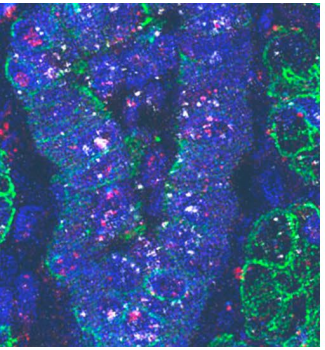
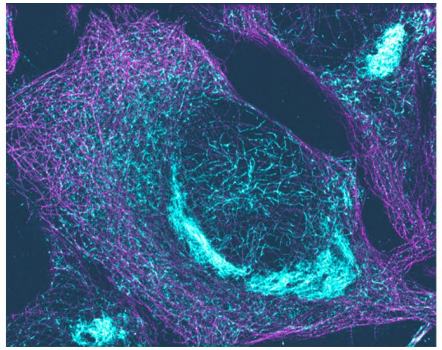
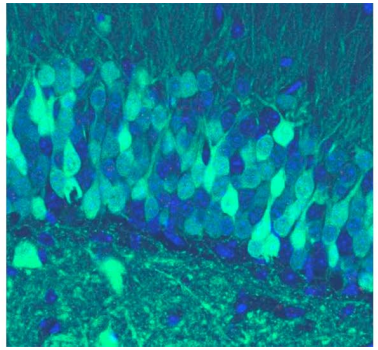
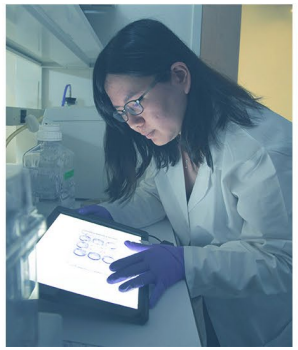
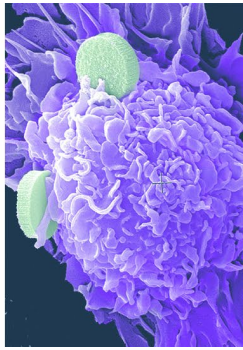
NIH Funding Decisions in the Context of Disease Burden and Unmet Needs

National Academies Committee on Strategies to Better Align Investments in Innovations for Therapeutic Development with Disease Burden and Unmet Needs

November 22, 2024





Monica M. Bertagnolli, MD
Director, National Institutes of Health

Topics

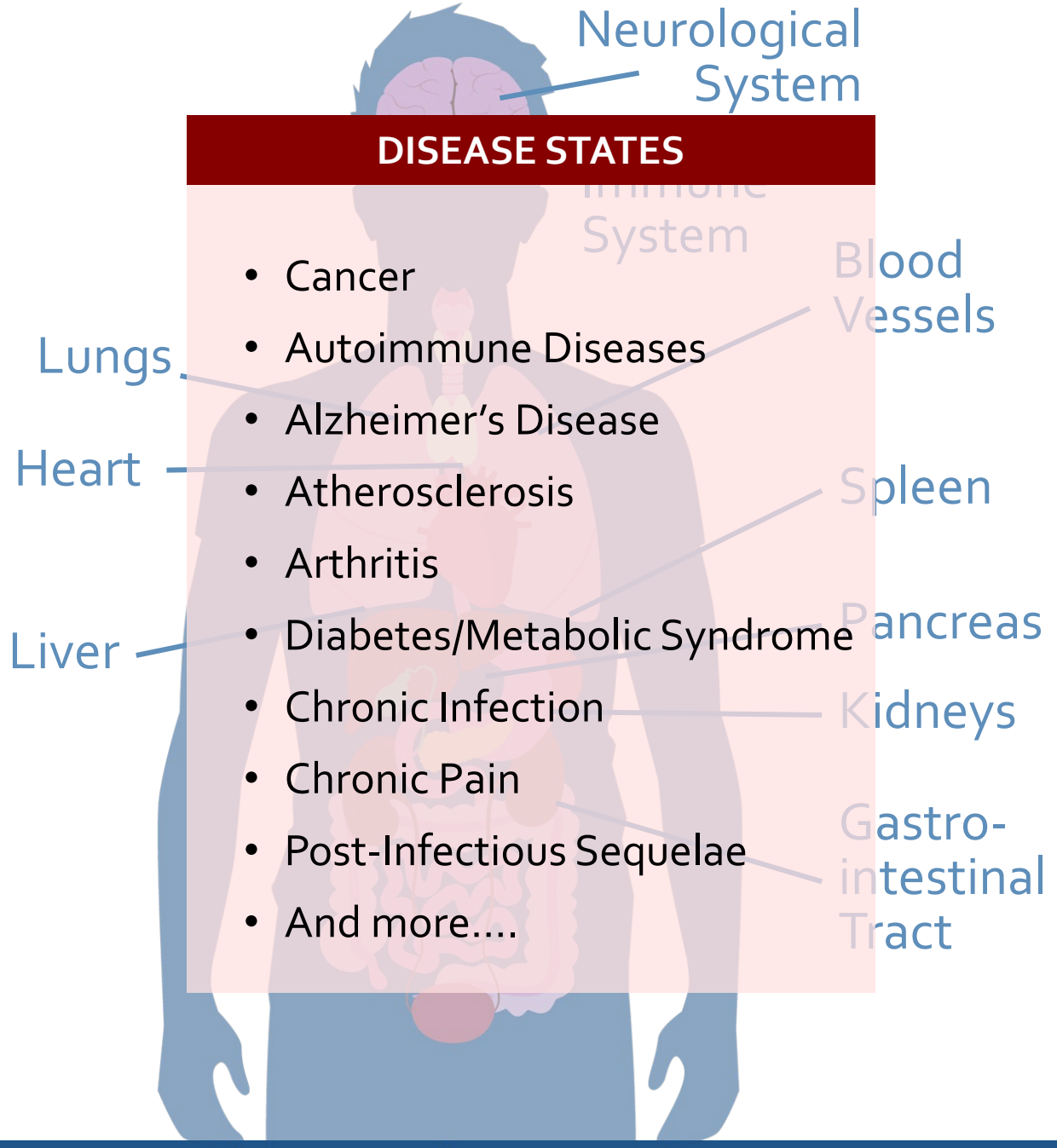
- The Importance of Basic Research
- NIH Mission
- Distribution of NIH Funding and Strategy for Funding Decisions
- Guiding Principles and Unmet Needs
- New Initiatives

