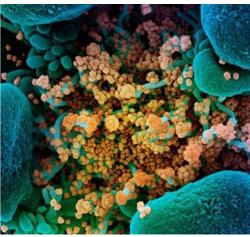
Director's Report

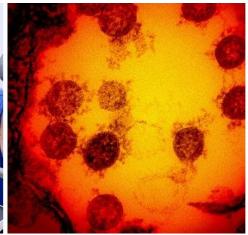
125th Advisory Committee to the Director Meeting December 8, 2022















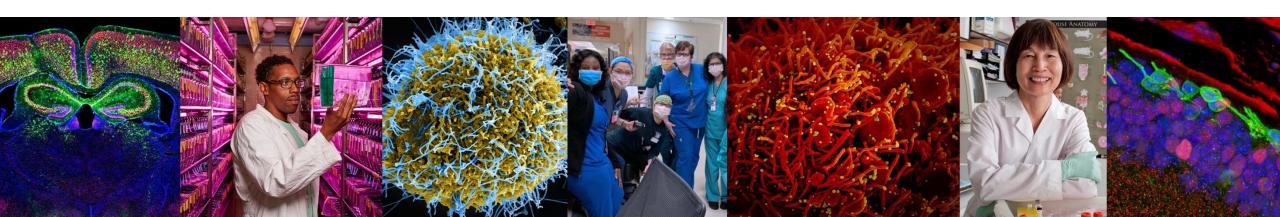
Lawrence A. Tabak, DDS, PhD

Performing the Duties of the NIH Director

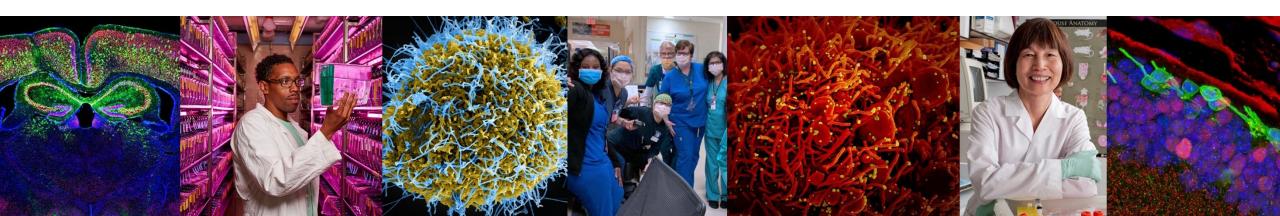
Department of Health and Human Services



- Appointments and Departures
- Awards and Honorees
- Special Events
- ESI Update
- eRA Update
- DEIA Strategic Plan Update
- Initiatives Updates
- Budget and Legislative Updates
- Reflection: Leading Through Turbulent Times



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ACD Departures



Wendy Chapman, Ph.D *University of Melbourne*



Rebekah Drezek, Ph.D.

Rice University



Kristina Johnson, Ph.D. *Ohio State University*



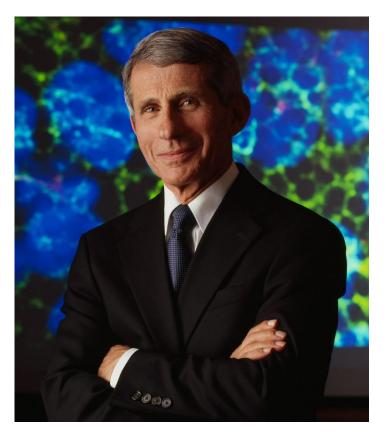
Dina Katabi, Ph.D.

Massachusetts Institute of Technology



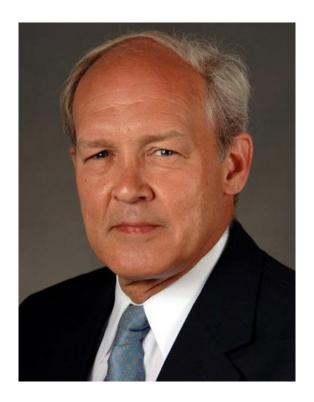
Judith Kimble, Ph.D. *University of Wisconsin, Madison*

Departure: Director, National Institute of Allergy and Infectious Diseases



Anthony S. Fauci, MD

Selected: Acting Director of NIAID



Hugh Auchincloss, MD

Departure: Director, Center for Information Technology, and NIH Chief Information Officer



Andrea Norris, MBA

Selected: Acting Director, Center for Information Technology



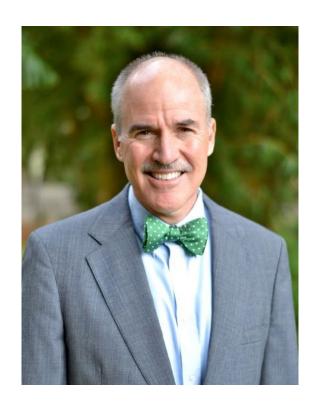
Ivor D'Souza

Departure: Director, Fogarty International Center



Roger Glass, MD, PhD

Selected: Acting Director, Fogarty International Center



Peter Kilmarx, MD

Departure: NIH Deputy Director and Director, Division of Program Coordination, Planning, and Strategic Initiatives (DPCPSI)



