



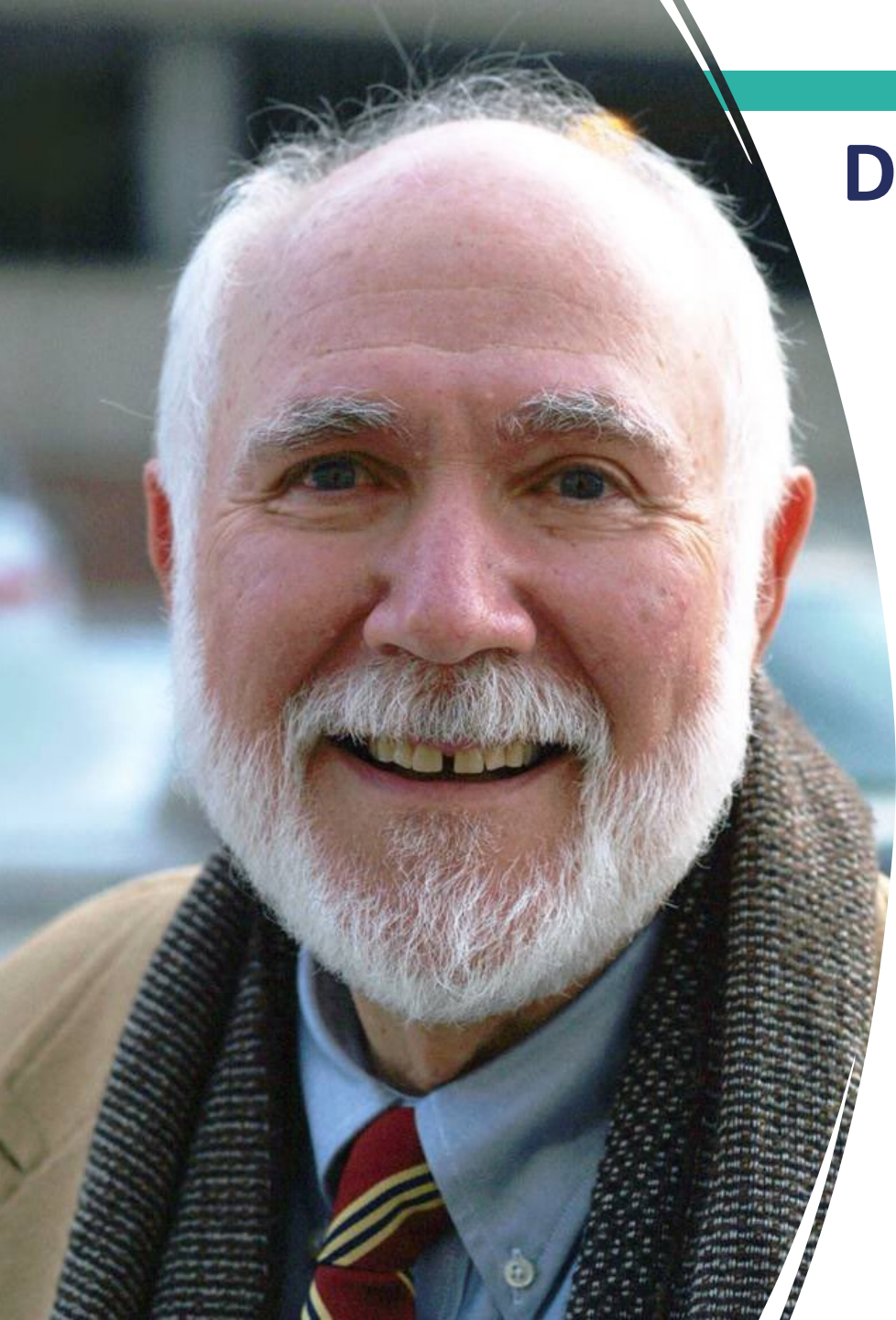
National Institute of Dental
and Craniofacial Research

Director's Report

235th Virtual Meeting of the
National Advisory Dental and Craniofacial
Research Council

Rena N. D'Souza, D.D.S., M.S., Ph.D.

January 24th, 2024



Dr. Harold Slavkin (1938 – 2023)

A Transformative Leader



- 6th Director of NIDR 1995-2000
- Broadened NIDR's research portfolio - renamed **NIDR** as **NIDCR**
- Oversaw strategic plan to reduce racial and ethnic health disparities
- Spearheaded 1st Surgeon General's report on Oral Health in 2000
- Championed efforts for recruiting a diverse research workforce
- Created patient advocates forum
- Founder and director of Center for Craniofacial Molecular Biology, USC – CA
- 1st Graduate Program in Craniofacial Biology

Dr. Harold Slavkin (1938 – 2023)

My Personal Reflections

- Brilliant Orator & Effective Communicator and spokesperson for NIDCR Broadened NIDCR's research portfolio
- Past President of AADR
- Committed Mentor
- Universal Spirit with excellent interpersonal skills
- Pioneered the fields of Craniofacial Biology/Genetics



Topics for Today : *Creating the Future we Seek*

1. Honoring Dr. Harold Slavkin
2. News from NIH's Office of the Director
 - a. New Leadership
 - b. White House Initiative and AllofUs
 - c. Guiding Principles and FY'24 Budget Predictions
3. NIDCR
 - a. Hires and Acknowledgements
 - b. 75th Signature Initiatives
 - c. Funding Decisions of FY'24
 - d. Concept Clearances and New Initiatives



Monica Bertagnoli, MD
Director, National Institutes of Health (NIH)



NIH LEADERSHIP

Previously at NIH

- Director of the National Cancer Institute

Prior to NIH

- 35 years of experience as a cancer surgeon
- Richard E Wilson Professor of Surgery at Harvard Medical School
- Surgeon at Brigham and Women's Hospital
- Member of the Gastrointestinal Cancer Treatment and Sarcoma Centers at Dana-Farber Cancer Institute
- MD from the University of Utah, Bachelor's degree in engineering from Princeton



Lawrence Tabak, DDS, PhD
Principal Deputy Director, NIH



Jeanne Marrazzo, MD, MPH

Director, National Institute of Allergy and Infectious Diseases (NIAID)

- Director of the Division of Infectious Diseases at the University of Alabama at Birmingham
- MD from Thomas Jefferson University, MPH in epidemiology from University of Washington—Seattle, and Bachelor's degree in biology from Harvard University
- Chaired the American Board of Internal Medicine Council and the ABIM Infectious Disease Specialty Board

Research Focus:

The human microbiome, particularly in the field of sexually transmitted infections and their impacts on women's health.



W. Kimryn Rathmell

Director, National Cancer Institute (NCI)

- Hugh Jackson Morgan Chair in Medicine, chair of the Department of Medicine, and Physician in Chief at Vanderbilt University
- Co-founder of RMC Alliance, a nonprofit organization advocating for patients with renal medullary carcinoma
- PhD in biophysics and MD from Stanford University, bachelor's degrees in biology and chemistry from the University of Northern Iowa

Research Focus:

- Molecular and genomic drivers of kidney cancer.
- Member of the Cancer Genome Atlas, genomic studies in biomarkers to detect and treat cancer earlier.



Kate Klimczak, M.P.P.

NIH Associate Director for Legislative Policy and Analysis

Previously at NIH

- Senior Legislative Analyst, NIH Office of Legislative Policy and Analysis

Prior to NIH

- Deputy Director/Acting Director, FDA Office for Congressional Appropriations
 - ❑ oversaw the formulation and execution of FDA's annual appropriations strategy
 - ❑ advised senior FDA leadership on actions, policies, and issues concerning appropriations

Update on NIH-Wide Initiatives

Launch of White House Initiative on Women's Health Research



White House Women's Health Research Initiative



Section 4: Mission and Functions. The mission of the Initiative is *to advance women's health research in U.S.*



**Carolyn Mazure, Ph.D.
Director, White House Initiative on
Women's Health Research**

White House Initiative

Section 4. Mission & Function: Key Actions

1. Identify **opportunities** for additional **investments**
2. Set **research priorities**
3. Improve coordination, integrate research efforts and facilitate **interdisciplinary research**
4. Develop policy recommendations on **data reporting, research methods, and analysis of research**
5. Address **health disparities, inequities and exposures**
6. Support the **translation of research advancements** into practical benefits
7. Develop **public-private partnerships to drive innovation**
8. Promote the **publication and dissemination of actionable research** by making Federal datasets available
9. **Recruit, train, and support women** pursuing health and biomedical research careers to **strengthen and diversify the research workforce**
10. Increase public awareness of the need for **greater investment in and attention to women's health research**

ORWH Mission



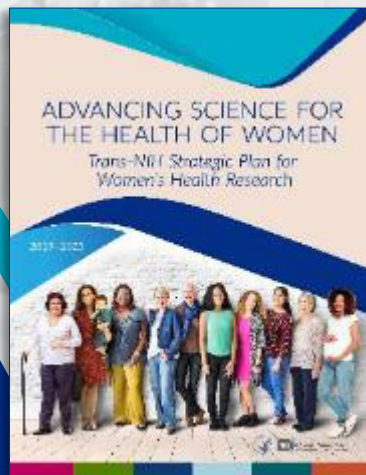
Enhance and expand women's health research



Include women and minority groups in clinical research



Promote career advancement for women in biomedical careers



NIH Vision



Sex and gender integrated into biomedical research



Every woman receives evidence-based care



Women in science careers reach their full potential

IC Directors Special Commentary: Response to Editor Queries in Process

nature medicine


- 27 IC Director Co-authors' Commentary accepted for publication 11/29/23 (currently embargoed)
- Responding to final editor queries - look for email

Comment

<https://doi.org/10.1038/s41591-023-02744-3>

The All of Us research program is an opportunity to enhance the diversity of US biomedical research

Diana W. Bianchi, Patricia Flatley Brennan, Michael F. Chiang, Lindsey A. Criswell, Rena N. D'Souza, Gary H. Gibbons, James K. Gilman, Joshua A. Gordon, Eric D. Green, Susan Gregurick, Richard J. Hodes, Peter H. Kilmarx, George F. Koob, Walter J. Koroshetz, Helene M. Langevin, Jon R. Lorsch, Jeanne M. Marrazzo, Eliseo J. Pérez-Stable, W. Kimryn Rathmell, Griffin P. Rodgers, Joni L. Rutter, Jane M. Simoni, Bruce J. Tromberg, Debara L. Tucci, Nora D. Volkow, Rick Woychik, Shannon N. Zenk, Elyse Kozlowski, Rachele S. Peterson, Geoffrey S. Ginsburg & Joshua C. Denny

 Check for updates

The All of Us Research Program has prioritized the enrollment of people from backgrounds that are historically under-represented in medical research to bring precision medicine to the full diversity of the US population and to improve health outcomes for all.

electronic health records (EHRs), genome sequences, and FitBit records, accessed via the cloud-based Researcher Workbench. The Workbench contains three tiers of data access (Public, Registered and Controlled), with genomic data available in the Controlled Tier to registered researchers who have signed a data-use agreement. More than 245,000 whole-genome sequences and data from more than 312,000 genomic variant arrays are available for analysis via the Controlled Tier. In the 245,000 genome sequences available thus far, there is genetic variation at more than a billion loci. More than 200 articles using these

Leadership at NIDCR



Aubrey Callwood, M.S.