FUNCTIONAL CAPABILITIES

- Develop from a single cell and grow to maturity
- Maintain tissue homeostasis
- Heal wounds
- Maintain epithelial barrier functions
- Respond to infectious agents
- Maintain DNA integrity
- Manage variable nutritional inputs
- Detoxify harmful substances

BIOLOGICAL PROGRAMS

- DNA transcription, translation/epigenetic modification
- DNA damage repair
- Metabolic response
- Microbiome regulation
- Angiogenesis
- Immune surveillance
- Stem cell maintenance
- Cellular senescence
- Inflammatory response



DISEASE STATES

- Cancer
- Autoimmune Diseases
- Alzheimer's Disease
- Atherosclerosis
- Arthritis
- Diabetes/Metabolic Syndrome
- Chronic Infection
- Chronic Pain
- Post-Infectious Sequelae
- And more….

Turning Discovery into Health…*for All*

National Institutes of Health

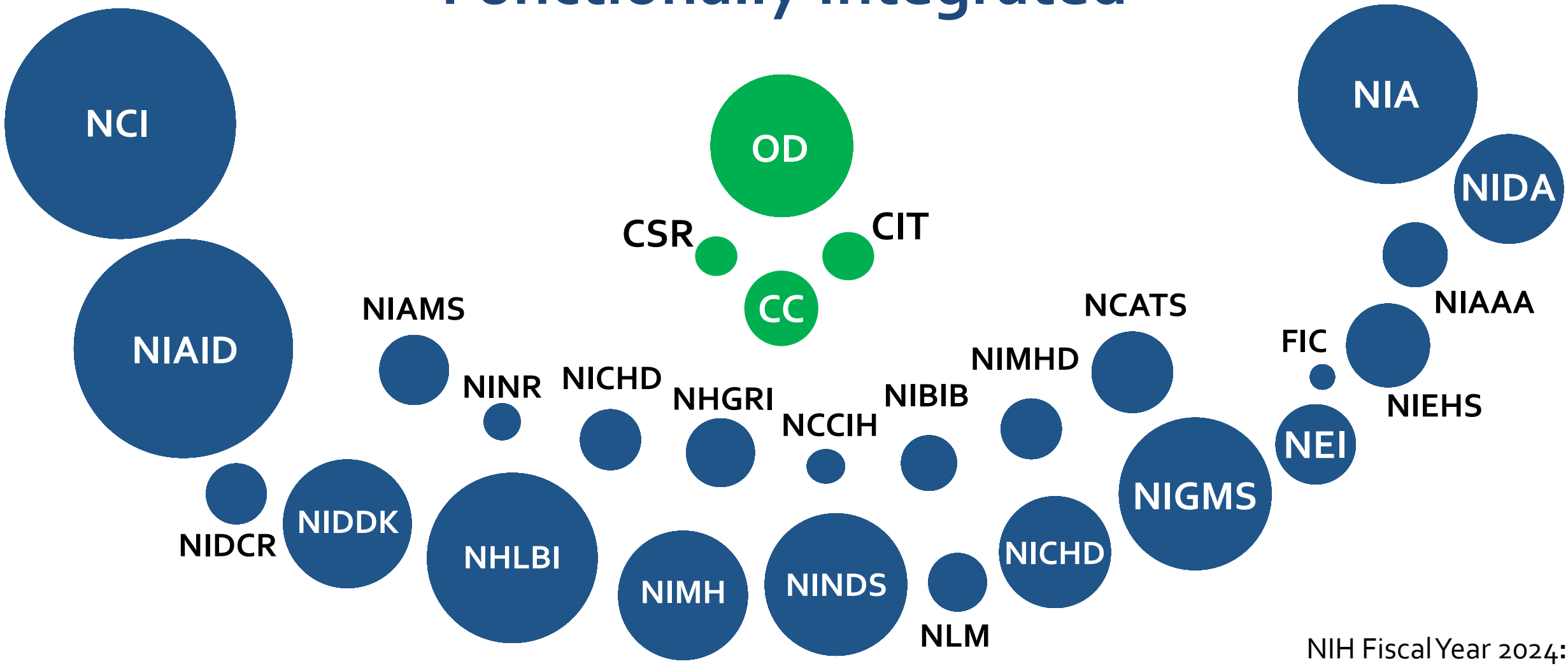
NIH supports:

- **Basic research**…to fuel progress
- **Translational research**…to move basic discoveries forward
- **Clinical research**…to turn discoveries into prevention, treatments, and cures
- A **creative and diverse workforce**…since people are our most important resource
- A **balanced research portfolio**…to ensure high return on investment for U.S. taxpayers

NIH Institutes and Centers

Cancer (NCI)	Eye (NEI)	Heart, Lung & Blood (NHLBI)	Human Genome (NHGRI)	Aging (NIA)	Alcoholism (NIAAA)
Allergy & Infectious Diseases (NAID)	Arthritis, Musculoskeletal & Skin Diseases (NIAMS)	Biomedical Imaging & Engineering (NIBIB)	Child Health (NICHD)	Deafness & other Comm. Disorders (NIDCD	Dental & Craniofacial (NIDCR)
Diabetes & Digestive & Kidney (NIDDK)	Drug Abuse (NIDA)	Environmental Health (NIEHS)	General Medical Sciences (NIGMS)	Mental Health (NIMH)	Minority Health & Health Disparities (NIMH)
Neurological Disorders & Stroke (NINDS)	Nursing (NINR)	Library of Medicine (NLM)	Clinical Center (CC)	Information Technology (CIT)	Scientific Review (CSR)
Fogarty International (FIC)	Translational Sciences (NCATS)	Complementary & Integrative Health (NCCIH)			