James M. Anderson, MD, PhD

Selected: Acting Director, Division of Program Coordination, Planning, and Strategic Initiatives



Bob Eisinger, PhD

Departure:

Chief Scientific Officer, Scientific Director of the NIH Clinical Center, Associate Director for Clinical Research in the Office of Clinical Research, OD



John Gallin, MD

Departure: Director, NIH Office of Strategic Coordination



Elizabeth (Betsy) Wilder, PhD

Appointment: Director, National Center for Advancing Translational Sciences



Joni L. Rutter, PhD

Appointment: Deputy Director, Intramural Research



Nina Schor, MD, PhD

Appointment: Director, National Cancer Institute



Monica M. Bertagnolli, MD

Appointment: Inaugural Director, Advanced Research Projects Agency for Health (ARPA-H)



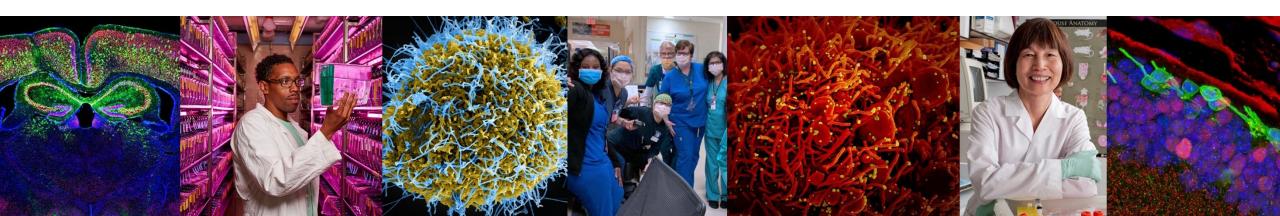
Renee Wegrzyn, PhD

Appointment: Director, Office of Equity, Diversity, and Inclusion



Kevin Williams, JD

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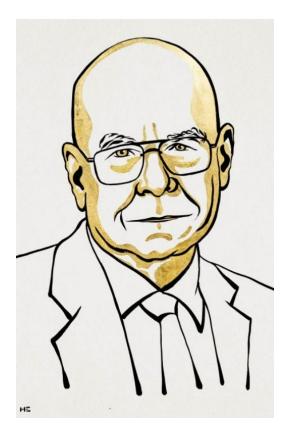


Nobel Prize in Chemistry 2022



Carolyn R. Bertozzi, PhD

Prize share: 1/3



K. Barry Sharpless, PhD

Prize share: 1/3

Lasker Awards

2022 Basic Medical Research Award



Richard O. Hynes, PhD



Erkki Ruoslahti, MD, PhD



Timothy A. Springer, PhD

Service to America Awards 2022 Paul A. Volcker Career Achievement

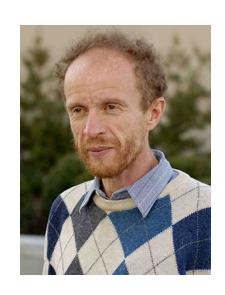


H. Clifford Lane, MD NIAID

2022 National Academy of Medicine New Members



Carlos Blanco, MD, PhD NIDA



Eugene V. Koonin, PhD NCBI, NLM



Bruce J. Tromberg, PhD NIBIB



Jennifer Webster-Cyriaque, DDS, PhD NIDCR, NIAID

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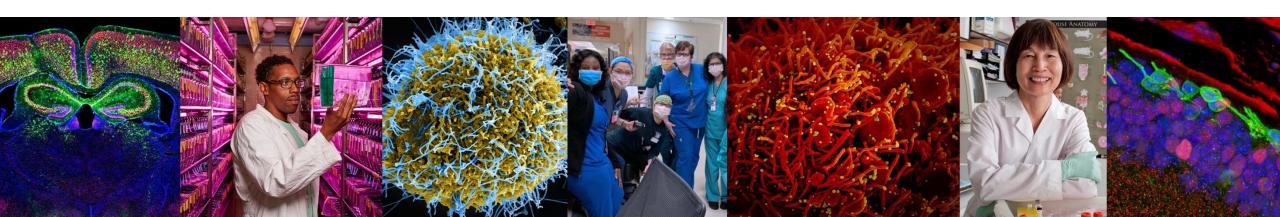
Admiral Rachel L. Levine, MD
Assistant Secretary for Health