Director

Office of Information Technology (OIT)



Rachel Scheinert, Ph.D

Director

Office of Science Policy and Analysis (OSPA)

NIDCR's Program Staff



Scott Verbridge, Ph.D

Program Director

Tissue Engineering and Regenerative Medicine Program
Integrative Biology and Infectious Diseases Branch



William (Bill) Elwood, Ph.D

Acting Chief

Behavioral and Social Sciences Research Branch
Division of Extramural Research

Five Fellows in Dental Public
Health Research Fellowship



Thank you Dr. Hoffman!



Matthew Hoffman, B.D.S., Ph.D.
Past Scientific Director
Senior Investigator
Matrix & Morphogenesis Section

- Scientific Director of NIDCR's Intramural Research 2018-2023
- Outstanding Scientific Contributions to the field of Salivary Gland Biology
- Committed Mentor with an impressive record of successful mentees
- Led the restructuring of NIDCR's intramural research program

NIDCR Division of Intramural Research (DIR)



Indu Ambudkar, Ph.D., M.Sc.
Acting Scientific Director



John (Jay) Chiorini, Ph.D.
Acting Deputy Scientific Director



NIDCR Director/Deputy Director Presentations



Shils Award Ceremony

Rutgers School of Dentistry

Forsythdentech 2023

Harvard Global Symposium on AI in Dentistry

75th Anniversary Trainee Symposium: Celebrating

NIDCR Trainees: Past, Present, and Future

NIDCR Building Belonging Virtual Town Halls

AADOCR Dental, Oral, and Craniofacial Research

Summit

IADR Nigeria Presentation

TMD IMPACT Kick-off meeting

AHEAD Orientation Kick-off Meeting

2023 DOCTRC Retreat

National Academies Forum on TMD

2023 Hinman Student Research Symposium

IADR/AADOCR Joint Board Meetings

NAM Induction Event

American Institute of Dental Public Health's Federal

Service Immersion program

Added Sugars Public Meeting Panel Session

NIDCR Leadership Activities



AADOOCR (Monthly)

AAPD (Quarterly)

ADA (Quarterly)

ADEA (Quarterly)

Accelerating Medicines Partnership (AMP)
Executive Committee Mtgs

Brain/Blueprint ICD Mtgs

Building Belonging Committees

Clinical Research Training Working Group

Clinical Trial Stewardship (CTS) Task Force &
Policy Implementation Workgroup

Common Fund Meetings

DEIA Working Group Mtgs

Diversity Working Group mtgs

HEAL Executive Committee & Investigator
Mtgs

Interagency Pain Research Coordinating
Committee Mtg

Pain Consortium – Monthly & Quarterly Mtgs

Program Leadership Committee (PLC)

REEP POC Community of Practice Mtgs

Search committees for various IC Openings

UNITE Group Team & Full Group Mtgs

WoCC Leadership Team



Messages from the Director, Dr. Monica Bertagnoli, M.D.

Guiding Principles Articulated by the NIH Director

- Our work is not finished when we deliver scientific discoveries, our work is finished when all people are living long and healthy lives.
- NIH research encompasses the laboratory, the clinic, and the community. Patients are partners in discovery.
 - To tackle the most persistent and complex problems, NIH aims to bring more members of the public into the research enterprise as our partners in discovery.
 - Income, age, race, ethnicity, geographic location, and disability status should not be barriers to participating in research or to benefitting from research advances.

Guiding Principles Articulated by the NIH Director (cont'd)



- Progress is accelerated when advanced scientific methods, such as new data analytics, are applied to data that includes everyone, and when new discoveries are rapidly and equitably adopted in clinical care.
- NIH is committed to harnessing the power of AI/ML to advance research across diverse fields, diseases, and scientific communities.
 - Advanced scientific methods, new data analytics and technologies are unlocking possibilities to harness data in ways that achieve faster and more definitive results.
 - NIH has launched and will continue to launch innovative and ambitious initiatives to propel fusion of biomedicine and AI/ML.

Budget

- We remain hopeful that we will not be subject to drastic cuts.
- However, even a “flat budget” will have a significant impact:
 - Great ideas and the potential for new discoveries will be lost.
 - There is real concern that we will lose a generation of early career investigators.
 - The Intramural Research Program (IRP) is particularly sensitive to budget cuts as most of the expense is fixed personnel costs and IRP investigators have very restricted ability to seek additional funding to compensate.
- **Partnership with all stakeholders is crucial.**



National Institute of Dental
and Craniofacial Research

Oral Health for All : Realizing the Promise of Science
“Creating the Future we Seek”

Hires and Acknowledgements

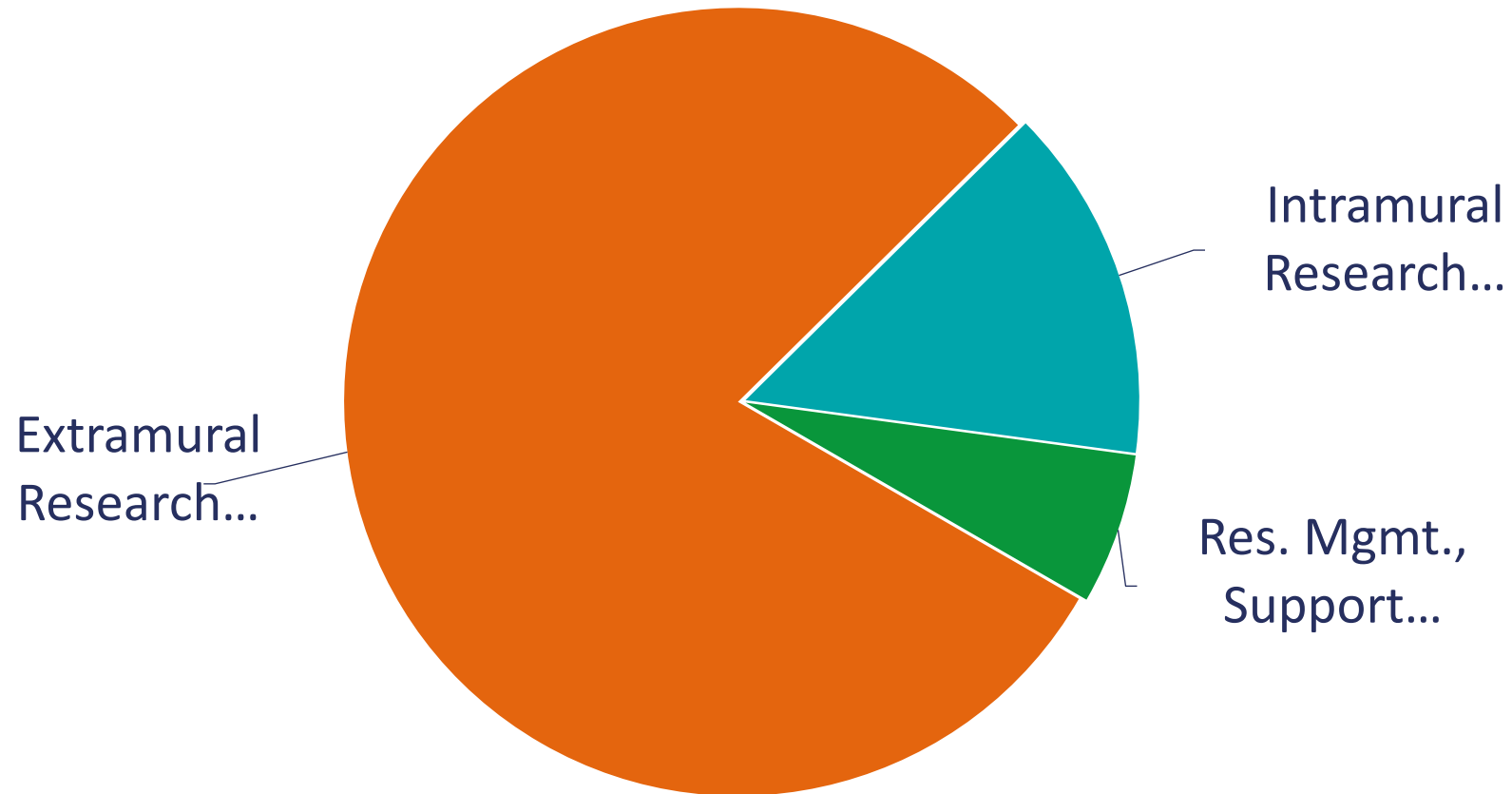
Funding Decisions of FY'24

75th Signature Initiatives

Concept Clearances and New Initiatives

Extramural Research Advances

FY 2023 NIDCR Budget Distribution (FY 2023 = \$520 million)



NIDCR FY2024 **Interim** Funding Policy

- NIH is operating under a Continuing Resolution (CR) through March 8
- To provide stable levels of support for high quality scientific research and research training
- Non-competing (Type 5) RESEARCH PROJECT GRANTS awarded at 90% during CR
- Support for ESIs
 - No reductions to **modular** R01 and R01 equivalent applications
 - Competing **non-modular** R01 and R01 equivalent applications: 10%
- No reductions to competing research training and career development award applications

NIDCR FY 2024 Interim Funding Policy

NIDCR FY2024 **Interim** Funding Policy (cont.)



