CTSA Coordination, Communication, & Operations Support

CTSA Program Webinar

July 24, 2024

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Deloitte. ICF UNIVERSITY of ROCHESTER

Agenda

TIME	TOPIC	PRESENTERS
2:00 PM ET	Welcome	Lauren Fitzharris, M.P.H., P.M.P. CCOS
2:01 – 2:10 PM	NCATS/CTSA Updates	Michael Kurilla, M.D., Ph.D. NCATS
2:10 – 2:15 PM	CCOS Updates	Lauren Fitzharris M.P.H., P.M.P. CCOS
2:15 – 2:40 PM	Office of Research on Women's Health	Vivian Ota Wang, Ph.D., FACMG NIH/ORWH
2:40 – 3:00 PM	Comparative Genomics Resources for the CTSAs	Terence Murphy, Ph.D. NIH
3:00 PM	Adjourn	

NCATS

COLLABORATE. INNOVATE. ACCELERATE.

NCATS/CTSA Program Updates

Michael Kurilla, MD, PhD

Director, Division of Clinical Innovation

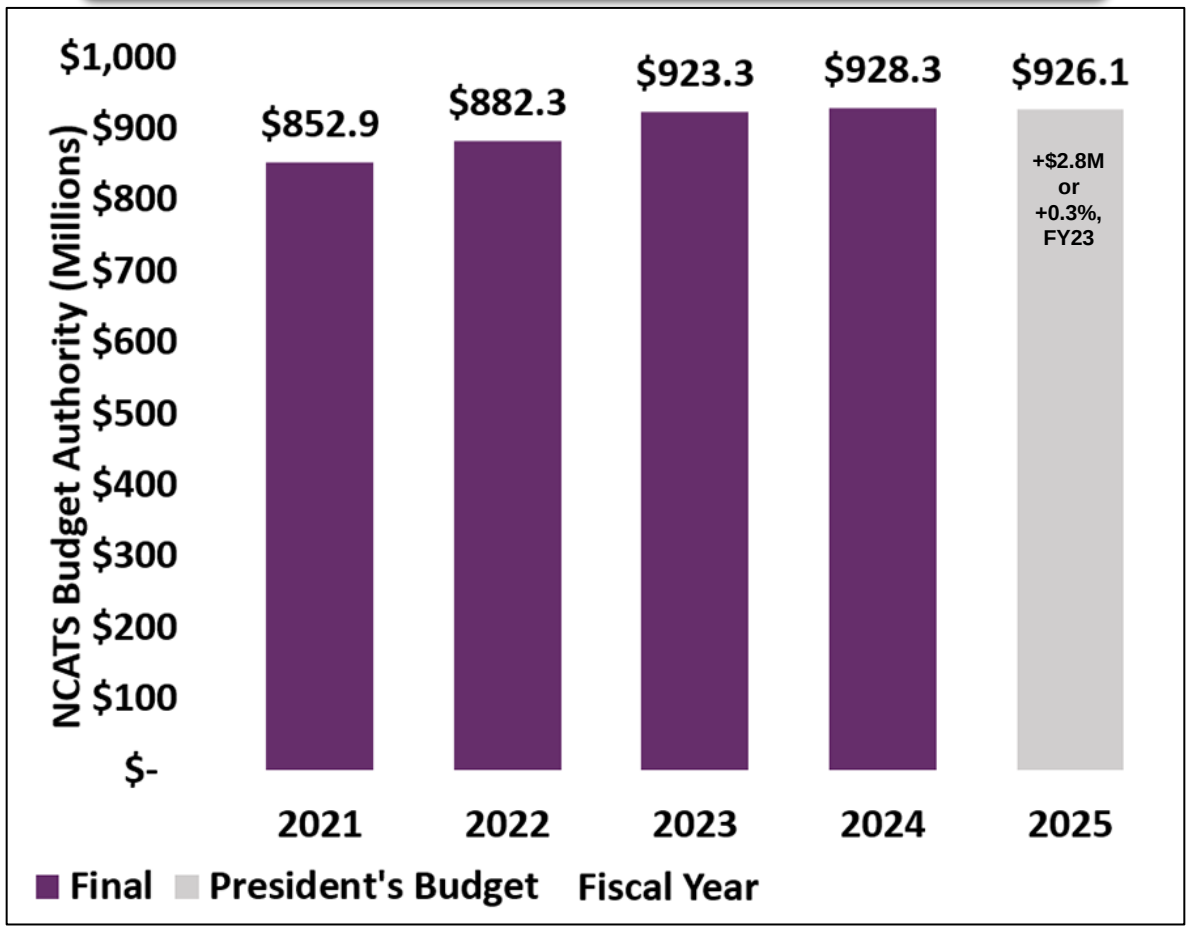
NCATS

July 24, 2024

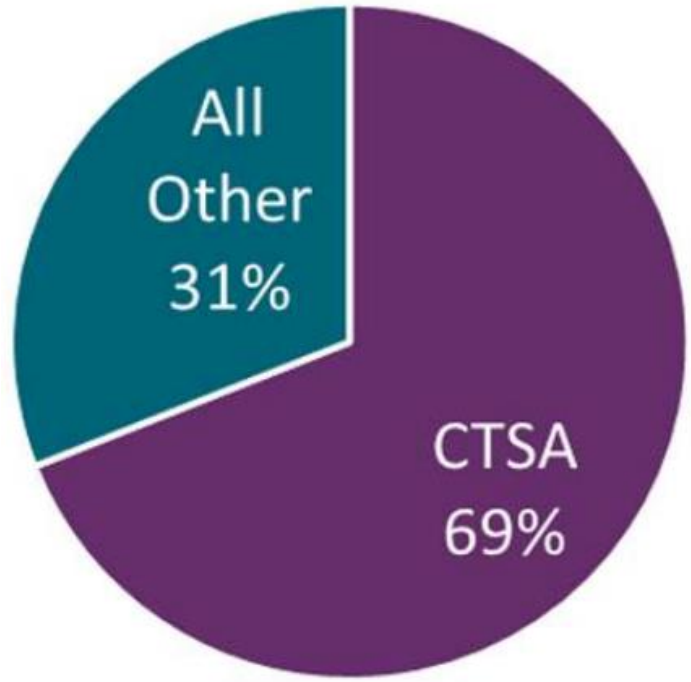
NIH National Center for Advancing Translational Sciences

FY 2025 NCATS President's Budget

Funding History



NCATS Budget by Activities



https://ncats.nih.gov/about/budget

National Center for Advancing Translational Sciences

Coming Soon: The NCATS 2025-2030 Strategic Plan rolls out this September!

NCATS Strategic Plan Launch

NCATS Director Joni Rutter is hosting a series of roundtables with the CTSA and other NCATS communities to launch the new strategic plan.

CTSA Roundtables:

- CAB Members: Oct. 2nd, 3:00 PM ET
- PIs and Deans: Oct. 4th, 1:00 PM ET

Stay tuned for more details

Notice of Clarification to PAR-21-293 Pilot Module

- Released June 26, 2024 (NOT-TR-24-029)

- ***Specific*** changes in Element D: Clinical and Translational Science Resources and Pilots, Module D2: Clinical and Translational (CTS) Pilot in PAR-21-293:
