

August 31, 2026

Jennifer Webster-Cyriaque, DDS, PhD
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National Institutes of Health,
31 Center Drive,
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Re: Request for Information on National Institute for Dental and Craniofacial Research Strategic Plan for Fiscal Years 2027 - 2031.

via website: <https://www.nidcr.nih.gov/about-us/strategic-plan/not-de-26-015>

The American Association for Dental, Oral, and Craniofacial Research (AADOOCR) is the leading professional community for multidisciplinary scientists who advance dental, oral, and craniofacial research. AADOOCR appreciates National Institute of Dental and Craniofacial Research's (NIDCR) efforts to gather broad stakeholder input to inform the development of its Strategic Plan for Fiscal Years 2027–2031. To respond to this request, AADOOCR engaged members of its Science Information Committee, Friends of NIDCR and its Board of Directors.

AADOOCR strongly supports NIDCR's mission to advance fundamental knowledge about dental, oral, and craniofacial health and disease and to translate these findings into prevention, early detection, and treatment strategies that improve overall health across the lifespan. As NIDCR considers its next strategic directions, AADOOCR encourages continued investment in fundamental, clinical, population, translational, and implementation research that reflects the complexity of oral health as both a biological and public health priority.

1. Dental, Oral, and Craniofacial (DOC) Research

AADOOCR encourages NIDCR to expand the scientific focus from understanding oral diseases to also understanding the biological, behavioral, environmental, and health-system factors that maintain oral health. NIDCR has made major contributions to understanding the mechanisms underlying DOC diseases through investments in microbiology, microbiome science, immunology, genetics, epidemiology, and clinical research. The next frontier should build on these strengths by advancing a more integrated understanding of oral health, biological resilience, disease susceptibility, and treatment response^{1,2}.

AADOOCR encourages NIDCR to prioritize research within the following areas:

- **Oral health maintenance and resilience across the lifespan.** NIDCR should fund research that advances the understanding of biological, behavioral, environmental, and health-system factors that maintain oral health and prevent disease across the lifespan. In addition to continued investment in disease mechanisms, NIDCR should support studies that examine oral homeostasis, and the mechanisms through which some individuals remain healthy despite microbial, behavioral, environmental, or systemic risk exposures. This research could create new opportunities for precision prevention, earlier intervention, and reduced disease burden.
- **Fluoride, community water fluoridation, and prevention science.** NIDCR should continue to support research on evidence-based caries prevention, including fluoride delivery approaches and community water fluoridation. AADOCR encourages leveraging large, longitudinal, population-based datasets to monitor and affirm the safety, effectiveness, and equity impact of community water fluoridation. This research should include exposure assessment, oral health outcomes, neurodevelopmental and systemic health outcomes where appropriate, and subgroup analyses that can inform evidence-based communication, public health decision-making, and community trust.
- **Mercury-free and sustainable restorative materials.** NIDCR should prioritize research and development of safe, durable, affordable, and environmentally sustainable mercury-free restorative materials. Continued investment is needed in restorative materials that are clinically appropriate across diverse populations and care settings, including high-caries-risk patients and environments with limited clinical infrastructure. Research should also address emerging concerns related to plastic exposure, bisphenol A derivatives, material degradation, longevity, cost-effectiveness, and waste management.
- **Systems biology of the oral cavity.** The oral cavity should be recognized as a dynamic biological interface between the body and the external environment. Future research should emphasize interactions among host biology, microbial ecology, immune regulation, metabolism, aging, medications, lifestyle, environmental exposures, and behavior.
- **Precision prevention and predictive biomarkers.** AADOCR encourages investment in biomarkers that predict disease initiation, progression, recurrence, treatment response, and long-term health trajectories. This should include non-invasive biomarkers from saliva, gingival crevicular fluid, oral epithelial cells, imaging, and digital technologies^{3,4}.

- **HPV-associated oropharyngeal cancer and oral cavity cancer.** NIDCR should continue strengthening research on HPV-associated oropharyngeal cancer, including pre-treatment biomarkers that identify tumors amenable to treatment de-escalation, strategies to sensitize tumors to radiation, and the heterogeneity in predictive value of diagnostic tests and treatment response amongst underserved populations^{5,6,7}. AADOCR also encourages research on oral cavity cancer, including systemic effects of oral cancer, predictive biomarkers of radiation resistance, and the effect of stress and depression on patient outcomes.
- **Implementation science and translation.** NIDCR should continue prioritizing implementation science to accelerate the translation of discoveries into routine clinical practice, public health programs, and community settings.
- **Orofacial pain and temporomandibular disorders.** NIDCR should maintain and expand investment in pain research, including mechanisms, diagnostics, non-opioid therapeutics, sex-specific differences, comorbidities, and care pathways for chronic orofacial pain and TMDs⁸.
- **Artificial intelligence, data science, and digital oral health.** NIDCR should prioritize AI applications that improve prevention, diagnosis, risk prediction, treatment planning, and disease monitoring. Research should address bias, fairness, privacy, reproducibility, and clinical accountability, with external validation across diverse populations, datasets, imaging systems, and care environments. NIDCR should also support privacy-preserving approaches that enable responsible use of sensitive DOC data.

