



National Institute of Dental  
and Craniofacial Research

## **Oral Health for All: *Realizing the Promise of Science***

University of Washington  
School of Dentistry  
Research Day

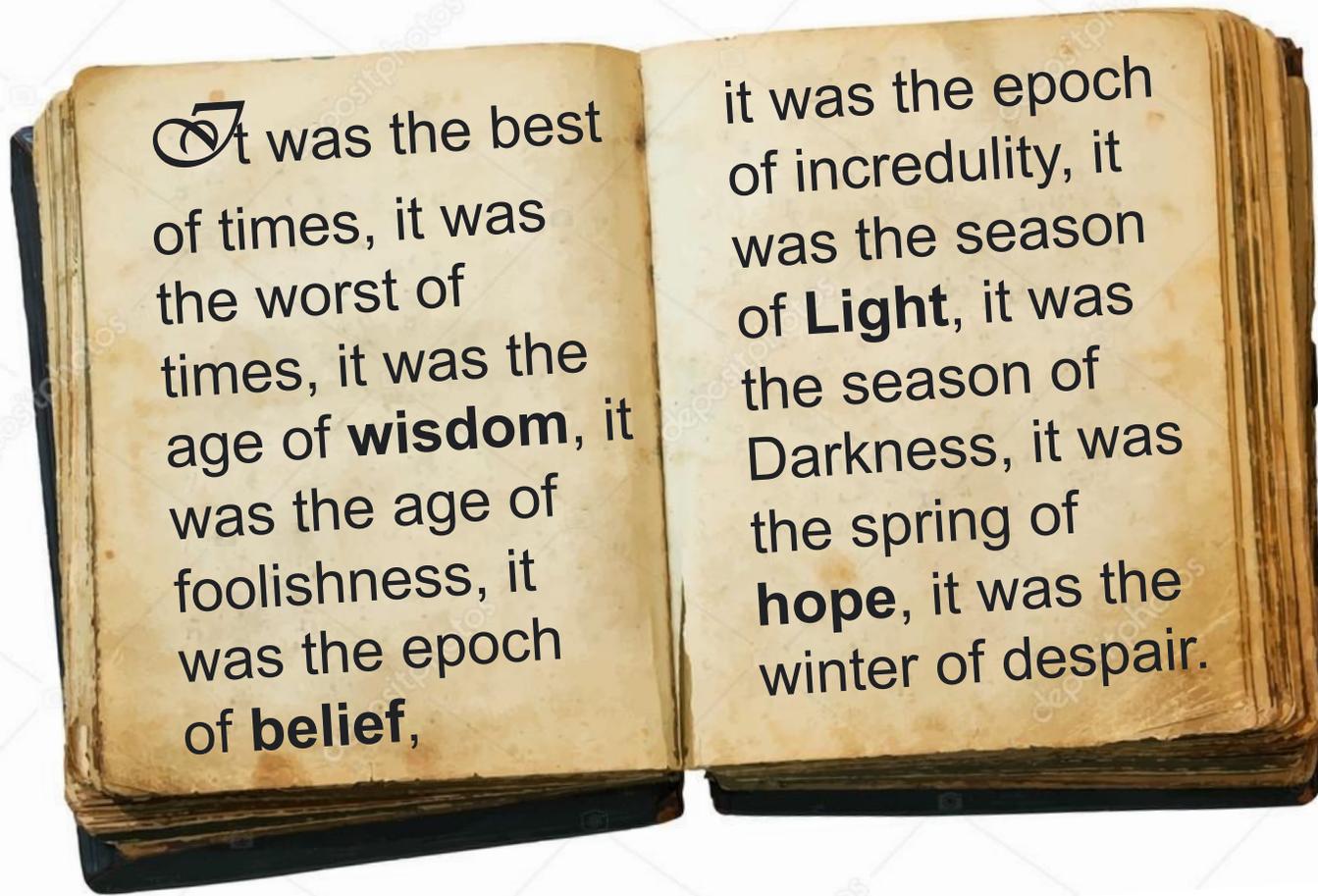
***Translational Oral Health Research***

**Director**

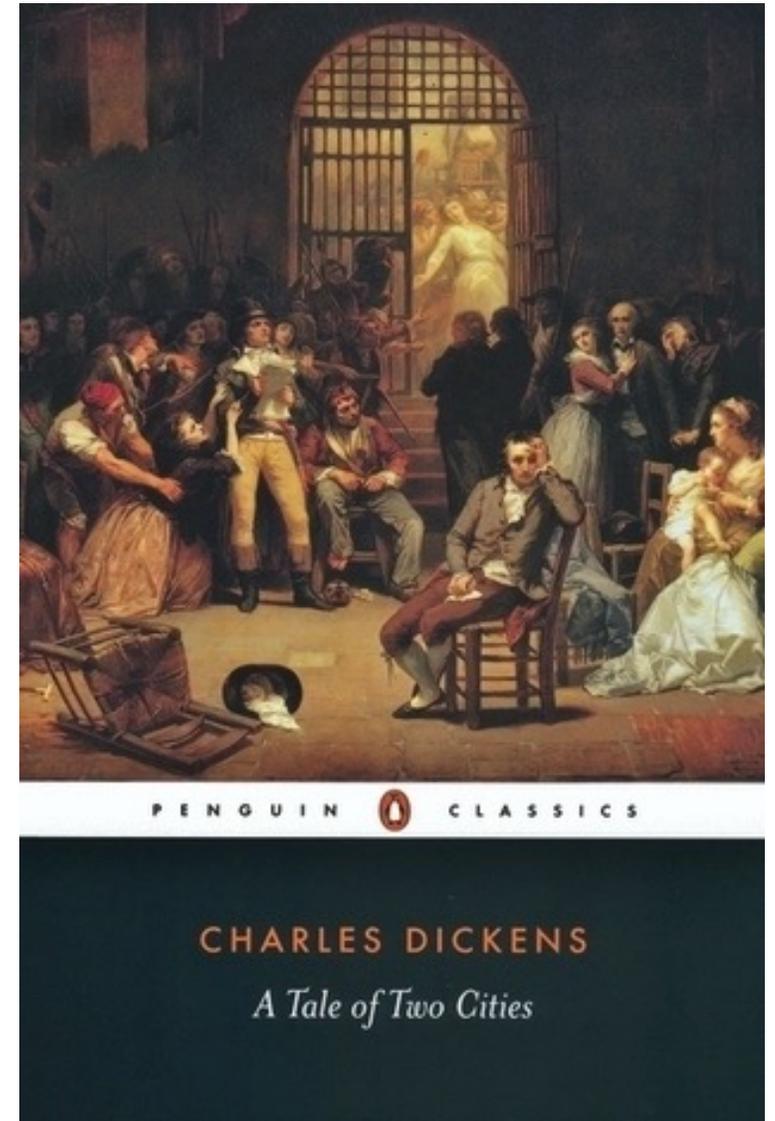
**Rena N. D'Souza, DDS, MS, PhD**

**February 1<sup>st</sup> 2023**





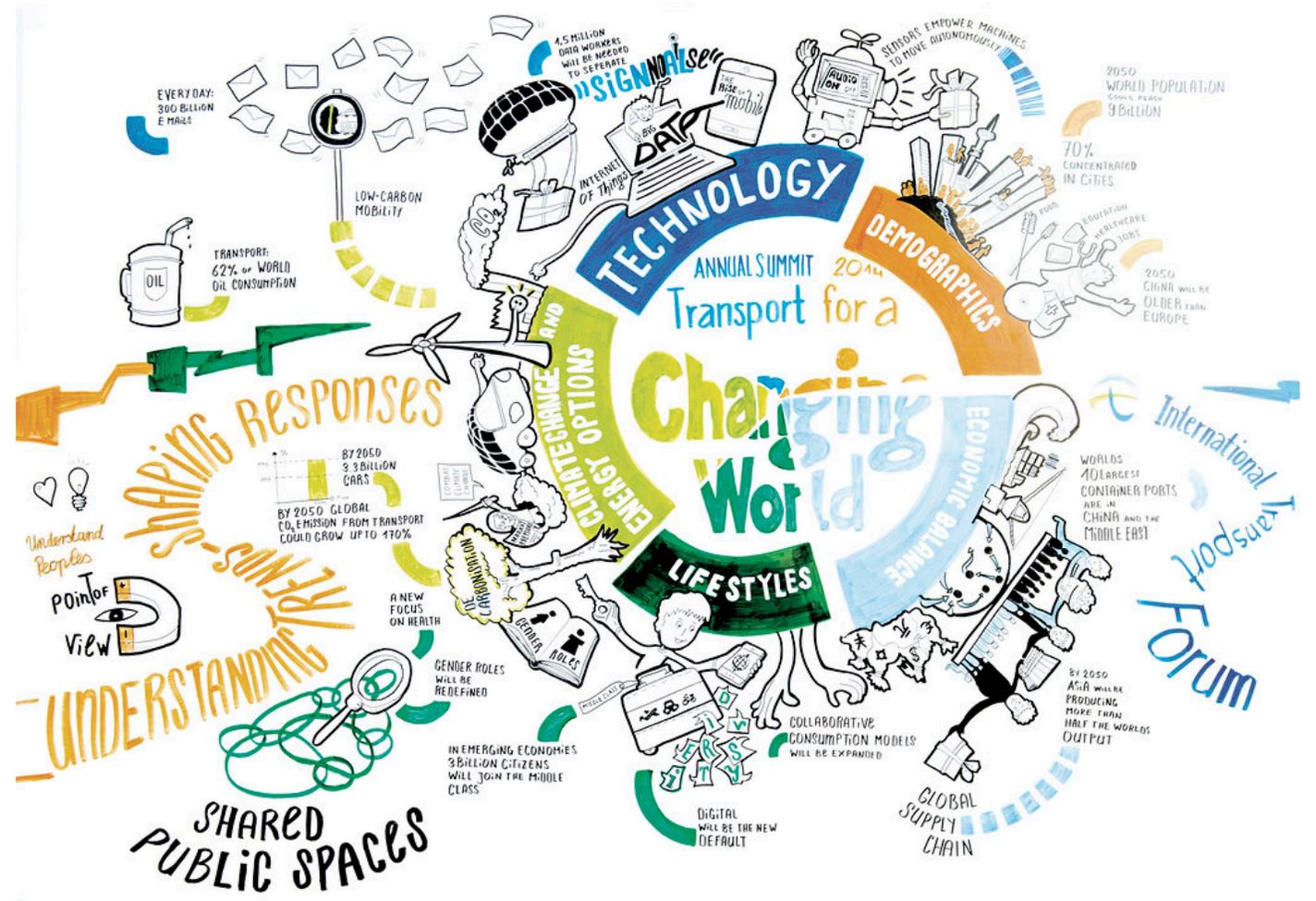
## A Quote for Our Times.....



# Our World is Changing.....



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# My Journey as a Clinician – Scientist



- A sense of intellectual curiosity
- Interest in using clinical questions (derived from chair side experiences) to drive scientific inquiry and the translation of discovery into practice
- A passion for mentoring and the dissemination of knowledge
- A commitment to diversity and the development of human potential
- A calling and the drive to make a difference

# Topics for Today : Translate we Must!!!

- State of NIH
  - Leadership; FY'23 Budget Appropriations
  - New Programs and Imperatives
- NIDCR – How we Define Translation
  - Strategic Plan and 2021 *OHIA* Report
  - Concept Clearances and New Initiatives
- Connecting the Dots Across Life Span and Disease
  - Prevention Strategies
  - Integration Across Research Portfolio
- Looking Forward to the next 25 years



# Leadership Strong.....



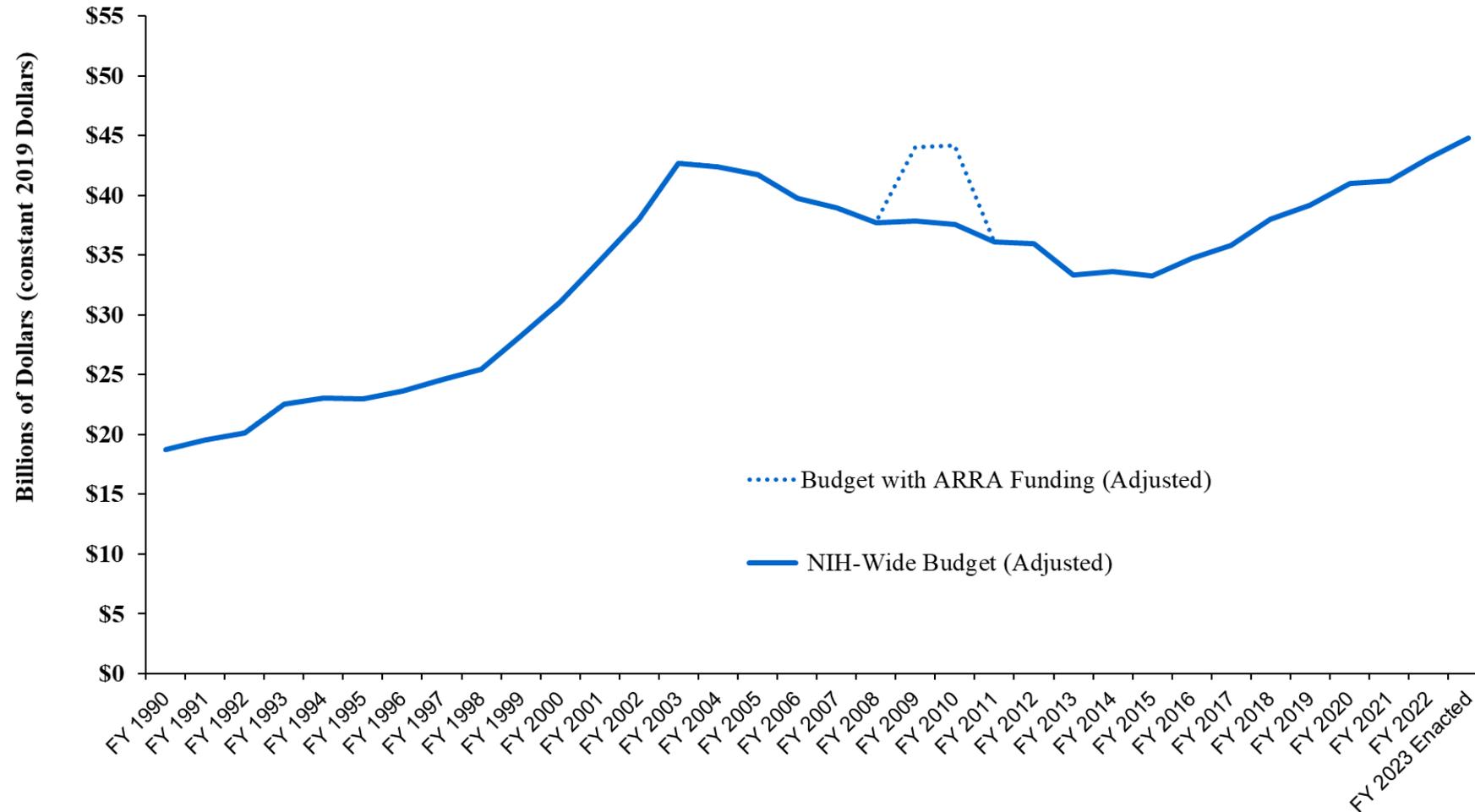
Performing the Duties of the NIH Director  
**Lawrence A . Tabak, D.D.S., Ph.D.**



Inaugural Director,  
Advanced Research Projects Agency for Health (ARPA-H)  
**Renee Wegrzyn, Ph.D.**

# National Institutes of Health Funding

## 1990-2023



Notes: Dollar values are adjusted to 2019 dollars using the Biomedical Research and Development Price Index (BRDPI), <http://officeofbudget.od.nih.gov/gbiPriceIndexes.html>.