- Clinical and Translational Science Pilot Module
  - Include costs for the review, tracking, management, and overall administration of the Module as well as the Pilot projects:
    - Number of Pilot Projects: A minimum of four and a maximum of eight ***active*** Pilot projects, ***per budget period.***
    - Budgets: Must be between $25,000 and $50,000, direct costs.
    - Project Period: Cannot exceed 12 months.
    - ***Recipient must ensure that the active number of pilot projects does not exceed the maximum number of pilot projects proposed to be supported per budget year in the competing application.***

- Please direct all inquiries to: CTSANOFOQuestions@mail.nih.gov

NIH
National Center for Advancing Translational Sciences

NIH Loan Repayment Program

Online Application Period: Sep 1, 2024 - Nov 21, 2024

- Extramural Loan Repayment Program for Clinical Researchers (LRP-CR) (NOT-OD-24-134)
- Extramural Loan Repayment Program for Pediatric Research (LRP-PR) (NOT-OD-24-135)
- Extramural Loan Repayment Program for Health Disparities Research (LRP-HDR) (NOT-OD-24-136)
- Extramural Clinical Research Loan Repayment Program for Individuals from Disadvantaged Backgrounds (LRP-IDB) (NOT-OD-24-138)
- Extramural Loan Repayment Program for Contraception and Infertility Research (LRP-CIR) (NOT-OD-24-139)
- Extramural Loan Repayment Program for Research in Emerging Areas Critical to Human Health (LRP-REACH) (NOT-OD-24-137)
  - REACH Priority Statements for NCATS:
    - Data science and health informatics to provide clinical decision support of health care providers
    - Telehealth and mobile health research approaches to improve the health of under-served and under-represented populations

