

August 2, 2017

Dr. Martha J. Somerman
Director
National Institute of Dental and Craniofacial Research
31 Center Drive, Room 2C39
Bethesda, MD 20892-2190

Dear Dr. Somerman:

On behalf of our 161,000 members, we would like to thank you for the opportunity to comment on the National Institute of Dental and Craniofacial Research's (NIDCR) strategic visioning initiative: NIDCR 2030. The project is designed to shape the direction of dental, oral, and craniofacial research over the next 15 years.

On May 12, the ADA Council on Scientific Affairs submitted the enclosed ideas to help NIDCR reach three of its five visionary goals: Oral Health + Overall Health, Precision Health, and Workforce Diversity. The ideas were taken directly from the ADA's biennial Research Agenda, which highlights the most pressing knowledge gaps affecting the practice of dentistry and the oral health of the American public.

As NIDCR staff and other subject matter experts begin reviewing these ideas, we ask you to give special consideration to our second recommendation: To emphasize research on dental caries, periodontal disease, and oral cancer. It would necessarily involve developing new and improved dental materials and biomaterials for use at the point of care.

Dental caries and periodontal disease are the most prevalent oral diseases¹⁻², and oral cancer can be life threatening. Unfortunately, the pace of public domain dental materials research has slowed in recent years, particularly when it comes to developing novel materials and biomaterials to treat these conditions.

For example, silver diamine fluoride varnish holds promise as a caries prevention agent. The Food and Drug Administration has approved it as class II medical device for relieving dentinal hypersensitivity; however, a search of ClinicalTrials.gov reveals few investigations into its use as a caries prevention agent.

For the practicing dentist, it is vital to have the best available materials and biomaterials to treat the most prevalent oral diseases at the point of care. NIDCR 2030 is an opportunity to expand on the dental materials research that is truly important to practicing dentists and the patients they serve.

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We look forward to working with you on this initiative. If you have any questions, please contact Mr. Robert J. Burns at 202-789-5176 or burns@ada.org.

Sincerely,

/s/

Gary L. Roberts, D.D.S.
President

/s/

Kathleen T. O'Loughlin, D.M.D., M.P.H.
Executive Director

/s/

Jeffrey A. Platt, D.D.S., M.S.
Chair, Council on Scientific Affairs

/s/

Marcelo Araujo, D.D.S., M.S., Ph.D.
Vice President, Science Institute

GLR:KTO:JAP:MA:rjb
Enclosure

¹ Young DA, Featherstone JD, Roth JR. Curing the silent epidemic: caries management in the 21st century and beyond. J Calif Dent Assoc 2007;35(10):681-5.

² Eke PI, Dye BA, Wei L, et al. Update on prevalence of periodontitis in adults in the United States: NHANES 2009 to 2012. J Periodontol 2015;86(5):611-22.

On May 12, 2017, Dr. Jeffrey Platt, Director of the ADA Council on Scientific Affairs (CSA), submitted the following ideas for NIDCR 2030 using the campaign's online comment platform, IdeaScale. The ideas were taken directly from the ADA Research Agenda for 2017-2018, which was developed by the Research Subcommittee and approved by the CSA in February 2017.

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#1 Build the supporting infrastructure for oral health research. (WORKFORCE DIVERSITY)

Description

Strengthen the nation's investment in the oral health research infrastructure and increase the number and scope of oral health research collaborations across the health sciences at all research institutions, including federal agencies, academic institutions, industry and private non-profit organizations.

What research questions need to be answered to achieve this goal?

The Council on Scientific Affairs defined the following research objectives in its Research Agenda for 2017-2018, which would contribute toward addressing this goal:

- Expand the oral health research infrastructure across the research continuum to facilitate research conduct and scholarly activity by dental school faculty members to support their successful career development and scientific contributions, thus enabling them to further contribute as role models and mentors for dental students, residents, graduate students and post-doctoral fellows.
- Encourage oral health research funding opportunities to enable more multidisciplinary and interprofessional longitudinal studies. This objective also supports the inclusion of dental measures in longitudinal studies, interprofessionalism in the development of longitudinal studies, and proper inclusion and utilization of the National Institute of Dental and Craniofacial Research in these studies.

How do you propose to answer these research questions?

In developing the ADA Research Agenda for 2017-2018, the ADA Council on Scientific Affairs (CSA) identified significant gaps in the current infrastructure for oral health research, including declining levels of research funding in real terms over the past two decades, and few programs or facilities with sufficient levels of faculty, equipment or technology to support basic and clinical research investigators.

Establishing a stronger oral health infrastructure is a primary objective of the ADA Research Agenda for 2017-2018, and this includes the development of a diverse, well-trained research workforce to advance oral health care over the long term. To address this objective, the ADA Council on Scientific Affairs can work in partnership with other organizations, including NIDCR, to promote increased financial support to build the oral health research infrastructure and obtain direct funding for the research priorities presented above, which are included in the ADA

Research Agenda for 2017-2018 (available at the above website). The Council also recognizes that in order to conduct multi- and interdisciplinary research, dental schools and the dental research community must work collaboratively and with adequate financial resources to strengthen development of a trained, diverse research workforce with understanding of interprofessional education and care.

#2 Emphasize research on caries, periodontal disease, and oral cancer. (ORAL HEALTH + OVERALL HEALTH)

Description

Secure long-term support for basic, clinical and translational research addressing caries, periodontal disease and oral cancer.

What research questions need to be answered to achieve this goal?