NIH: Legally Decentralized but Functionally Integrated



Integrated Policies and Infrastructure

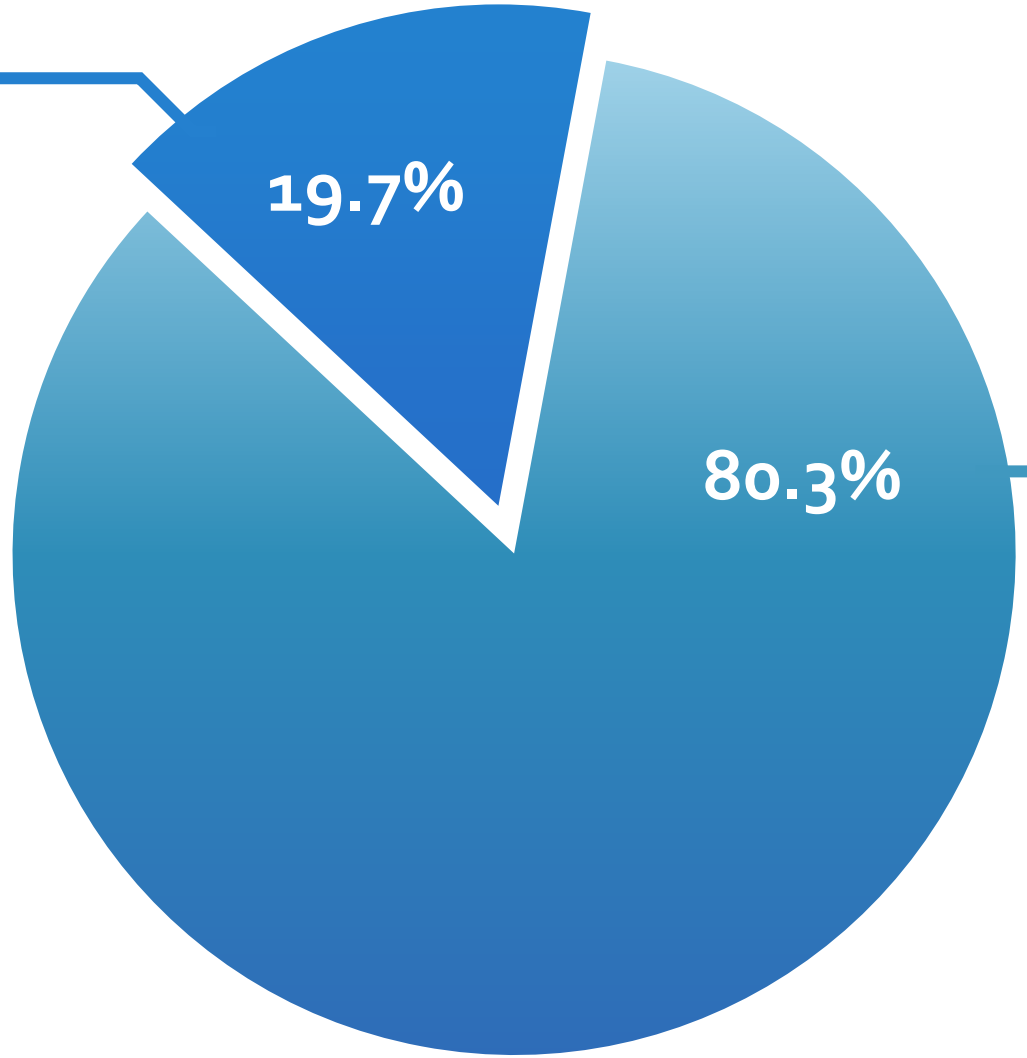
NIH Fiscal Year 2024:

~$47.4 Billion

NIH FY 2024 Budget: $47.4 Billion

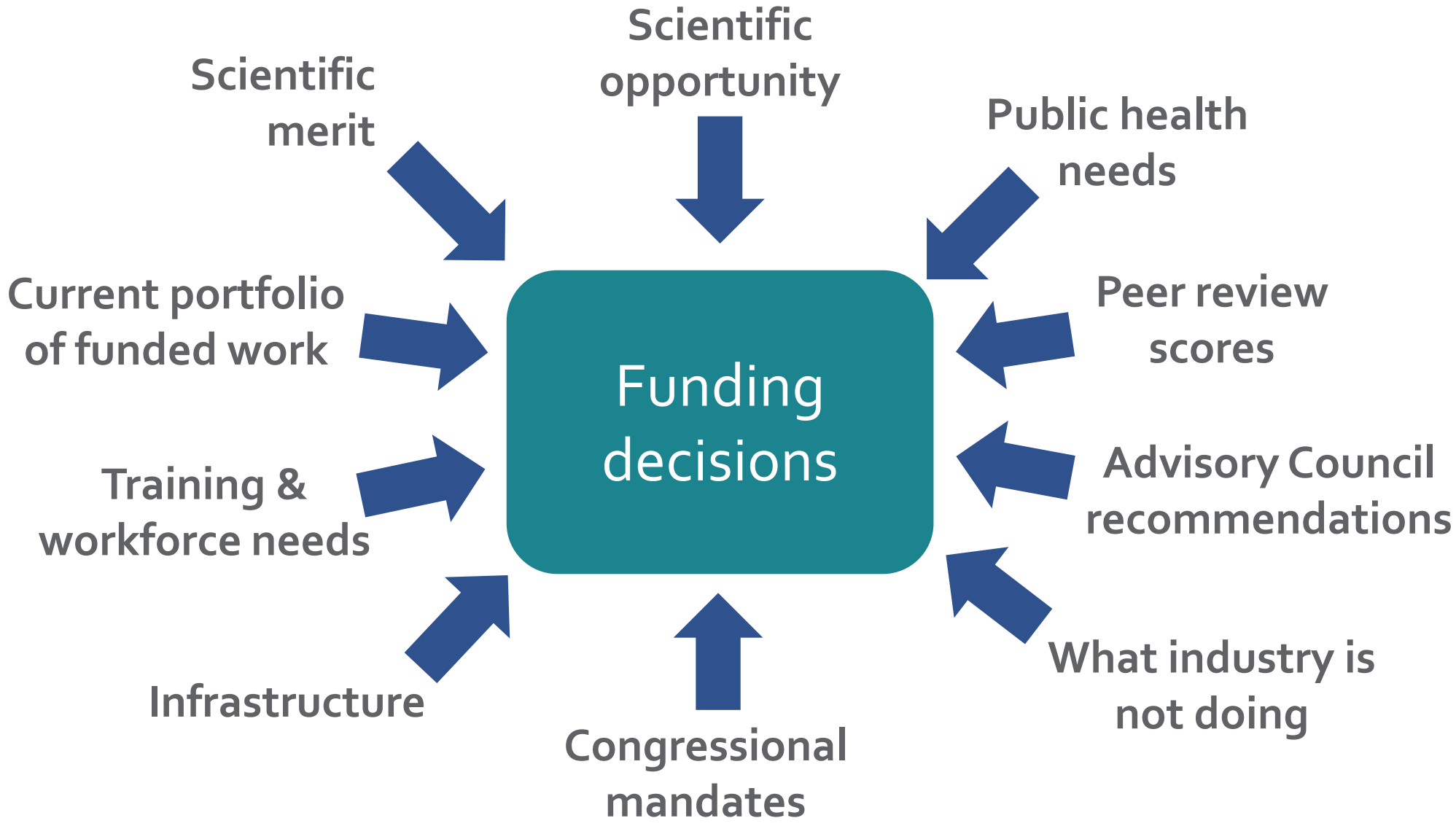
Spending at NIH

- Projects conducted by NIH scientists (~11%)
- Research management and support
- Other (administrative, construction, maintenance, operational costs)



Spending outside NIH

- Research project grants at universities, medical schools
- Research centers
- Other research grants
- Research training
- R&D contracts


Scientific merit
Scientific opportunity
Public health needs
Current portfolio of funded work
Peer review scores
Training & workforce needs
Advisory Council recommendations
Infrastructure
Congressional mandates
What industry is not doing
Funding decisions

Tactical approach

- Prioritize investigator-initiated research
- Support the workforce at all levels with emphasis on early careers
- Incentivize collaboration
  - trans-NIH, trans-USG, interdisciplinary, bench to community, PPP
- Identify and cover all gaps

Types of Funding Opportunities

Unsolicited (Investigator-initiated)

Solicited

Solicited Research

Institute Director

Institute National Advisory Councils

Program Announcements

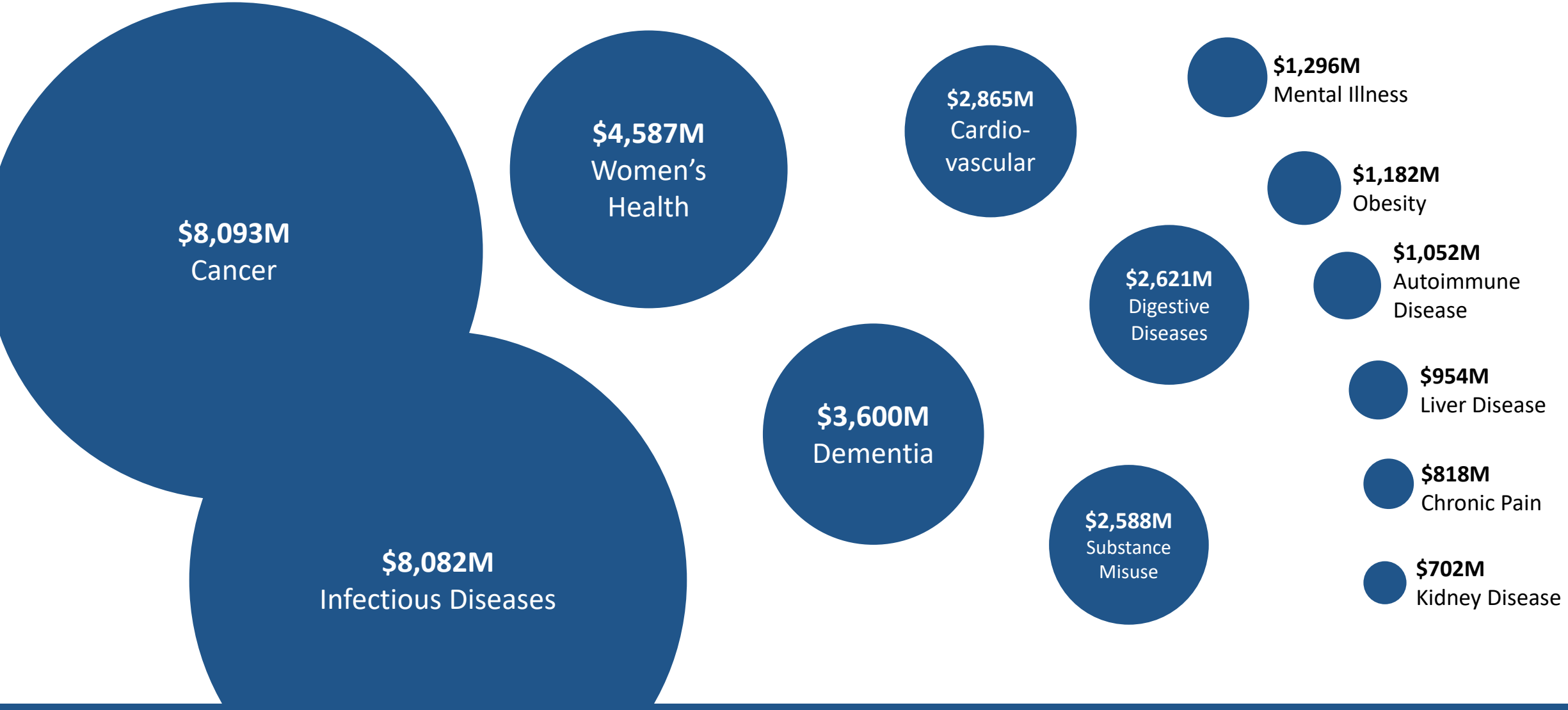
Notices of Special Interest (**NOSI**)

Requests for Applications (**RFA**)

