

Director's Report to the National Advisory Dental and Craniofacial Research Council May 2020

HHS/NIH UPDATE

[NIH Offers COVID-19 Information & Resources.](#) An NIH COVID-19 microsite offers a curated collection of information and resources about the status of the outbreak, including the latest CDC information and guidance, NIH research on the novel coronavirus, information for NIH applicants and recipients, NIH guidance on travel and meetings, and other federal government resources. The information is updated regularly. The site also provides a link for users to sign up for COVID-19 email updates from NIH.

[NIH Launches Public-Private Partnership to Speed COVID-19 Vaccine & Treatment Options.](#) NIH and the Foundation for the NIH are bringing together biopharmaceutical companies, HHS partners, and the European Medicines Agency to develop a coordinated research response to the COVID-19 pandemic. The planned Accelerating COVID-19 Therapeutic Interventions and Vaccines partnership will provide infrastructure, subject matter expertise, and/or funding to help move promising vaccine and drug candidates into clinical trials.

[NIH Mobilizes National Innovation Initiative for COVID-19 Diagnostics.](#) On April 29, NIH announced the Rapid Acceleration of Diagnostics Initiative (RADx), which aims to speed innovation, development, and commercialization of COVID-19 testing technologies. NIH, working closely with the US FDA, CDC, and the Biomedical Advanced Research and Development Authority, will put rapid testing technologies through a highly competitive, three-phase selection process to identify the best candidates for at-home or point-of-care tests for COVID-19. The goal is to make millions of accurate, easy-to-use tests per week available to all Americans by the end of summer 2020, and even more by flu season. NIH urges scientists and inventors working on rapid testing technology to compete in the national challenge for a share of up to \$500 million over all phases of development.

[NIAID Strategic Plan Details COVID-19 Research Priorities.](#) The *NIAID Strategic Plan for COVID-19 Research*, released April 23, outlines the institute's strategy to accelerate research on the diagnosis, prevention, and treatment of COVID-19. The plan highlights four priorities: improvement of fundamental knowledge of SARS-CoV-2 and COVID-19; development of rapid, accurate diagnostics and assays to identify and isolate COVID-19 cases and track the spread of the virus; characterization and testing of potential treatments for COVID-19, and development of safe and effective vaccines to protect individuals from infection and prevent future SARS-CoV-2 outbreaks.

[Expert US Panel Develops NIH Treatment Guidelines for COVID-19.](#) A panel of experts—among them frontline clinicians—has developed [COVID-19 treatment guidelines](#) for healthcare providers. The guidelines, which will be updated as new data are published in peer-reviewed scientific literature, address treatment with antivirals, host modifiers, and immune-based therapies; patient evaluation and stratification based on infection risk and illness severity; critical care; and other topics.

[NLM Expands Access to Coronavirus Literature.](#) The National Library of Medicine is collaborating with publishers and scholarly societies to increase the number of coronavirus-related journal articles in PubMed Central, along with available supporting data. The articles will be in machine-readable formats that will allow artificial intelligence researchers to develop text mining approaches to address questions about coronavirus.

[US Cancer Death Rates Continue to Decline.](#) The Annual Report to the Nation on the Status of Cancer, released March 12, found death rates for most cancers have continued to decline. From 2013 to 2017, death rates for men decreased for 11 of the 19 most common cancers; among women, death rates decreased for 14 of the 20 most common cancers. During the same period, death rates for cancers of the oral cavity and pharynx increased for men and remained stable for women. The report was issued jointly by the National Cancer Institute, CDC, the North American Association of Central Cancer Registries, and the American Cancer Society.

[**Ngai Named Director of NIH BRAIN Initiative.**](#) John Ngai, PhD, has been named director of the Brain Research through Advancing Innovative Neurotechnologies Initiative at NIH. Launched in 2013, the Initiative is a large-scale effort to accelerate the development of neuroscience technologies and revolutionize our understanding of the brain in health and disease. Ngai comes to NIH from the University of California, Berkeley, where he was the Coates Family Professor of Neuroscience.

