2.0’s scholarly output, the Commission will be tasked to take a learning community on a journey of collaborative discovery as we contemplate the changing world and its current and potential impact on our profession. The following core beliefs of the Commission will guide the direction of its output:

- All academic dental institutions provide successful models of producing competent health care providers.
- Change is best accommodated when all are engaged in the process.
- Every dental educator possesses a strong potential for successful change and innovation.
- Instead of predicting a singular future, dental educators are key players in creating the future.
- Investing in faculty development is a key component of institutional change and success.
- Allied dental and advanced dental education are both critical to the success of this project.
- There is less resistance to change when we are inspired to create a better future rather than compelled to change because past and current paradigms are no longer working.
- Everything you have read in this article may change. Actually, we are certain some of it will.

It is our belief that the golden age of dental education and practice does not reside in the past, nor is it waiting for us in the distant future—it is here in the present. Change is here. As we encounter change, aspects will be perplexing, enlightening, painful at times, and rewarding, but change will always be present. Our patients rely on us to continue to seek innovative ways to improve their health and quality of life. Our students and residents look to us to provide them with the knowledge, skills, tools, and behaviors necessary to not only deliver exceptional care, but to ensure the investment they make in dental education results in a perspective toward health that will buoy a career built to endure. The ADEA CCI 2.0 believes that this is possible by leveraging the power of our unified determination.

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