- Reductions:
 - ❑ Competing **modular** R01 and R01 equivalent applications: 9%
 - ❑ Competing **non-modular** R01 and R01 equivalent applications: 15%
 - ❑ Additional reductions for well-funded investigators
- Competing renewal (Type 2) applications are expected to be limited to no more than a 20% budget increase over the last non-competing award
- Other relevant factors: priority scores, new scientific opportunities, current research priorities, portfolio balance, alignment with the NIDCR Strategic Plan, and availability of funds

NIDCR FY 2024 Interim Funding Policy

QUESTIONS



Translate and Implement



Strategic Priority #3

Translate and Implement

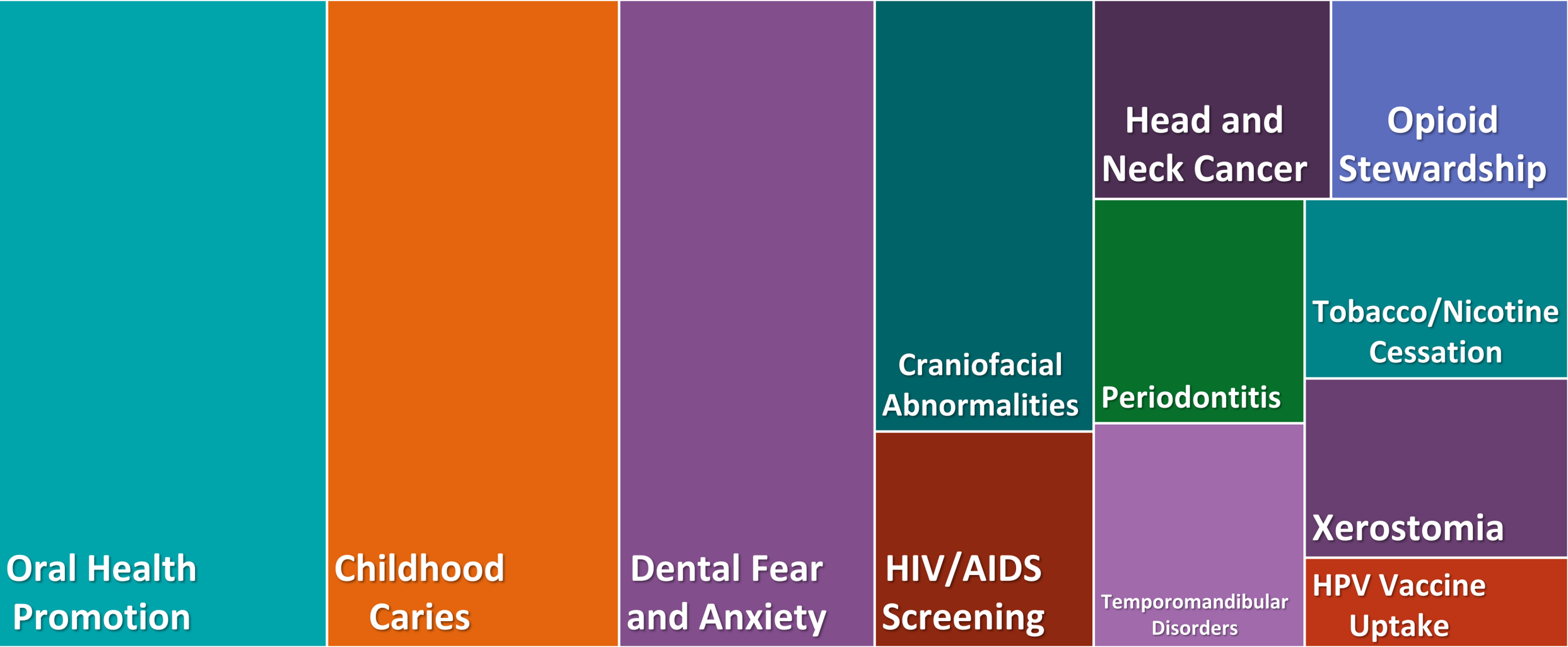
Accelerate the translation of research and implementation of new discoveries into oral and general healthcare practices that reduce health inequities and disparities and improve oral health outcomes for individuals and communities worldwide

How can NIDCR address significant gaps in evidence to guide clinical care and to serve the needs of every community through an expansion of its clinical research capabilities?

- How to encourage translation across the circular spectrum of biomedical and public health research while ensuring strength in the foundational sciences?
- How to improve the number of clinical trials and observational research capabilities?
- How to include communities currently marginalized, underserved and underrepresented?
- How to engage and integrate the primary care dental and health professional communities?
- How to create and utilize combined electronic health records in order to advance protocol-defined research?
- Can NIDCR coordinate its clinical research networks with other existing trials?
- How can NIDCR expand its footprint in global health research?



NIDCR Extramural FY2018 – 2024 Funded Clinical Research Topic Areas



NIDCR Extramural Clinical Trials by Research Topics



Childhood Caries

- ECC
- Vulnerable Populations
- Maternal Health
- Povidone Iodine

Craniofacial Abnormalities

- Speech/Language
- Telehealth

Dental Fear and Anxiety

- Underserved Populations
- mHealth

HIV/AIDS Screening

- Dental Workforce
- mHealth

Head and Neck Cancer

- Co-Funds
- Treatment Resistance

Opioid Stewardship

- Post-Operative Pain Management
- Adolescents

Oral Health Promotion

- Underserved Populations
- Pregnancy
- Teens
- Xylitol

Periodontitis

- Adjunctive Antibiotics

Xerostomia

- Regenerative Medicine
- Imaging

Temporomandibular Disorders

- Pain Management
- Photobiomodulation

Tobacco/Nicotine Cessation

- Virtual Reality
- Nicotine Replacement

HPV Vaccine Uptake

- Real World Dental Settings

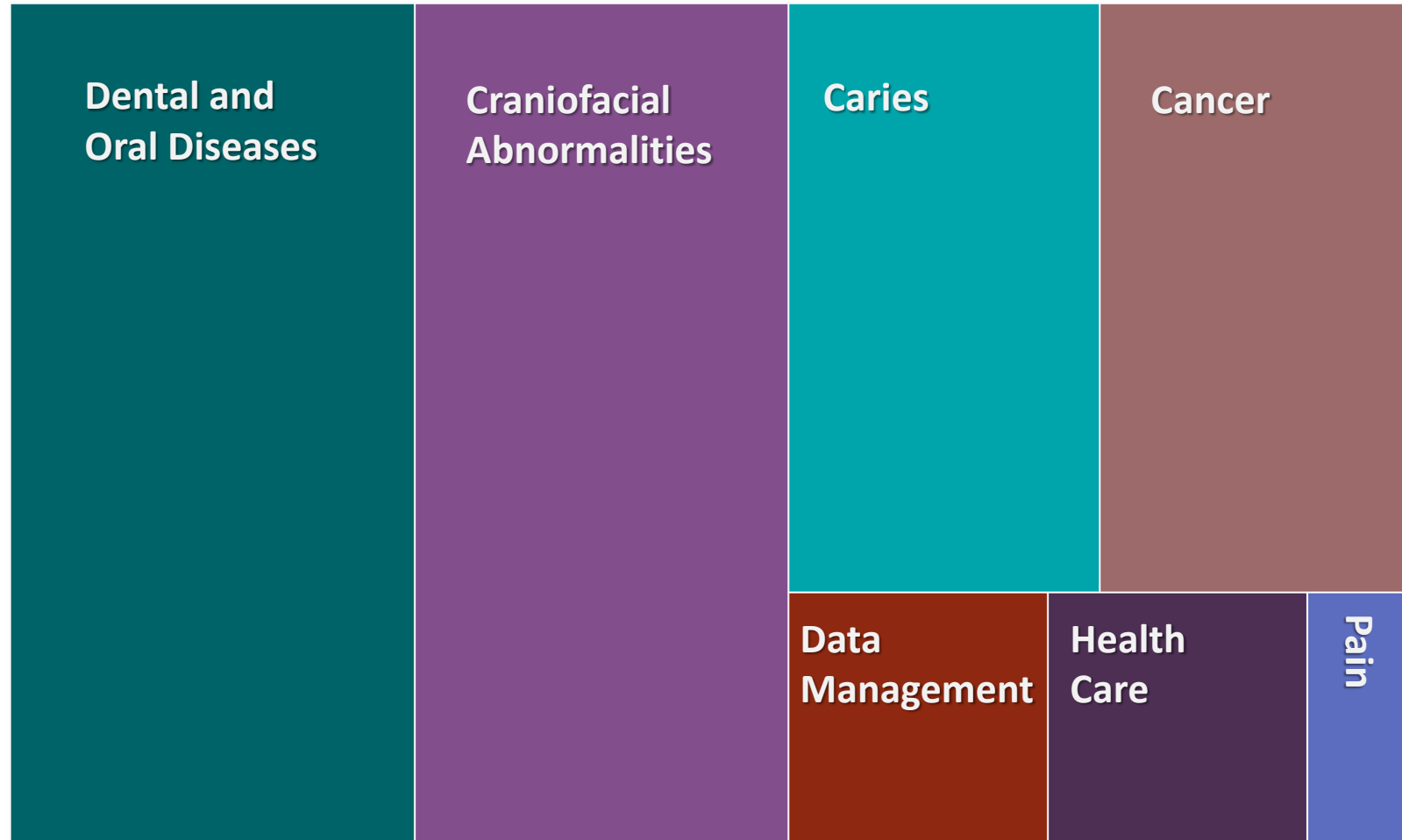
How can NIDCR expand its capacity and capabilities for data sharing and data use?