Researcher

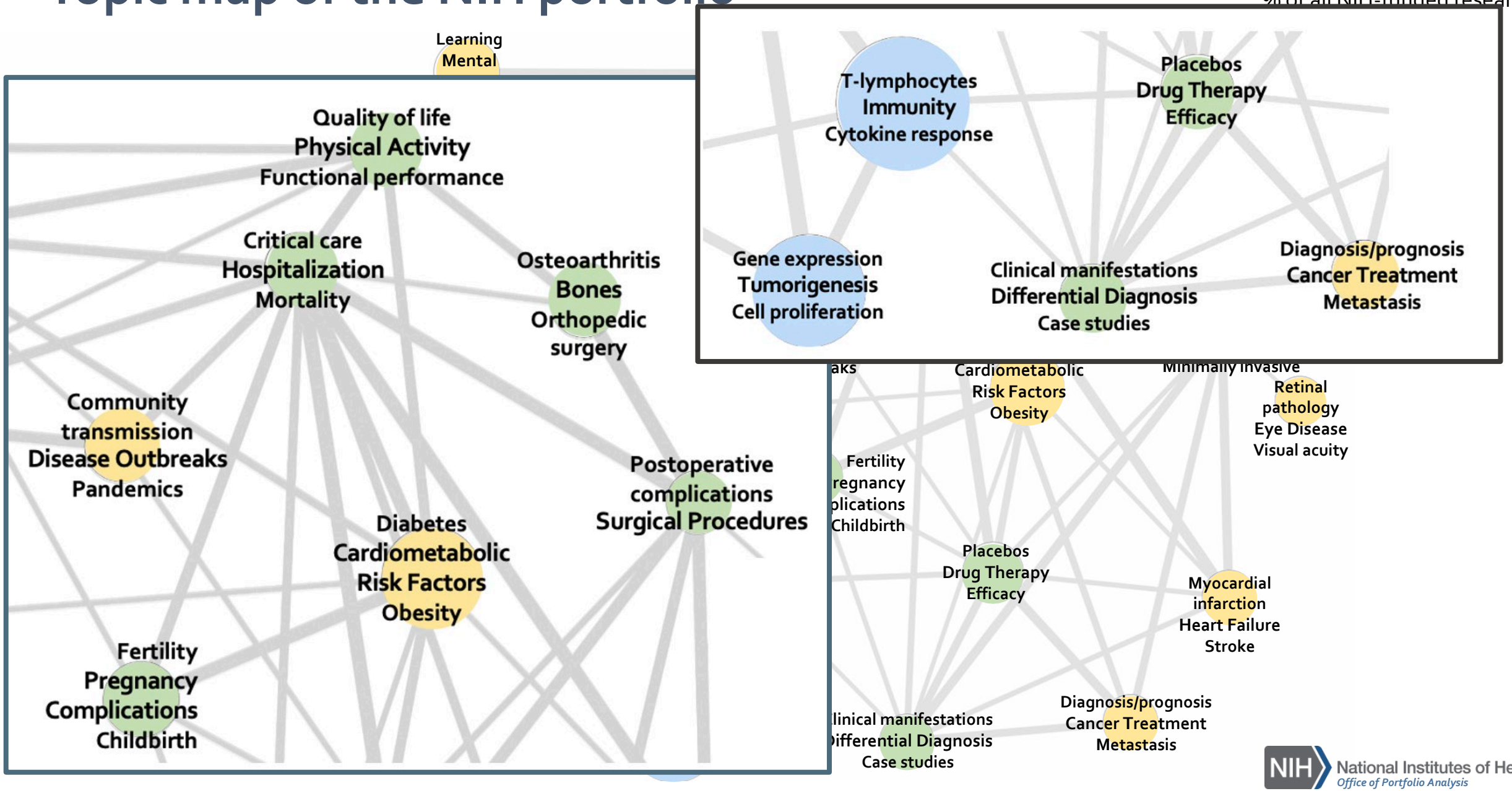
Grant Proposal

Funding for Various Research, Condition, and Disease Categories (Est. FY24)



Topic map of the NIH portfolio

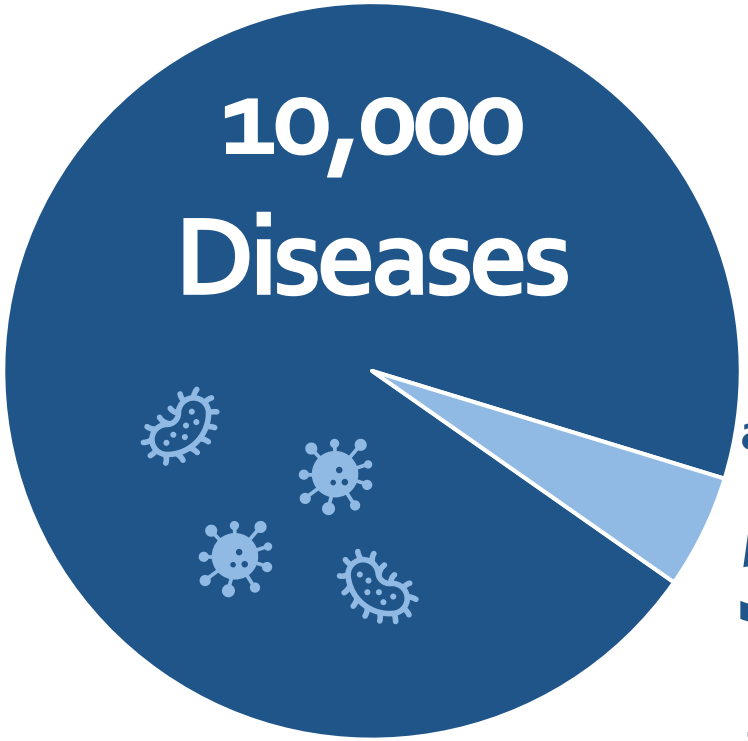
% of all NIH-funded research



NIH National Institutes of Health
Office of Portfolio Analysis

Our work is not finished when we deliver scientific discoveries, our work is finished when all people are living long and healthy lives.

