Director’s Report

128th Advisory Committee to the Director Meeting
June 13, 2024

Monica M. Bertagnolli, MD
Director, National Institutes of Health
Topics for Today

• NIH Leadership Changes
• Awards
• Events
• Follow up to ACD Working Groups
• Programs and Initiatives
• Science Highlights
NIH Leadership Changes
Director, Fogarty International Center

Kathleen M. Neuzil, MD
Director, Center for Information Technology

Sean Mooney, PhD
Departure, NIMH Director

Josh Gordon, MD, PhD
Presidential Rank Award

Keith Lamirande, MBA
NCATS

Colleen McGowan, MHA
ORS

Camille Hoover, MSW
NIDDK

Jerry Sheehan, MS
NLM
Secretary’s Award for Distinguished Service

W. Marston Linehan, MD
HHS Career Achievement Award

Andre Nussenzweig, PhD
Secretary’s Award for Meritorious Service

Brigitte C. Widemann, MD
10th Annual Global Health Workshop
with Gates Foundation
White House Initiative on Women’s Health Research Roundtable in Atlanta
AI in Biomedical Research
Clinical Center Exhibit for Nobel Laureate Dr. Harvey Alter
Follow up to ACD working groups

- Postdoctoral Training
- Disability
- Novel Alternative Methods
Updates on advancing postdoctoral training

Recommendations from the NIH ACD WG
Informed by the ACD Postdoc WG, NIH is implementing the **largest increase in postdoctoral stipends in recent history**

### NIH ACD WG Recommendation 1

**Changing the Way We *Value* Postdoctoral Scholars**

Enhancing NRSA Stipends and Benefits

- NIH is committed to reaching the recommended $70,000 stipend level over the next 3-5 years, as appropriations allow

<table>
<thead>
<tr>
<th>FY24 Stipends for NRSAs</th>
<th>Predocs</th>
<th>Postdocs</th>
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<tbody>
<tr>
<td>$28,224 (4%)</td>
<td>$61,008 (8%)</td>
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<tr>
<th>FY24 Benefits</th>
<th>Predoc TRE/IA</th>
<th>Postdoc TRE/IA</th>
<th>Childcare</th>
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<tr>
<td>$4,750</td>
<td>$12,400</td>
<td>$3,000</td>
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Terminology Change: Postdoctoral Scholars

Definition of "Postdoctoral Scholar": An individual who has received a doctoral degree or equivalent working in a term-limited position of mentored research and professional development to prepare for an independent career usually in research and teaching.

- Standard definition to prevent "gaming" of shifting postdoctoral scholars to another position, in title only, with no meaningful modification to their role, compensation, or benefits.
Changing the Way We Engage Postdoctoral Scholars

Gathering Public Input to Inform Implementation

• Finalizing RFI to gain public input on how best to implement ACD WG recommendations

• Developing implementation teams to address high priority ACD WG recommendations such as:
  
  Create and expand mechanisms to support the full talent pool of postdoctoral scholars
  
  Facilitate the transition of postdoctoral scholars into the next career stage, including roles beyond academic faculty
  
  Promote training and professional development of postdoctoral scholars and their mentors
Disability
Updating the NIH Mission Statement

• NIH Advisory Committee to the Director (ACD) WG on Diversity’s Subgroup on Individuals with Disabilities recommendations (December 2022)
  o Recommendation to remove language of “reducing disability” from the NIH mission statement

Current mission statement
• To seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability.

Proposed revised mission statement
• To seek fundamental knowledge about the nature and behavior of living systems and to apply that knowledge to optimize health and prevent or reduce illness for all people.
Updating the Mission Statement: Request for Information (RFI)

• Released RFI to gather internal and external input
• Received 480 total responses
  o Public report on RFI will be posted in coming weeks
• Strong, opposing views expressed in RFI
  o 40%: add “disability” back into the statement in some way
    ➢ Develop an alternative way to include disability
    ➢ Keep “reduce disability”
• RFI indicated **more input needed** to better understand all perspectives before finalizing a new mission statement
  o **Next steps**: additional community engagement
Disabilities Research across NIH

- NIH Advisory Committee to the Director (ACD) Working Group on Diversity’s Subgroup on Individuals with Disabilities recommended (December 2022) conducting research on disability health and health care disparities and equity.

- Steering Committee DEIA Working Group established Disabilities Subcommittee in 2024 to coordinate and consult on activities related to NIH DEIA Strategic Plan.