BUDGET UPDATE

Updated budget information for FY 2020 and FY 2021 will be presented at the council meeting.

NIDCR UPDATE

Institute News

[**NIDCR Announces Availability of COVID-19 Research Funding.**](#) On May 5, NIDCR issued two Notices of Special Interest highlighting the urgent need for research on coronavirus disease 2019. This research may be conducted either [via the National Dental PBRN infrastructure](#) or [independently of it](#). The institute is prioritizing research topics that would have an immediate and high impact on the protection and safety of dental personnel and patients, including prevention of SARS-COV-2 transmission. Answers to [frequently asked questions can be found on the NIDCR website.](#)

[**CDC Offers COVID-19 Guidance for Dental Settings.**](#) Dental health care personnel can find COVID-19-related information on the CDC's Division of Oral Health [website](#), which offers guidance and resources for clinics and health care facilities and recommendations for responding to COVID-19 in dental settings.

[**NIDCR Statement on National Academies TMJD Report.**](#) The National Academies of Sciences, Engineering, and Medicine on March 12 released a report, "Temporomandibular Disorders: Priorities for Research and Care." NIDCR and the NIH Office of the Director commissioned the study to address the current state of knowledge about TMJD research, provider education and training, safety and efficacy of clinical treatments, and TMJD-associated burden and costs. NIDCR's acting Director, Lawrence A. Tabak, DDS, PhD, said in a statement that the report makes clear that despite advances in the field, significant gaps remain in our understanding of the biological mechanisms underlying these complex, painful conditions affecting the jaw. In January 2020, Dr. Tabak announced the development of a TMJD Multi-Council Working Group to be made up of advisory council members from NIDCR and other NIH Institutes and Centers with expertise relevant to TMJD research. The working group will review the report and its recommendations and work to develop strategies that NIDCR and NIH can use to better support research efforts to generate a strong knowledge base and advance TMJD research and care.

NIDCR COVID-19 Stakeholder Activities. Dr. Tabak and NIDCR's Acting Deputy Director Dr. Jonathan Horsford continue to engage with external stakeholders during the COVID-19 pandemic. On April 13, Drs. Tabak and Horsford joined a webinar hosted by the American Association for Dental Research for its stakeholders to discuss NIH and NIDCR COVID-19-related updates. On April 27, Drs. Tabak and Horsford hosted a meeting with external stakeholders to discuss research and training gaps that affect the practice of dentistry and dental schools. Additionally, Dr. Horsford has participated in several calls led by the HHS Chief Dental Officer, RADM Tim Ricks, with federal and private stakeholder groups to discuss the impact of COVID-19 on oral health care in the United States.

NIDCR-Supported Science Advances

[**Scientists Take Targeted Approach to Sjögren's Syndrome.**](#) Using small-molecule inhibitors that act on BMP6 signaling, NIDCR researchers restored salivary function in mouse models of Sjögren's syndrome.

[**A Microbial World on the Top of Your Tongue.**](#) Scientists imaged fluorescently labeled bacteria in intact biofilms scraped from the tongues of 21 healthy human volunteers. Three genera—*Actinomyces*, *Rothia*, and *Streptococcus*—were present in all participants. The prominence of these groups points to their potential importance in essential functions, such as nitrate conversion.

Scientists Develop More Durable Dental Materials. Researchers have developed fillings that are twice as strong and longer lasting than those now used in dental clinics. The next step is to make those fillings more resistant to cavity-causing bacteria without harming the beneficial species that live in the mouth.

A Cancerous Conversation Fuels Oral Tumors. Scientists uncovered a new role for nerves in oral cancer progression, whereby tumor cells send genetic messages that transform nerves into cancer-promoting agents. Targeting this nerve-tumor crosstalk could lead to more effective treatments for people with head and neck cancer.