- How will the Working Group's Recommendations be prioritized?
- How will NIDCR's Office for Data Driven Solutions (DDS) drive data science?
- How can data sharing and data use identify and reduce health disparities?
- How can resources within and outside NIH be leveraged to advance DDS ?
- How can the DDS Office serve as a hub to guide and enable data users?
- How can NIDCR help train a new cadre of data scientists for the oral health sciences?

NIDCR Extramural FY2018 – 2024 Funded Data Science Research Topic Areas

- Majority of projects involve data reuse
- Many employ AI/ML approaches

Activity Codes	# of awards
R03	57
R01	9
R21	4
U01	4
R41/R44	2
R56	1
Fs/Ks	5
Administrative Supplements	8



NIDCR Extramural FY2018 – 2024 Funded Data Science Research Topic Areas cont'd

- Majority of projects involve data reuse
- Many employ AI/ML approaches

Activity Codes	# of awards
R03	57
R01	9
R21	4
U01	4
R41/R44	2
R56	1
Fs/Ks	5
Administrative Supplements	8



NIDCR's First Step Goals



- Orient all Executive Staff with the latest applications of Data Science and Use
- Evaluate investments and needs across NIDCR (extramural and intramural) and explore all available resources within and outside NIH
- Develop a strong and sustainable vision for the new DDS Office by considering all moving fronts + Working Group suggestions
- Finalize an overall strategic plan with SMART goals by June 2024



National Institute of Dental
and Craniofacial Research

NIDCR's Extramural Research and Activities

Signature Initiatives
Scientific Advances
Funding Opportunities



Signature Initiatives and Collaborations

We AIM to HEAL while PRIMED to move AHEAD with IMPACT

PRIMED: Practice-Based Research Integrating Multidisciplinary Experiences in Dental Schools

NIDCR NCATS

AHEAD: Advancing Head and Neck Cancer Early Detection Research

NIDCR NCI

TMD-IMPACT: TMD Collaborative for IMproving PATient-Centered Translational Research Planning → Implementation

NIDCR NIAMS NIBIB NINDS
NCCIH ORWH OBSSR FDA

HEAL - RE-JOIN: Restoring Joint Health and Function to Reduce Pain Consortium

NIAMS NCCIH NIDCR NIBIB NINDS NIA

HEAL - Buprenorphine: Oral Complications Arising from Pharmacotherapies to Treat Opioid Use Disorders

NIDCR NIDA NCCIH

AMP-AIM - STAMP: Sjögren's Team for Accelerating Medicines Partnership - (UCSF, OMRF, JHU, NIDCR/DIR)

NIAMS NIAID NIDCR NEI ORWH
8 Industries 6 Foundations

Practice-Based Research Integrating Multidisciplinary Experiences in Dental Schools (PRIMED)

Purposes:

- Provide clinical faculty and predoctoral/postdoctoral students/residents with skills development opportunities and patient-oriented clinical research experiences through intra/inter-institutional collaborations and peer/student mentoring partnerships
- Foster culture of scientific inquiry during dental education, encourage scientific partnerships between students/residents, clinically-oriented faculty and research faculty, and stimulate additional clinical research pursuits

Practice-Based Research Integrating Multidisciplinary Experiences in Dental Schools (**PRIMED**) Components

Four Required Components:

1. Clinical research skills development
2. Intra- and/or inter-institutional collaborations
3. Peer and student mentoring
4. Practice-based clinical research

NIDCR Team for PRIMED

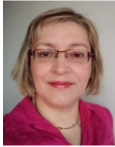
Center for Clinical Research



Dena Fischer, DDS, MSD, MS
Clinical Trials and Practice-Based
Research Program



Hiroko Iida, DDS, MPH
Oral Health Disparities & Inequities
Research Program



Lorena Baccaglini, DDS, MS, PhD,
Clinical Research and Epidemiology
Program



Hongen Yin, MD, PhD, MHS
HIV/AIDS & Oral Health Research
Program



Margaret Grisius, DDS
Oral and Comprehensive Health
Program
Clinical Technologies Program



Alexandria S. Alfarano, MA, ACRP-CP
CCR Health Specialist

Scientific Review Branch



Yasaman Shirazi, PhD
Chief, Scientific Review
Branch



Yun Mei, MD
Scientific Review Officer



**Christopher Campbell,
PhD**
Scientific Review Officer



Jingshan Chen, PhD
Scientific Review Officer

Grants Management Branch



Dede Rutberg, MBA
Director, Grants Management



Gabe Hidalgo, MBA
Deputy Director, Grants Management



April Harrison
Grants Management Specialist

PRIMED AWARDEES



- In 2023, NIDCR awarded 10 PRIMED grants totaling \$6.9 million for up to five years of support.
- Awardees are at dental schools across the nation

Advancing Head and Neck Cancer Early Detection Research (**AHEAD**)

Purposes:

- Accelerate translation of research to improve early detection of the head and neck cancers
- Development, evaluation, and validation of biomarkers
 - risk assessment, early detection, and molecular diagnosis and prognosis of HNC initiation, progression, recurrence, and metastasis

Team for AHEAD



Zhong Chen, MD,
PhD
**Director, Oral & Salivary
Cancer Biology Program**



Aiwu Cheng, MD
**Scientific Review
Officer**



Amanda Melillo, PhD
**Chief, Integrative
Biology and Infectious
Diseases**



Vaishali Patel, PhD
**Detailer, Scientific
Review Officer**



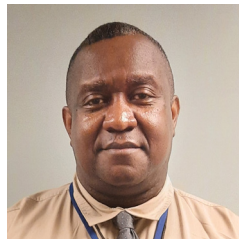
Susan Medve
**Grant Management
Specialist**



Wendy Wang, PhD, MSc
**Program Officer, Cancer
Biomarkers**



Michelle Cortes, PhD
Health Specialist



Christopher Brown
Program Specialist



Gabe Hidalgo, MBA
**Deputy Director,
Grants Management**



Sudhir Srivastava, PhD, MPH
**Chief Program Officer,
Cancer Biomarker**



Lillian Shum, PhD
**Director, Division of
Extramural Research**



Yasaman Shirazi, PhD
Chief, Scientific Review



AHEAD AWARDEES



- In 2023, NIDCR, together with NCI, awarded seven grants totaling \$4.4 million for up to five years of support.



TMD Collaborative for Improving Patient-Centered Translational Research (TMD **IMPACT**)

PURPOSE

To advance TMD basic and clinical research, research training, and translation to evidence-based treatments and improved clinical care via establishment of a national, interdisciplinary trans-NIH patient-centered research Collaborative.

NIDCR NIAMS

NIBIB NINDS

NCCIH ORWH

OBSSR FDA



TMD IMPACT AWARDEES



- In 2023, NIDCR awarded nine planning grants totaling \$2.8 million for one year of support.

Team for TMD IMPACT



Melissa Ghim, PhD
Director, Neuroscience
of Orofacial Pain &
Temporomandibular
Disorders Program



Christopher Campbell,
PhD
Scientific Review Officer



Gabe Hidalgo, MBA
Deputy Director,
Grants Management



Danica Marinac-Dabic,
MD, PhD
Associate Director, Office
of Clinical Evidence and
Analysis, (FDA)



Amanda Melillo, PhD
Chief, Integrative
Biology and Infectious
Diseases



Vaishali Patel, PhD
Detailer, Scientific
Review Officer



Karen Wylie, PhD
Office of Research on
Women's Health (ORWH)



Guoying Liu, PhD
National Institute of
Biomedical Imaging and
Bioengineering
(NIBIB)



Michelle Cortes, PhD
Health Specialist



Christopher Brown
Program Specialist



Michael L. Oshinsky, PhD
National Institute of
Neurological Disorders and
Stroke (NINDS)

Aron Marquitz, PhD
National Institute of
Arthritis and
Musculoskeletal and
Skin Diseases (NIAMS)



Lillian Shum, PhD
Director, Division of
Extramural Research



Yasaman Shirazi, PhD
Chief, Scientific Review



Alex Turtle, PhD
National Center for
Complementary and
Integrative Health (NCCIH)

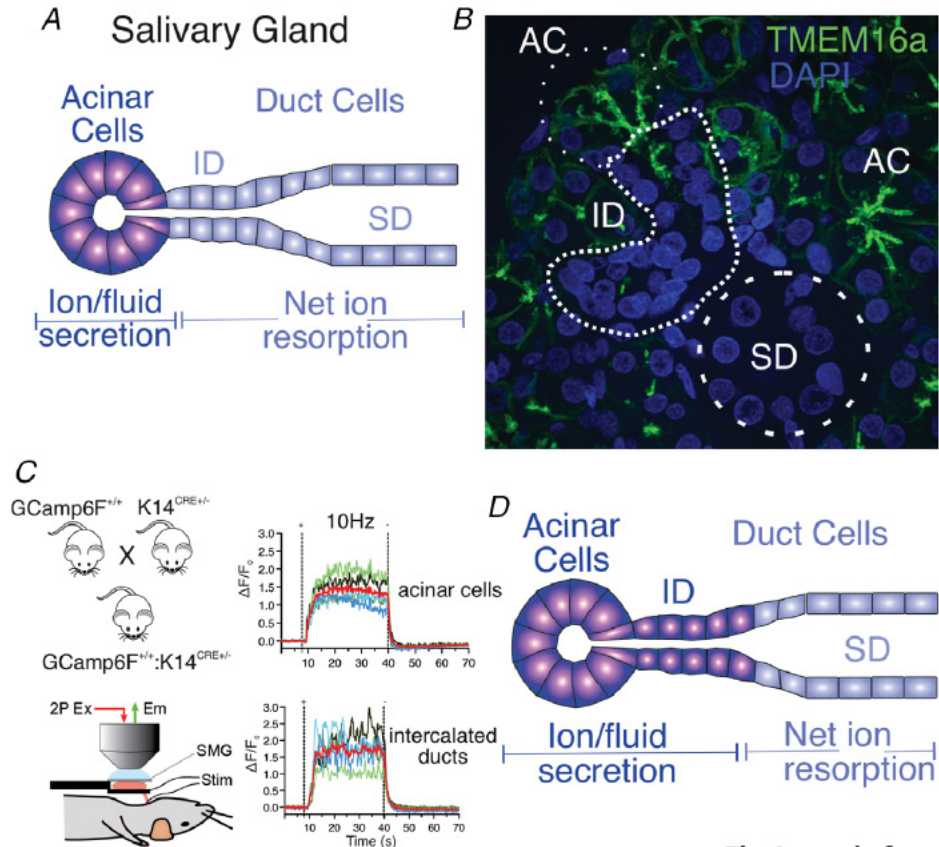


Office of Behavioral and
Social Sciences
Research (OBSSR)