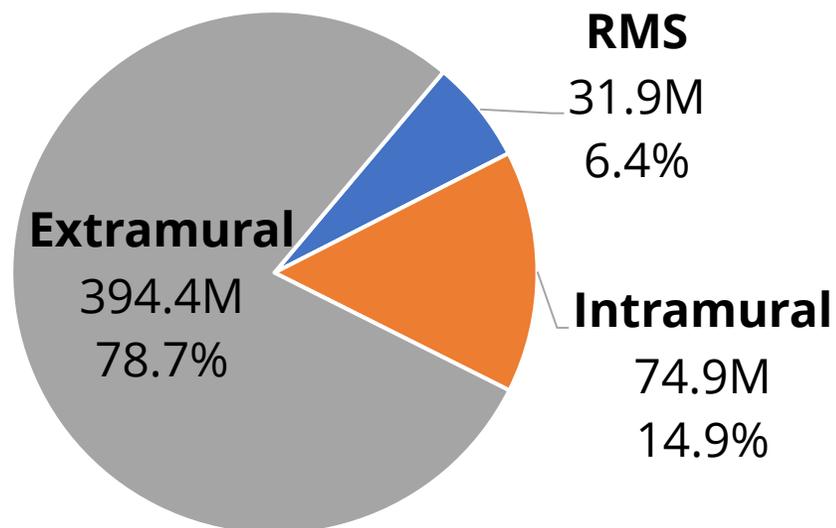
Includes funding for ARPA-H, \$1 billion in FY22 and \$1.5 billion in FY23.

Sources: the NIH's Office of Extramural Research and the Office of Budget (March 2022).

# FY 2022 Enacted & FY 2023 Appropriation

	FY 2022 Enacted	FY 2023 Appropriation	% Increase
<b>NIH*</b>	\$46.2B	\$49.2B	+\$3B / +6.5%
<b>NIDCR</b>	\$501.2M	<b>\$520.2M</b>	+\$19.0M / +3.8%

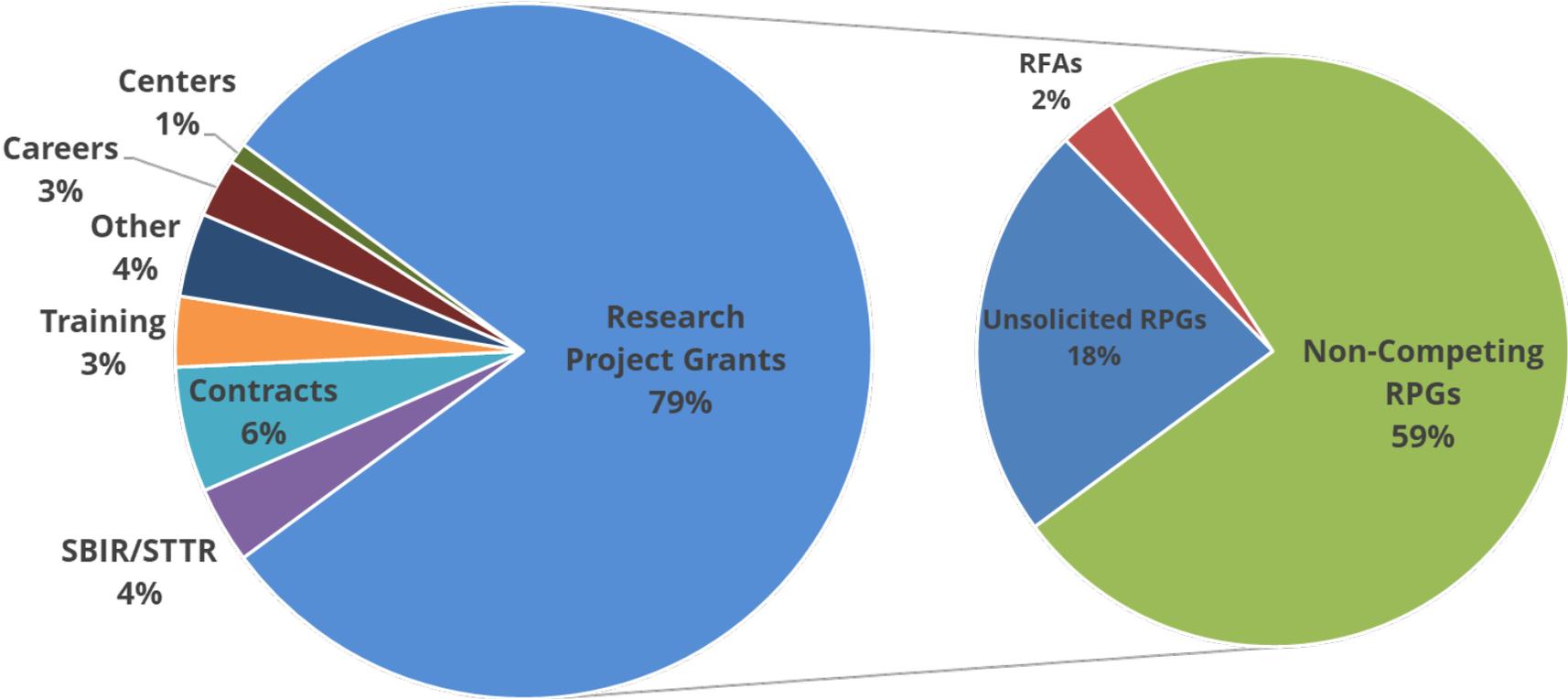
FY 2022 Estimated Actuals



\*NIH values include ARPA-H funding.

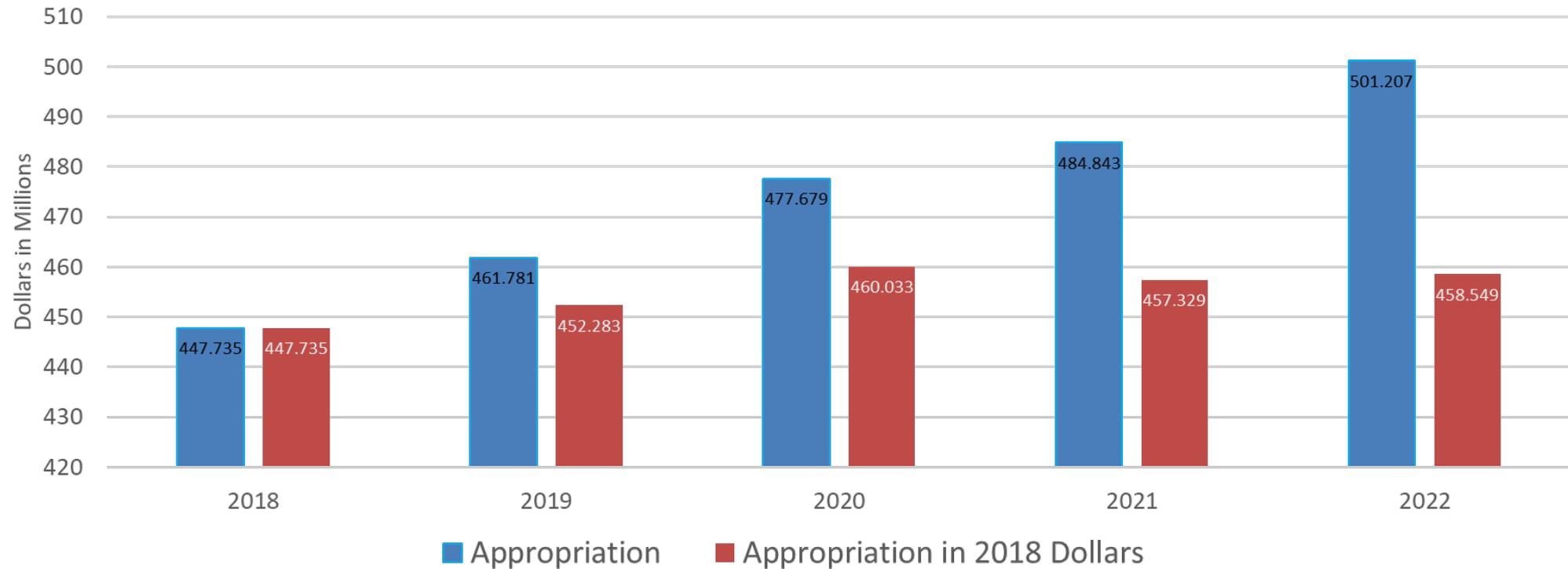


# NIDCR: Distribution of Extramural Budget (FY 2022 Estimated Actuals = \$394.4M)

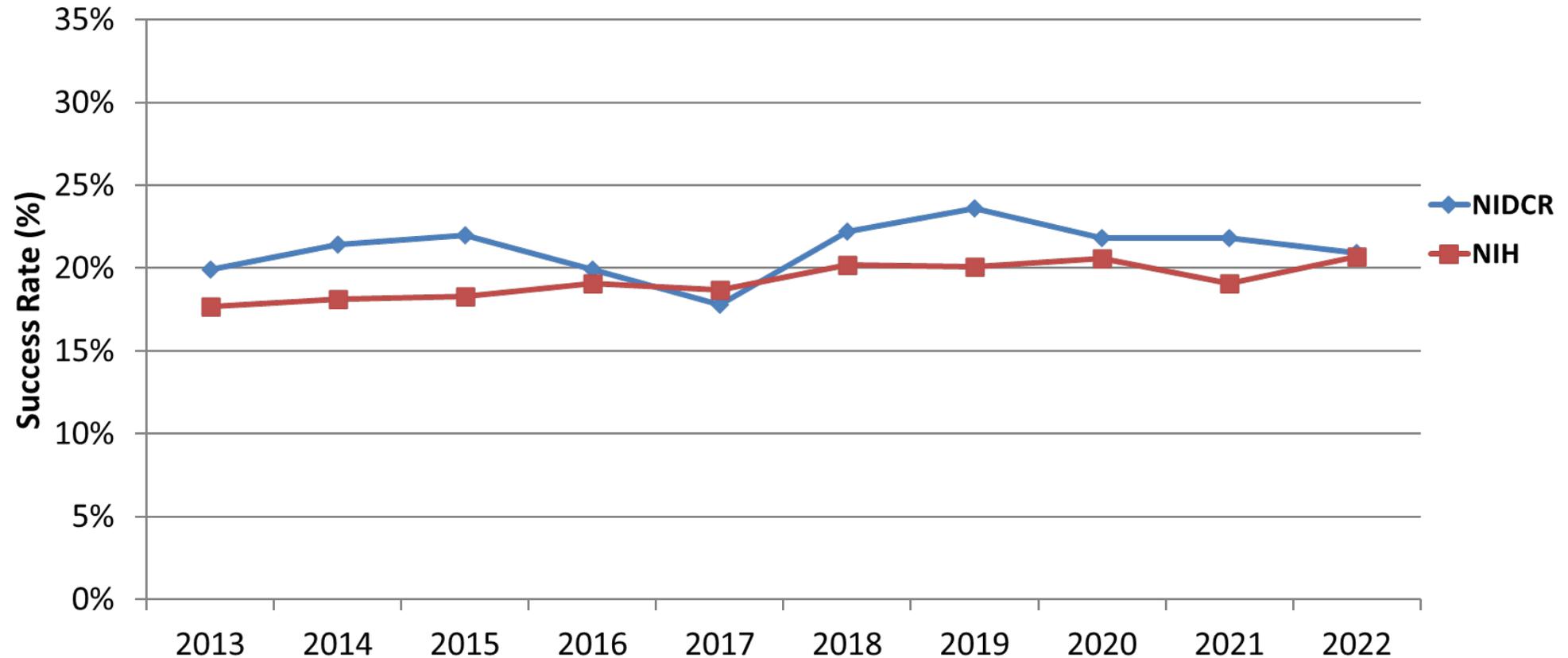


# NIDCR Appropriations

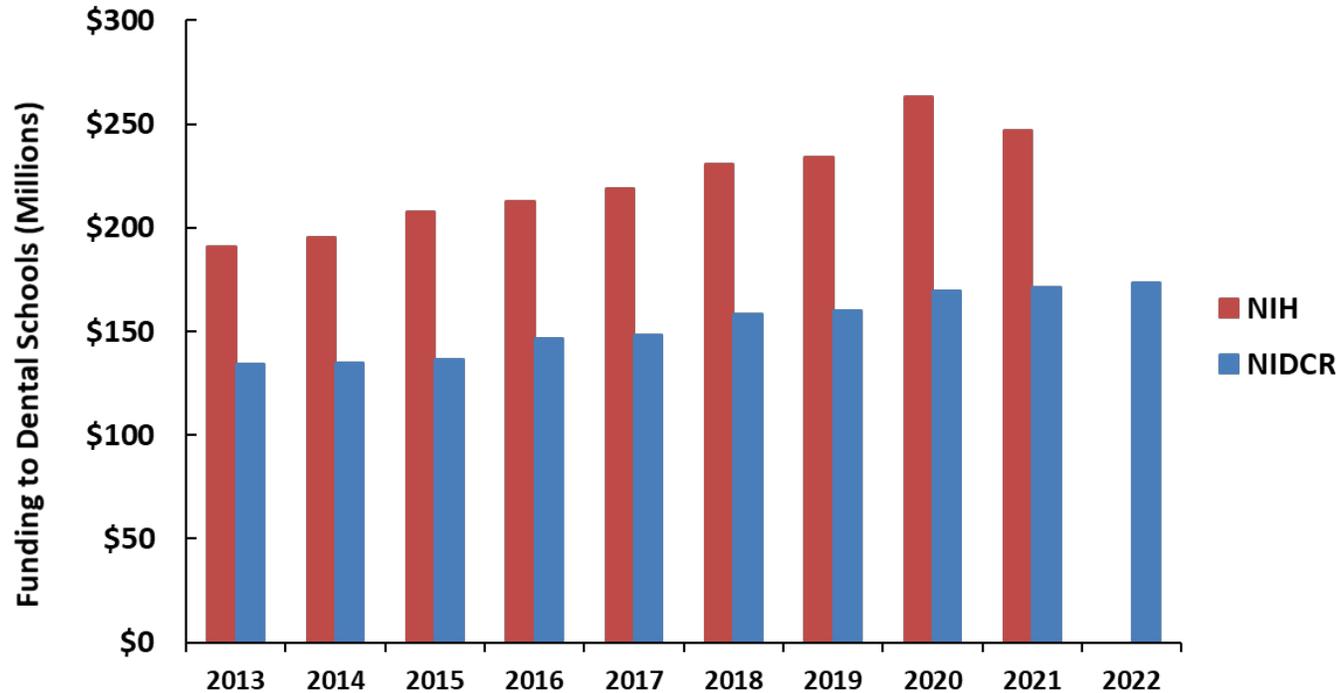
## FY 2018 – FY 2022: Appropriation vs. Purchasing Power



# NIH and NIDCR RPG Success Rates



# NIH and NIDCR Dental School Funding

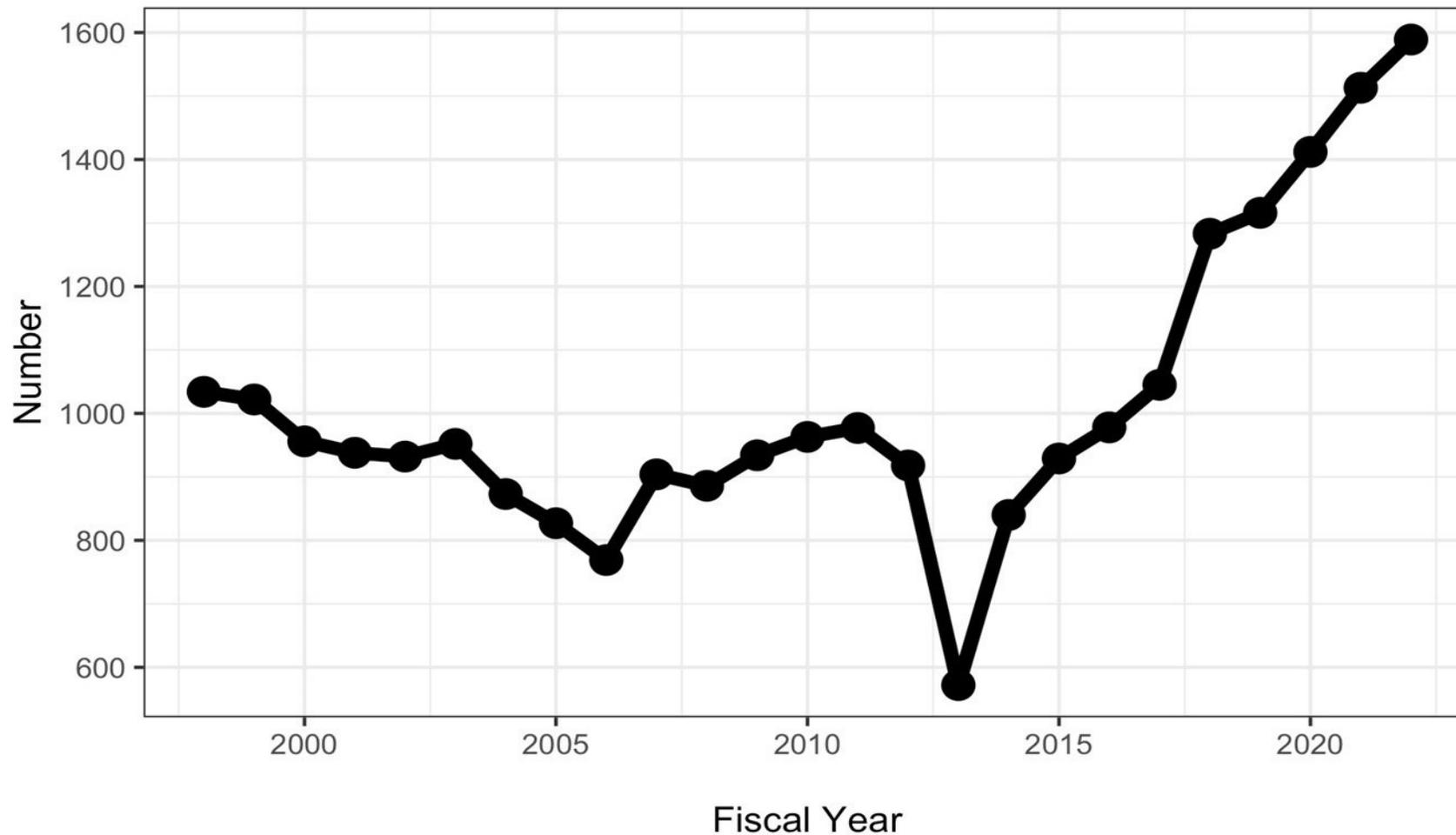


## FY 2022

- NIDCR provided approximately 65% of NIH's total Dental School funding.
- Dental school funding accounted for approximately 44% of NIDCR's total extramural budget.