NCATS POC: Dr. David Wilde: wilded@mail.nih.gov

https://www.lrp.nih.gov/

National Center for Advancing Translational Sciences

Summer & Fall 2024: 3 Integrated Efforts

Learning Landscape Analysis

Engage Community & Stakeholders

Core team, working group, advisors

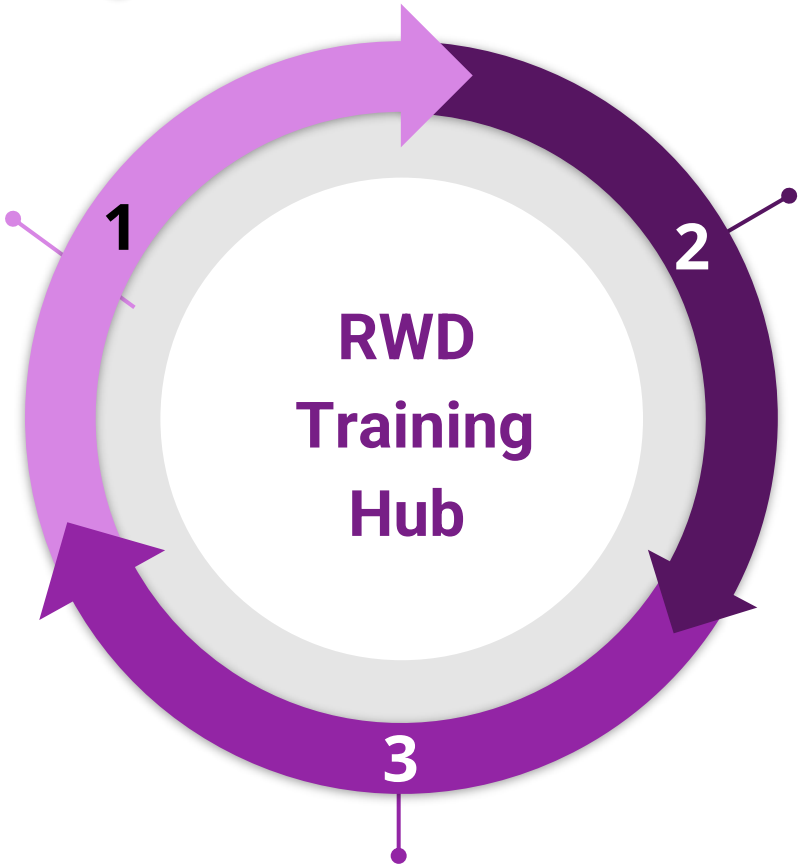
Skills Mapping

Team Science - roles & audiences
Intro, intermed, advanced competencies

Equity Mapping - who needs access?

Learner Journey - where to deliver?

Design Strategies Mapping - how might we best address the needs & provide trainings, programs, train-the-trainers?



Curating & Adapting Existing Resources

Environmental/Market Scan

What currently exists?

Collaborate & Curate

Link to & amplify existing tools

Adapt for e-learning

DEIA & Interprofessional learners

Gap Analysis & Prioritization

What's missing?