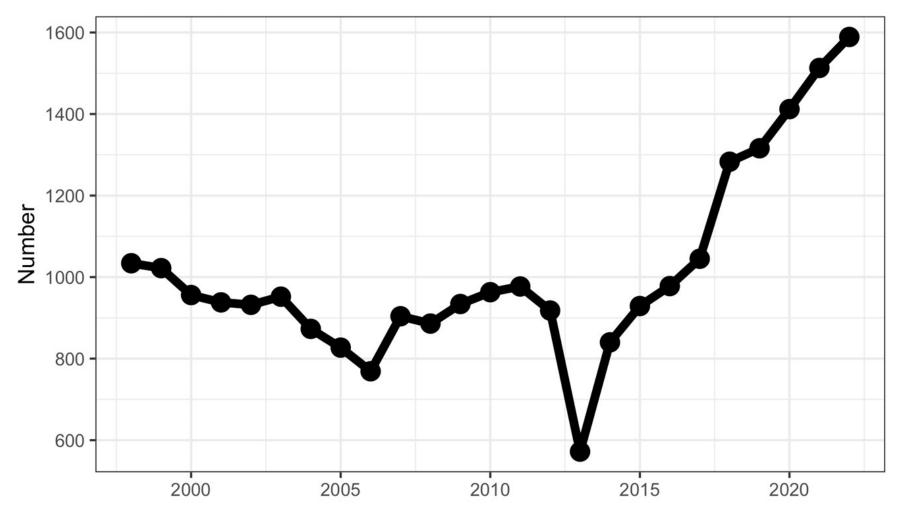
Roy Blunt Center for Alzheimer's Disease and Related Dementias Research



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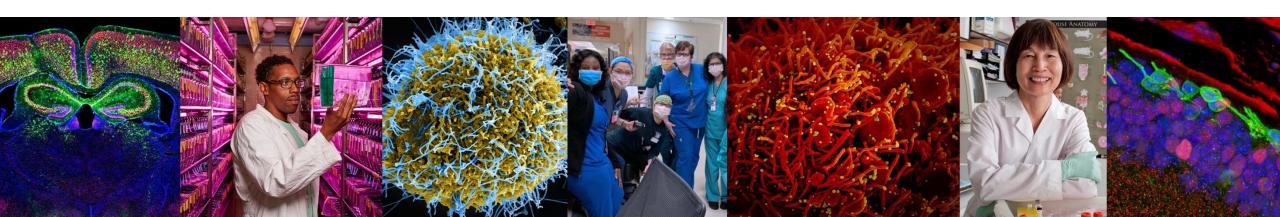
Early Stage Investigators (ESI) Funded on First R01-Equivalents



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

Fiscal Year

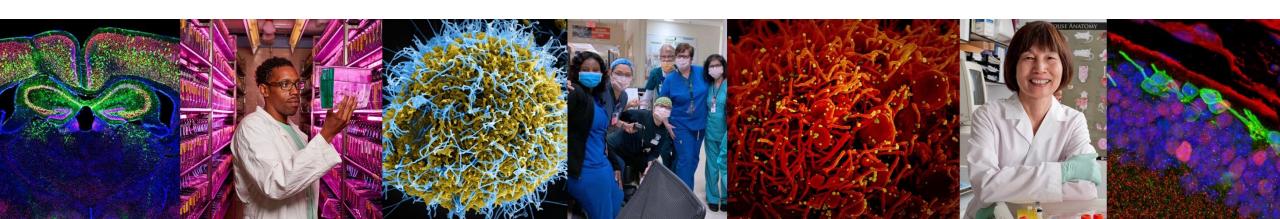
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Improving Quality of Public Information about R&D Contracts

- R&D contract awards represent ~8% of the NIH budget
- Current public data on R&D contracts lacks the richness of grants data
- Later this year, NIH will begin requiring extramural R&D contract awardees to upload information about the science being done into eRA Commons
- The new process will:
 - Allow contract awardee to accurately characterizes contracts
 - Improve transparency into contract data, commensurate to grants
 - Replace manual process of uploading information by NIH staff

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Objective 1: Grow and Sustain DEIA through Structural and Cultural Change



Objective 2: Implement Organizational Practices to Center and Prioritize DEIA in the Workforce





Objective 3: Advance DEIA through Research

Process & Timeline

WE ARE HERE w Fall Summer Phase 1 Phase 2 Phase 3 Phase 4 Phase 5 2022/ 2021 Winter 2023 Framework Review & Refinement, Public & NIH Planning & WG Strategic Plan Content Approval of Launch Framework Input Selection, & Strategic Plan **Drafting Process**



Community Input

Internal NIH

External community

Current Status



Review and Approval Process

Pending final sign-off by NIH Leadership



Plan Implementation Comprehensive, inclusive, and intentional approach to implementation

Topics for Today

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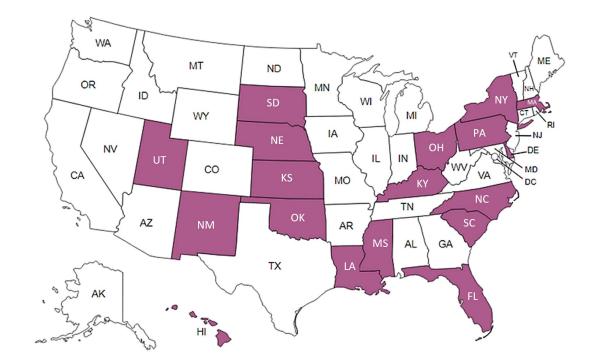






IDeA States Pediatric Network

Eating, Sleeping and Consoling for **Neonatal Opioid Withdrawal A Randomized Controlled Trial**