# Early Stage Investigators (ESI) Funded on First R01-Equivalents



- NIH's goal is to fund 1100 ESI per year
- In 2022, NIH funded a record **1589 ESI applicants**

**NIDCR = 16**

# QUESTIONS



# President Biden Reignites the Cancer Moonshot



## **Ambitious Goals Include:**

- Reduce the death rate from cancer by at least 50 percent over the next 25 years
- Improve the experience of people and their families living with and surviving cancer—and, by doing this and more
- End cancer as we know it today

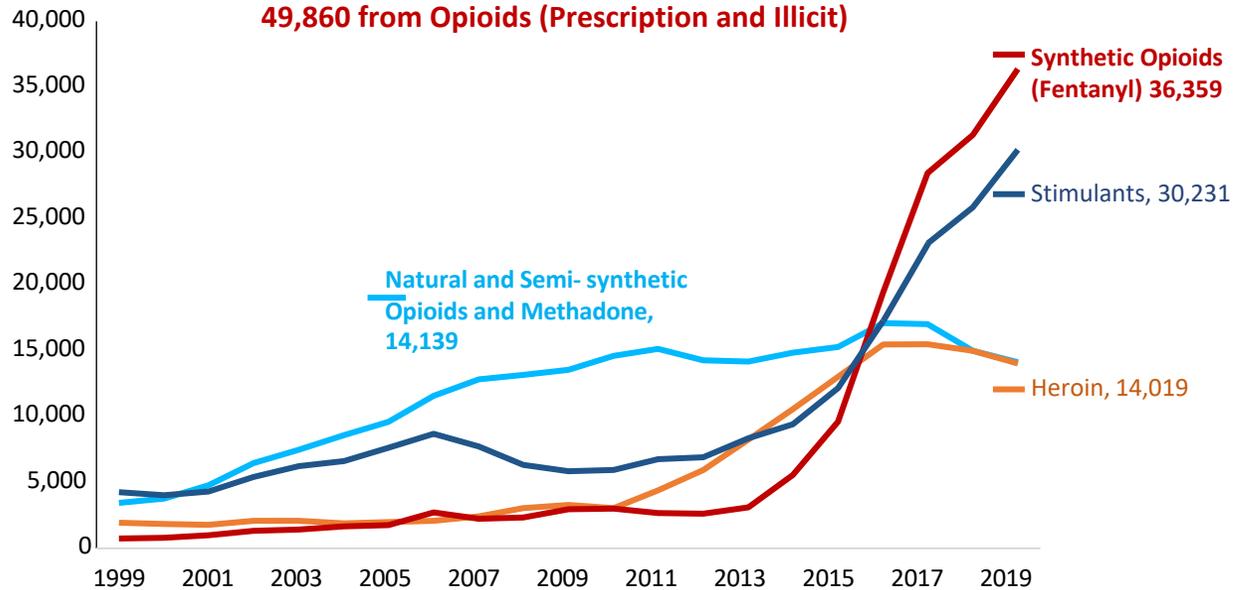
# Pain Management and Substance Use Disorders

- Discovery and validation of novel targets for safe & effective pain management
  - 2 patents for small-molecule modulators of pain receptors to treat chronic pain, migraine
  - Investigational New Drug (IND), a first-in-class, non-additive drug candidate for treating chronic pain
- Novel therapies for opioid use disorder and overdose
  - 50+ compounds being developed, 23 INDs filed with FDA, study of opioid vaccine
- Devices targeting nerve signaling to treat pain and opioid use disorder

# Evolution of Drivers of Overdose Death, All Ages

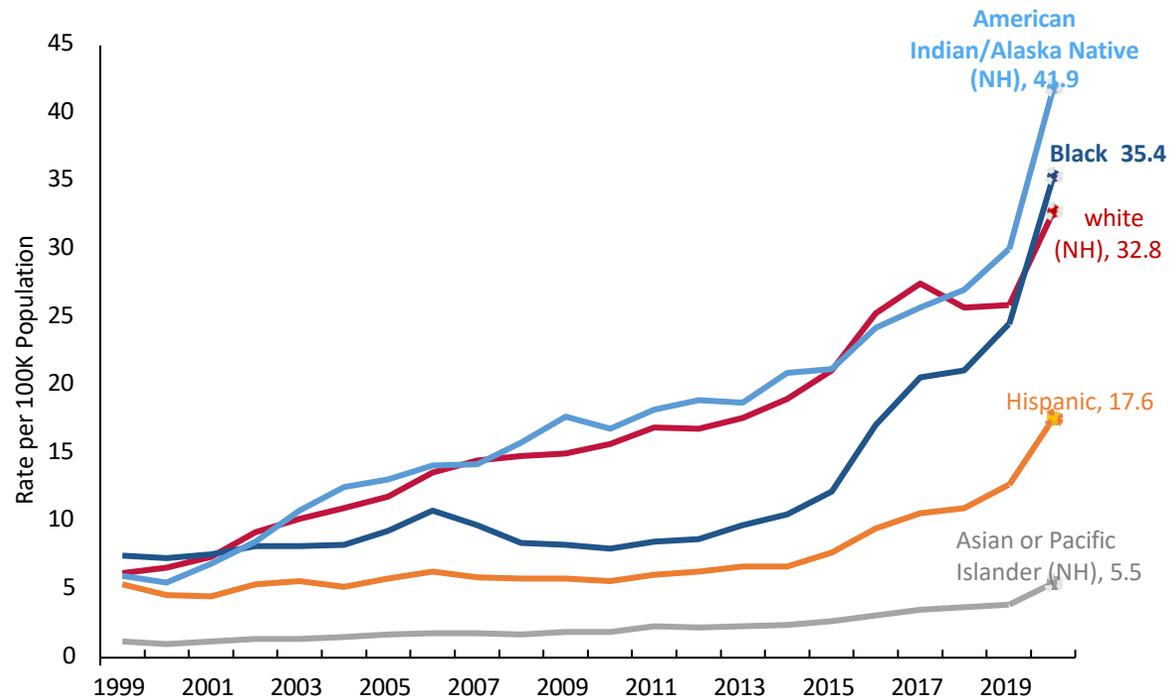
Analgesics → Heroin → Fentanyl → Stimulants

104,000 Deaths in 12 months ending Sept 2021  
49,860 from Opioids (Prescription and Illicit)



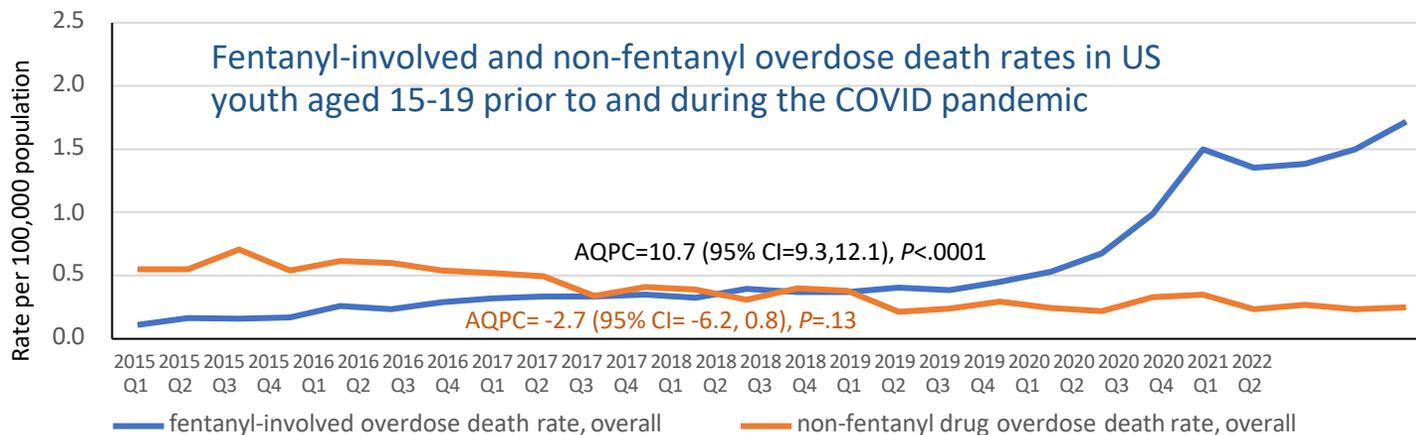
Source: The Multiple Cause of Death data are produced by the DVS, NCHS, CDC.

# Drug Overdose Death Rates by Race/Ethnicity



NCHS, National Vital Statistics System. Estimates for 2020 are based on final data.

## Fentanyl-involved and non-fentanyl overdose death rates in US youth aged 15-19 prior to and during the COVID pandemic



National Vital Statistics System multiple-cause-of-death 2015-2020 final and 2021 provisional data U.S. census monthly data.

Dr. Nora Volkow  
NIDA

# Oral Health – Mental Health – Substance Use

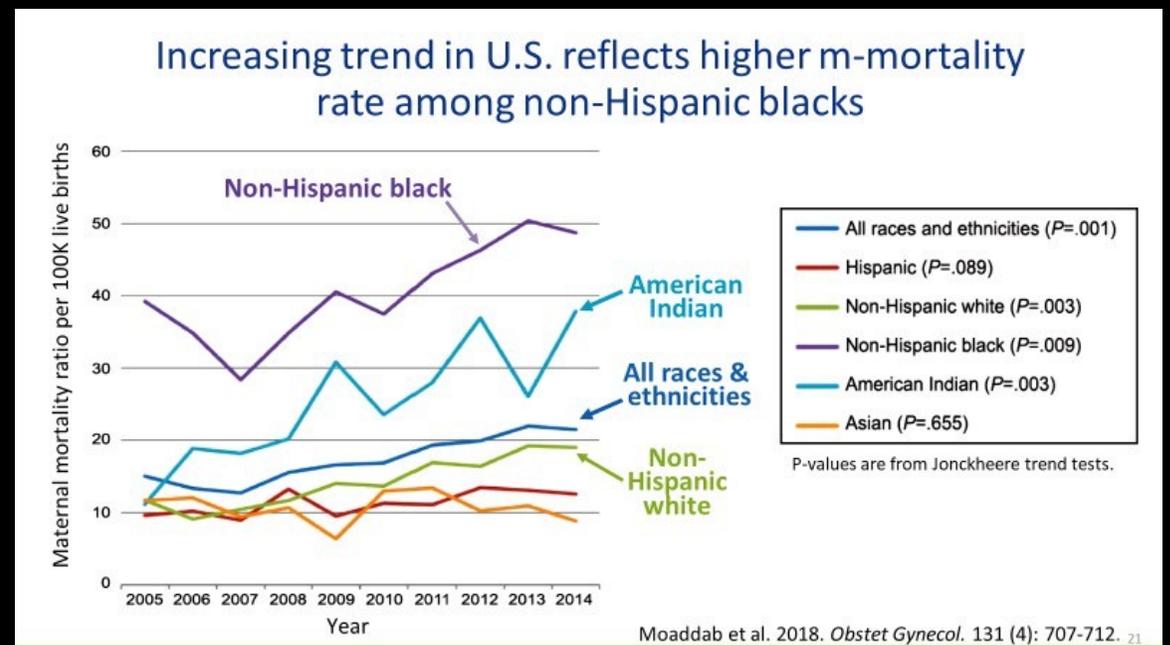
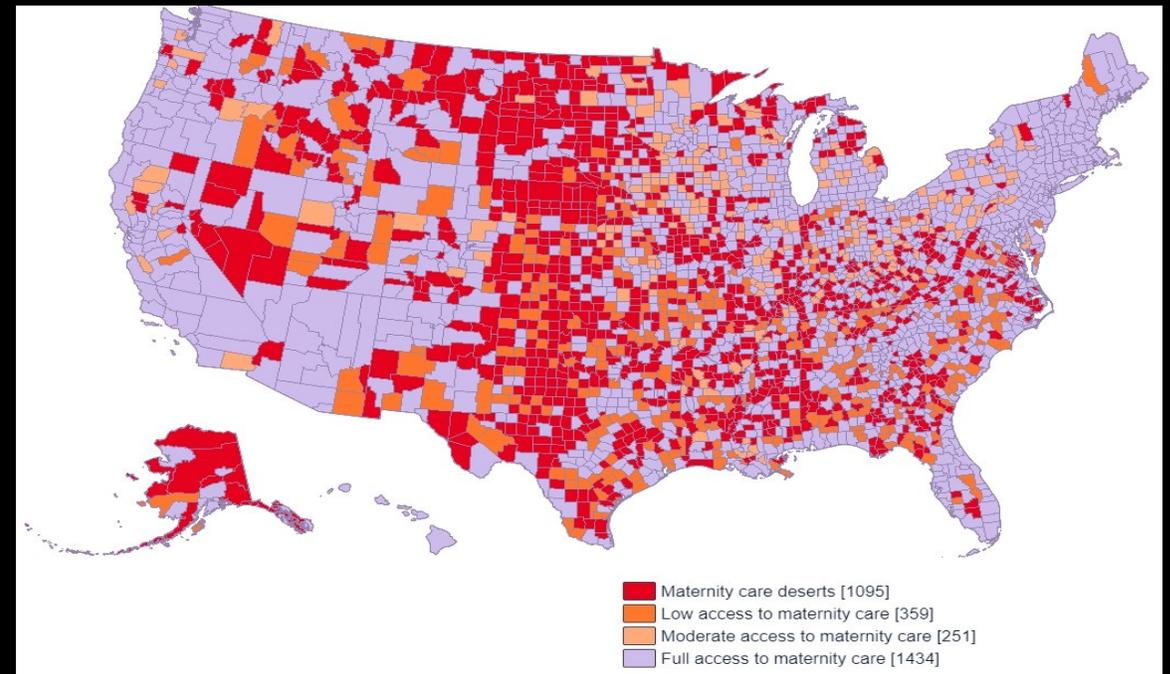
- **Dental conditions – 2nd highest reason for opioid Rx (CMS Report)**
  - Prescribed for invasive procedures, 3rd molar extractions; 94% of patients opioid Rx
  - Prescribing rates by dentists range from 3% to 6–10%/visit (Medicaid data)
  - Leftover pills a concern – average of 28 pills post oral surgery, with 15 (54%) unused
- **Emergency Room visits - 5X more likely to receive an opioid Rx**
  - >50% of dentists wrote opioid prescriptions that exceeded recommended regimen
  - Adolescents (11 – 18 years) also prescribed; rate of 166/1,000 in 2015
- **Mental Illness – Serious consequences for oral health**
  - Increase in periodontal disease, dry mouth – caries; erosion; alcohol abuse – mucositis and oral cancers



## America's health disparities and high maternal mortality rates

- Black women were **3X as likely to die** as White women\*
- American Indian/Alaska Native women **2X as likely to die** as White women\*
- More than **2.2 million women** of childbearing age live in **maternity care deserts** (1,095 counties).

