Director's Report to the
National Advisory Dental and Craniofacial Research Council
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HHS/NIH UPDATE

HHS Secretary Becerra Names Lawrence Tabak Acting Director of NIH. Lawrence A. Tabak, DDS, PhD, was tapped by HHS as the acting director of NIH on December 20. The appointment follows the announcement of Francis S. Collins, MD, PhD, that he was stepping down as NIH director after more than 12 years of service. Prior to his new role, Dr. Tabak served as the NIH principal deputy director, deputy ethics counselor, and NIDCR director from 2000-2010. He received his bachelor's degree from City College of New York, his DDS from Columbia University, and a doctorate from the University of Buffalo.

NIH, FDA Join Private Partners to Increase Gene Therapies for Rare Diseases. NIH and FDA have partnered with 10 pharmaceutical companies and five non-profit organizations to launch the Bespoke Gene Therapy Consortium (BGTC), part of the NIH Accelerating Medicines Partnership program. BGTC aims to optimize and streamline the gene therapy development process to help fill the unmet medical needs of the 25-30 million Americans with rare diseases. NIDCR is one of nine NIH institutes and centers participating in the program.

NIH Builds Network to Study Long-Term Effects of COVID-19. To support large-scale studies on the long-term effects of COVID-19, NIH awarded nearly $470 million to build a national study population of tens of thousands of diverse research volunteers. The award from the NIH REsearching COVID to Enhance Recovery (RECOVER) Initiative will support more than 100 researchers at more than 30 institutions. As part of this effort, NIH in November enrolled the first participant in a long-term study of children and young adults with COVID-19 to track and evaluate the physical and mental effects of the disease.

NIH to Catalyze Data Science Research in Africa. NIH is investing about $74.5 million over five years to advance data science, catalyze innovation, and spur health discoveries across Africa. The Harnessing Data Science for Health Discovery and Innovation in Africa (DS-I Africa) program will establish a data science research and training network across the continent. The 19 awards issued under DS-I Africa were supported in part by NIDCR and other NIH institutes, centers, and offices. The program aims to use data science to develop solutions to the continent's most pressing public health problems.

Research Awards to Advance Health Equity. Disadvantaged populations experience higher rates of certain diseases and more negative health outcomes. To support bold new research ideas that focus on interventions to address these issues, NIH has awarded 11 grants through the Common Fund's Transformative Research to Address Health Disparities and Advance Health Equity initiative. The awards, totaling $58 million over five years, will be administered by NIDCR on behalf of NIH.

NIH Program To Map Rare, Non-Dividing Cells. To study senescent cells, a type of rare and non-dividing cells that plays both positive and negative roles in biological processes, NIH's Common Fund launched the Cellular Senescence Network program. The program aims to identify and characterize senescent cells across the body, in various states of human health, and across the lifespan. A deeper understanding of senescent cells could lead to therapies that encourage the cells' beneficial effects while suppressing tissue-damaging effects.

Vaping Rates Level Off Among College-Aged Adults. Among adults aged 19 to 22, the vaping of marijuana and nicotine leveled off in 2020 after sharp yearly increases since 2017, according to survey results from the Monitoring the Future study, funded by the National Institute on Drug Abuse. Marijuana use in general reached a historic high, but cigarette smoking continued to drop, the researchers found. The percentage of adolescents reporting drug use decreased significantly in 2021, the largest one-year decrease in overall illicit substance use since the survey began in 1975.

NIDCR UPDATE

Institute News

NIH, NIDCR Release *Oral Health in America: Advances and Challenges*. NIDCR announced the release of a new report on oral health, intended as a follow-up to the 2000 *Oral Health in America: A Report of the Surgeon General*. The new report provides a comprehensive snapshot of oral health in America, detailing 20 years of advances and challenges. Drawing on data from public research and evidence-based practices, the report serves as a road map for improving the nation's oral health, highlighting the relationship between oral and overall health, documenting new scientific and technical knowledge and innovations in health care delivery, and offering directions for creating equity in oral health care. A multidisciplinary team of more than 400 experts compiled and reviewed the report.

***Oral Health in America* Report Leaders Pen *Lancet* Commentary**. In a *Lancet* commentary, NIDCR Director Rena N. D'Souza, DDS, PhD, and the co-directors of *Oral Health in America: Advances and Challenges*, Judith Albino, PhD, and Bruce A. Dye, DDS, MPH, outlined findings from the newly released report, which contributes to the increasing global call for better prioritization of oral health, particularly as it relates to inequities in access to care. The authors underscored the importance of renewed initiatives, new investments in research, and updated policies for improving oral health care equity and quality in the United States.

Boldly Forward: NIDCR Charts Five-Year Course. NIDCR has released *Science: Advancing Oral Health for All*, a strategic plan outlining its research and training priorities over five years. The plan highlights tactics and objectives for achieving the strategic priorities, which include: driving scientific discovery and innovation to improve early diagnosis, prevention, and treatment of dental, oral, and craniofacial (DOC) diseases; developing precision treatments for DOC diseases; accelerating implementation of health care practices that reduce health inequities and disparities; nurturing future generations of the DOC workforce; and expanding and creating partnerships to increase the reach of NIDCR research.