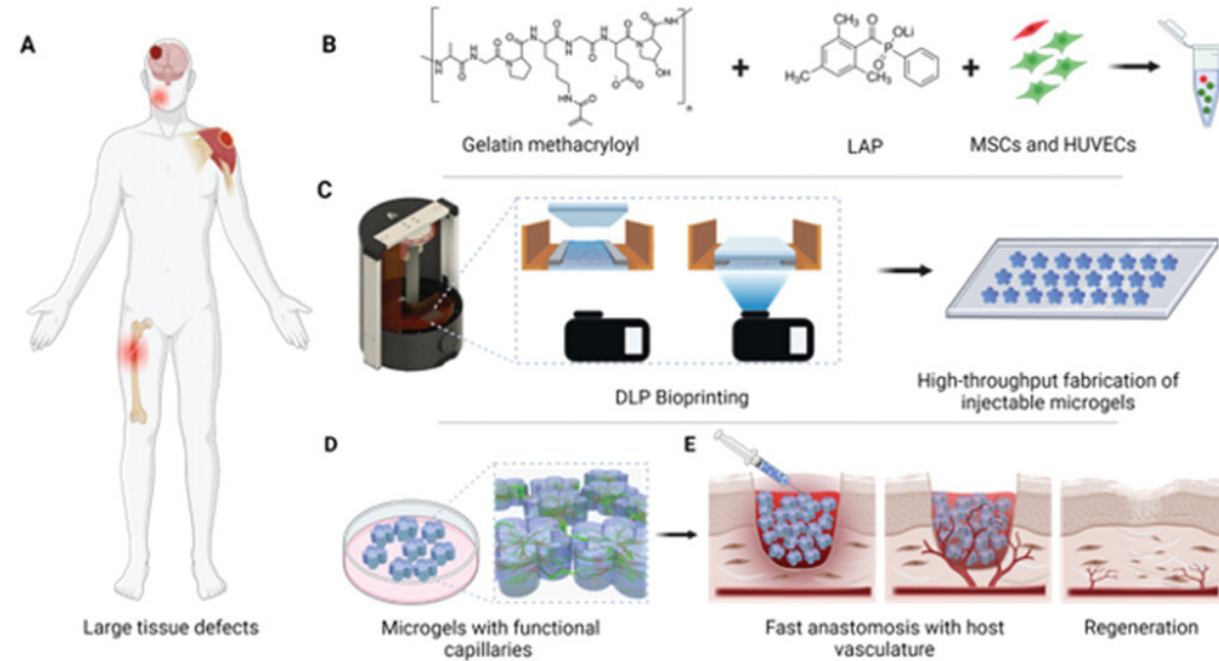
Extramural Research Advances

Structural and Functional Analysis of Salivary Intercalated Duct (ID) Cells Reveals a Secretory Phenotype



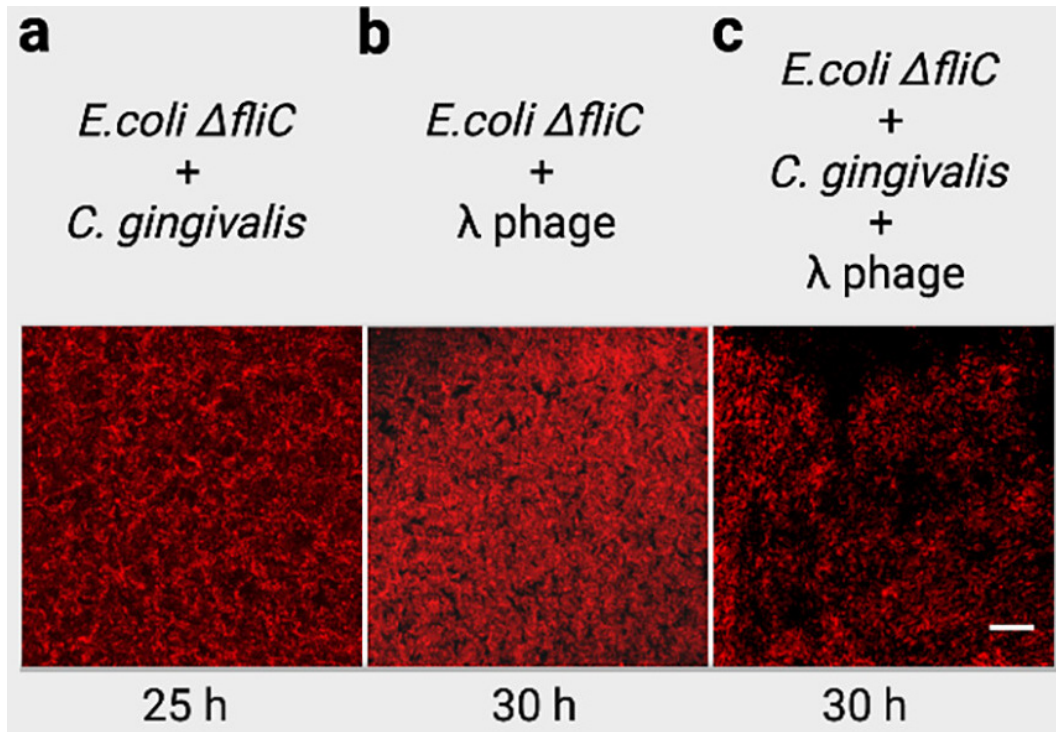
- ID cells presumed to function similarly to other duct cells
- Study revealed that IDs express proteins found in secretory cells, generate calcium signals like acinar cells
- Models of secretion may be modified to classify ID cells as secretory cells

High-Throughput Bioprinting of Geometrically-Controlled Pre-Vascularized Injectable Microgels for Accelerated Tissue Regeneration



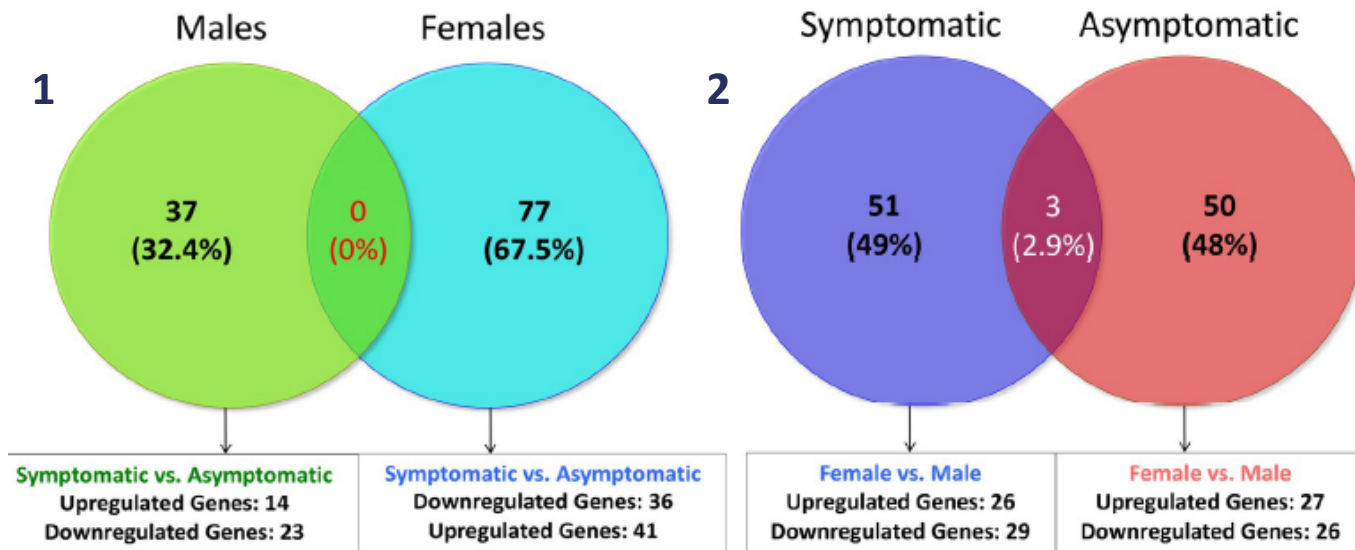
- Modular engineered micro-tissues primed with capillary structures, for rapid integration into injury sites and circulatory system to repair damaged tissues
- Bioprinting approach customizes implant sizes and allows intact delivery by injection
- Facilitates faster tissue regeneration with a high degree of vascularization in ex vivo dental root canal model

Bacterial Swarm-Mediated Phage Transportation Disrupts a Biofilm Inherently Protected from Phage Penetration



- Study on *Capnocytophaga gingivalis* transportation of phage through a biofilm
- Lambda phage carried by *C. gingivalis* reduced phage host *E. coli* biofilms 10x more than through diffusion alone
- Potential for *C. gingivalis* as vehicle to transport antimicrobials and/or phage for therapeutic purposes

Understanding Painful Versus Non-painful Dental Pain in Female and Male Patients: A Transcriptomic Analysis of Human Biopsies



- Transcriptomic assessment of peripheral diseased tissue biopsies from patients with persistent apical periodontitis
- Differentially regulated genes revealed in symptomatic and asymptomatic patients
- Differences in novel candidate genes between female and males provide insights into role of immune response in regulating sex-related pain phenotypes

Social Support Associated with Restorative Treatment



- Relationship between **social support** and **dental outcomes** in Mexican and Central American immigrants (n=547)
- **Positive** connection between social support and oral health in **Mexican immigrants**, but **negative** associations among **Central Americans**
- **Role of culturally sensitive approaches** informs tailored healthcare interventions for diverse immigrant groups to reduce health disparities