\* Non-Hispanic



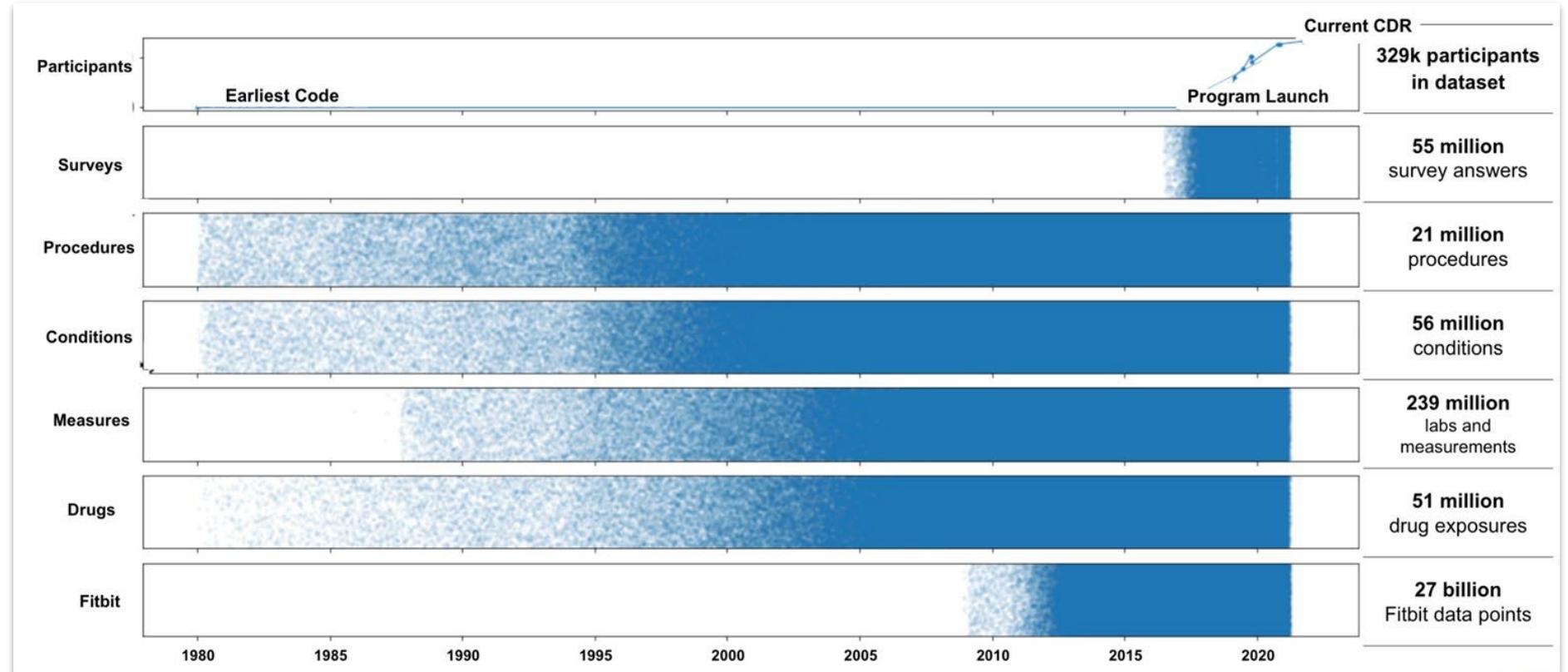
# Maternal Health Action

- NIH is committed to understanding and reducing maternal morbidity and mortality and disparities in maternal health
- In FY2021, NIH budget directed >\$422 million to maternal health research with >\$240 million specifically addressing maternal morbidity and mortality
- Increasing research by early-career and underrepresented researchers
- NIH-wide IMPROVE initiative—Implementing a Maternal health and Pregnancy Outcomes Vision for Everyone
- NICHD-supported studies leading to the first medicine, Orlistat, approved by the FDA to treat pain associated with endometriosis

# All of Us Research Program

**493,000+**  
Participants

**338,000+**  
Participants who have  
completed initial steps  
of the program

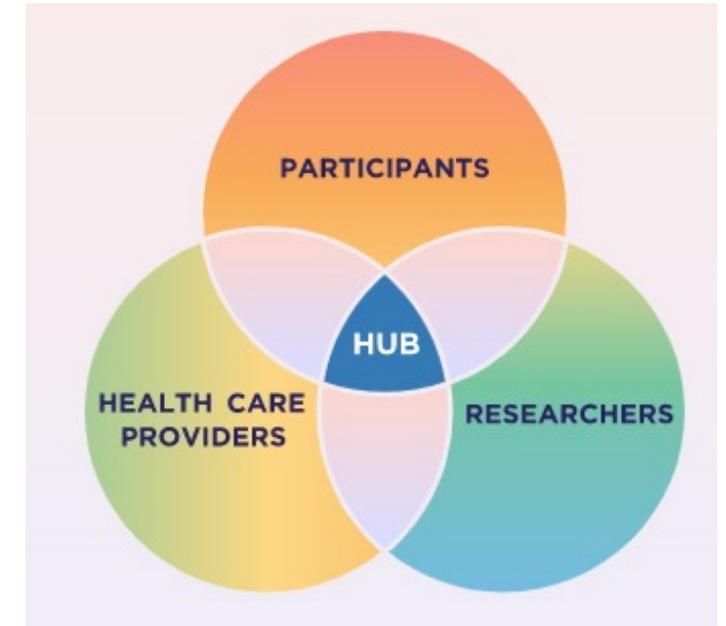


**Plus: ~100k whole genomes + ~165K arrays**

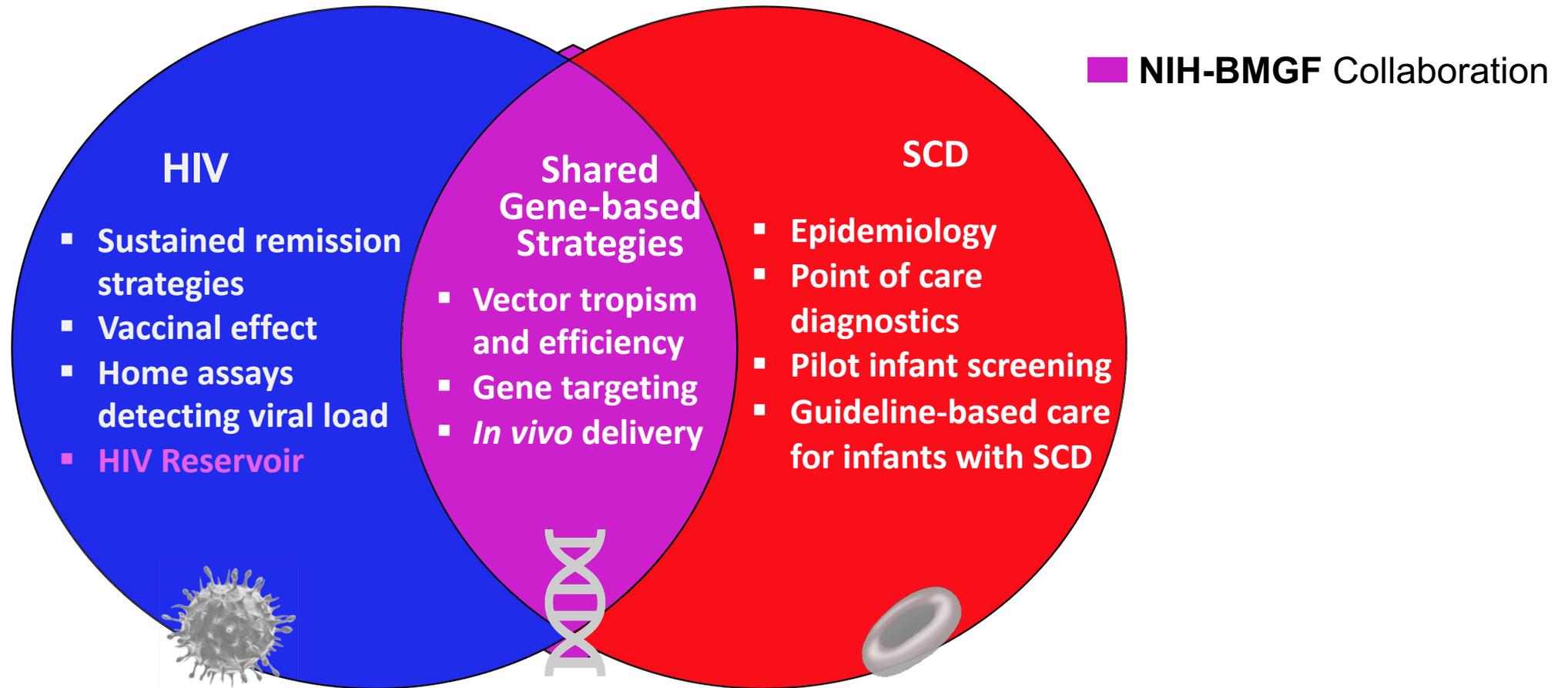
# Connecting *All of Us* and NIDCR

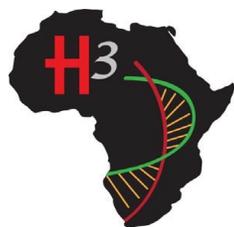
**Parent Project:** *Age cohort changes in oral conditions and life transitions - Multilevel analyses of oral health conditions among older adults in the All of Us Research Program* (PI: Jane Weintraub)

- **Supplement:** AoU Controlled Tier dataset: clinically determined oral and medical health information, zip code, and geographic contextual data
- **Parent Project:** *Enhanced Data from Orofacial Cleft Trios to Strengthen the Gabriella Miller Kids First (GMKF) Discovery Goals* (PI: Mary Marazita)
- **Supplement:** AoU broad types cancer diagnoses and genomics information with known commonalities with orofacial clefts
- **Parent Project:** *Assessing completeness and accuracy of the EHRs harbored at BigMouth Dental Data Repository-Supplement* (PI: Tamanna Tiwari)
- **Supplement:** AoU race/ethnicity, dental history, behavioral attributes and health history variables



# Research Focus of the NIH-BMGF Collaboration





# Resources

## Policies and guidelines:

- H3Africa Guidelines for Community Engagement
- H3Africa Guidelines for Informed Consent
- Framework for African Genomics and Biobanking
- H3Africa Data Sharing, Access & Release Policy
- H3Africa Data and Biospecimen Access Committee Guidelines
- Recommendations for Feedback of Findings

## Regional Biorepositories: Research Focus of the NIH-BMGF Collaboration

- Located in Nigeria, Uganda, and South Africa
- ISBR compliant
- Support for collection, processing, storage, retrieval, and shipping
- LIMS and catalog of samples
- Regional distribution, training & support
- Effective, affordable, & reliable regional courier shipping routes

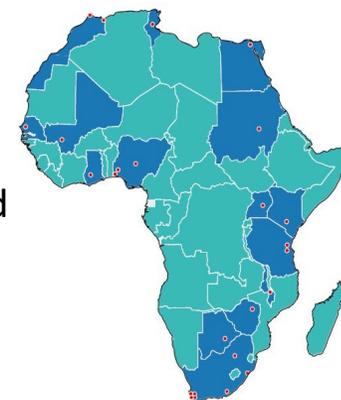


## Research tools and products:

- Phenotype harmonization
- Cardiovascular disease harmonized data
- Training modules and trained personnel
- Population genetics studies
- ADME study
- H3Africa genotyping array

## Bioinformatics Network:

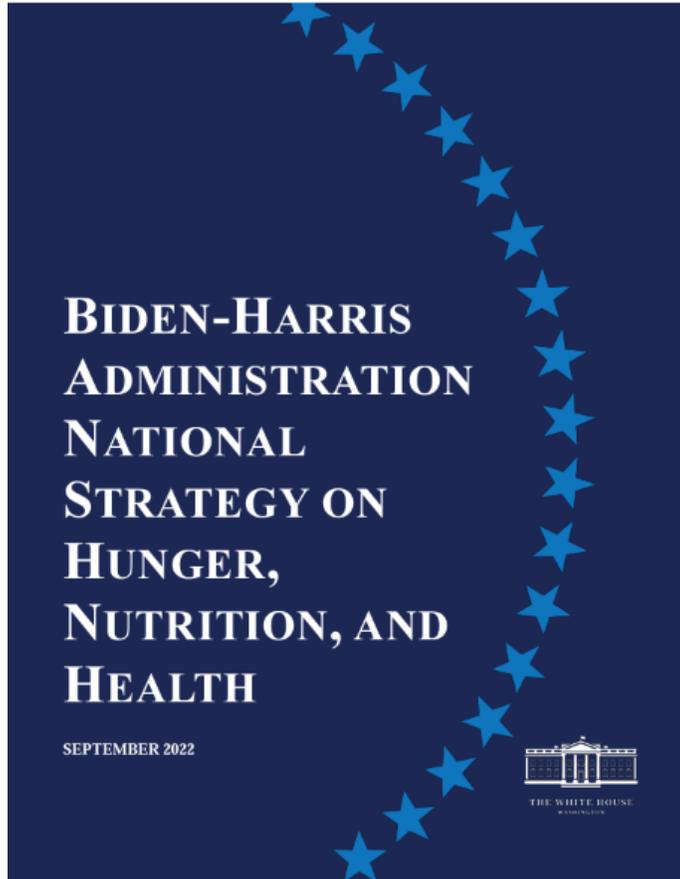
- 135TB genomic data stored
- 1.2 PB available for storage
- 80TB genomic data transferred
- 3432 cores for processing
- 18 computing facilities
- 4 containerized workflows



[www.h3abionet.org](http://www.h3abionet.org)

# White House National Strategy Highlights Impact of Oral Health

*Goal: End hunger in America and increase healthy eating and physical activity by 2030 so fewer Americans experience diet-related diseases— while reducing health disparities*



**Pillar 1—Improve Food access and Affordability**

**Pillar 2—Integrate Nutrition and Health**

**Pillar 3—Empower All Consumers to Make and Have Access to Healthy Choices**

**Pillar 4—Support Physical Activity for All**

**Pillar 5—Enhance Nutrition and Food Security Research**

***Page 33: “HHS NIH will research the interplay between nutrition, oral disease and comprehensive health.”***



# ARPA-H: The Mission

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The Advanced Research Projects Agency for Health

Renee Wegrzyn, Ph.D.  
Director, ARPA-H

125<sup>th</sup> Meeting of the NIH Advisory Committee to the Director (ACD)

December 8, 2022

# President Biden's Vision

*“ARPA-H will pursue ideas that break the mold on how we normally support fundamental research and commercial products in this country.”*

*“Ideas so audacious that people say they just might work only if, only if, we could try. Well, we’re about to try in a big way.”*

- President Biden Remarks, March 18, 2022



Accelerate better health outcomes **for everyone**

# Advanced Research Projects Agency for Health (ARPA-H)

**Forbes**

## President Biden Proposes ARPA-H, New \$6.5 Billion Health Entity To Transform How Research Is Done

**Bruce Y. Lee** Senior Contributor @ Health [Follow](#)

*I am a writer, journalist, professor, systems modeler, computational and digital health expert, avocado-eater, and entrepreneur, not always in that order.*

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Leveraging DARPA successes - Internet, GPS, self-driving cars, mRNA vaccines

Maximizing the full potential of the U.S. biomedical enterprise

Flexible, nimble strategies to accelerate biomedical discovery

Building high-risk, high-reward capabilities/platforms to drive biomedical breakthroughs

Revolutionizing prevention and treatment, and finding cures for a range of diseases that affect all Americans

Cancer, infectious diseases, Alzheimer's, diabetes



**Science** POLICY FORUM

Cite as: F. S. Collins *et al.*, *Science* 10.1126/science.abj8547 (2021).