2. Integration of DOC Research, Data, and Care with the Greater Biomedical Enterprise

AADOCR supports NIDCR's emphasis on integrating DOC research, data, and clinical care with the broader biomedical enterprise. Oral health should increasingly be recognized as an essential component of overall health rather than as a separate research or healthcare domain. Research priorities should encourage collaboration across NIH Institutes and Centers to better understand shared biological mechanisms involving inflammation, immunity, metabolism, aging, cancer, neuroscience, cardiovascular disease, diabetes, and other chronic conditions.

AADOCR recommends that NIDCR prioritize:

- **Integration of dental and medical electronic health records.** NIDCR should support research and infrastructure that enables interoperable dental-medical

records, standardized oral health data elements, and clinical decision-support tools that reflect the bidirectional relationship between oral and overall health.

- **Oral biomarkers in precision medicine.** Saliva, oral tissues, oral microbiome data, imaging, and other DOC measures should be integrated into broader precision medicine efforts. NIDCR's support for these studies could advance early detection, risk stratification, disease monitoring, and minimally invasive diagnostics.
- **Cross-disciplinary collaboration.** AADOCR encourages NIDCR to support multi- and trans- disciplinary studies that go beyond doc science to include other scientific areas such as medicine, engineering, computer science, behavioral science, public health, implementation science, and community partners.

3. DOC Research Capacity

Future DOC research capacity should reflect the increasingly interdisciplinary nature of biomedical science while preserving strong expertise in dental, oral, and craniofacial research. NIDCR should continue investing in clinician-scientists while expanding training in computational biology, artificial intelligence, systems biology, implementation science, digital health, team science, and population health.

AADOCR recommends that NIDCR prioritize:

- **Clinician-scientist development.** NIDCR should continue supporting dental, oral, and craniofacial clinician-scientists through loan repayment, mentored career development awards, protected research time, and pathways that support retention across career stages.
- **Interdisciplinary graduate and postdoctoral training.** Training programs should prepare researchers to work across oral health, medicine, data science, engineering, public health, behavioral science, and implementation science.
- **Shared research infrastructure.** NIDCR should expand shared infrastructure for advanced imaging, multi-omics, digital technologies, biobanking, clinical research networks, community-engaged research, and data science.
- **Mentorship and early-career support.** Strengthening mentoring, career development, and transition awards for early-stage investigators will be essential to sustain the DOC research workforce.

- **Mentor support.** Strong mentors are essential for training the next generation of DOC researchers. NIDCR should develop programs to support mentors and recognize their efforts.
- **Training in responsible AI and data science.** As DOC research increasingly uses AI-assisted tools, NIDCR should support training in algorithmic validity, bias assessment, explainability, reproducibility, privacy, and responsible use of AI in research and clinical translation.

4. DOC Research Operations

AADOOCR encourages NIDCR to continue strengthening research operations that promote scientific excellence, transparency, accountability, and public trust. As DOC research becomes more interdisciplinary, peer review should evolve to ensure that innovative research spanning oral health, medicine, engineering, computational science, and population health receives rigorous and balanced evaluation. At the same time, it remains essential that applications benefit from reviewers with appropriate expertise in dental, oral, and craniofacial science so that scientific significance, innovation, feasibility, and clinical relevance are appropriately assessed.

AADOOCR recommends that NIDCR prioritize:

- **Appropriate DOC expertise in peer review.** Interdisciplinary research should be reviewed by panels that include both methodological experts and reviewers with DOC-specific expertise. This will help ensure that oral health relevance, clinical context, biological plausibility, and translational potential are appropriately evaluated.
- **Reduced administrative burden.** NIDCR should continue working with NIH to reduce unnecessary administrative burden on investigators, especially for early-stage investigators, small research teams, and institutions with limited administrative infrastructure.
- **Flexible and responsive funding mechanisms.** NIDCR should maintain funding mechanisms capable of responding to emerging scientific opportunities, public health needs, technological advances, and urgent research gaps.
- **Patient and community engagement.** Meaningful engagement of patients, caregivers, communities, and practitioners should be encouraged throughout the research process, including priority setting, study co-design, recruitment, interpretation, dissemination, and implementation.
- **Translation into clinical practice and public health.** NIDCR should support research operations that help move discoveries into practice through pragmatic

trials, implementation studies, evidence synthesis, clinical guidelines, communication research, and partnerships with healthcare systems, public health agencies, and professional organizations.

AADOCR appreciates the opportunity to provide input on NIDCR's Strategic Plan for Fiscal Years 2027–2031. The next strategic plan offers an important opportunity to build on NIDCR's scientific strengths while positioning dental, oral, and craniofacial research to meet emerging public health, technological, clinical, and workforce needs. AADOCR would welcome continued engagement as NIDCR develops and implements the next strategic plan.

If you have any further questions, please contact Dr. Makyba Charles-Ayinde, Director of Science Policy, at mcayinde@iadr.org.

Sincerely,



Christopher H. Fox, DMD, DMSc
Chief Executive Officer



Nisha D'Silva, BDS, MSD, PhD
President

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