Background and Objective

- Neonatal opioid withdrawal syndrome (NOWS) follows in utero opioid exposure
 - Opioid epidemic → high incidence of NOWS
 - Newborns are irritable, do not eat or sleep well, spend many days in hospital
 - If symptomatic enough, clinicians traditionally treat with replacement opioids
- Substantial variation in management of NOWS
 - No evidence-based standard of care
- Objective: Effectiveness and safety of new approach vs. usual care
 - Simpler assessment—Eat, Sleep, Console
 - Prioritize non-pharmacologic care, e.g., holding, swaddling, rocking
 - Caretaker involvement





Study Design

- Collaboration across 2 NIH pediatric clinical trial networks
 - Office of the Director and NICHD
- Stepped wedge cluster randomized trial
 - Randomly allocated 26 hospitals to transition from usual care to Eat, Sleep, Console care at designated time
- Whole of practice change
 - Trained ~5000 nurses
- Led by 3 Early Stage Investigators





Results, Conclusions, Next Steps

- Eat, Sleep, Console care approach
 - Substantially decreased time until infants medically ready for discharge from hospital
 - Substantially decreased pharmacologic treatment
 - Did not affect safety outcomes through 3 months of age
 - Provides strong support for standard care for NOWS
- Presented at national meeting December 5, 2022
- Manuscript under review
- Next
 - 2-year follow-up for family wellbeing, child neurodevelopment





About the Artificial Intelligence/Machine Learning Consortium to Advance Health Equity and Researcher Diversity (AIM-AHEAD)



Partnerships

Research

Infrastructure

Training

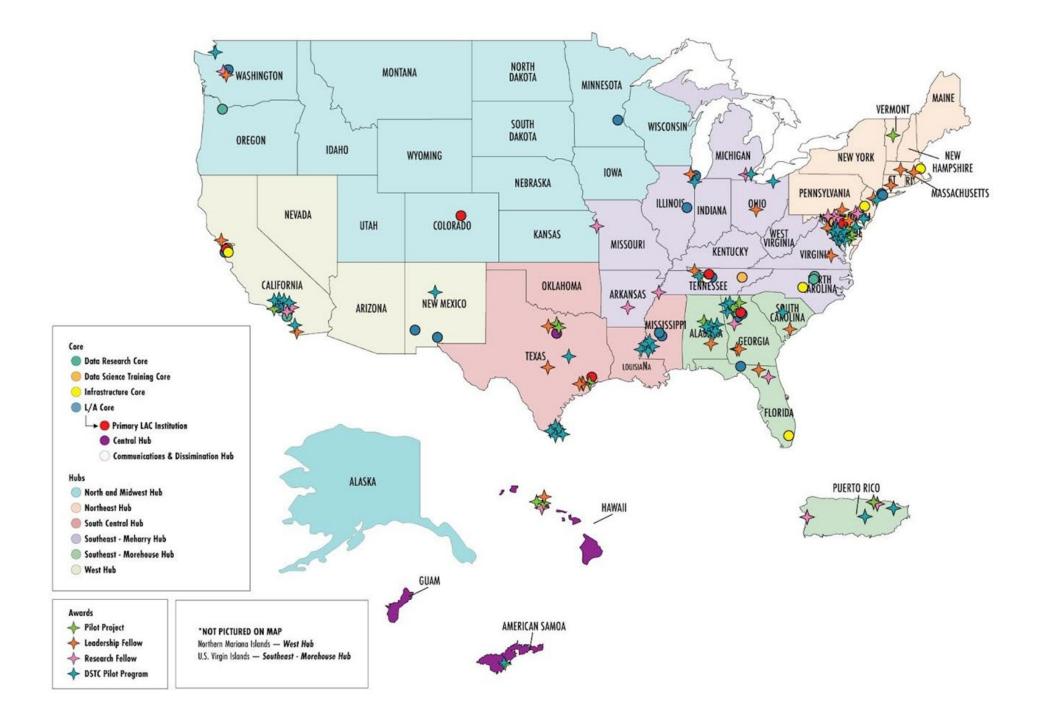
Goals:

- to enhance the participation and representation of researchers and communities currently underrepresented in the development of artificial intelligence and machine learning (AI/ML) models
- to address health disparities and inequities using AI/ML
- to improve the capabilities of this emerging technology, beginning with the use of electronic health record (EHR) and extending to other diverse data

https://aim-ahead.net/ https://datascience.nih.gov/artificial-intelligence/aim-ahead

AIM-AHEAD Accomplishments

- 22 <u>Research Fellowships</u> awarded in 2022, engaging early-career researchers from underrepresented populations in biomedical research that involves the use of AI/ML methodologies on Electronic Health Record Data.
- 25 <u>Leadership Fellowships</u> awarded in 2022, preparing a diverse leaders to champion the use of Al/ML in addressing persistent health disparities
- 27 PRIME training practicum awards made in 2022, enhancing technical competencies in AI/ML for graduate students from MSIs.
- 46 <u>Professional Development awards</u> made in 2022 to underrepresented health care workers to enhance awareness and understanding of AI and health equity.
- 22 Pilot research projects awarded in 2022, to test new paradigms of research, data analysis, and the new ways for underrepresented groups to derive value from their own health data.
- <u>AIM-AHEAD connect</u> platform launched as virtual hub for research at the intersection of AI/ML and health equity.
- Numerous <u>webinars</u> and symposia, including AI for Health Equity (<u>AIEHS 2022</u>)



Consortium Development Pilot Projects The AIM-AHEAD Coordinating Center supports a range of pilot projects deemed to address high priority opportunities in AI/ML and health equity.