Creating New Resources

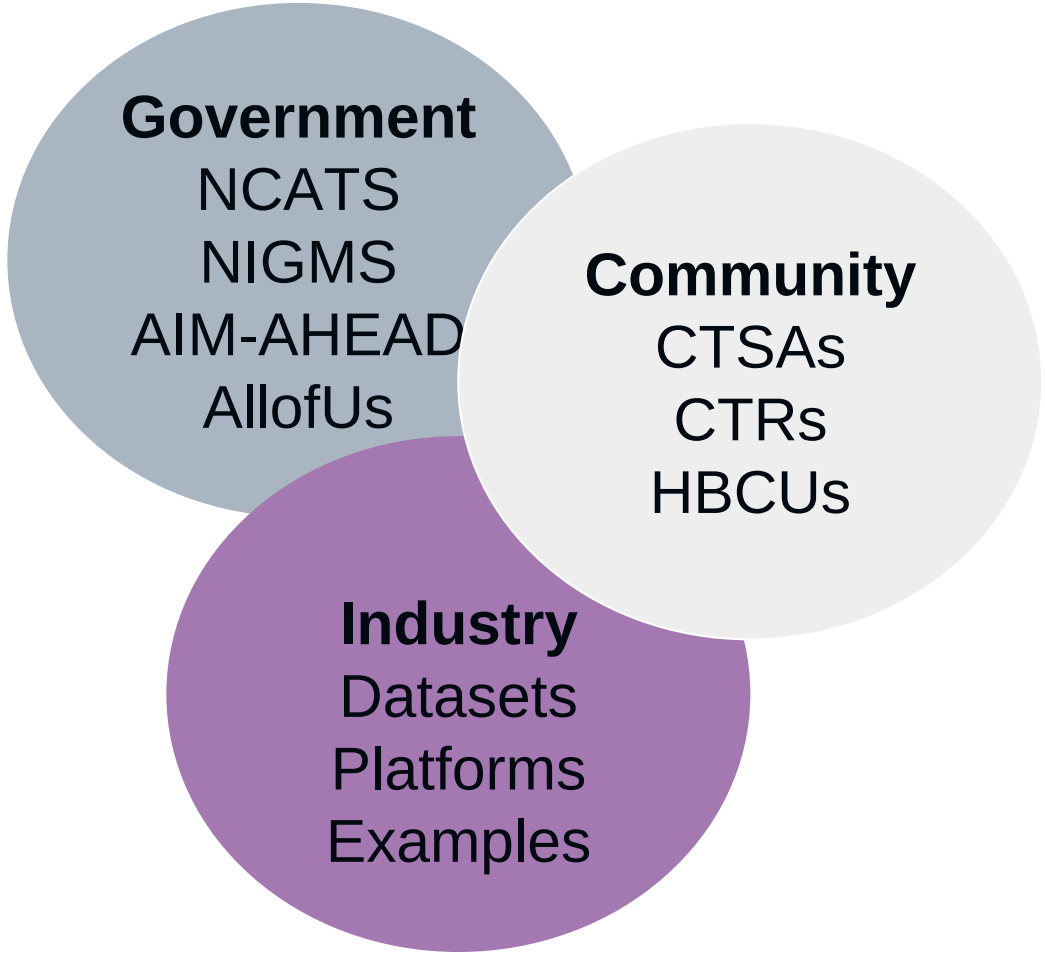
Partner with SMEs to Co-design/develop

PHASTR Call for Proposals

Create New Trainings to meet needs & Open Access Portal

Vision Real-world Data Training Hub for and by the community

To collaborate & leverage our RWD experience and resources to co-design, grow, and sustain a Real-world Data Training Hub that provides open access training resources for all individuals - in the CTSAs and beyond - in order to elevate the quality of translational science and the value of real-world evidence for improving health and care.



National Center for Advancing Translational Sciences

Creating New RWD Trainings

Machine Learning Applications in Drug Discovery, Translational Research & Clinical Medicine

Instructor: Dave Sahner, MD
Release Date: October 2024

This **foundational course** provides a comprehensive introductory exploration of topics in artificial intelligence, machine learning, and deep learning.

In addition to technical knowledge, this course emphasizes the importance of foundational principles for successful ML implementation and the transformative role of AI in medicine, drug discovery, and translational research, highlighting the challenges and opportunities in integrating AI into healthcare and biotechnology.

NIH National Center for Advancing Translational Sciences

NCATS RWD Training Hub Development

Available Now

Collaboration & Support
Email aubri.hoffman@nih.gov

NCATS Education Website
Principles of Preclinical Translational Science
Digital Badging Program

Data Science Educational Enclave
4 simulated & 60 public data sets
Researcher's Guide online textbook
Training tools, including RWD Glossary
>2000 knowledge objects and concept sets

RWD Courses on AIM-AHEAD Connect
5 ADATP courses on RWD infrastructure, Clinical Data Management, Translational Projects, etc.
13 additional open access courses on programming in R/Python, AI, health equity, etc.