The Council on Scientific Affairs defined the following research objectives in its Research Agenda for 2017-2018, which would contribute toward addressing this goal:

- Enable oral health researchers to better promote the relevance of oral health to the overall well-being and health of individuals and populations, and ensure that oral diseases, oral health quality-of-life outcomes, and social determinants of health are integrated into health studies and initiatives. Whenever possible and relevant, oral health components should be established as important priorities during all stages of broad-scale research studies and initiatives to ensure the inclusion of the relevance and impact from oral health research.
- Explore the role and complexity of human oral microbial ecology in the etiology and pathogenesis of dental caries, periodontal diseases and oral cancer.
- Promote studies on safe, novel restorative materials and biomimetic materials for oral and craniofacial health care, including the restoration and regeneration of hard and soft tissues affected by trauma, disease and developmental defects.

How do you propose to answer these research questions?

This research objective needs to be addressed collectively by the oral health research community, and can only be accomplished by securing direct financial support for each area of research over the long term. Investigations of human oral microbial ecology in the etiology and pathogenesis of dental caries, periodontal diseases and oral cancer can expand understanding of the oral microbiome and the complex host-microbiome interactions in health and disease (e.g., genetic/environmental factors, impact of dietary exposures or lifestyle choices). Expanded research and innovation in these areas can facilitate the incorporation of oral biodevices in the detection and monitoring of disease. Development of safe, novel restorative materials and biomimetic materials can also enhance the provision of cost-effective and clinically effective restorative care, as well as the restoration and regeneration of hard and soft tissues affected by trauma, disease and developmental defects.

#3 Support longitudinal studies to improve disease prevention, care. (ORAL HEALTH + OVERALL HEALTH)

Description

Secure support for long-term longitudinal studies aimed at improving the diagnosis, prevention and treatment of oral diseases and conditions. Such studies include the analysis of electronic health record data, as well as dental and medical claims data, to assess and improve treatment outcomes in dental patients across their lifespan.

What research questions need to be answered to achieve this goal?

The Council on Scientific Affairs defined the following research objectives in its Research Agenda for 2017-2018, which would contribute toward addressing this goal:

- Expand funding to support integration of dental electronic health record systems with medical systems, with the goal of promoting the integration of oral health care within the overall health care system.
- Promote “big data” and health services research, including the use of dental practice-based research network and/or large clinical databases, to improve oral health surveillance and oral disease monitoring.

How do you propose to answer these research questions?

Securing funding for long-term longitudinal studies is a primary goal of the ADA Research Agenda for 2017-2018. The Council on Scientific Affairs will continue to work in partnership with internal agencies and external organizations to advocate for direct funding of this research objective (through federal agencies or other stakeholders). Expanded evaluation of patient-oriented oral health outcomes will require further integration and investigation of diagnostic codes and performance measures to facilitate detailed assessment of dental treatment outcomes (in individual patients and at the population level). Advancing the above research objectives will require multidisciplinary “big data” and health services research collaborations, with the goal of improving oral health surveillance and oral disease monitoring over time.

#4 Advance precision health for oral conditions. (PRECISION HEALTH)

Description

Promote studies on the pathogenesis of dental caries, periodontal diseases and oral cancer to advance precision health and establish foundational knowledge for risk-based prevention and therapies.

What research questions need to be answered to achieve this goal?

The advancement of precision health requires further investigation of the molecular basis of—and the genetic variations involved in—oral diseases, including caries, periodontal disease, oral cancer and other conditions. The research community must expand understanding of the

complex host-microbe interactions within the oral cavity, which can also facilitate development of individually tailored therapeutics, diagnostics and treatments to optimize oral health. “Precision health” research should also improve understanding of the underpinnings of inflammatory responses to include the innate immune response, neuroinflammatory pathways and epithelial barrier functions, with the goal of developing applications for individual and population health.

How do you propose to answer these research questions?

Support longitudinal studies with participants grouped according to genetic characteristics, with the goal of developing applications for individual and population health. As noted in a separate research idea (submitted by CSA to the NIDCR 2030 website), there is an urgent need for increased financial support for long-term, longitudinal studies to improve disease prevention and care, and for the advancement of precision health. Expanded research on the oral microbiome in health and disease, as well as genetic factors and salivary biomarkers associated with oral diseases and overall health, can provide the necessary scientific foundation for the future provision of personalized, preventive and risk-based interventions and treatment in clinical settings.

#5 Promote integration of principles and practices of evidence-based dentistry. (ORAL HEALTH + OVERALL HEALTH)

Description

Support and advance translational research designed to identify and overcome barriers to the adoption and delivery of known effective preventive and therapeutic interventions.

What research questions need to be answered to achieve this goal?

The Council on Scientific Affairs defined the following research objectives in its Research Agenda for 2017-2018, which would contribute toward addressing this goal:

- Promote the integration of principles and practices of evidence-based dentistry within the rapidly changing scientific foundation of precision health care, and seek inclusion of dentistry in this scientific foundation, such as within the auspices of the Precision Medicine Initiative.
- Fund research that seeks to identify barriers to: (a) the diffusion of new knowledge, (b) the implementation of effective treatments, and (c) the identification and deimplementation of ineffective treatments.
- Support the development and application of evidence-based guidelines, and promote research on the adoption and use of the most appropriate and cost-effective treatments in clinical practice.

How do you propose to answer these research questions?

The Council on Scientific Affairs (CSA) works collaboratively with the ADA Center for Evidence-Based Dentistry (EBD) to educate the dental profession about the principles and practices of

EBD, and to develop evidence-based guidelines for use in clinical practice. The Council encourages NIDCR and other NIH institutes to provide funding support for the development and application of evidence-based guidelines, expanded study on implementing risk-factor assessment for common oral conditions (e.g., caries, periodontal disease) and evaluation of patient-oriented outcomes, and research on the adoption and use of the most appropriate and cost-effective treatments in clinical practice. The Council also supports clinical and translational research that aims to identify the most efficient avenues of transferring new knowledge and technology into the dental practice community.