- DPCPSI is bringing on a Senior Leader to support NIH-wide activities on disabilities research.

- Close coordination with NIMHD on activities.
Novel Alternative Methods
Catalyzing the Development and Use of New Approach Methods (NAMs)

- WG issued recommendations and ACD accepted in December 2023
- NIH Director accepted in February 2024
- Set forth a vision for an integrated ecosystem to catalyze scientific discovery
- Implementation in progress
  - Conducted prioritization and feasibility analysis
  - Identified lead ICOs for each item
  - Ongoing NIH-wide data call + targeted discussions with most heavily involved ICOs
Complement Animal Research in Experimentation (Complement-ARIE)

• Approved by Council of Councils in January 2024 and includes representation from 23 ICOs

• Catalyze the development, standardization, validation and use of **human-based new approach methodologies (NAMs)** that will transform the way we do basic, translational, and clinical sciences

• Strategic planning activities:
  o Three listening sessions + federal interagency retreat
  o **Complement-ARIE Ideation Challenge Prize Competition**
    ➢ Solicited entries for new methods and approaches in NAMs
    ➢ $1M total awarded to 20 diverse teams for insight about innovation and investment opportunities
  o Exploring public-private partnerships with FNIH

Link to Complement-ARIE Challenge winner announcement
Programs and Initiatives

• CARE for Health
• Women’s Health Research
• RECOVER
• BRAIN
• Cancer Moonshot
• Childhood and Adolescence
• Alzheimer’s
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U.S. life expectancy ranks low among peers

Concerning U.S. life expectancy trends:

• Declined 2014-2017\(^1\)

• Dropped significantly—2.4 years—between 2019 and 2021\(^2\)

• Increased in 2022 by 1.1 years; gain does not make up for pandemic losses.\(^2\)

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(3) Chart data: OECD (2024), Life expectancy at birth (indicator). [DOI:10.1787/27e0fc9d-en](https://doi.org/10.1787/27e0fc9d-en) (Accessed on 10 January 2024)
Our work is not finished when we deliver scientific discoveries, our work is finished when all people are living long and healthy lives.
Communities Advancing Research Equity for Health

CARE for Health™

- Integrate research into the clinical care environment
- Engender trust in science by addressing community needs
- Conduct research addressing issues important to diverse communities, particularly those underrepresented in biomedical research
- Achieve longitudinal collection of clinical data to address health across the lifespan
- Reduce burden on providers using innovative data collection methods
- Increase adherence to evidence-based care
- Improve efficiency of care delivery

Community-based primary care practices
Programs and Initiatives

- CARE for Health
- Women’s Health Research
- RECOVER
- BRAIN
- Cancer Moonshot
- Childhood and Adolescence
- Alzheimer’s
Expanding women’s health research
Integrate women’s health across the federal research portfolio

Help unlock innovation and open new doors to breakthroughs in women’s health

Galvanize research on diseases and conditions associated with women’s midlife health

Assess gaps in funding for women’s health research
Programs and Initiatives

- CARE for Health
- Women’s Health Research
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- Alzheimer’s
RECOVER by the Numbers

**Observational**
- 60 Million Electronic Health Records
- 30,000 Enrolled in Clinical Cohorts
- 60,000 Participants in Community-based Cohorts

**Pathobiology**
- >40 Studies of Pathogenesis
- 197 Autopsies Performed

**Clinical Trials**
- >200 Candidate Interventions Evaluated for Inclusion
- 8 trials
- 13 Interventions

**Findings**
- 54 Scientific Reports Published/Accepted
- 16 Scientific Reports Under Journal Review
- 77 Scientific Reports In Preparation

**Patient and Community Engagement**
- >1,000 Patients included in Protocol Design, Trial Application Review, and/or Symptom Survey Development
- 31 Public Seminars on Long COVID/RECOVER
- >500 Diverse and Multi-disciplinary Investigators and Patients in RECOVER Consortium
Programs and Initiatives

- CARE for Health
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The NIH BRAIN Initiative is unique and foundational

- **Innovative** - leveraging synergies and creating new fields of study to enable ground-breaking neuroscience research

- **Inclusive** - building a new generation of scientists and engineers working in new team environments and including people living with brain disorders as partners in research