## ARPA-H: Accelerating biomedical breakthroughs

Francis S. Collins<sup>1</sup>, Tara A. Schwetz<sup>1,2</sup>, Lawrence A. Tabak<sup>1</sup>, Eric S. Lander<sup>2</sup>

<sup>1</sup>National Institutes of Health; Bethesda, MD 20892, USA. <sup>2</sup>Office of Science and Technology Policy, Executive Office of the President; Washington, DC 20502, USA. Email: eric.s.lander@ostp.eop.gov

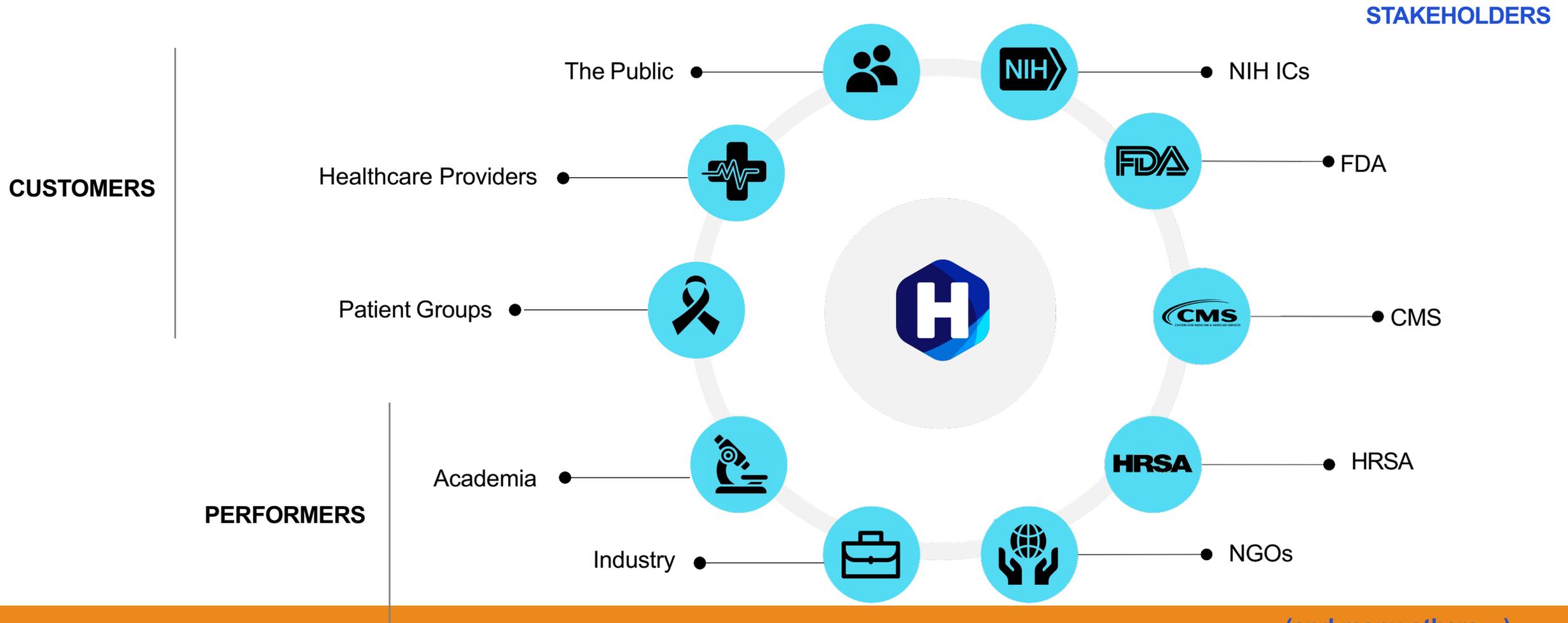
A DARPA-like culture at NIH can drive biomedical and health advances

# Imagine if...

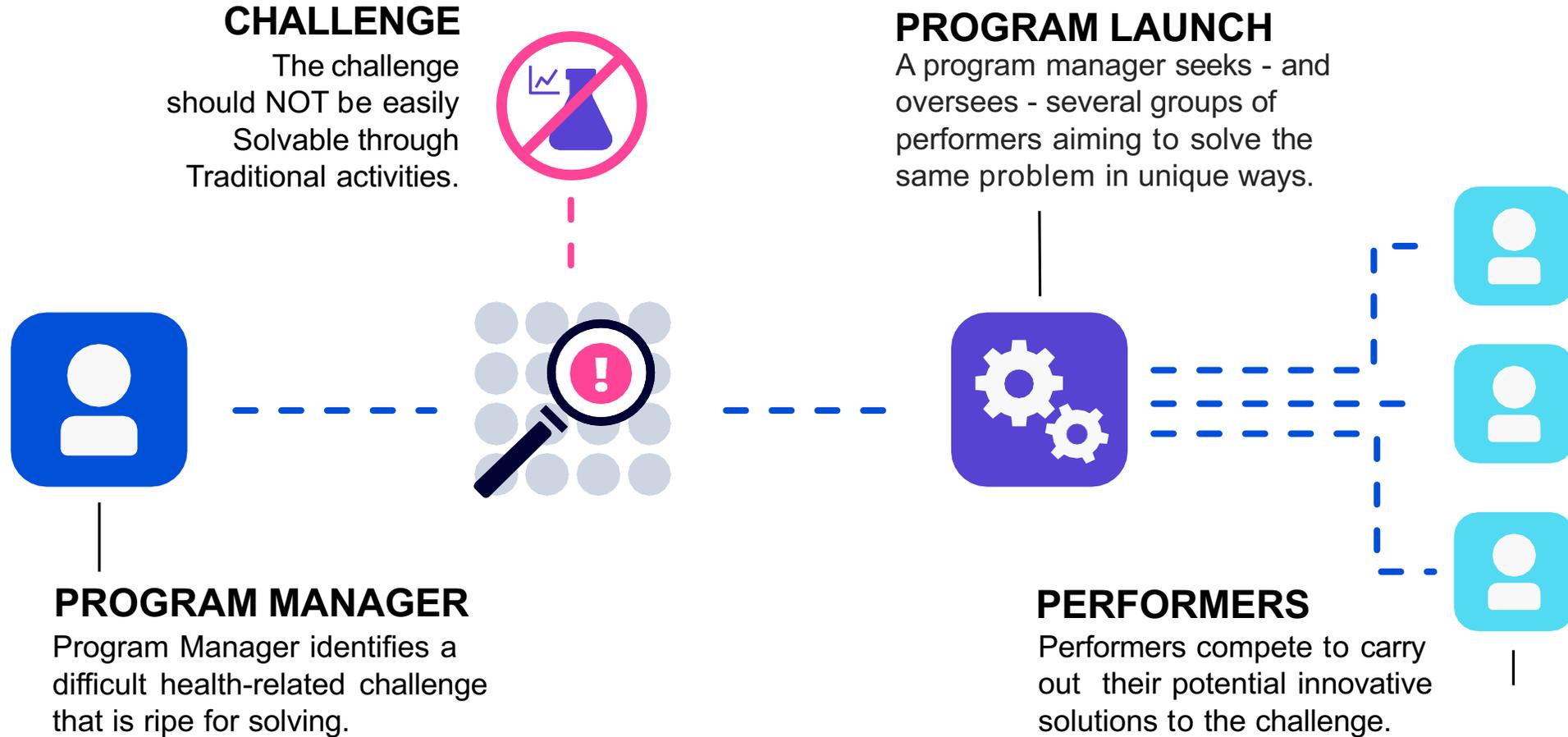
- Cell therapies could be built and assembled on demand, readily re-programmed for each new disease target
- MRIs could be delivered in the comfort of your home
- A personalized cancer vaccine cost the same as a cup of coffee
- We could all realize a better health future.



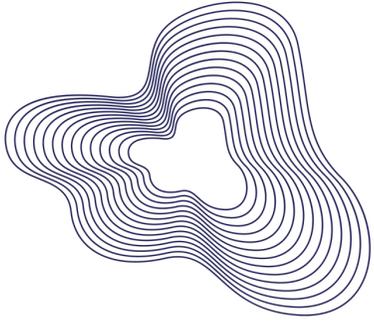
# ARPA-H Health Ecosystem



# ARPA Model: Program Formation



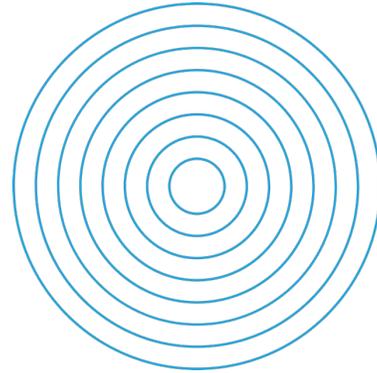
# Initial Mission Focus Areas



## Health Science Futures

### Expanding what's technically possible

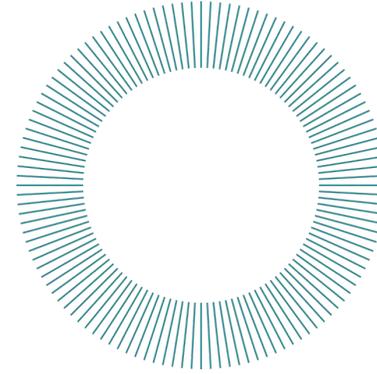
Accelerate advances across research areas and remove limitations that stymie progress towards solutions. These tools and platforms apply to a broad range of diseases.



## Scalable Solutions

### Reaching everyone quickly

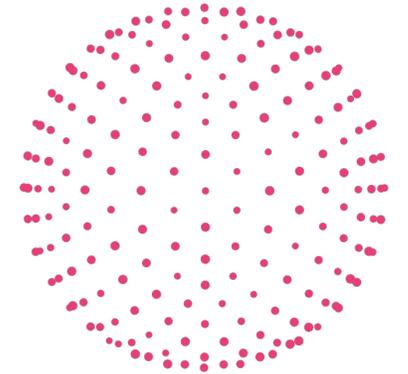
Address health challenges that include geography, distribution, manufacturing, data and information, and economies of scale to create programs that result in impactful, timely, and equitable solutions.



## Proactive Health

### Keeping people from being patients

Preventative programs will create new capabilities to detect and characterize disease risk and promote treatments and behaviors to anticipate threats to Americans' health, whether those are viral, bacterial, chemical, physical, or psychological.



## Resilient Systems

### Building integrated healthcare systems

Create capabilities, business models, and integrations to weather crises such as pandemics, social disruption, climate change, and economic instability. Systems are sustained between crises—from the molecular to the societal—to achieve better health outcomes.

# Program Managers

What are the Phenotypes of these Rational Risk Takers?



*Uncommon people with common traits*

**RECOGNIZED  
EXPERTISE**

**SERIOUS  
DRIVE**

**INSTATIABLE  
CURIOSITY**

**NO FEAR OF  
FAILURE**

**INTERDISCIPLINARY  
TRACK RECORD**

**TECHNICAL  
HONESTY**

## *Different Approaches and Career Stage*

### **THE PROBLEM SOLVER**

Motivated by personal experience; can't let it go.

### **THE ROOKIE**

Early Career. Unbiased, looks at the world with fresh eyes.

### **THE DREAMER**

Intensely curious about how the world works, motivated by search for objective facts/truth.

### **THE STATUS QUO CHALLENGER**

Mid-career. Frustrated by the limits of the existing system.

### **THE TINKERER**

Intrinsic desire to build and experiment. Cares about application, not theory.

### **THE SAGE**

Late Career. Experience yields deep understanding.

# ARPA-(H)eilmeier Questions

## Towards a Well-Defined Problem

- 1 What are you trying to do? What health problem are you trying to solve?
- 2 How does this get done at present? Who does it? What are the limitations of present approaches?
- 3 What is new about our approach? Why do we think we can be successful at this time?
- 4 Who cares? If we succeed, what difference will it make?
- 5 What are the risks? That may prevent you from reaching your objectives? Any risks the program itself may present?
- 6 How long will it take?
- 7 How much will it cost?
- 8 What are our mid-term and final exams to check for success?
- 9 To ensure equitable access for all people, how will cost, accessibility, and user experience be addressed?
- 10 How might this program be misperceived or misused (and how can we prevent that from happening)?

# Examples of Notional Programs Addressing **Moonshot** Strategic Priorities



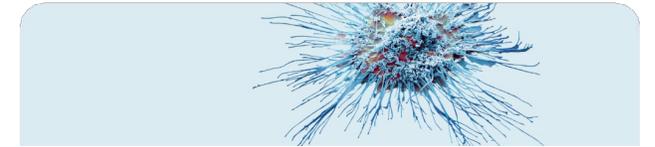
## **Close the screening gap**

What if new at-home screens meant you didn't need to go to the hospital for a colonoscopy anymore?



## **Address environmental exposure**

What if wearable consumer devices also gave you a data readout of environmental risk over time?



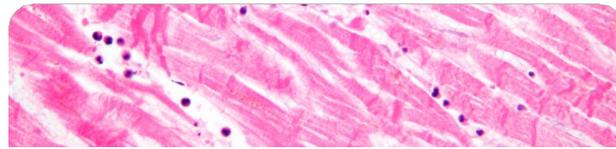
## **Decrease impact of preventable cancers**

What if we had new tools to measure and modulate microenvironments in the body to prevent metastasis?



## **Support patients and caregiver**

What if your electronic health record advocated for you even when you weren't at your doctor's office?



## **Bring cutting-edge research to patients**

What if AI/ML tools could readily interpret 3D histopathology of specimen and the data could be shared instantly with doctors to improve patient care?



## **Address inequities**

What if we could ensure that every community in America – rural, urban, Tribal, and everywhere else – has access to cutting-edge cancer diagnostics, therapeutics, and clinical trials?

# Notional Example: Digital Histopathology Capability

Cancer priorities at ARPA-H are cross-cutting within programs

## Notional Program Problem:

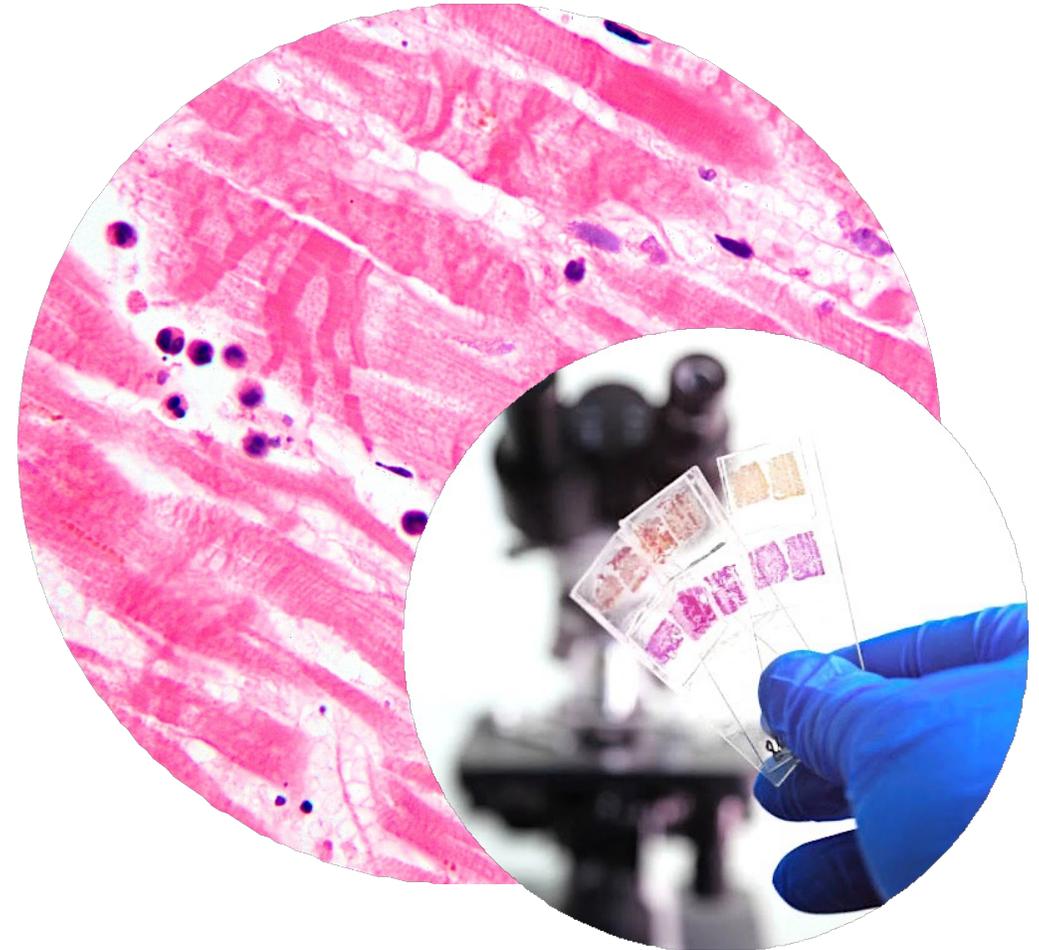
Current histopathology practice is manual, requires an expert in the loop, is costly, and data is not accessible to share broad insights to improve patient care.