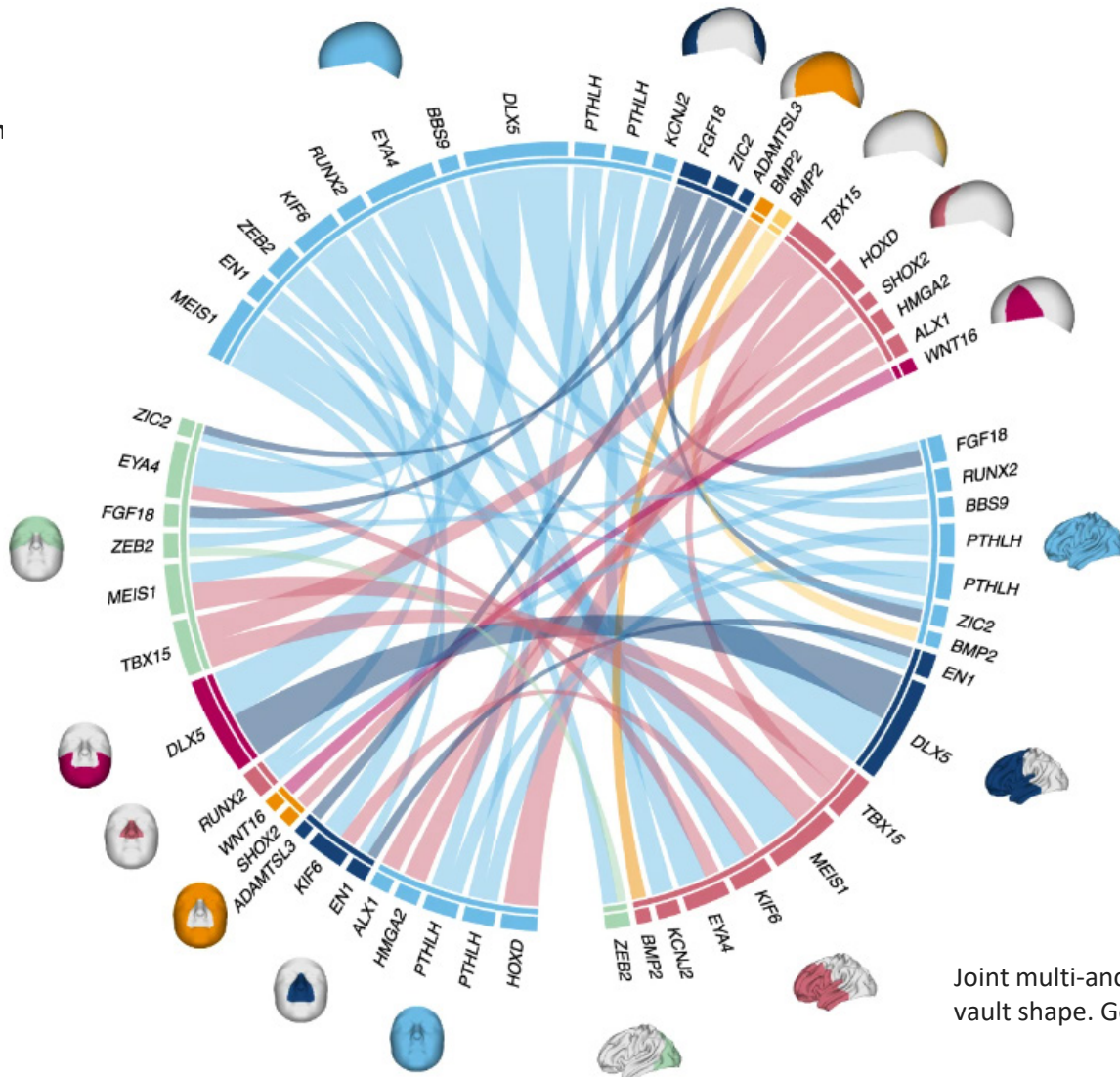
Acceptance and Usability of mDentistry eHygiene Model during COVID-19



- Model well accepted by patients and moderately accepted by practitioner
- Patients rated the system lower when they spent more time on the virtual visit
- Hispanic patients had lower dentist-patient communication scores than non-Hispanic patients

Large-Scale Multi-Ancestry GWAS and Data Reuse Study Unravels Cranial Vault Genetics

Loci shared
vault, brain

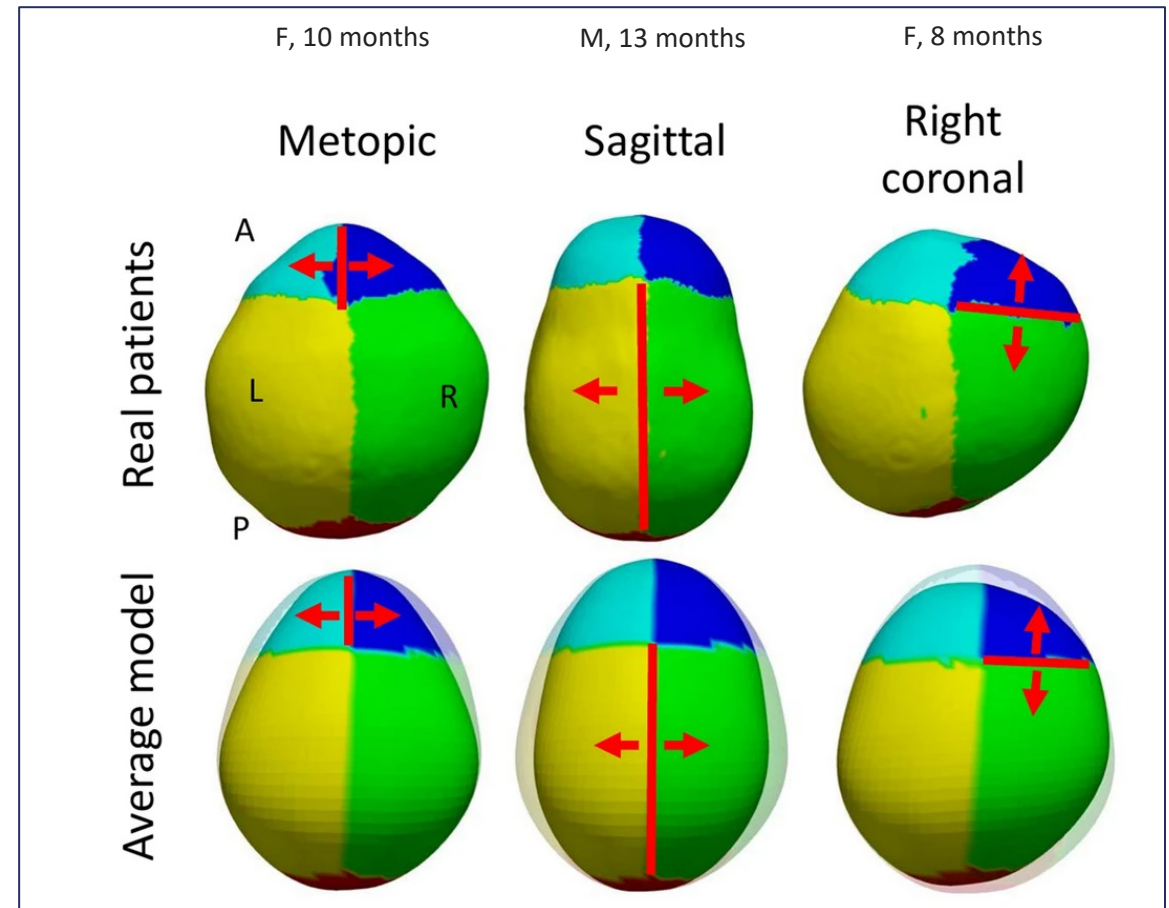


- Study of genetic architecture underlying highly variable, clinically relevant, and heritable cranial vault shape
- 3D cranial vault shapes extracted from MRI images of 6772 children from Adolescent Brain Cognitive Development (ABCD) study
- 30 novel genome-wide significant loci identified
- Results indicate overlap with risk loci for sagittal craniosynostosis and shared signals among cranial vault, brain, and face

Joint multi-ancestry and admixed GWAS reveals the complex genetics behind human cranial vault shape. Goovaerts S, et al. Nat Commun. 2023 R01DE027023 Weinberg; R03DE031061; R01DE016886 Boyadjiev Boyd; K99DE032729 Naqvi

Growth Model for Predicting Craniosynostosis Phenotypes

- Data-driven, AI-powered model simulating cranial suture growth based on 3D scans and anatomical landmarks
- Accurately predicts skull shapes and craniosynostosis severity of individual patients
- Virtual simulations of skull growth under different surgical interventions inform more precise and effective pre-operative planning



Utilizing Electronic Dental Health Record Data to Characterize Sjögren's Disease (SD) Characteristics

- 377 patients were manually characterized as:
 - SD Positive (N=90; 24%)
 - SD Uncertain (N=74; 20%)
 - SD Negative (N=213; 56%)
- 53% had ≥ 1 diagnosis of other autoimmune conditions
- SD+ patients had systemic lupus erythematosus (33%) and rheumatoid arthritis (30%)
- **69% of patient electronic dental records did not mention SD**
- Comorbidities that affected >50% cohort: joint pain, limb pain, hypertension, fibromyalgia, malaise/fatigue, esophageal reflux, and depressive disorders

Bioethics and ELSI Research Funding Opportunities



- PAR-23-294: Ethical, Legal, and Social Implications (ELSI) Exploratory/Developmental Research Grant (R21)
- PAR-23-295: Ethical, Legal, and Social Implications (ELSI) Small Research Grant (R03)
- NOT-OD-24-031: Administrative Supplement for Research and Capacity Building Efforts Related to Bioethical Issues
 - Due date: April 1, 2024



Notice of Special Interest (NOSI): Applications of Data Science in Translational Dental, Oral, and Craniofacial Research (NOT-DE-23-002)

Purposes:

- Encourage development and use of state-of-the-art data science resources, methods, and tools in biomedical and behavioral DOC research spanning the full translational continuum
- Support development and dissemination of standards and tools that enable retrospective and prospective biomedical and behavioral DOC data FAIR
- Foster use of data to discover disease prevention and treatment targets for translation to clinical applications