Cell Machines Pave the Way to Solving a Molecular Mystery. Kenneth Yamada, MD, PhD, and his NIDCR lab have discovered a new type of cellular machinery that plays a critical role in laying down a sticky, fibrous substance called fibronectin. Yamada suspects that the fibronectin deposits assist organ formation during embryonic development and may also contribute to cancer cells' ability to invade tissues.

What Governs Secretion? NIDCR's Kelly Ten Hagen, PhD, and her lab have shown in *Drosophila* that formation of secretory granules depends on a protein called Tango1. These basic science advances could help researchers better understand secretion-related defects that lead to dry mouth disorders.

Personnel Update

Jeff Ventura joins NIDCR as director of the Office of Communications and Health Education. He has held numerous management positions at the FDA within the Commissioner's Office—most recently, as the division chief of regulatory communications for the Center for Tobacco Products. He also worked as an assistant director of public relations for Johns Hopkins Hospital in Baltimore, director of communications for the United States House of Representative's Chief Administrative Officer, and director of communications for CVS Health in Rhode Island. Prior to his career in public affairs, Mr. Ventura was an award-winning journalist whose coverage included Hurricane Katrina for a Louisiana-based paper. Mr. Ventura earned an MS in journalism from Columbia University in New York and an MS in communications from Simmons University in Boston.

Margaret Grisius, DDS, is now director of the Clinical Research and Epidemiology Program in the Center for Clinical Research in the Division of Extramural Research. Dr. Grisius comes to this position after having spent 15 years in NIDCR's Salivary Gland Dysfunction/Sjögren's Syndrome Clinic at the NIH Clinical Center. Dr. Grisius completed her dental training at Georgetown University, a general-practice residency at the Washington, DC Veterans Administration Hospital, and a geriatric fellowship through the University of Pennsylvania department of geriatric medicine and the VA Hospital of Philadelphia. For three years, Dr. Grisius served as an officer in the US Public Health Service stationed at NIH/NIDCR, where she completed an oral medicine fellowship. In 1998 Dr. Grisius accepted an assistant professor position in the department of oral medicine at the University of Pennsylvania School of Dental Medicine; she returned to NIDCR in January 2003 as an associate investigator.

Amanda Melillo, PhD, rejoined the Division of Extramural Research to serve as acting director of the Integrative Biology and Infectious Diseases Branch, and as acting director of the Microbiology Program. Dr. Melillo is no stranger to NIDCR, as she has been a DER program director in previous years. In 2016, Dr. Melillo left NIDCR to join NIH's National Institute of General Medical Sciences to oversee a portfolio of grants in the areas of cell growth and differentiation, and organismal response to environmental stressors. She also codirected the Cellular, Biochemical, and Molecular Sciences Predoctoral Research Training Program, as well as managed the NIGMS Human Genetic Cell Repository. Dr. Melillo earned a bachelor's in biology and biochemistry from the Virginia Polytechnic Institute and State University and a PhD in microbial disease from Albany Medical College in New York. She conducted her postdoctoral research and served as a technology transfer coordinator assistant at FDA.

Jacqueline Mays, DDS, MHSc, PhD, was recently appointed as a tenure-track Lasker Clinical Research Scholar. Dr. Mays joined NIDCR as an assistant clinical Investigator in 2015 as the chief of the Oral

Immunobiology Unit. Her research focuses on the mechanism of oral mucosal and salivary gland destruction in chronic graft-versus-host disease.

Yuanyuan (Kevin) Liu, PhD, joined DIR as a tenure-track investigator and chief of the Somatosensation and Pain Unit. Dr. Liu received his PhD in neuroscience from the University of New York, Albany, in 2012, and recently completed a postdoctoral fellowship at Harvard Medical School in Dr. Zhigang He's lab. Dr. Lui's lab at NIDCR will focus on studying the role of supraspinal circuits in somatosensation and on the mechanism of top-down control in chronic pain.