#	Institutions/Organization	Description		
1	University of Puerto Rico	Identify reference intervals of cardiometabolic related laboratory tests for Hispanic populations using Machine Learning Methods (MLM)		
2	Kula no na Po'e Hawaii o Papak0. .0.olea, Kewalo, Kalawahine University of Hawaii at Manoa Hawaii Pacific University Ulu Hi-Tech	Ka Malu a Moananui: Bridging the cardiometabolic diseases gap in the US Affiliated Pacific Islands (USA-PI) by providing AI/ML tools to Community Health Workers		
3	University of Hawaii at Manoa	Leveraging Al and Machine Learning to address intersex under-diagnosis/under-recognition		
4	Medical Decision Logic, Inc. Nah Tah Wahsh Hannaville High School Michigan Department of Education Prince George's County Public Schools	Establishing student project capabilities to improve suicide prevention (PROTECT): Rich data access, ML algorithm optimization, translation to practice		
5	Houston Methodist Research Institute University of Houston	Using Artificial Intelligence to improve cardiometabolic health: Validating a kidney transplant derailers index to predict transplant drop-out risk for African American and Hispanic patients		
6	Universitý of Florida College of Medicine - Jacksonville	Conducting research leveraging AIM-AHEAD centralized patient-level data resource - Outpatient Opioid use and consequences		
7	Acclinate	Culturally tailored participatory action research (CURATOR) to identify AI/ML applicable health disparities approach		
8	Alexandria City Public Schools George Washington University	Al-for-You: Data mining to improve mental health through shared decision-making in minority adolescents and their parents		
9	Emory University	Radiology Al/ML to address disparities in cardiometabolic diseases and cancer research through the AlM-AHEAD Consortium		
10	University of Miami Florida Atlantic University Caridad Center	Developing a precise, localized, community focused, population health framework in an FQHC to tackle chronic disease disparities through EHR data		
11	Vibrent Health Association of Community Cancer Centers Loyal Jones Appalachian Center at Berea College Bluefield State University Marshall University Bon Secours - Southside Regional Medical Center St. Elizabeth Healthcare	Stratifying health care biases and determinants of high cancer death rates in rural Appalachia by AI/ML-facilitated HER data Analytics		
12	Providence	Leveraging the Center for Kidney Disease Research, Education, and Hope (CURE-CKD) Registry as a toll to reduce cardiometabolic disparities		
13	Baylor College of Medicine	Building Al/ML algorithm to predict and prevent cancer treatment complications in underserved and minority patients in a metropolitan catchment area		
14	University of North Texas	Evaluating bias in predictive and explainable ML algorithms among older adults with cancer		
15	University of Colorado Denver University of California, Irvine	Cardiometabolic risk prediction among American Indian and Alaska Native (Al/AN) adult using machine learning (ML) approaches and electronic health record (EHR) data		
16	Norwich University	Modeling exposure to gun violence and trajectory of behavioral health outcomes		
17	University of Miami Florida Memorial University Miami Dade College	Creating an educational Al/ML-based infrastructure and job readiness (CAIR) program to increase workforce diversity and professional development amongst URM faculty and students		
18	MedCognetics, Inc.	Racially unbiased Artificial Intelligence (AI) algorithms for breast cancer detection		
19	American Samoa Community Cancer Coalition University of Hawaii Cancer Center	A pilot study assessing AI/ML models to increase colorectal cancer detection for indigenous American Samoa adults		
20	University of Hawaii at Manoa	Machine learning (ML)-based approaches to understand lung cancer health disparities by integrating genomics and health record data		
21	University of Georgia	Improving prediction of beneficiary-level medical costs by incorporating social determinants of health indicators in risk adjustment models to address health disparities: A machine learning approach		

All of Us Enrollment Update as of December 5, 2022

559,000+Participants

339,000+

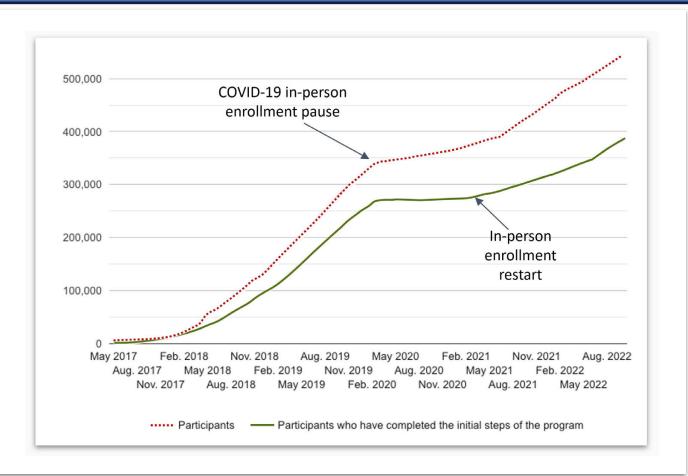
Electronic Health Records

393,000+

Participants who have completed initial steps of the program

411,000+

Biosamples



Diversity

Includes racial and ethnic minorities as well as sexual and gender minorities, people with low income or limited education and other groups.