## Technical areas include:

- Design and develop novel multi-omic histopath assays
- AI, ML, and data technology for automated diagnostics and 3D tissue characterization
- Data integration into care pathways and digital advocacy

## Applications/Indications include:

Proofs of concept for metastatic cancers, neurodegenerative disease, and wound healing



**Moonshot Priority: #4** Bring cutting edge research to patients

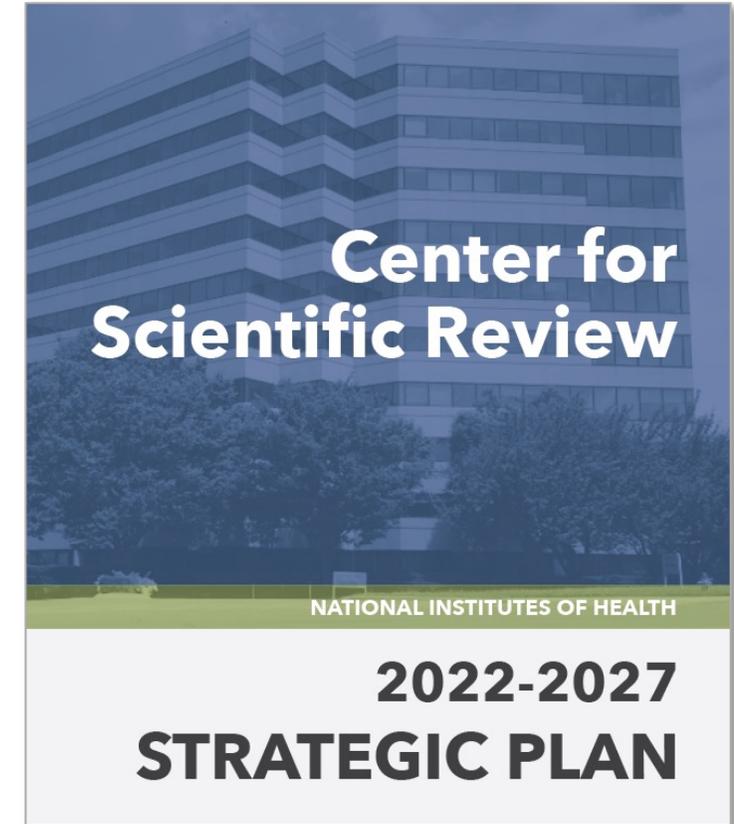
# QUESTIONS



# Proposed Changes to Research Project Grant Review

**Goal:** Facilitate identification of the strongest, potentially highest-impact research

- Refocus peer review on assessing scientific/technical merit of grant applications
  - Focus on the big questions, reduce the burden of administrative items
- Mitigate reputational bias in the peer review process
  - Require evaluation of Investigator and Environment in the context of the proposed research



# Proposed New Framework for RPG Review

From **five** scored review criteria to **three** factors:

Should it be done?	Factor 1: <b>Importance of the Research</b> (Significance and Innovation) – scored 1-9
Can it be done well?	Factor 2: <b>Feasibility &amp; Rigor</b> (Approach) – scored 1-9
Will it be done?	Factor 3: <b>Expertise &amp; Resources</b> (Investigator, Environment) each to be rated “appropriate” or “additional resources needed”

Every application will continue to receive an Overall Impact Score (1-9) to be based on Factors 1-3 and “Additional Review Criteria” —e.g. Human Subjects

# Community Input Sought

- NIH seeks additional input via an **RFI through March 10, 2023**  
<https://grants.nih.gov/grants/guide/notice-files/NOT-OD-23-034.html>
- **More information:** <https://grants.nih.gov/policy/peer/Proposed-Framework/index.htm>

# Main Review Criteria

(affect Overall Impact Score)

## Current

- **Significance** [scored]  
strengths/weaknesses
- **Investigator(s)** [scored]  
strengths/weaknesses
- **Innovation** [scored]  
strengths/weaknesses
- **Approach** [scored]  
strengths/weaknesses
- **Environment** [scored]  
strengths/weaknesses

## Proposed

- **Importance of the Research** [scored]  
strengths/weaknesses  
*Significance, Innovation*
- **Rigor and Feasibility** [scored]  
strengths/weaknesses  
*Approach*
- **Expertise and Resources** [not scored - drop down- appropriate, or identify gaps]  
*Investigators, Environment*

# Additional Review Criteria

(can affect Overall Impact Score)

## Current

- Human Subject Protections
- Inclusion of Women, Minorities, and Children
- Vertebrate Animal Protections
- Biohazards
- Resubmission/Renewal/Revisions

## Proposed

- Human Subject Protections
- Inclusion of Women, Minorities, and, Across the Lifespan
- Vertebrate Animal Protections
- Biohazards
- Resubmission/Renewal/Revisions

# Additional Review Considerations

(no effect on Overall Impact Score)

## Current

- Applications from Foreign Organizations
- Select Agent Research
- Resource Sharing Plans
- Authentication of Key Biological and/or Chemical Resources
- Budget and Period of Support

## Proposed

- Authentication of Key Biological and/or Chemical Resources
- Budget and Period of Support

# Proposed Changes to NRSA Fellowship Peer Review

## The Challenge

- Fellowship applications are concentrated in a small number of institutions
- Applications from those (highly resourced) schools do better
- Applications with senior scientists as sponsors do better than those with sponsors in earlier career stages

## Recommendations

- Modify the review criteria -- Focus on three core criteria
  - Potential of applicant
  - Strength of science
  - Quality of training plan
- Change information reviewers receive

# Change Information Reviewers Receive

- **Revise the Sponsors, Collaborators and Consultants section**
  - Greater emphasis on sponsor's training/mentorship approach and plan for particular student
  - Remove structured, character-limited sections (training plan, research facilities, the number of fellows/trainees to be supervised, applicant's qualifications and potential for a research career)
- **Revise letters of support**
  - To address targeted, trainee-specific questions in structured fields, discouraging boilerplate language, and making it easier for reviewers to differentiate and evaluate
- **Allow an *optional* statement of special circumstances**
  - To address situations that might have hindered the trainee's progress such as harassment, the COVID-19 pandemic, or other personal or professional circumstances

# NIH Data Management & Sharing (DMS) Policy Goes Live Today, 01-25-2023

## Data Sharing Benefits:

- Empower research and accelerate biomedical research discovery
- Lead to deep insights dependent on large-scale, integrative approaches
- Enhance rigor and enable validation of research results

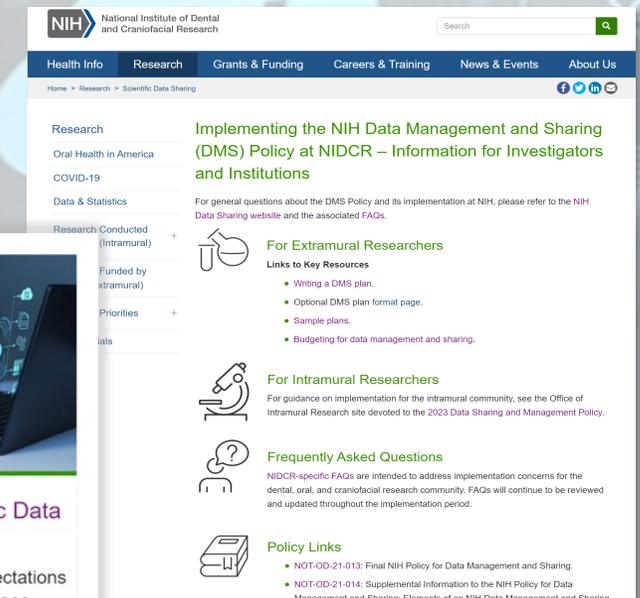
NIH-supported research generating **scientific data** will be required to **SUBMIT** and **COMPLY** with the approved DMS Plan.

# NIDCR Commitment to Guide and Facilitate DMS Implementation

- Provide resources, links, and FAQs for Investigators
- Source for updates and evolving guidance



**Changes to Scientific Data Sharing at NIH**  
Learn about the new expectations and requirements of the 2023 DMS Policy



NIH National Institute of Dental and Craniofacial Research

Health Info Research Grants & Funding Careers & Training News & Events About Us

Home > Research > Scientific Data Sharing

Research

Oral Health in America

COVID-19

Data & Statistics

Research Conducted (Intramural)

Funded by (Extramural)

Priorities

Materials

### Implementing the NIH Data Management and Sharing (DMS) Policy at NIDCR – Information for Investigators and Institutions

For general questions about the DMS Policy and its implementation at NIH, please refer to the [NIH Data Sharing website](#) and the associated FAQs.

#### For Extramural Researchers

Links to Key Resources

- [Writing a DMS plan.](#)
- [Optional DMS plan format page.](#)
- [Sample plans.](#)
- [Budgeting for data management and sharing.](#)

#### For Intramural Researchers

For guidance on implementation for the intramural community, see the Office of Intramural Research site devoted to the [2023 Data Sharing and Management Policy](#).

#### Frequently Asked Questions

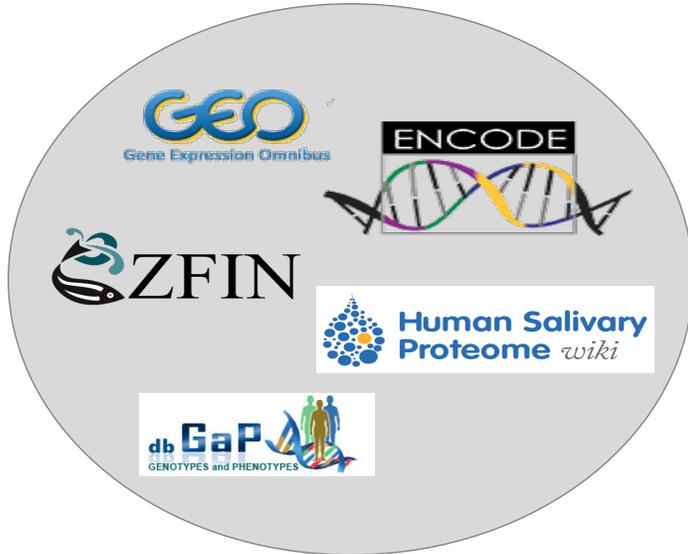
NIDCR-specific FAQs are intended to address implementation concerns for the dental, oral, and craniofacial research community. FAQs will continue to be reviewed and updated throughout the implementation period.

#### Policy Links

- [NOT-OD-21-013: Final NIH Policy for Data Management and Sharing.](#)
- [NOT-OD-21-014: Supplemental Information to the NIH Policy for Data Management and Sharing: Elements of an NIH Data Management and Sharing](#)

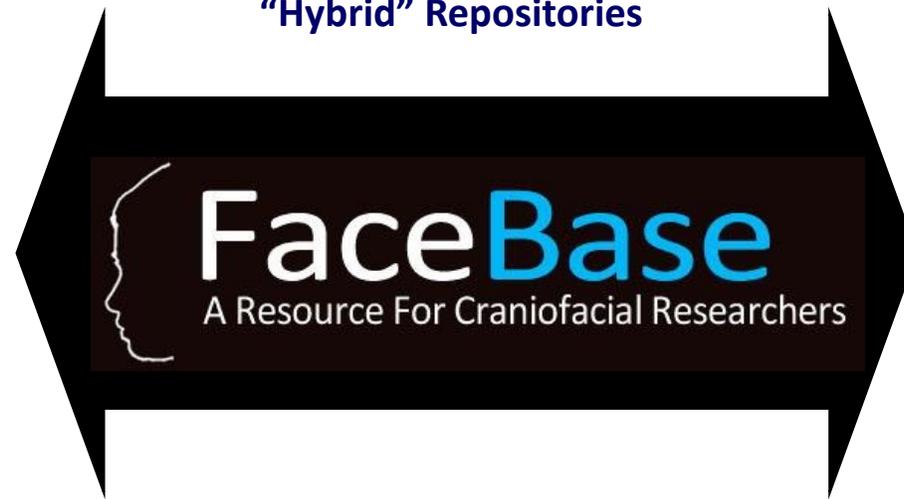
# Data Repositories and Knowledgebases

## “Specialized” Repositories



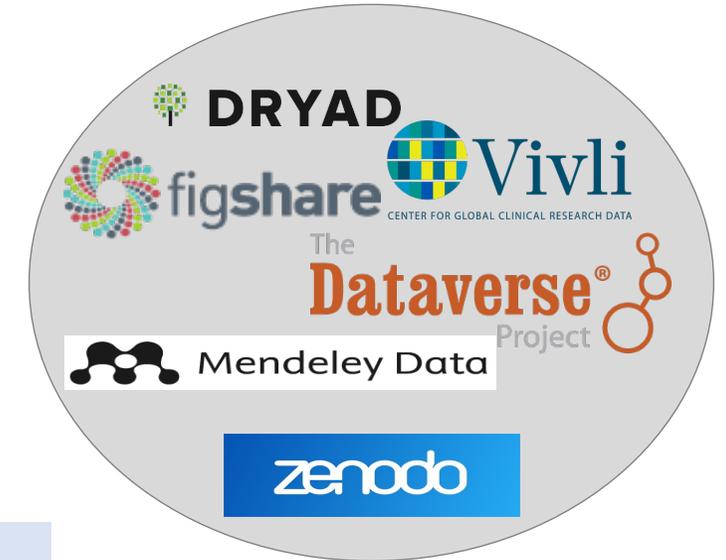
Highly descriptive information  
Intensive data curation  
High quality data

## “Hybrid” Repositories



- Data management platform (“DERIVA”)
- Agnostic data model
- Data crowdsourcing and self-curation
- Pipeline automation
- Tools and resources (anatomical navigation, ontologies, etc.)

## “Generalist” Repositories



All data types  
Highly scalable

# QUESTIONS





“

# NIDCR Is...

*All about people*

Researchers

Academics

Partner Associations

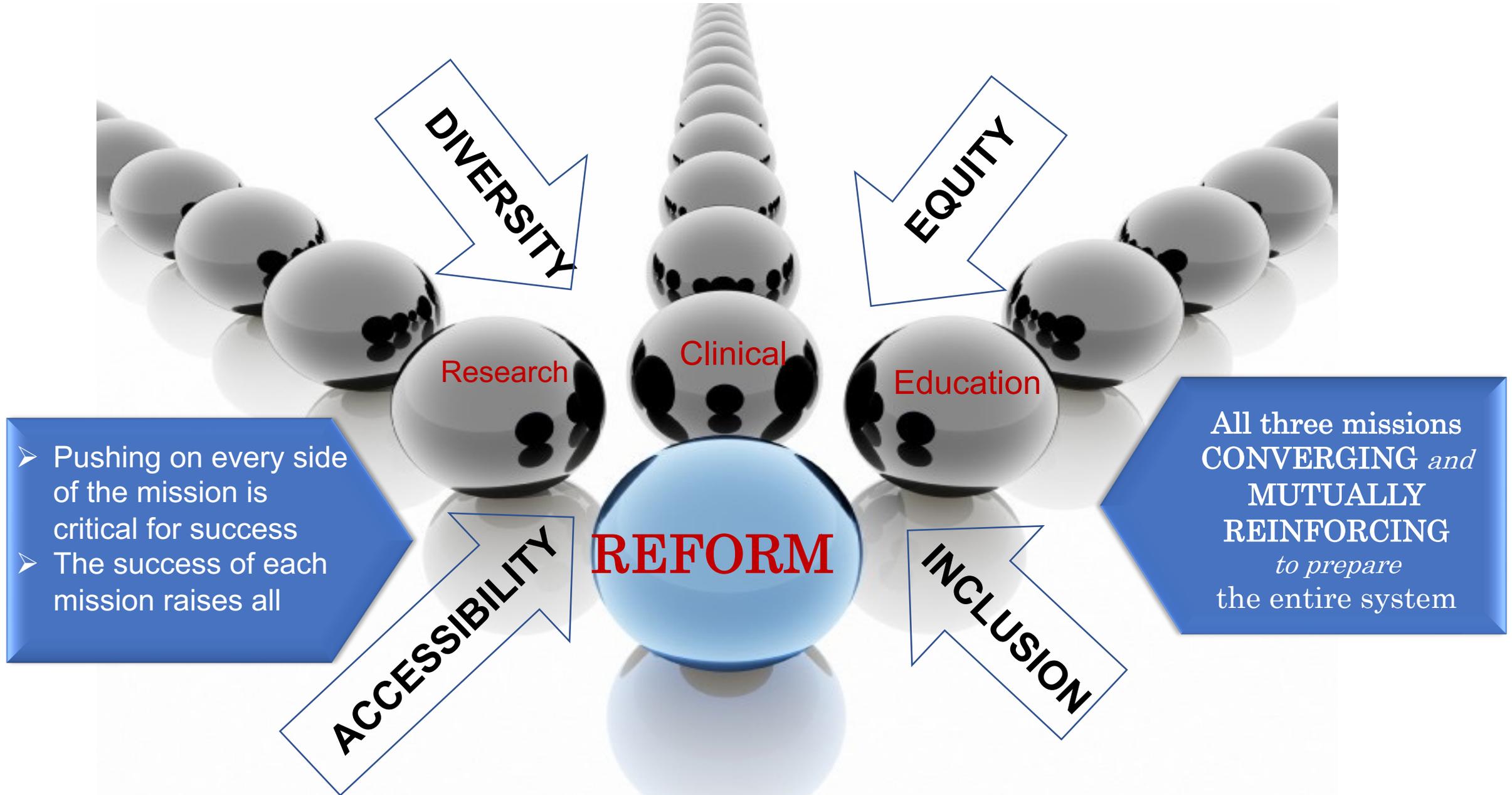
Patient Advocates

Staff .....