Request for Information (RFI): Inviting Input on an NIH-wide strategic plan for autoimmune disease NOT-OD-24-049

Purpose:

- Invite input on the development of an NIH-wide strategic plan to advance autoimmune disease research, and create opportunities for synergistic innovation and implement cross-cutting

Submit a Response:

- All comments and responses should be submitted electronically via [webform](#) by 11:59pm EST on March 1, 2024

Monthly Vignettes
Highlight Health Themes

**Symposium on
NIH-wide
Programs**
May 16, 2024

**NIDCR Event
at AADOCR
Annual Meeting**
March 15–19, 2023

Logos, Banners,
Media, Outreach

**NIDCR at
AADOCR
Annual Meeting**
March 13–16, 2024

**NIDCR
75th
Anniversary**
Looking Forward

**Anniversary
Kickoff
Symposium
& Awards
Ceremony**
June 27, 2023

JDR Special Issue
Highlights from DIR

**Training &
Career
Development
Symposium**
October 10–11, 2023

**Seminar to Celebrate
25 Years of Fibrous
Dysplasia/
McCune-
Albright Research**
September 11, 2023

Congressional
Resolutions,
Recognition



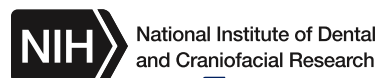
Virtual Trainee Symposium

*“Celebrating NIDCR Trainees:
Past, Present and Future”
October 10 – 11, 2023*



**Keynote by
Nobelist Ardem Patapoutian, PhD**

**Also: Poster Session, Oral Presentations,
Panel Discussions, Breakout Rooms, Networking**



For more information, contact NIDCR at nidcrtraining@nidcr.nih.gov

NIDCR75 Symposium Series at IADR/AADOCR/CADR 2024 Meeting



Symposium	Date and Time
Dental Caries – Understanding Microbial Ecology and Caries Management	3/13, 10:15 – 11:45 am
Dental Caries—Connecting Health Disparities to Interventions	3/13, 1:30 – 3:00 pm
Understanding Sjögren’s Disease - From SICCA to AMP-AIM/STAMP	3/13, 3:15 – 4:45 pm
Facilitating Multimodal Data-Driven Translational Research via FaceBase	3/14, 8:00 – 9:30 am
Accelerating Product Innovation - From Research to Commercialization	3/14, 2:00 – 3:30 pm
Periodontal Disease - From Microbes to Hosts to Exposomes	3/15, 8:00 – 9:30 am
Catalyzing Excellence in Cancer Research: Moonshot, SPORE, and AHEAD	3/15, 2:00 – 3:30 pm





National Institute of Dental
and Craniofacial Research

NHLBI and NIDCR Joint Symposium:
The Science that Unites Us
Celebrating our Past and Creating a Future of
Health Equity

Thursday, May 16, 2024

Hybrid/ Virtual Event



National Institute of Dental and Craniofacial Research

"Coming together is a beginning, staying together is progress, and working together is success."

Henry Ford

TOGETHER WE'RE STRONGER

NATIONAL INSTITUTES OF HEALTH
UNITE INITIATIVE

The UNITE initiative was established to identify and address structural racism within the NIH-supported and the greater scientific community. With representation from across the NIH Institutes and Centers, UNITE aims to establish an equitable and civil culture within the biomedical research enterprise and reduce barriers to racial equity in the biomedical research workforce.

For more information, please visit:
www.nih.gov/ending-structural-racism/unite

When you see something that's not right, not just, not fair, you have to speak up.
Congressman John Lewis

It's when we face our shortcomings, embrace uncomfortable conversations and work together that we create a more equal society.
Dr. Sergio Springfield

NIH National Institutes of Health

Thank You!

Building Belonging, Breaking Barriers, and Building the Evidence Base



- Internal Workforce
- External Workforce
- Oral Health Disparities



How do we get there? A systematic approach

Internal Workforce

- Introspective mission-focused work at the institute level through REEL

External Workforce

- Invite others into our community
- diversity of thought (from other fields- branding, website, social media, meetings),
- racial and ethnic diversity through pathway building

Oral Health Disparities

- Provide the tools to ensure studies are inclusive and optimize the potential for translation
- Build the evidence base through the science that can shift policies and guidelines
- Build awareness and partnerships to facilitate whole person health approaches that include oral health

Internal Workforce: Building Belonging at NIDCR



- Addressing Structural Racism and all 'isms' Through Small Institutional Changes:
The Initiative for Building Belonging at NIDCR
 - *Toward introspective mission-focused work*

Internal Workforce: NIDCR structures and strategies that apply the REEL framework

REEL Framework	NIDCR structures/strategies
Awareness and understanding	NIDCR supervisor training, Monthly meetings, trainings, cultural appreciation events, BB website, scientific application in studies and trials
Habits and Structures	Organizational processes and structures including: Digitizing processes, career development program and growth opportunities, supervisor training, NIDCR orientation
Influence strategy	Identification of NIDCR change agents through social network analysis
Feedback and metrics	Robust evaluation strategy in addition to external evaluation by EDI.
Transparency and trust	<ul style="list-style-type: none"> • NIDCR supervisor training (communication, feedback, individual development, PMAP, career growth) • Digital transformation of processes • Newsletter, regular all staff meetings, website • Regular interactions with leadership

..... a systematic approach



Internal Workforce: Building Belonging Collaborative Working Groups

Policies, Practices, and Procedures:

- **Purpose:** Review and improve employee recruitment, hiring, interviews, and orientation
- **Goal:** Change habits and structures, transparency, and trust
- **Strategic Activity:** Create hiring toolkits and updated interview guidance

Accessibility:

- **Purpose:** Improve experience of persons with disabilities interacting with NIDCR researchers, programs and services
- **Goal:** Habits and structures
- **Strategic Activity:** Workshops on creating more accessibility in the planning stages of NIDCR activities.

Storytelling:

- **Purpose:** Facilitate interpersonal relationships among NIDCR employees and Apply the Racial and Ethnic Equity Lens Framework to the NIDCR workforce, structures, and systems.
- **Goal:** Awareness and Understanding
- **Strategic Activity:** Culture Box: Promote staff interaction and understanding of lived experiences.

Internal Workforce: 2024 Focus



Accountability, Accessibility and Awareness
Goal- Inclusion and Psychological Safety



Internal Workforce: making institutional changes associated with DEIAB

- A Chief Diversity and Institutional Cultural Climate Officer was hired-
- A Building Belonging website was established.
- Supervisor training was modified.
- The PMAP for leaders/ supervisors was modified.
- DEIAB criteria were added to BSC review for intramural investigators+
- The career path to Administrative Officer for administrative staff in DIR was re-aligned.
- Leadership outreach to DIR was enhanced.
- The administrative staff were organized into a community of practice.
- The NIDCR orientation process (video introduction to NIDCR and each office) was modified.
- Long-time contractors were encouraged to move to fte status.
- The Digital Transformation Initiative was implemented.
- inward facing communications component in addition to OCHE's historical outward facing role.
- The Science Evaluation Officer adopted an inward facing component in addition to the historical extramural facing role.
- A lending library with relevance to the history and status of inequality and inequity in biomedical research, health care, housing, and other DEIAB issues was established for NIDCR staff.

How do we get there? External Workforce



External Workforce

- Invite others into our community
- Diversity of thought (from other fields- branding, website, social media, meetings),
- Racial and ethnic diversity through pathway building

External Workforce: Pathway Development

1. Stakeholder engagement- Oral Health Pathway Task Force
2. Development of globally available outreach resources for the field/ Futurum
3. Outreach/ engagement of trainees from NIDCR funded non-dental laboratories/environments
4. Training programs and mechanisms- Intra and extramural
5. Outreach across academic institutions by NIDCR ICCO/CDO 2024
6. Leveraging public private partnerships to expand the workforce

External Workforce: Reinvisioning the Oral Health Research Workforce Pathway



...stakeholders (ADA, ADEA, AADOCR, AAPD, HDA, SAID, NDA, NIDCR) partnering and collaborating to build programs to enhance K-12 pathways

External Workforce: Pathway Development

K-12

- Exposure
- Algebra/ English Readiness

Dental School

- Curriculum
Critical thinking/ Research exposure
- Engaging student groups
(sADEA, sHDA, SAID, sNDA)

College

- Identify STEM competent
- Admission criteria
- Loan repayment concerns

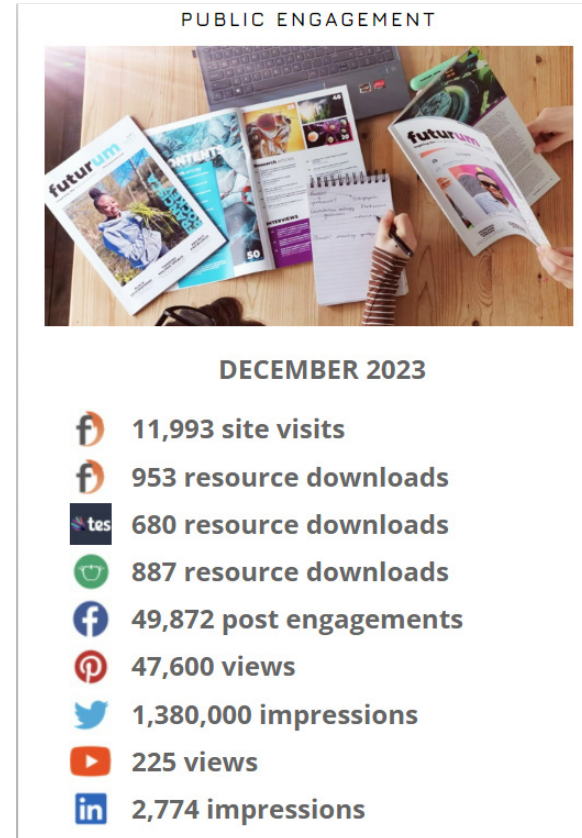
Post Doc

- Post-dental career development
- Faculty Scholars
- Engagement while practicing

External Workforce: Outreach Resources

Futurumcareers.org

- Highlights dental researchers across fields
- Article
- Lesson plans
- Animations
- Podcasts
- Available in February
- Global Audience