- **Open** – research for everyone’s benefit

- **Ethical** – understanding what makes us uniquely human, taking stock of both rewards and risks
Programs and Initiatives

- CARE for Health
- Women’s Health Research
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Blue Ribbon Panel Recommendations

1. Establish a network for direct patient involvement
2. Create a translational science network devoted exclusively to immunotherapy
3. Develop ways to overcome cancer's resistance to therapy
4. Build a National Cancer Data Ecosystem
5. Intensify research on the major drivers of childhood cancers
6. Minimize cancer treatment's debilitating side effects
7. Expand use of proven cancer prevention and early detection strategies
8. Mine past patient data to predict future patient outcomes
9. Develop a 3-D cancer atlas
10. Develop new cancer technologies

3,400+ publications
89 clinical trials
78 patent filings
Goals of the reignited Cancer Moonshot

• Reduce U.S. cancer mortality rate by 50% by 2047
• Improve the experience of people and their families living with and surviving cancer
Reignited Cancer Moonshot Activities

- Cancer Moonshot Scholars
- Vanguard Study / Cancer Screening Research Network
- Telehealth Research Centers of Excellence (TRACE)
- ARPA-H Biomedical Data Fabric Toolbox
- NAVIGATE NCI and VA Interagency Group to Accelerate Trials Enrollment
- NCI + DOE AI-Driven Multi-Scale Investigation of the RAS/RAF Activation Lifecycle (ADMIRRAL)
- SmokefreeNATIVE NCI + IHS
- HRSA Awards to Improve Equity in Cancer Screening
Childhood and Adolescence
NIH-Supported Scientific Findings on the Impact of Technology and Digital Media in Kids

• Higher screen time associated with development of mental and behavioral disorders
  o Adolescent Brain Cognitive Development (ABCD) Study, the largest long-term study of brain development and child health in the U.S.
  o Increased risk of developing disruptive behavior disorders in children aged 9-11 and increased risk of developing OCD and internalizing problems in children aged 9-10

• Cyberbullying associated with eating disorder symptoms
  o Data from over 10,000 adolescents enrolled in the ABCD Study
  o 9.5% of participants experienced lifetime cyberbullying, which was associated with worry about weight gain, self-worth tied to weight, inappropriate compensatory behavior, and binge eating

• Digital autism screening tool may improve early detection
  o Researcher-developed SenseToKnow app was used to screen 475 toddlers during well-child visits
  o Demonstrated high diagnostic accuracy (87.8% sensitivity and 80.8% specificity)
COVID: Predicting Viral-Associated Inflammatory disease severity in children with Laboratory diagnostics and artificial Intelligence (PreVAIL kIds)

• Develop translational tools to understand the spectrum of pediatric SARS-CoV-2 illness, rapidly diagnose and characterize MIS-C associated with SARS-CoV-2, and predict the longitudinal risk of disease severity after exposure to and/or infection by SARS-CoV-2
  - Genetics; omics; other biomarkers
  - Viral dynamics and immune profiling studies
  - Digital health platforms leveraged for children
  - Artificial intelligence

• Milestone-driven award (R61/R33); **up to 4 yrs**


* Note: MIS-C is one of most well-characterized forms of post-acute sequelae of SARS-CoV-2 (PASC) in children
Childhood Injury Prevention: Drowning Prevention Research

- Foremost cause of injury death in children aged 1-4, and a leading cause for children aged 5-19
- Stark racial and socioeconomic disparities in drowning death rates
- Recent study identified disparities in adolescents’ access to strategies such as swimming lessons and life jacket use in the same demographic groups who experience higher drowning rates
- NIH released Notice of Special Interest for research on drowning (NOT-HD-21-048). Funded researchers investigating:
  - Virtual reality lifeguard surveillance environment to identify points of failure and inform training tools/strategies
  - Effects of swim instruction on autistic children’s swimming and water safety skills
  - Effectiveness of public policy interventions in reducing racial disparities in drowning
Commonly Used Drugs During Lactating and infant Exposure (CUDDLE) Study

- 50-70% of lactating women take prescription drugs though only 2% of common medications have evidence-based recommendations for use in this population
- Extent of transfer into breastmilk is largely unknown
- CUDDLE Study - PK of medicines used during breastfeeding
  - Collects breastmilk, maternal and infant plasma, safety data
  - Opportunistic design → 1600 enrolled; 10 drugs studied
  - Capacity for up to 50 drugs
  - **19 drugs in various stages of enrollment or analysis**
- Drug(s) label changes under review at the FDA for oxycodone, nifedipine, and ondansetron
Pediatric Trials Network
Best Pharmaceuticals for Children Act (BPCA)