”

# THE VIRTUOUS CYCLE

# NIDCR's CHARGE



# A STRATEGIC APPROACH

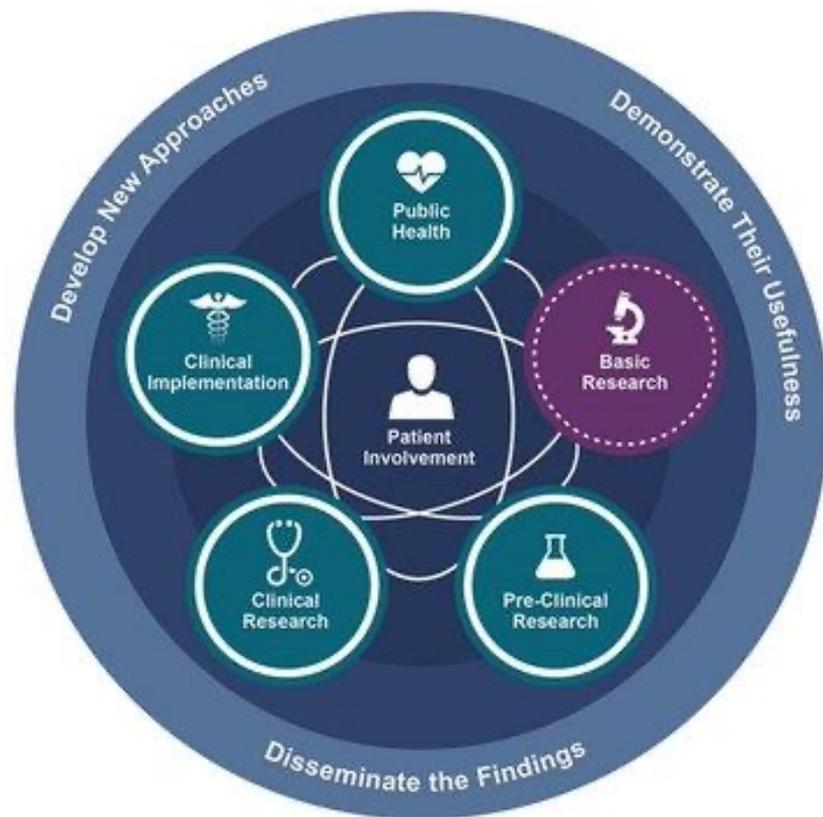
- Advancing research & training strategic priorities with an overarching theme of **translation**
- New mission, vision, and focus on core values including **equity, diversity & inclusion**
- Focus on **metrics**, delivering results for all initiatives

## Core Values

- Scientific Excellence
- Diversity, Equity, & Inclusion
- Stewardship
- Embracing and Managing Change



# ADVANCE SCIENCE ON MULTIPLE FRONTS



- **Goal 1:** Establish the cellular, molecular, behavioral and environmental determinants that are unique to and shared with other systems.
- **Goal 2:** Develop more precise and individualized ways of managing and preventing DOC diseases.
- **Goal 3:** Accelerate the translation of research and the uptake of new discoveries.
- **Goal 4:** Nurture diverse future generations of oral health scientists
- **Goal 5:** Expand already existing partnerships and create new ones.

- **Translate** along entire spectrum
- Equity, diversity, inclusion, accessibility
- Outcome measures and the delivery of results

# UNITE Progress Report



- Describes NIH's actions to **identify and address structural racism** that may exist within NIH and in the biomedical and behavioral research enterprise
- Developed in collaboration with UNITE co-chairs, committees, and stakeholders
- Focuses on **health disparities** and **minority health research**, the internal **NIH workforce**, and the **external research workforce**—topics that intersect and enable greater transparency, accountability, and communication across NIH and the biomedical and behavioral community

# Structure



UNITE's five committees have coordinated objectives for tackling the challenge of racial and ethnic equity in science. Each committee has a unique mission, while working collaboratively to develop methods that enhance equity across the scientific enterprise.

U COMMITTEE	N COMMITTEE	I COMMITTEE	T COMMITTEE	E COMMITTEE
Understand stakeholder experiences through listening and learning	Facilitate and develop new research on HD/MH	Improve the NIH culture and structure for equity, inclusion, and excellence	Foster transparency, communication, and accountability with internal and external stakeholders	Change policy, culture, and structure to promote diversity and inclusion in the extramural research ecosystem

# Extramural Research Ecosystem – Framework



## ENDING STRUCTUEAL RACISM



# NIH UNITE



# IC-level REEP

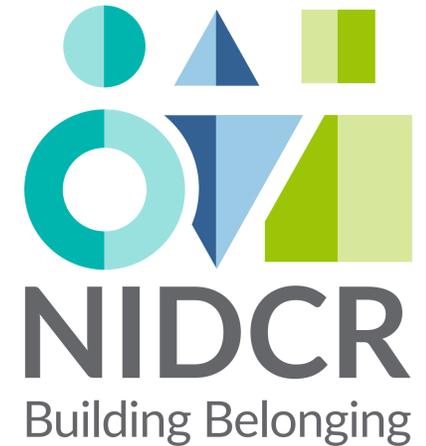
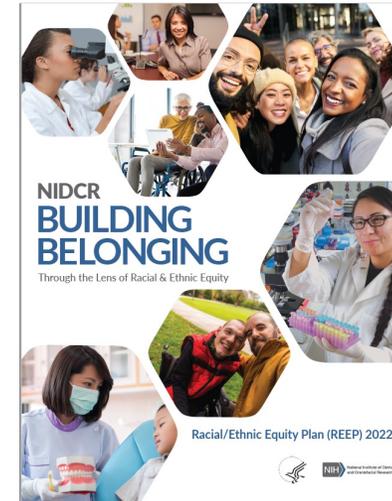
(Racial and Ethnic  
Equity Plan)



# Building Belonging

NIDCR went beyond the  
requirement for REEP and  
created a comprehensive plan.

<https://nih.sharepoint.com/sites/NIDCR-Intranet/SitePages/NIDCR-Building-Belonging-for-All.aspx>





Oral health disparities can result from circumstances beyond our control, such as **where we grew up, where we live and extensive, systemic issues** that may prevent us from accessing the same privileges as others.

Social Disparities in Oral Health



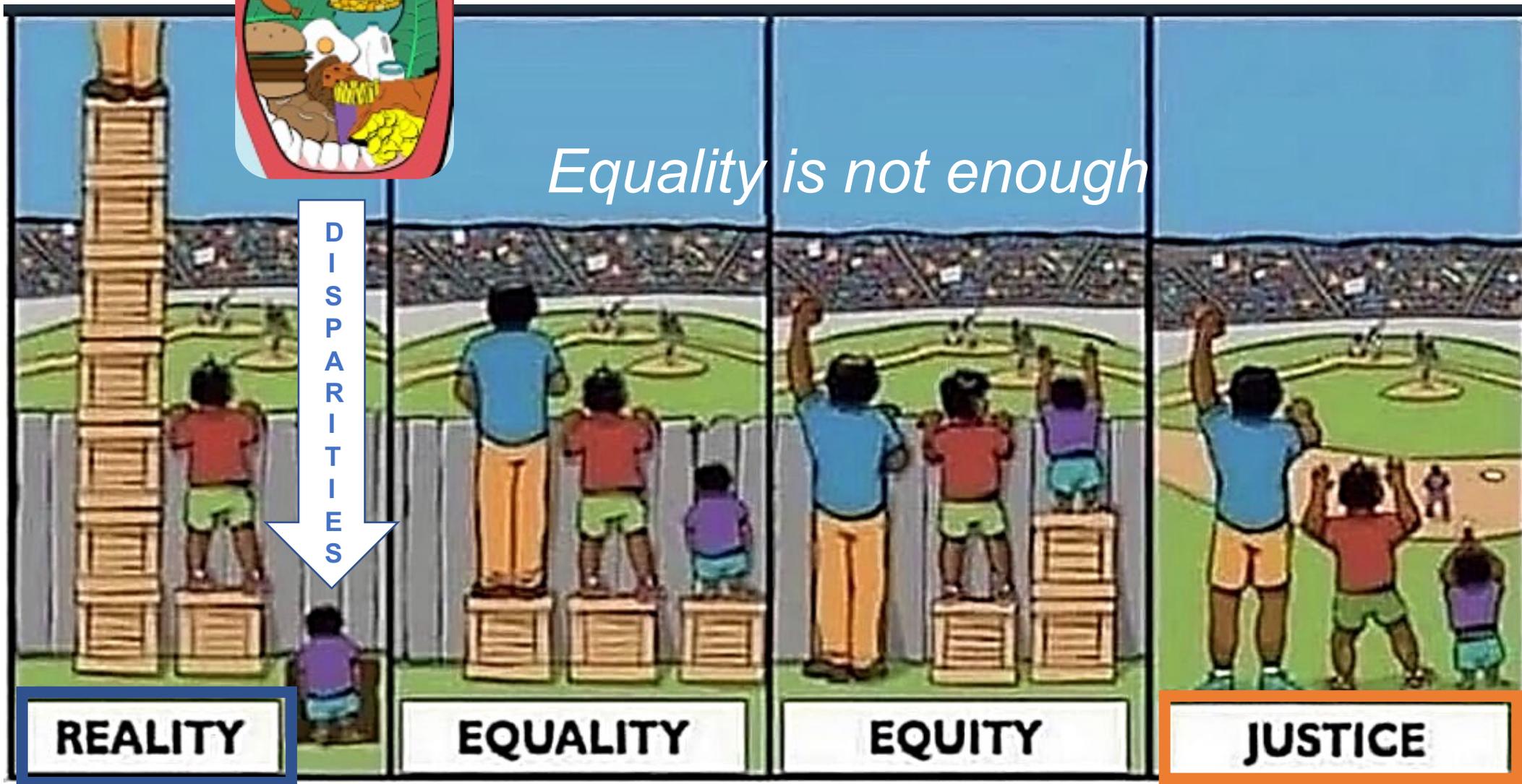
# Structural Racism Creates Health Inequities





*Equality is not enough*

DISPARITIES



**REALITY**

**EQUALITY**

**EQUITY**

**JUSTICE**

# NIH, Elevating Health Disparities and Minority Health Research Across Institutes and Centers

GOAL	ACTIVITIES
Increase funding of HD/MH research projects and expand research capacity at MSIs	<ul style="list-style-type: none"><li>• Launch Transformative Research to Address Health Disparities and Advance Health Equity initiative</li><li>• Release relevant FOAs</li></ul>
Improve NIH-wide transparency, accountability, and sustainability regarding HD/MH research funding	<ul style="list-style-type: none"><li>• Developed automated method to more precisely characterize, analyze, and track HD/MH portfolio</li><li>• Expand MeSH terms related to social determinants of health</li></ul>
Enhance community-driven health disparities research and structural interventions through 10-year investment (~\$400M)	<ul style="list-style-type: none"><li>• Aided design of FY23 Community Partnerships to Advance Science for Society initiative</li></ul>

# NIDCR Building Partnerships for Secondary Data Analyses

Working in consultation with:

- Resdac to obtain access to all of **CMS DATA** – all states, multiple years of integrated Medical dental data including FQHCs
- **Wisconsin Collaborative** that includes health systems, medical clinics and dental practices across the Mid West- 35 health systems, 325 medical clinics, and more than 150 dentists.
- **OCHIN**- that includes > 6M patients, 22K providers, >1K delivery sites, in 45 states and captures social determinates of health across the diverse payer mix



WISCONSIN  
COLLABORATIVE *for*  
HEALTHCARE QUALITY

OCHIN

# FY 2022 Awarded RFAs

RFA Title	Activity	No.
Feasibility Studies that Explore Healthy and Diseased Temporomandibular Joints (TMJ) using Single Cell Multi-Omic Analyses	UH2/UH3	3
Understanding Oral Human Papillomavirus (HPV) Infection, Acquisition, and Persistence in People Living with HIV	R01 R21 R56	4 1 3
Addressing Social Determinants of Health to Eliminate Oral Health Disparities	UG3/UH3	1
NIDCR Award for Sustaining Outstanding Achievement in Research (SOAR)	R35	1
HEAL Initiative: Secondary Analysis and Integration of Existing Data Related to Acute and Chronic Pain Development or Management in Humans	R21	11 Total (4 NIDCR)



# FY 2023 RFAs

RFA Title	Activity
Advancing HIV/AIDS Research at the Intersection of Mental and Oral Health	R01, R21
In utero Treatments of Congenital Dental and Craniofacial Disorders Using Precision Medicine Approaches	R01, R21
HEAL Initiative: Oral Complications Arising from Pharmacotherapies to Treat Opioid Use Disorders	R21
Harnessing technologies to support oral health promotion and management outside the dental setting	UG3/UH3
The Role of Dentistry in the Prevention of Opioid Drug Misuse and Abuse	UG3/UH3



# FY 2023 RFAs (Cont'd)

RFA Title	Activity
NIDCR Dental Specialty and PhD Program	K12
Data-Driven Tools to Accelerate the Clinical Translation of Novel Dental, Oral, and Craniofacial Biomaterials (Clinical Trial Not Allowed)	R42, R44, R61/R33
TMD Collaborative for IMproving PAtient-Centered Translational Research (TMD IMPACT)	R34
Practice-Based Research Integrating Multidisciplinary Experiences in Dental Schools (PRIMED)	U01
AHEAD (Advancement of Head and Neck Cancer Early Detection Research)	U01



# Practice-Based Research Integrating Multidisciplinary Experiences in Dental Schools (**PRIMED**; RFA-DE-23-012; U01 Clinical Trial Not Allowed )

*RFA designed to support patient-oriented clinical research experiences and skills development for clinical faculty and dental/postgraduate students/residents*

- Providing opportunities to conduct practice-based research in dental school clinics
- Focusing on dental schools with limited research resources
- Fostering scientific collaborations between dental students/residents and clinical faculty
- Stimulating clinical research pursuits among clinically-oriented faculty members and dental/postgraduate students/residents



RFA-DE-23-012 Final AIDs due date Feb 24, 2023

# Concepts Approved by Council

Maternal Health and the Dental, Oral, and Craniofacial Health and Development of their Children

Developing Salivary Components to Restore Oral Health

Understanding Persistent Oral Human Papillomavirus and Human Immunodeficiency Virus co-infection and Its Role with Oropharyngeal Cancer Induction

Collaborative Science to Achieve Disruptive Innovations in Dental, Oral and Craniofacial (DOC) Research

Apply Data Science in Translational Dental, Oral, and Craniofacial Research

Chronic Inflammation of the Oral Cavity - An Agent for Oral Mucosal Disease



# Notices of Special Interest (NOSI)

## Administrative Supplements

- Promote Research Continuity and Retention of NIH Mentored Career Development (K) Award Recipients and Scholars (NOT-OD-23-031)
- Continuity of Biomedical and Behavioral Research Among First-Time Recipients of NIH Research Project Grant Awards (NOT-OD-23-032)
- Recognize Excellence in Diversity, Equity, Inclusion, and Accessibility (DEIA) Mentorship (NOT-OD-23-002)
- Research and Capacity Building Efforts Related to Bioethical Issues (Admin Supp Clinical Trial Optional) (NOT-OD-23-018)

# HEAL Initiative: Integrated Basic and Clinical Team-based Research in Pain

Number: RFA-NS-22-069  
Mechanism: RM1 (Clinical Trial Optional)  
Due date: February 14, 2023

## Supports:

- Integrated efforts of three or more (up to six) PDs/PIs
- Bold, impactful, and challenging research in basic and clinical pain domains
- Pathophysiology of diseases/disorders and pain across the lifespan; mechanistic underpinning of heterogeneity and stratification of patients with specific conditions and co-morbidities.
- Interdisciplinary research collaborations : synergy, and managed team interactions.