Rare Diseases, Cumulatively Not Rare



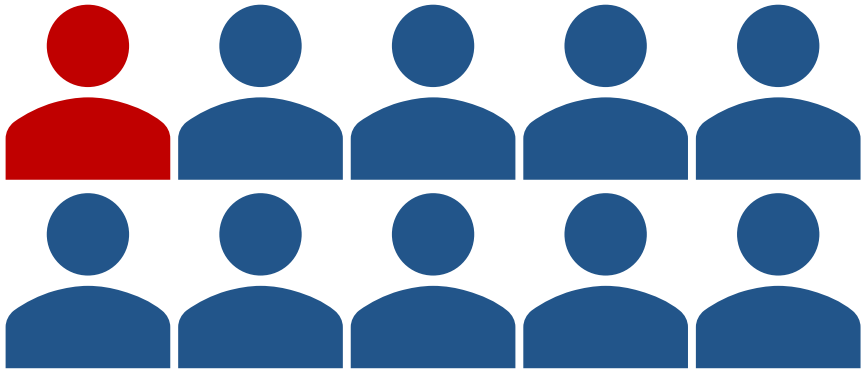
and only

5%

have treatments or cures

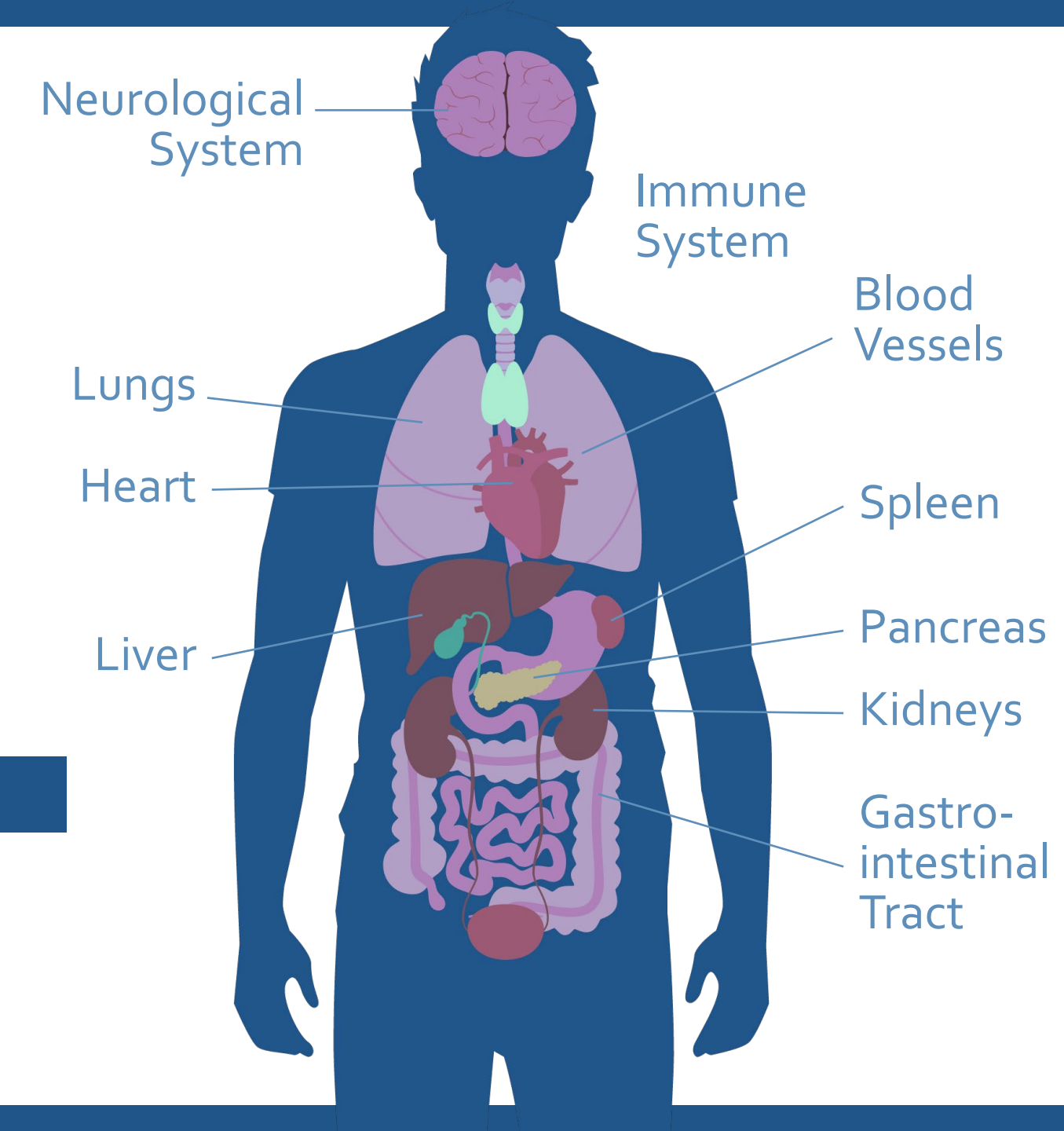
1 in 10 people

(25-30 million Americans)