[Issue-22.pdf \(futurumcareers.com\)](#)



Belinda Hauser, Ph.D.
Training Director
Office of Training and
Education



Anissa Brown, Ph.D.
Chief
Research Training & Career Development
Program

**Intramural Training and Career Opportunities Webinar -
Wednesday, January 31, 2024**



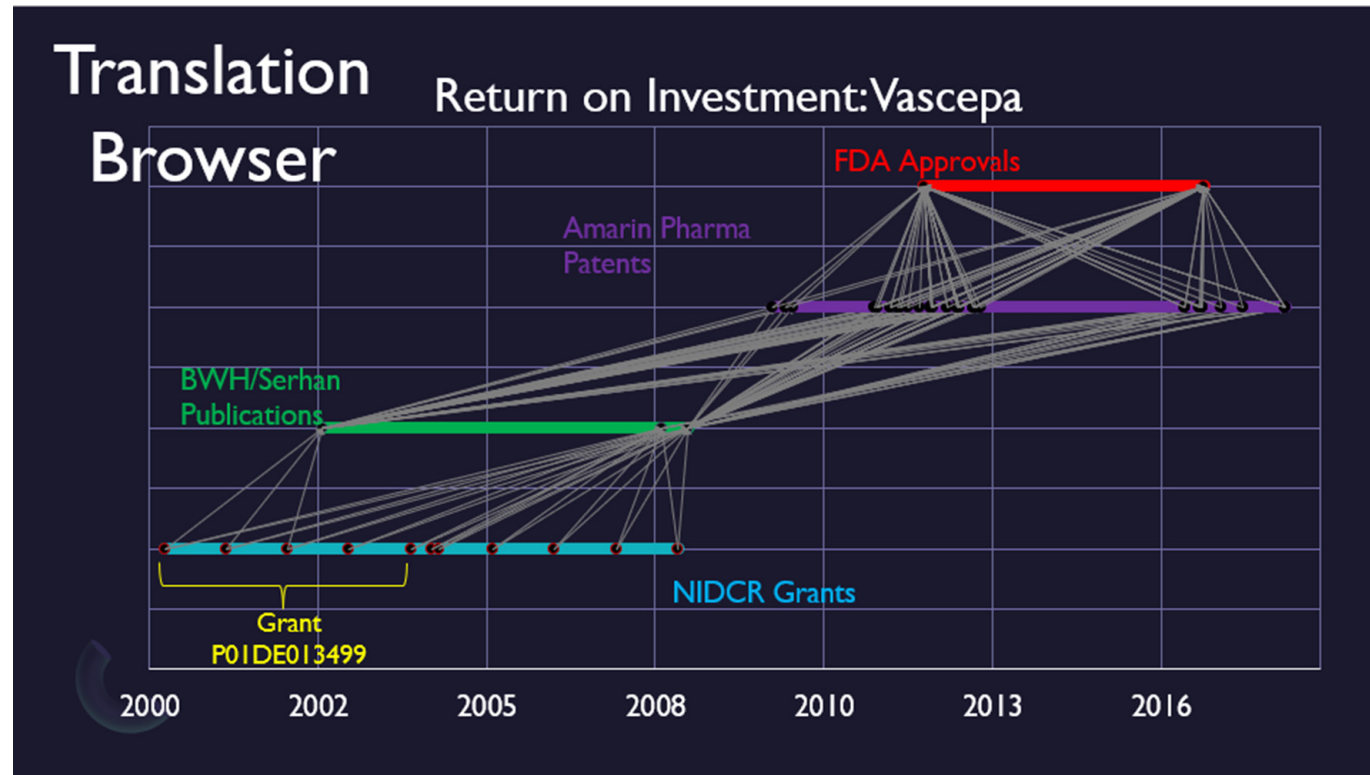
How do we get there? Oral Health Disparities

Oral Health Disparities

- Provide the tools to ensure studies are inclusive and optimize the potential for translation
- Build the evidence base through the science that can shift policies and guidelines
- Build awareness and partnerships to facilitate whole person health approaches that include oral health

Oral Health Disparities: Tools to improve and assess translation and implementation

- Preclinical (released mid year 2024) and clinical (released within the month) training modules are in development and will be available to the community on the NIDCR website
- To assess impact across the field/community – NIDCR translation browser: from investment to outcome



Oral Health Disparities: Actualizing NIDCR strategic priorities to eliminate disparities and achieve oral health for all

Strategic Priority #3

Translate and Implement

Accelerate the translation of research and implementation of new discoveries into oral and general healthcare practices that reduce health inequities and disparities and improve oral health outcomes for individuals and communities worldwide

Strategic Priority #4

Diverse Research Pipeline

Nurture future generations of DOC researchers and oral health professional scholars who can address public health needs within a continually evolving landscape of science and technology advances.

Oral Health Disparities

- Building Awareness
- Leveraging Partnerships
- Building the Evidence-Base related to disparities and prevention
 - Data science
 - Studies- cross IC, cross agency

Oral Health Disparities: ODP Role



- Office of Disease Prevention (ODP) elevated Health Disparities from a cross-cutting theme to a new Strategic Priority in 2022



Oral Health Disparities: Congressional awareness of medically necessary dentistry



Senate Labor HHS Approps Bill 118-84

The Committee reaffirms that dental care is integral to the medical management of numerous diseases and medical conditions and that the lack of medically necessary oral healthcare heightens the risk of costly medical complications. The Committee appreciates NIH's support for research that has demonstrated that dental care is closely linked to and crucial to the clinical success of other covered medical services. The Committee urges NIH to fund additional research in this area and conduct trials to determine which oral care interventions are most effective for improving medical management and reducing the prevalence of malignant oral cancers, preventing pneumonia in hospitals, and lowering hospitalization and emergency department admission rates for nontraumatic oral conditions.

Oral Health Disparities: Promoting Prevention



NIDCR/ADA webinars Feb 14 and 28, 2024

- Fluoridation and Sealant implementation
- school nurses, pediatrics, family medicine, dentistry, others.....

NIDCR participated in FDA's Virtual Public Meeting on Strategies to Reduce Added Sugar Consumption in the United States Nov 2023



Oral Health Disparities: Data



- NIDCR/NIMHD collaboration to include NIMHD Science Collaborative for Health disparities and Artificial intelligence bias Reduction, ScHARe, ScHare within the DDS data ecosystem
- Federated data system that allows cloud-based computing
- facilitate sharing of oral biologic and SDOH data across NIH, federal partners and the community
- allow the development of oral SDOH capacity and expertise
- help identify research gaps and promising research directions, accelerate SDOH research
- Central to Caries equity program –ADAPT EQ (H Iida) community-based participatory approaches to design, implement, and evaluate population-based intervention strategies for reducing dental caries disparities and inequities in target populations.



Oral Health Disparities: Partnering to move the needle on disparities and medical dental integration....Federal efforts

NIDCR, CMS, AHRQ- providing evidence to support coverage of medically necessary dentistry

NIDCR and Healthy People 2030-

4 areas focused on oral health:

1. Oral Conditions, Improve oral health by increasing access to oral health care, including preventive services.
 2. Health Policy, Use health policy to prevent disease and improve health.
 3. Health Care Access and Quality, Increase access to comprehensive, high-quality health care services.
 4. Preventive Care, Help people get recommended preventive health care services.
- Dental utilization is a Leading health indicator

NIDCR and FDA- Reduction of added sugars, national and societal cost

NIDCR and CDC- ongoing collaborative national assessment of oral health in the context of chronic metabolic disease

Acquiring additional expertise- Sharon Jackson, MD is a disparities expert who has joined our team after 10 years with NIMHD intramural. Strong team with H. Iida and L Baccagnali....

Oral Health Disparities: Partnering through the OHCC

- NIDCR and the federal Oral Health Coordinating committee
- National Oral Health Strategic Framework 2024- 2029
- NAM report focused on action-oriented elimination of oral health disparities- public and private partners
- Collectively working with public and private partners toward a national strategy that could model the nutrition strategy and may focus in these areas among others:
 - Improve Oral Health Access and Affordability.
 - Integrate Oral Health and Systemic Health
 - Empower All Consumers to Make and Have Access to Oral Health
 - Enhance Oral Health Research and Innovation

Oral Health Disparities: The Opportunity



The U.S. Preventive Services Task Force (USPSTF) concludes that the evidence is currently **insufficient** for recommending oral health screening and preventive interventions for children aged 5 to 17 and adults in primary care settings. (May 23, 2022)

Our response:

Opportunity for a study in a nationally representative sample to determine whether whole person approaches and primary care linkage can improve oral health and oral health disparities.



Oral Health Disparities: NOSI Upcoming

- Working with the NIH office of prevention/ USPTF
- Focus on **co-located sites**:
 - RAM- remote area medical
 - IHS- Indian Health Service
 - FQHC- CMS/ HRSA
 - BOP- Bureau of Prisons
 - IHSC/ICE- immigration
 - DHS-coast guard
 - VA
 - HRSA
- **Intervention**-Provider training , dental and medical Comprehensive Dental Care
- **Assessment** of medical outcomes, QOL, economic savings
- **Design** Intentional referral vs Standard of care

Oral Health Disparities: Whole Person Health



- Working with other institutes to view oral health as a modifiable risk factor- adding to existing trial efforts
- Our imperative: Poor oral health and oral health disparities have high individual and societal costs

Rick Woychik, Ph.D., Director National Institute of Environmental Health Sciences (NIEHS)



- Oversees federal funding for biomedical research to discover how the environment influences human health and disease
- Served as NIEHS Deputy Director prior to becoming director
- A mammalian geneticist; research focuses on the molecular mechanisms of environmental agents influence the epigenetic control of gene expression.

Funding Initiatives

- Climate Change and Human Health
- Disaster Research Response (DR2) Program
- Environmental Health Language Collaborative
- Global Environmental Health
- NIH RADx Efforts at NIEHS
- PFAS Research
- President's Task Force on Environmental Health
- Risks and Safety Risks to Children
- Tox21
- Translational Research at NIEHS
- Women's Health Awareness