Jennifer Webster-Cyriaque Joins NIDCR as Deputy Director. NIDCR welcomed Jennifer Webster-Cyriaque, DDS, PhD, as the institute's new deputy director on December 6. Prior to joining NIDCR, Webster-Cyriaque served as a faculty member for 21 years at the University of North Carolina (UNC) schools of dentistry and medicine, where she practiced dentistry and studied the role of viruses like HIV and herpes simplex virus in oral lesions and cancers. She received her bachelor's and DDS degrees from the University at Buffalo and her doctorate from UNC.

Lynn King Named DEA Director. On January 3, Lynn Mertens King, PhD, was named director of NIDCR's Division of Extramural Activities (DEA). Prior to her new role, King held several other positions within DEA since 2001, including chief of the Research Training and Career Development Branch, chief of the Scientific Review Branch, and scientific review officer. She is a former assistant professor at the University of Miami and received her doctorate from Washington University in St. Louis.

Q&A with Capt. Renee Joskow, NIDCR's New Senior Advisor. Capt. Renee Joskow, DDS, MPH, a dentist and medical epidemiologist, joined NIH as the senior advisor to the NIDCR director on October 24. She shared elements of her professional journey and discussed her new role in a Q&A format. Prior to NIDCR, Joskow served as the chief dental officer at the Health Resources and Services Administration, where she led oral health initiatives and collaborated with stakeholders and colleagues. She earned her DDS and master's in public health from Columbia University and serves in the US Public Health Service Commissioned Corps.

NIDCR Funded Winners of 2021 Nobel Prize in Physiology or Medicine. David Julius, PhD, of UC San Francisco, and Ardem Patapoutian, PhD, of Scripps Research Institute, won the Nobel Prize in physiology or medicine on October 4 for their discoveries of thermal and mechanical receptors. The discoveries provided a foundation for understanding pain and proprioception, offering new opportunities to identify therapeutic targets. Both scientists received NIDCR funding in support of their winning research.

NIDCR-Supported Science Advances

Disarming a Blood-Clotting Protein Prevents Gum Disease in Mice. In a study published in *Science,* a team led by NIDCR's Niki Moutsopoulos, DDS, PhD, and Thomas Bugge, PhD, found that buildup of a blood-clotting protein, called fibrin, triggers an overactive immune response that damages the gums and underlying bone. By blocking fibrin's function, the researchers prevented bone loss in mice with gum disease. The study suggests that suppressing abnormal fibrin activity could hold promise for treating gum disease and other inflammatory conditions marked by fibrin buildup, including arthritis and multiple sclerosis.

New Mechanism May Influence Infectivity of SARS-CoV-2 Variants. Scientists in the lab of NIDCR's Kelly Ten Hagen, PhD, have found an enzyme process in cells that may limit the infectivity of SARS-CoV-2 by adding a bulky sugar molecule that reduces the activation of the spike protein. Mutations in the alpha and delta variants seem to overcome this effect, potentially boosting the virus's ability to spread. The knowledge could inform future efforts to develop new interventions.

Developing a Smart Mask to Surveil Coronavirus. NIDCR-funded researchers demonstrated the feasibility of developing a color-changing "smart" mask to detect viruses like SARS-CoV-2 in wearers' saliva. The masks could one day be used to monitor infection and prevent outbreaks, especially in group settings like nursing homes, rehab facilities, schools, and assembly lines. The project is part of NIH's Rapid Acceleration of Diagnostics Radical (RADx-rad) initiative.

Scientists Identify a Culprit for Chronic Itch. A research team led by NIDCR scientist Mark Hoon, PhD, identified an immune substance called oncostatin M (OSM) that sensitizes and enhances the activity of itch-sensing neurons. In a mouse model of chronic itch, scratching was virtually eliminated by blocking OSM activity, suggesting a therapeutic strategy for persistent itchy skin conditions like psoriasis.

Robotic Massage Helps Regenerate Muscles in Mice. In a recent study funded in part by NIDCR, researchers found that massage therapy performed by a robotic device helped heal severely injured muscles in mice by clearing immune cells from the tissue. The finding adds to evidence that mechanical therapies can aid tissue regeneration.

Personnel Update

Hongen Yin, MD, PhD, MHSc, joins NIDCR's Center for Clinical Research in the Division of Extramural Research as the HIV/AIDS and Oral Health Program director. She received her master's of health science degree in rheumatology and internal medicine from Shangdong University, China, and her MD and doctorate from Peking Union Medical College Hospital, China. Yin came to NIH as a postdoctoral fellow at the National Eye Institute in 2005, joined NIDCR as a research fellow in the lab of John Chiorini, PhD, in 2007, and became a staff scientist in 2015. Her research primarily focused on immune-modulatory gene therapy for Sjögren's syndrome. She has also served as an investigator on a clinical trial testing a gene therapy for irradiation-induced salivary gland hypofunction in head and neck cancer patients. Most recently, Yin worked on development of therapeutics for COVID-19.

Leslie Frieden, PhD, has been tapped as acting chief of the Research Training and Career Development Branch in the Division of Extramural Activities. She received her doctorate from Harvard University and completed postdoctoral training at Vanderbilt University. Frieden joined NIDCR as an extramural training officer in 2008, managing NIDCR's program portfolio of individual fellowships and Pathway to Independence awards. She helped develop the NIDCR Dentist Scientist Pathway to Independence Award and the NIDCR Predoctoral to Postdoctoral Transition Award for a Diverse Dental, Oral, and Craniofacial Research Workforce, as well as organized scientific sessions to feature the work of NIDCR-supported students, postdoctoral fellows, and junior faculty.