Long COVID Requires a Multi-Disciplinary Approach

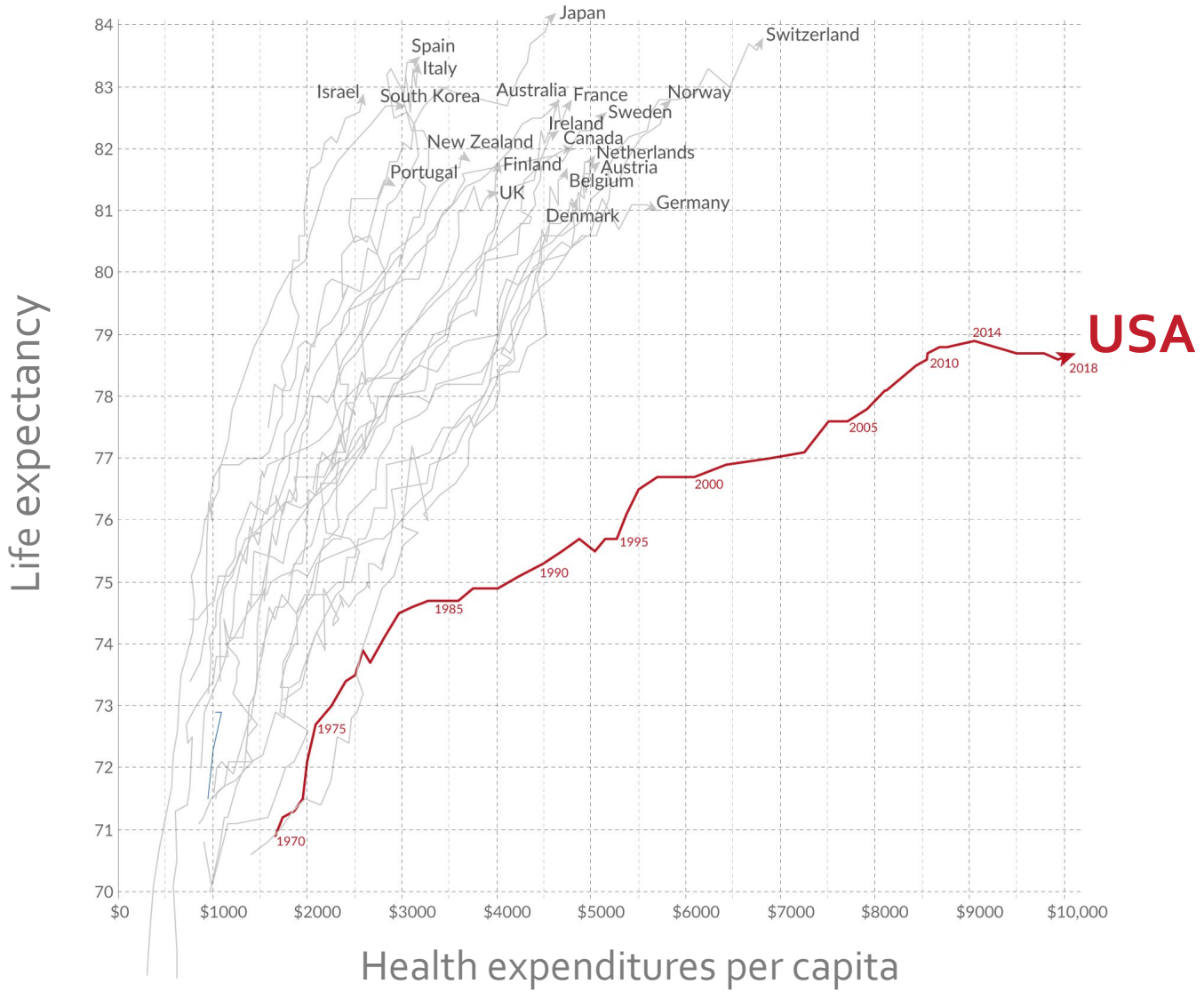
Wide Multi-Symptom Clinical Spectrum:



NIH research encompasses the laboratory, the clinic, and the community.

Life expectancy vs. health expenditures

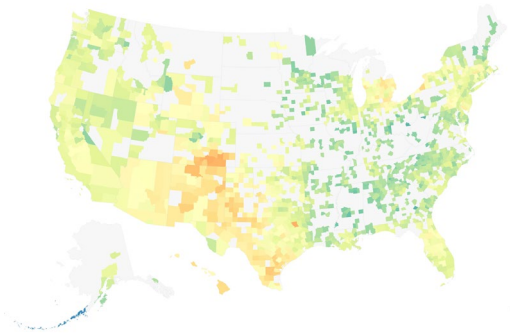
1970-2018



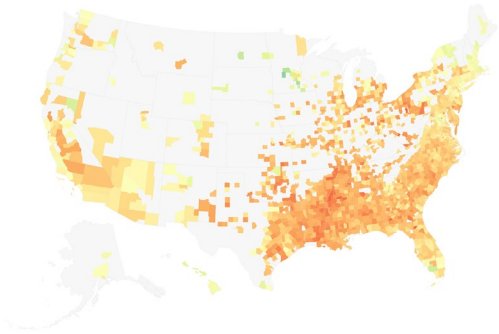
Source: Max Roser (2020) - “Why is life expectancy in the US lower than in other rich countries?” Published online at OurWorldInData.org. Retrieved from: 'https://ourworldindata.org/us-life-expectancy-low’ Data source for table: Organisation for Economic Co-operation and Development (OECD)