50%+

Racial and Ethnic Minorities

80%+

Underrepresented in Biomedical Research

Genomic Health-Related Return of Results in Pilot Testing



JANE DOE DOB: May 25, 1977 ID: 123456

Barcode: 223 234234 2343 Collected: September 15, 2018 Report date: October 2, 2018

RESEARCH RESULT - Your doctor will need to confirm this result with a clinical test before using it in yo



Medicine and your DNA

Our **genes** affect how we respo

Genes affect how we respond to medicine in many different ways Some genes help move medicines to the right pody. Some genes help break down medicines them from your body. Some genes even changinto a form that makes them work properly.

This test looked at a few of the genes in your D affect how medicines are used by your body. The term for this kind of information is "pharmacog

What is this kind of information used for?

Doctors and pharmacists use this kind of inform when they consider why medicines work differed different people.

But doctors and pharmacists don't make decision just DNA. Some other important considerat be age, weight, health, diet, and other medicine taking at the same time.

IMPORTANT!

Share this report with your doctor.

 If your doctor has prescribed medicine for y keep taking it. It can be dangerous to stop to a medicine, or to change the dose or timing of without first asking your doctor.

This report comes from a research program s
research result. That means that neither you
doctor should use it to make any changes to
medicines. Your doctor would need a separa
test if they wanted to use the information.

Genome Center: XXXXX, CLIA #XXXXXXXX Laboratory Director: XXXXXX Hereditary Disease Risk Report: DNA and



JANE DOE DOB: May 25, 1977 ID: 123456

Barcode: 223 234234 2343 Collected: September 15, 2018 Report date: October 2, 2018

RESEARCH RESULT - Your doctor will need to confirm this result with a clinical test before using it in your care.



Your Result:

Something very important for your health was found in your **BRCA1** gene.

What does this mean?

- This result means that you are more likely than other people to get certain types of cancer.
- It does not mean that you have certain types of cancer.
- It does not mean that you will definitely get certain types of cancer.
- This result is important and should not be ignored.

IMPORTANT!

 This report comes from a research program so it is a research result. Your doctor will need to confirm these results with a clinical genetics test before using them in your care.

Share this report with your doctor.

Do not ch confirmed

- Do not change your medical care before this result is confirmed by your doctor.
- Results provided are from an investigational device.
 An "investigational device" is a device that is the subject of a clinical study.

The BRCA1 gene

Women and men who have this result in the *BRCA1* gene have a higher chance of developing certain cancers in their lifetime compared to someone without this result. Women are at higher risk for breast cancer and ovarian cancer. They may also have a higher risk of pancreatic cancer. Men are at higher risk for male breast cancer and pancreatic cancer. They may also have a higher risk of prostate cancer.

Hereditary Disease Risk Report: DNA and the risk for some diseases

Genome Center: XXXXX, CLIA #XXXXXXXX Laboratory Director: XXXXXX Hereditary disease risk (starting with ACMG59) and medicine and your DNA (pharmacogenomics)

- Participants can choose results they want
- Interpretation begins at Clinical Validation Laboratories
- All results supported by Genetic Counselors
- Participants can obtain clinical results available for ACMG59 at no cost

All of Us Researcher Workbench Usage and Diversity

Research on the Researcher Workbench



3,600+Registered
Researchers



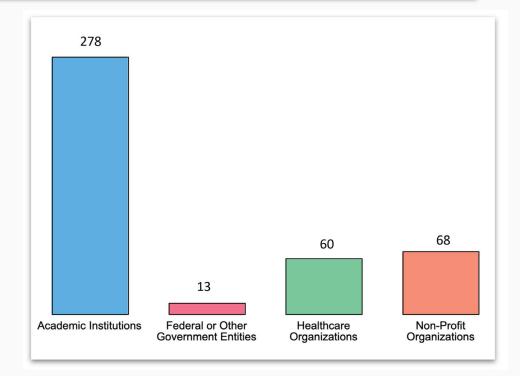
3,099+Active
Projects

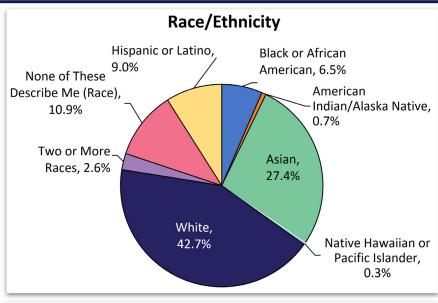


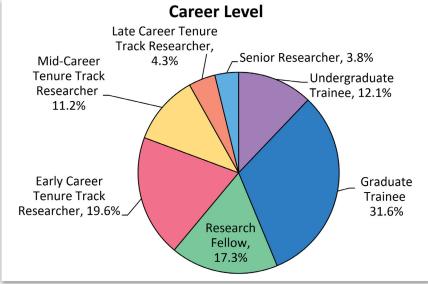
100+ Publications using All of Us data

435+ Organizations:

- 28 Historically Black
 Colleges & Universities
- 36 Hispanic Serving Institutions

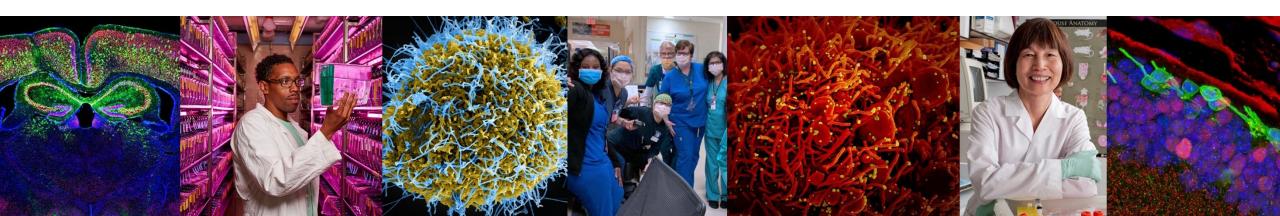






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- Awards and Honorees
- Special Events
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Budget Update

NIH Director's Report to the Advisory Committee to the Director December 8, 2022

Neil K. Shapiro Associate Director for Budget, NIH





FY 2023 So Far

- Currently under a Continuing Resolution
 - First through December 16, 2022.
 - Second expected, into at least early January.
 - Funding level is FY 2022 enacted, prorated for the time period.
- Congress is working on an omnibus, which may include both annual and supplemental appropriations.
- Type 1 Diabetes mandatory funding is already appropriated for FY 2023 but reduced by 5.7 percent (from \$150 to \$141.45 million) due to sequestration.

Appropriations Action: House

- FY 2023 bill was approved by Subcommittee on June 23 and full Committee on June 30. It was not included in a consolidated bill that passed the House in July.
- Includes a \$2.5 billion increase over FY 2022 for NIH Institutes and Centers.
- Across-the-board increase of at least 3.2 percent, as well as targeted increases for several research areas.
- ARPA-H is funded at \$2.75 billion, a \$1.75 billion increase over FY 2022, but in HHS without authority to transfer to NIH.

Appropriations Action: Senate

- FY 2023 bill recommended by the Subcommittee Chair was released on July 28.
- Funding level for NIH is \$2 billion above FY 2022.
- Across-the-board increase of at least 3.1 percent, as well as targeted increases for several research areas.
- ARPA-H is funded at \$1 billion, the same level as FY 2022, within NIH.
- Includes \$16 billion of emergency supplemental funding to HHS for COVID-19, including development of next-generation vaccines.

FY 2023 Comparison

\$ in billions	FY 2022 Enacted	FY 2023 PB	FY 2023 House	FY 2023 Senate			
Program Level*	45.18	45.45	47.68	47.18			
+/- FY 2022		+0.27	+2.50	+2.00			
ARPA-H	1.00	5.00	2.75	1.00			
*less ARPA-H and the Pandemic Preparedness mandatory proposal							

• The Pandemic Preparedness proposal (\$12.05 billion) has not advanced in Congress, but more emergency supplemental funding has been requested for HHS to respond to COVID-19, including Long COVID.

FY 2023 Targeted Increases

\$ in millions	FY 2023 PB	FY 2023 House	FY 2023 Senate
Opioids/pain (inc. HEAL)	552	98	140
Health disparities	350	100	100
Alzheimer's disease		200	
Buildings & Facilities	50	50	100
Nutrition Science	96	39	24

• Several of the NIH priorities with initiative funding in the President's Budget received support from both House and Senate.





Legislative Update

Adrienne Hallett

Associate Director for Legislative Policy & Analysis

December 8, 2022

Lame Duck Legislation

- **✓**
- FY 2023 Appropriations government funding expires December 16, 2022
- **~**

National Defense Authorization Act (NDAA)

- **✓**
- Other Health Provisions FDA technical fixes; Pandemic Preparedness; ARPA-H authorization
- **~**

Debt limit?



2022 Midterm Election Outcomes

Voters Sought Stability and Incumbents Won

Senators

100 % of incumbents won

51D - 49R

House

97 % of incumbents won

219R - 212D

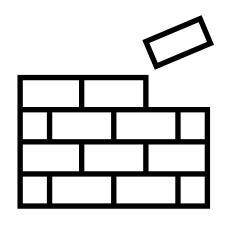
*Races still pending Majority = 218

Governors

98 % of incumbents won

26R - 24D





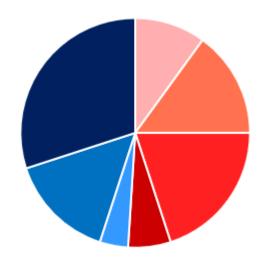
118th Congress

- •Convenes on January 3, 2023
- •Each Congress rebuilds itself new rules and orders are made
 - Leadership elections
 - Committee assignments and leaders determined
- •New Majority in the House rules to watch:
 - Remote and proxy voting debate
 - Term limits debate for committee chairs and ranking members
 - Debate on whether and how to allow earmarks
 - Debate on rule change for removing the Speaker

Majority Size Matters

- Narrow margins of control in both Chambers.
- •House 1-vote majority empowers caucuses
 - Freedom Caucus ~50 members
 - Republican Governance (Tuesday Group) ~45 members
 - Problem Solvers ~50 bipartisan members
 - Blue Dog Democrats ~20 members
 - Progressive Caucus ~100 members
- •Senate Majority Democrats gained 1 seat
 - Determines Committee power structure and subpoena power.

