The American Association for Dental Research (AADR) urges members of Congress to prioritize funding for the National Institutes of Health (NIH) and the National Institute of Dental and Craniofacial Research (NIDCR) in fiscal year (FY) 2020. Specifically, AADR asks members of Congress to support funding levels of at least $41.6 billion for NIH and at least $492 million for NIDCR.

Treating oral health conditions is costly; the nation spent $117.5 billion on dental services in 2015\(^1\) and can expect to spend $185 billion by 2025.\(^2\) While tooth decay and gum disease are the most prevalent threats to oral health, complete tooth loss, oral cancer, and craniofacial congenital anomalies, like cleft lip and palate, impose heavy health and economic burdens on Americans.

NIDCR is the largest institution in the world dedicated exclusively to research to improve dental, oral and craniofacial health. The health of the mouth and surrounding structures is central to a person’s overall health and well-being. Left untreated, oral diseases and poor oral conditions make it difficult to eat, drink, swallow, communicate and maintain proper nutrition. Scientists also have discovered important linkages between gum (periodontal) disease and heart disease, stroke, diabetes and pancreatic cancer.

This year represents an important opportunity to further support and highlight dental, oral and craniofacial research’s contributions given the announcement of the U.S. Surgeon General’s commission of a 2020 Report on Oral Health, a much-needed update to the seminal “Oral Health in America” report from 2000, which taught many that oral health is more than healthy teeth and gums; it is essential to the general health and well-being of Americans.

Below are examples of the important research supported by NIDCR:

- **Point-of-Care Diagnostics**
  Salivary diagnostics are measures that draw and analyze saliva to test for conditions such as HIV, human papillomavirus (HPV), substance abuse, caries (tooth decay), periodontitis and oral cancer. As a result of research supported by NIDCR over the last decade, diagnostics also are showing great promise in screening for diabetes, heart disease, lung cancer, ovarian cancer and pancreatic cancer.

- **Responding to Emerging Threats**
  Research by NIDCR-funded scientists has the potential to respond to emerging threats, such as the Zika

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virus. NIDCR-funded scientists are developing diagnostic tools to detect Zika infections in saliva and are also conducting research to understand how Zika causes birth defects. This research could lead to future treatments.

- **Oral Microbiome**
  NIDCR funds a community resource providing comprehensive information on over 700 different microbial species present in the oral cavity. To reduce and eliminate oral health disparities, research on the oral microbiome in children will help identify those at increased risk of developing early childhood caries.

- **Opioid Crisis**
  As prescribers of opioids, the dental community is an important partner in curbing the opioid epidemic. NIDCR’s research related to opioids includes de-implementation research to stop opioid prescribing practices that are not evidence-based and partnering with dentists across the country via the National Dental Practice-Based Research Network to increase our understanding of how and why practitioners prescribe opioids and identify training gaps in opioid prescribing practices.

- **E-Cigarettes**
  According to the Surgeon General’s Advisory on E-cigarette Use Among Youth, the use of e-cigarettes among middle and high school students increased 900% during 2011-2015, before declining for the first time during 2015. In 2018, more than 3.6 million U.S. youth, including 1 in 5 high school students and 1 in 20 middle school students, used e-cigarettes. Currently, there is no scientific evidence to support the safety of electronic cigarettes, and initial studies indicate that a variety of chemicals and metal particles are produced during the vaporization of nicotine and additives by these devices. To help address this research gap, in 2016 NIDCR funded 7 research projects in 5 different states to investigate the biological impact of e-cigarettes on oral health, including the development of new tools and clinically-relevant model systems to assess their effects on oral and periodontal tissues.

- **Precision Health**
  Precision health is an emerging approach for disease prevention and treatment that takes into account people’s individual variations in genes, environment, and lifestyle. NIDCR supports a diverse precision health research portfolio related to diseases and conditions of the dental, oral, and craniofacial region, including research on cancer; craniofacial developmental disorders; salivary diagnostics; and practice-based networks.

- **Enhanced Tissue Regeneration**
  NIDCR-funded scientists have developed effective techniques to reduce inflammation and enable the use of stem cells to form bone and cartilage for oral, dental, and craniofacial purposes. The isolation and enrichment of stem cells is also being explored, which would enhance the cells’ ability to regrow bone and cartilage. NIDCR recently funded a tissue engineering consortium that uses multidisciplinary teams to translate basic research into innovative tools and strategies to regenerate damaged and diseased tissues.
• **Oral Cancer and Oropharyngeal Cancer**

Even with declining tobacco use, the rate of new cases of oral cancer and oropharyngeal cancer has been rising over the last 10 years. Meanwhile, the death rate from oral cancer and oropharyngeal cancer has not changed. Public health researchers are particularly concerned by the rising rates of HPV-related oropharyngeal cancer, and scientists predict that oropharyngeal cancer will be the most common HPV-related cancer by 2020. In fact, HPV is now causing more oropharyngeal cancers than smoking – and it strikes its victims at a younger age. But simply identifying the presence of HPV in a mouth swab or a blood draw does not definitively indicate the presence of cancer. More research is needed for the early detection of HPV-related oropharyngeal cancers as well as oral cancer from other causes, as well as prevention and treatment approaches.

• **Cleft Lip and/or Cleft Palate**

Craniofacial anomalies such as cleft lip and/or cleft palate are among the most common birth defects. Both genetic and environmental factors contribute to oral clefts. Studies supported by NIDCR are providing important new leads about the role genetic factors and gene-environment interactions play in the development of these conditions.

• **Evidenced-Based Practice**

NIDCR awarded a seven-year grant that consolidates its dental practice-based research network initiative into a unified nationally coordinated effort. The consolidated initiative, the National Dental Practice-Based Research Network (NDPBRN) is headquartered at the University of Alabama at Birmingham School of Dentistry. A dental practice-based research network is an investigative union of practicing dentists and academic scientists. The network provides practitioners with an opportunity to propose or participate in research studies that address daily issues in oral health care. These studies help to expand the profession’s evidence base and further refine care.

• **Oral Health Disparities**

NIDCR supports a broad portfolio of research strategies to reduce and eliminate oral health disparities. The Institute in 2015 funded a new consortium that will combine health promotion and disease prevention, community-based participation, and multilevel interventions to take decisive action to reduce oral health disparities in vulnerable children. Some of the innovative strategies include the use of interactive parent text-messaging, social networks, and financial incentives.

For additional information, contact AADR Assistant Director of Government Affairs Lindsey Horan at lhoran@iadr.org