Estimated Life Expectancy at Birth

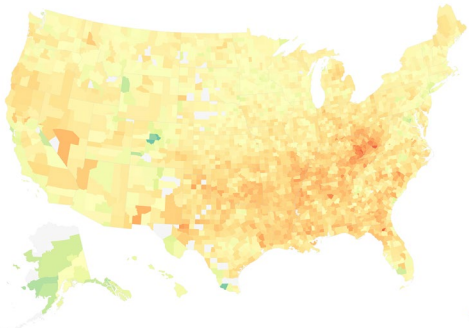
Latino



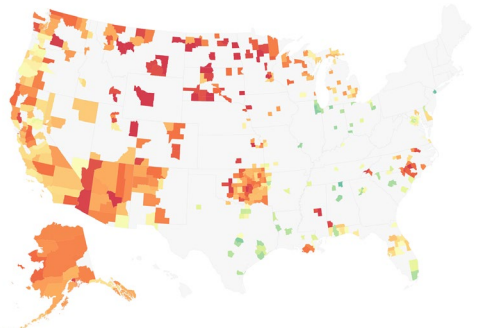
Black



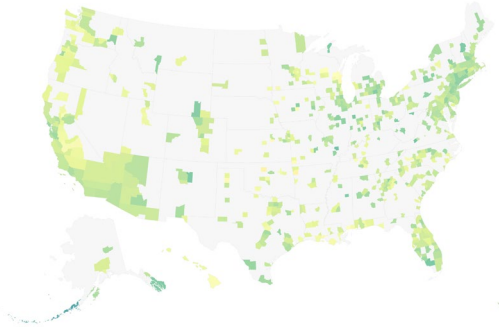
White



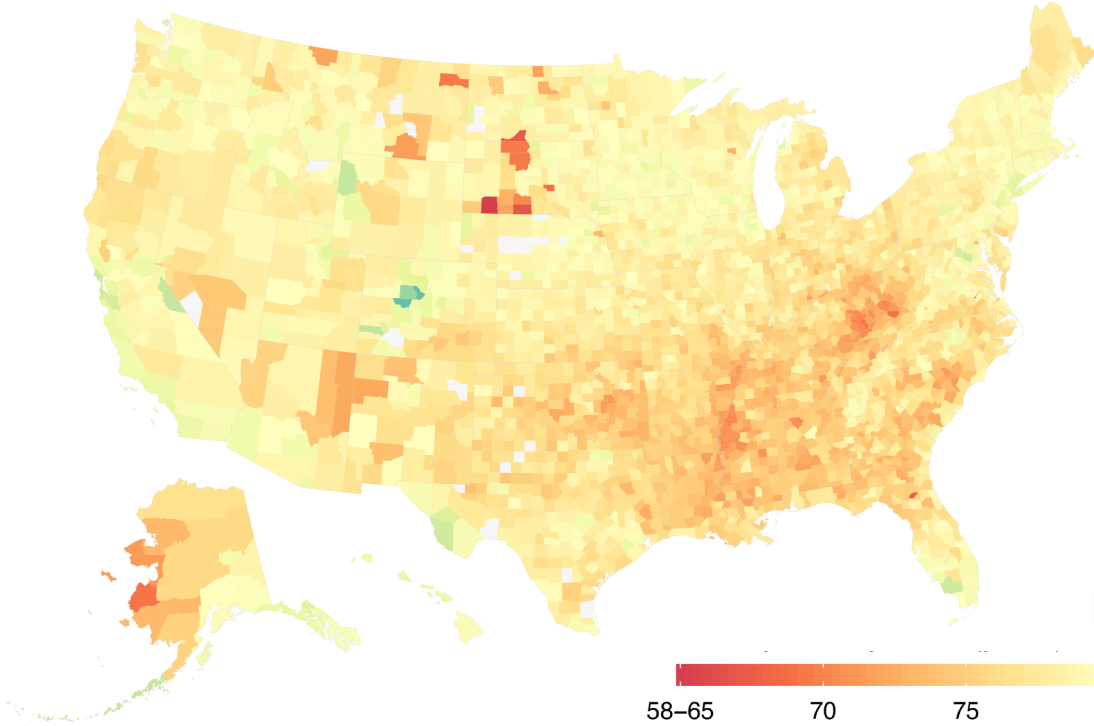
AI/AN



Asian



Total



US County-Level Health Disparities: 2000–2019, Institute for Health Metrics and Evaluation, University of Washington

Life expectancy - 2019

58–65 70 75 80 85 90 95

Communities **A**dvancing
Research **E**quity **for Health**

CARE for Health™

Conduct research addressing **issues important to diverse communities**, particularly those **underrepresented** in biomedical research

Reduce burden on providers using innovative data collection methods

Increase adherence to **evidence-based care**

Integrate research into the clinical care environment

Engender trust in science by addressing community needs

Achieve **longitudinal collection of clinical data** to address health across the lifespan

Community-based primary care practices

National Library of Medicine: Envisioning A Platform for Biomedical Discovery and Data-Powered Health

NIH National Library of Medicine

Maintain a **federated digital ecosystem.**

Advance **information science, analytics and data science**

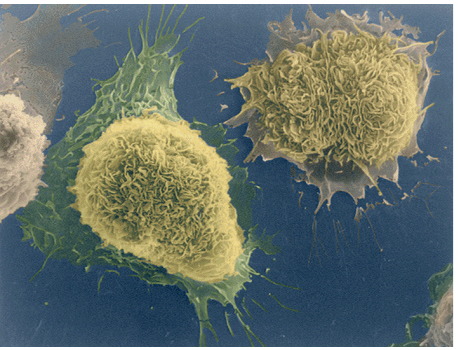
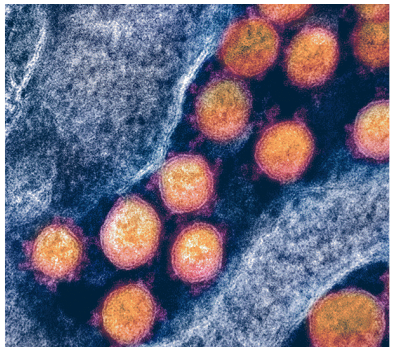
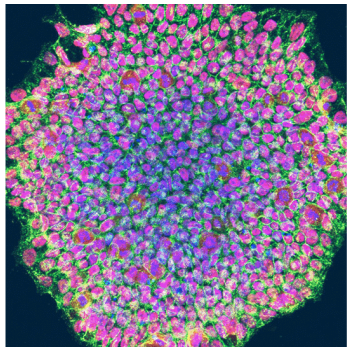
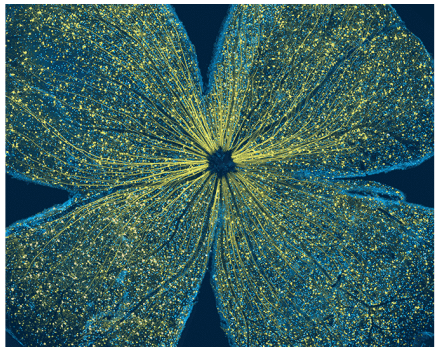
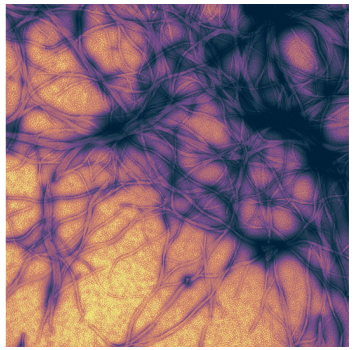
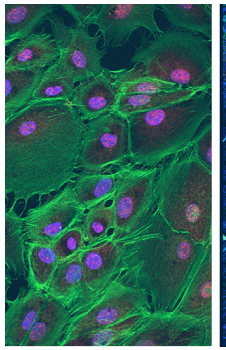
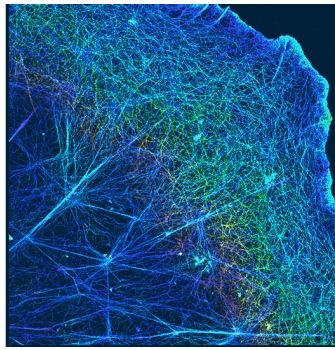
Integrate data from **clinical care.**

Educate the research workforce.

NLM

Offer access to data so that it may be used **as often as possible.**

Provide **stability and functionality** for the broader biomedical data ecosystem.

NIH

Turning Discovery Into Health