# Catalyzing Research Training & Career Development

<https://www.aadocr.org/awards/mind-the-future>



## MINDing the Gap: From Trainee to Tenure Track

Mentoring Network for Postdocs & Junior Faculty from Diverse Backgrounds

Focus on grant preparation, including mock study section

### Class of 2021-2022

Hope Amm

University of Alabama at Birmingham, US



Erin Bumann

University of Missouri at Kansas City, US



Jacqueline Burgette

University of Pittsburgh, PA, US



Leticia Chaves de Souza

University of Texas Health Science Center at Houston, US



Bianca Dearing

Howard University, Washington, DC, US



Rubelisa Oliveira

University of Kentucky, Lexington, US



Nosayaba Osazuwa-Peters

Duke University, Durham, NC, US



Aline Petrin

University of Iowa, Iowa City, US



Ana Paula Piovezan Fugolin

Oregon Health & Science University, Portland, US



Guiqin Xie

Howard University, Washington, DC, US



Camila Zamperini

University of Illinois at Chicago, US



### Class of 2020-2021

Susana Calderon

Illinois State University, Decatur, US



Modupe Coker

Rutgers University, Newark, NJ, US



Dina Garcia

Virginia Commonwealth University, Richmond, US



Cherice Hughes-Oliver

Medical University of South Carolina, Charleston, US



Bruno Lima

University of Minnesota, Minneapolis, US



Stephanie Momeni

Oregon Health & Science University, Portland, OR



Indra Mustapha

Howard University, Washington, DC, US



Susana Maria Salazar Marocho

University of Mississippi Medical Center, Jackson, US



Tamanna Tiwari

University of Colorado, Denver, US



Cristina Vidal

University of Iowa, Iowa City, US



60% of Cohort 1 & 55% of Cohort 2 achieved subsequent NIH award



# Congress Strengthens NIH's Ability to Address Harassment

## **H.R.2471 — Consolidated Appropriations Act, 2022**

Section 239: “The Director of the [NIH] shall hereafter require institutions that receive funds through a grant or cooperative agreement during fiscal year 2022 and in future years to notify the Director when individuals identified as a principal investigator or as key personnel in an NIH notice of award are removed from their position or are otherwise disciplined due to concerns about harassment, bullying, retaliation, or hostile working conditions. The Director may issue regulations consistent with this section.”

# NIH Harassment Policies

- **Goal:** Ensure a safe workplace where both people and science can thrive.
- **Background:** In past 5 years, NIH has implemented changes to end all forms of harassment in its workforce and at institutions it funds. Efforts focused on:
  - Accountability and transparency
  - Clarifying NIH's expectations for funded institutions
  - Establishing clear communication channels to NIH for reporting
- **Future Action:** Congress has given NIH authority to require institutions to report harassment-related personnel changes on a grant.
  - Examples: PI or key personnel removed from positions or disciplined due to concerns about harassment, bullying, retaliation, or hostile working conditions

# QUESTIONS



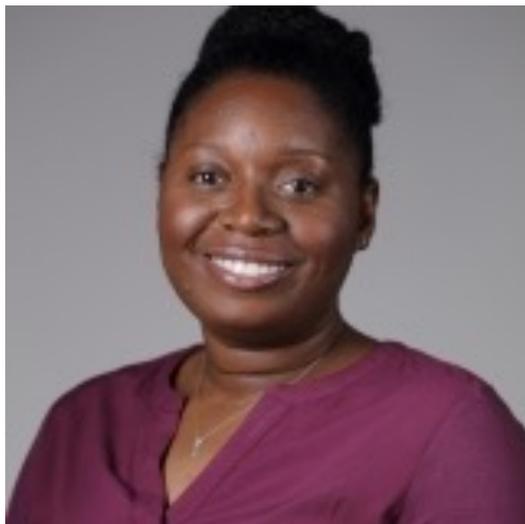
# “Career Development is Not a Pipeline; It’s a Pathway”

- Research presents many parallel pathways to success
- Many options to positively impact the world
  - Academia
  - Public health
  - Science policy
  - Science communication
  - Biotech/industry
  - Advocacy
  - Government



# Research Training: Staff Contacts

## Intramural



**Belinda Hauser, PhD**  
Director,  
Office of Training and  
Education

[belinda.hauser@mail.nih.gov](mailto:belinda.hauser@mail.nih.gov)

## Extramural



**Lynn King, PhD**  
Director,  
Division of Extramural Activities

[lynn.king@nih.gov](mailto:lynn.king@nih.gov)



**Anissa Brown, PhD**  
Chief,  
Research Training & Career  
Development Branch

[anissa.brown@nih.gov](mailto:anissa.brown@nih.gov)



**Shoba Thirumangalathu, Ph.D.**

Research Training & Career  
Development Branch

[@nih.gov](mailto:@nih.gov)

For more information please visit:  
[www.nidcr.nih.gov/careers-training](http://www.nidcr.nih.gov/careers-training)



# NIDCR Research Training Programs

**INTRAMURAL**

**EXTRAMURAL**

Graduate Partnership

Medical Research Scholars

Clinical Research Fellowship

NIH Summer Internship Program

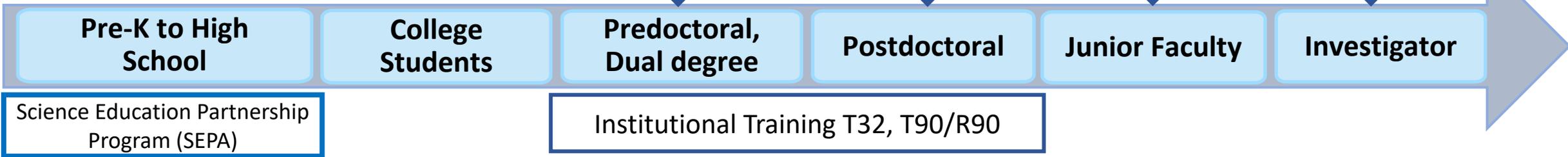
Career Transition Awards (K)

Fellowships (Fs)  
Pre-Post F99/K00

Fellowship (F)  
Career Awards (Ks,  
K99/R00

Career Awards (Ks)

Research Development (F, K, R16)



<https://www.nidcr.nih.gov/careers-training>

# From Bench to Chairside Training

## *Preparing Future Clinician-Scientists (Initiated in 2010)*

- Customized career development and research experience for dentists
- Provides experience in the latest clinical and translational research methodologies
- Individualized curriculum supporting professional development
- 75% effort devoted to research, ~1 clinic day/week
- Fellows encouraged to publish and write grant applications as part of the training experience



For more information please visit:

[www.nidcr.nih.gov/careers-training/interns-fellows/dentists-physicians/clinical-research-fellowship](http://www.nidcr.nih.gov/careers-training/interns-fellows/dentists-physicians/clinical-research-fellowship)

**Application deadline: Sept 15<sup>th</sup> of each year**

# Dental Public Health Residency & Fellowship

- 3-year program; First year focused on DPH r board certification
- Following two years post-doctoral collaborative research
- Leverage resources on NIH campus, federal agencies, local institutions
- Focus on scholarship and research in oral health
- Stipend available for qualified applicants

<https://www.nidcr.nih.gov/news-events/nidcr-news/2021/nidcr-seeks-applicants-new-dental-public-health-research-fellowship>

# NIDCR Research Training & Career Development Extramural Programs to Enhance Diversity

## NIDCR Programs

NIDCR – AADOCR Mentoring Network

NIH K01 – NIDCR to promote re-entry

NIDCR K01 to enhance diversity

NIDCR F99/K00 diversity / dentist scientists

Pre-K to High School

College

Predoctoral

Postdoctoral

Junior Faculty

Investigator

Research Supplements to Promote Diversity, Disabled Investigators

Science Education Partnership Award (SEPA)

SBIR/STTR Research Supplements to Promote Diversity, Disabled Investigators

R25 Blueprint ENDURE

NIH Blueprint F99/K00 D-SPAN

CF FIRST Program

NIH ESI/NI

CF BUILD Program

NIH F31- Diversity

NIGMS MOSAIC K99/00

NINDS Summer Research Program

FIC Institutional D43 Fellows and Scholars, NCD-lifespan HIV

NHGRI R25 Diversity Action Plan in Genomics

Research Supplements to Promote Re-entry

R15 Research Enhancement Award Program

NIGMS R16 SuRE Research Capacity Programs

R15 Academic Research Enhancement Award

FIC K43 Global Leaders

NIH Loan Repayment Programs

Common Fund National Research Mentoring Network

Administrative Supplements to Recognize Excellence in Diversity, Equity, Inclusion, and Accessibility Mentorship

## NIH Programs



# Institutional Training Grants T32, T90/R90

Institutional Training for a Dental, Oral and Craniofacial Research  
Workforce (T90/R90 Independent Clinical Trial Not Allowed)

**PAR-20-056**

Ruth L. Kirschstein National Research Service Award (NRSA)  
Institutional Training for a Dental, Oral and Craniofacial Research  
Workforce (T32) **PAR-20-044**

**Application Due Date(s): September 26, 2022**

# Administrative Supplements: Postdoctoral Dentists Conducting Translational Research

## Notice of Special Interest: NIDCR Administrative Supplements to NCATS CTSA Programs for Scholars Pursuing Dental, Oral, and Craniofacial Clinical and Translational Research Career Development

### **NOT-DE-22-001**

- **Goal:** Engage dentist scientists pursuing clinical and translational research training to improve dental, oral, and craniofacial health.
- **Eligibility:** Postdoctoral and Junior Faculty scholars with doctoral dental degree (DDS, DMD, or dual degree DDS/DMD and PhD or equivalent degrees)

# NIH Extramural Loan Repayment Programs (LRP)

**NIDCR participates in the NIH Clinical, Pediatric, Health Disparities, and Research in Emerging Areas Critical to Human Health (REACH)**

Application Period: **September 1, 2022 - November 17, 2022**

[NOT-OD-22-148](#) – Clinical Research (LRP-CR)

[NOT-OD-22-149](#) – Pediatric Research (LRP-PR)

[NOT-OD-22-150](#) – Health Disparities Research (LRP-HDR)

[NOT-OD-22-153](#) - Research in Emerging Areas Critical to Human Health (LRP-REACH)

The NIDCR Dentist-Scientist **REACH** program will support eligible **Dentist-Scientists** performing dental, oral, and craniofacial research

<https://www.lrp.nih.gov/eligibility-programs>



# Early Stage Investigators + New Investigators Targeted Funding Opportunities

- NIDCR Small Grant Program for New Investigators, R03, Clinical Trial Not Allowed (PAR-21-084) (through January 7, 2024)
  - Supports basic and clinical research
  - Supports pilot or feasibility studies and developmental research projects with the intention of obtaining sufficient preliminary data for a subsequent R01 or equivalent application
- Stephen I. Katz Early Stage Investigator Research Project Grant, R01, clinical trial not allowed and BESH (PAR-21-038, PAR-21-039) (through December 28, 2023)
  - Supports an innovative project that represents a change in research direction for an ESI and for which no preliminary data exist

# Diversity-targeted Funding Opportunities

- Research Supplements to Promote Diversity in Health-Related Research; [through 5/7/2023](#)
- Administrative Supplements to Promote Diversity in Small Businesses-SBIR/STTR; [through 9/9/2024](#)
- Ruth L. Kirschstein National Research Service Award (NRSA) Individual Predoctoral Fellowship to Promote Diversity in Health-Related Research (Parent F31-Diversity); [through 9/7/2023](#)
- Maximizing Opportunities for Scientific and Academic Independent Careers (MOSAIC) Postdoctoral Career Transition Award to Promote Diversity (K99/R00); [through 9/7/2024](#)
- NIDCR Mentored Career Development Award to Promote Diversity (K01); [through 1/7/2025](#)

# From Idea to Funding Opportunity

Conceptualize an **idea**; need assessment

- Program Officer assesses knowledge gaps and research opportunities:**
- Portfolio analysis of overall landscape
  - Literature
  - Conferences, workshops, meetings
  - Grant applications
  - Grant progress
  - Input from research community
  - Discussion with NIH colleagues
  - Special reports

**Fairness**

Vet, shape, and refine **concept** internally

- Internal discussion:**
- Branch, Division, and Executive Staff level
  - Determine objectives, feasibility, timeliness, portfolio balance, expected outcome, alignment with various Strategic Plans
  - Assess level of interest, seek potential collaborations, and leverage resources at other Institutes

**Robustness**

Deliberate and approve by NIDCR Council

- Program Officer seeks Concept Clearance:**
- Two to three Council members assigned to review
  - Program Officer presents concept at open session
  - Council members deliberate the merits of the concept
  - Council members vote to approve, disapprove, or table the concept

**Transparency**

Solicit public comments for **initiative**

- Approved concepts posted on NIDCR website for 30-day comment period:**
- Individuals
  - Professional organizations

**Transparency**

Develop Funding Opportunity Announcement

- Program Officer develops FOAs:**
- Request for Applications (RFA), Program Announcements (PA, PAR), Notices of Special Interests (NOSI)
  - Optimize scope of work, mechanisms of support, time and budget, readiness of research community, locus of review, and availability of funds
  - Formalize co-funding with others

**Strategy**

✓ We value your input and engagement in this process

# Honoring NIDCR's Past, Present and Future in 2023



- Statutory Authority - SEC. 453 [285h] Public Law 80-755
  - The general purpose of the **National Institute of Dental Research** is the conduct and support of research, training, health information dissemination, and other programs with respect to the cause, prevention, and methods of diagnosis and treatment of dental and oral diseases and conditions
- The 1998 Omnibus Consolidated and Emergency Supplemental Appropriations Act
  - Changed the name to **NIDCR**

*Today – We aspire to transform human lives through scientific discoveries and innovations that advance dental, oral, and craniofacial health and overall well-being for all*

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

**NIDCR 75<sup>th</sup> Anniversary  
Virtual Trainee Symposium**

***Celebrating NIDCR Trainees: Past, Present and Future***

***October 10-11, 2023***

**Keynote by  
Nobelist Ardem Patapoutian, PH.D.**

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

***For more information, contact NIDCR at [nidcrtraining@nidcr.nih.gov](mailto:nidcrtraining@nidcr.nih.gov)***



*Service to Others*  
*Discernment*  
*Critical Analysis*  
*Fitness & Self-Discipline*  
*Compassion*  
*Ethics*  
*Love*

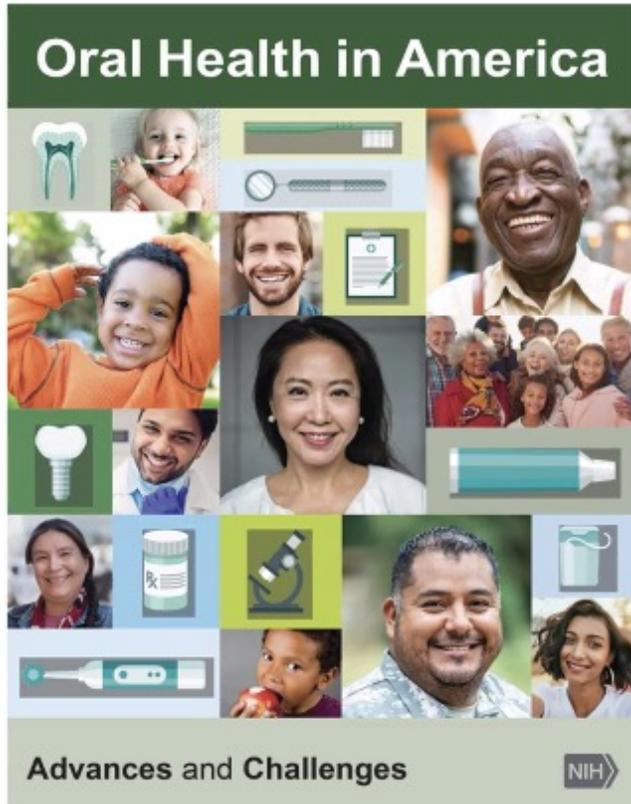
I believe I have a  
 personal responsibility  
 to make a positive  
 impact on society.

Anthony Fauci

Precision of Thought; Economy of Expression

# Creating the Future We All Seek

The problems.....



The plan.....



**The outcome!**

Oral Health  
for All



# A Quote for Our Times.....

Nothing in life is to be feared,  
it is only to be understood.  
**Now is the time** to understand  
more, so that **we may fear less.**

– *Marie Curie*