Narrow margins empower factions



Congressional Leadership - Democrats

Generational shift for House Democrats.



Rep. Pete Aguilar Democratic Caucus Chair



Rep. Hakeem Jeffries Minority Leader



Rep. Katherine Clark Minority Whip

Congressional Leadership - Democrats

Pressure on the Senate to follow suit...



Sen. Chuck Schumer Majority Leader



Sen. Dick Durbin Majority Whip



Sen. Patty Murray President Pro Tempore

Congressional Leadership - Republicans

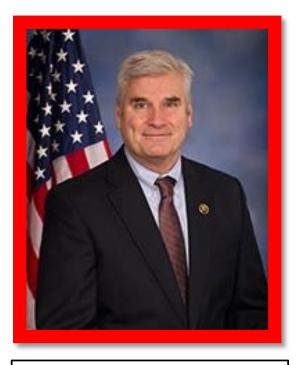
Election for the new Speaker of the House in January.



Rep. Kevin McCarthy Speaker?



Rep. Steve Scalise Majority Leader



Rep. Tom Emmer Majority Whip

Congressional Leadership - Republicans

Senate.



Sen. Mitch McConnell Minority Leader



Sen. John Thune Minority Whip



Sen. John Barrasso Republican Conference Chair

New Leadership of Health Policy Panel New Priorities



"...will focus on universal health care, lowering the cost of prescription drugs, increasing access to higher education, and protecting workers' right on the job"

Senator Bernie Sanders (expected Chairman of HELP)

"HELP passed the Surprise Medical Billing bill. The administration has not implemented it well. I'd like to have oversight over surprise medical billing."

Senator Bill Cassidy

(expected Ranking Member of HELP)



House Leaders Proclaiming a Renewed Focus on Oversight



"The American people deserve the facts. Part of our constitutional duty, when I take the oath of office on January 3 in a new Congress...is to do those investigations, do the oversight so the people, we the people, get the facts, get the truth."

Representative Jim Jordan (expected Chairman of House Judiciary)

"We believe that there have been hundreds of billions, if not trillions of dollars wasted over the past three years, so that spans two administrations, in the name of COVID. We want to have hearings on that."

Representative James Comer (expected Chairman of House Oversight)



House Leaders Proclaiming a Renewed Focus on Oversight



"How the pandemic started, that's probably the most important public health question that needs to be answered."

Representative Cathy McMorris Rodgers (expected Chairwoman of House Energy & Commerce)

Stated Priorities

- 1. Afghanistan
- 2. Hunter Biden
- 3. COVID-19 Response and Origins

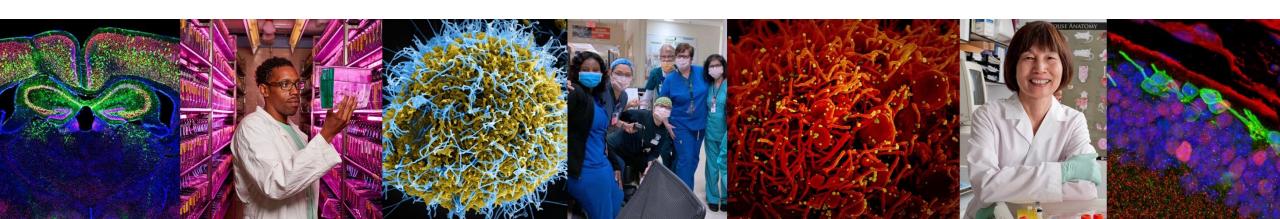
NIH Priorities for the 118th Congress

• Introducing NIH broadly oRecord number of retirements the last 3 election cycles. Newer Members only know NIH from COVID and controversy • Develop champions for programs and policies oGeneral support for scientific and public health priorities OAdditional knowledge for sensitive topics, such as: animal research, genomic data sharing, international collaboration. • NIH Director nominee?

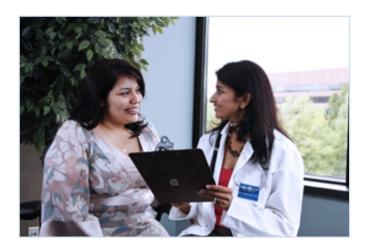
Questions?

Topics for Today

- Appointments and Departures
- Awards and Honorees
- Special Events
- ESI Update
- eRA Update
- DEIA Strategic Plan Update
- Initiatives Updates
- Budget and Legislative Updates
- Reflection: Leading Through Turbulent Times











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Turning Discovery Into Health