- More than 60% of drugs used in children are not labelled or approved for use in pediatric populations
- Overarching goals of the BPCA for NIH:
  o Identify drugs in need of further study
  o Prioritize needs in pediatric therapeutics
  o Sponsor clinical studies of prioritized drugs
Impact of ABCD Findings on Policy

Early Adolescent Substance Use Before and During the COVID-19 Pandemic: A Longitudinal Survey in the ABCD Study Cohort

State-level macro-economic factors moderate the association of low income with brain structure and mental health in U.S. children

The Return on Investing in Children
Helping Children Thrive

Addressing Youth Substance Use through School Services and Supports
Lessons from the District of Columbia, Massachusetts, and New Mexico

Brain charts for the human lifespan

Optimizing brain health across the life course: WHO position paper
Progress in Alzheimer's and Related Dementias Research
AD/ADRD research across the research spectrum

**Basic Science**
Understanding the biological mechanisms and processes that contribute to health and disease

**Risk Reduction**
Identifying ways to reduce the risk of developing AD/ADRD

**Clinical Trials and Drug development**
Testing the safety and efficacy of potential new treatments

**Care and Caregiving**
Establishing clinical care strategies, long-term supports and services, and approaches to caregiver support
## Recent Progress in Alzheimer's Disease

<table>
<thead>
<tr>
<th>Diagnostics</th>
<th>2016</th>
<th>2023</th>
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<tbody>
<tr>
<td></td>
<td>• Amyloid PET agents</td>
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<tr>
<td></td>
<td>• Tau PET agents (e.g., flortaucipir)</td>
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<td></td>
<td>• Blood biomarkers for amyloid and tau (e.g., PrecivityAD/PrecivityAD2)</td>
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<tr>
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<td>• Data-based tools (e.g., eRADAR)</td>
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<tr>
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<td>• Electronic/digital assessments</td>
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<tr>
<th>Symptom Management</th>
<th>2016</th>
<th>2023</th>
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<tbody>
<tr>
<td></td>
<td>• Cholinesterase inhibitors (e.g., donepezil)</td>
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<tr>
<td></td>
<td>• Glutamate regulators (e.g., memantine)</td>
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<tr>
<td></td>
<td>• Brexipiprazole for agitation related to AD (approved 2023)</td>
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<tr>
<td></td>
<td>• Interventions for care and caregivers</td>
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<tr>
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<th>2016</th>
<th>2023</th>
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<tr>
<td><strong>Disease-Modifying</strong></td>
<td>None</td>
<td>• Lecanemab (FDA approval in 2023)</td>
</tr>
<tr>
<td><strong>Therapies</strong></td>
<td></td>
<td>• Donanemab (Under FDA consideration)</td>
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<tr>
<td></td>
<td></td>
<td>• Many additional therapies in the pipeline, with more diverse targets than ever before</td>
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<tr>
<td><strong>Risk Reduction</strong></td>
<td>None</td>
<td>• Intensive blood pressure control</td>
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<tr>
<td></td>
<td></td>
<td>• Hearing interventions</td>
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<tr>
<td></td>
<td></td>
<td>• Daily multivitamin use</td>
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<tr>
<td></td>
<td></td>
<td>• Personalized lifestyle interventions</td>
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<tr>
<td><strong>Care &amp; Caregiving</strong></td>
<td>Foundational</td>
<td>• Two intervention types in process of implementation with continued evaluation: REACH II and The Collaborative Care Model</td>
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<td>work to develop and test specific care models for efficacy &amp; effectiveness</td>
<td>• Multiple lines of study on adaptations and broader implementation of promising models</td>
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Multiple Emerging Strategies for Risk Reduction

- **EARLY RESEARCH**
  - Identifying key risk factors and developing reduction strategies

- **CLINICAL EVIDENCE**
  - Evaluating effectiveness of risk reduction strategies

- **TRANSLATION**
  - Informing public health initiatives or clinical practice

**Intensive blood pressure control**

**Daily multi-vitamin use**

**Hearing interventions**

**Personalized health coaching**

**Other strategies**
- (diet, exercise, sleep, etc.)
NIH

Turning Discovery Into Health