Coming Soon

Good Algorithmic Practices courses
Introduction to health AI/ML & best practices
Advanced skills & innovations in health ML/DL

PHASTR Call for Proposals
Collaboration & funding to co-develop other priority topics

RWD State-of-the-Learning Report
Skills & Competencies Map
Training pathways and program recommendations

NCATS RWD Training Hub
Curated links to existing courses & data sets
New courses, tutorials & templates
Reports, recommendations & toolkits
Workshops & webinars

Upcoming Dates to Remember

Next CTSA Program Webinar

AUGUST IS CANCELLED

September 25, 2024; 2-3 PM ET. Register here.

NCATS

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ncats.nih.gov @ncats_nih_gov @ncats.nih.gov NIH-NCATS

National Center for Advancing Translational Sciences

CCOS Updates

Lauren Fitzharris
CCOS

Fall 2024 CTSA Program Meeting

Building CTSA Program Impact through Innovation, Collaboration and Equity

More details and online registration to come!

Questions?

Contact FallMtg@ccos.ctsa.io

DATE: November 13-15th

LOCATION: Bethesda North Marriott

Day 1:

- TIN Meeting
- CTSA Administrators Meeting
- CTSA Steering Committee Meeting

Days 2 (full day) and 3 (half day):

- CTSA Program Meeting

2024 Fall CTSA Program Agenda Topics

Topics to be covered include:

- Primary Care Practice-Based Research Networks (PBRNs)
- PCORnet
- The Women’s Health Initiative and DEI
- Translational Research to Translational Science
- Generative AI and Large Language Models in Translational

2024 Fall CTSA Program Meeting – DRAFT AGENDA

Day 2- Nov. 14	
Session	**Timing (ET)**
Session 1: Welcome & Keynote	**8:30am**–9:45am
Break	*9:45am-10:00am*
Session 2: Collaborations with PBRNs	10:00am-11:30am
Poster Presentations (Group A)	11:30am-12:15pm
Lunch	*12:15pm-1:45pm*
Session 3: CTSA Collaborations (PCORNet) / Innovations (TIN, ENACT, N3C)	1:45pm-3:15pm
Break	*3:15pm-3:30pm*
Poster Presentations (Group B)	3:30pm-4:15pm
Session 4: Women's Health Initiative / DEIA	4:15pm-**5:45pm**

Day 3- Nov. 15	
Session	**Timing (ET)**
Session 5: TR to TS	**8:00am**-9:15am
Break	*9:30am-9:45am*
Session 6: Generative AI / LLM	9:45am-10:45am
Break	*10:45am-11am*
Session 7: NCATS Session	11:00am – 12:30pm
Closing Session	12:30pm – **1:00pm**

Cycle XII: New CTSA Working Groups

- ***RWD Workforce Development Across the Translational Spectrum*** submitted by Dr. Melissa Haendel, UNC
  - WG Mailbox: RWD.WG@ccos.ctsa.io
  - WG Webpage: RWD Workforce Development WG
- ***Translational Impacts*** submitted by Dr. Kristi Holmes, Northwestern University and Dr. Emmanuel Tetteh, Washington University in St. Louis
  - WG Mailbox: Translational.Impacts@ccos.ctsa.io
  - WG Webpage: Translational Impacts WG
- Webpages will be updated soon with more details, e.g., meeting occurrence

Cycle XIII Opens September 1 – 30th

CCOS Website Account

Getting Started

Get step-by-step guidance on getting started including how to create a CCOS account and how to log in can be found here:

Getting Started Page

Account Access Includes:

- Meeting Materials/Archives
- Collaborative Spaces
- Discussion Forums
- CTSA Hub Directory

Questions? Please email support@ccos.ctsa.io.

Want to stay up to date on the CTSA Program?

Follow this link or scan the QR code to join the CCOS All Communications Email List to receive CTSA Program communications and updates:

http://eepurl.com/iw9nZA

Remember to add communications@ccos.ctsa.io to your contacts list to prevent important CCOS emails from ending up in your spam folder!

Why Sex and Gender Matter: SAGER, WHRI, and Other Letters

Clinical and Translational Science Awards (CTSA) Program Webinar

July 24, 2024

Vivian OTA WANG, Ph.D., CGC, FACMG

Deputy Director

Office of Research on Women's Health

National Institutes of Health

National Institutes of Health
Office of Research on Women's Health

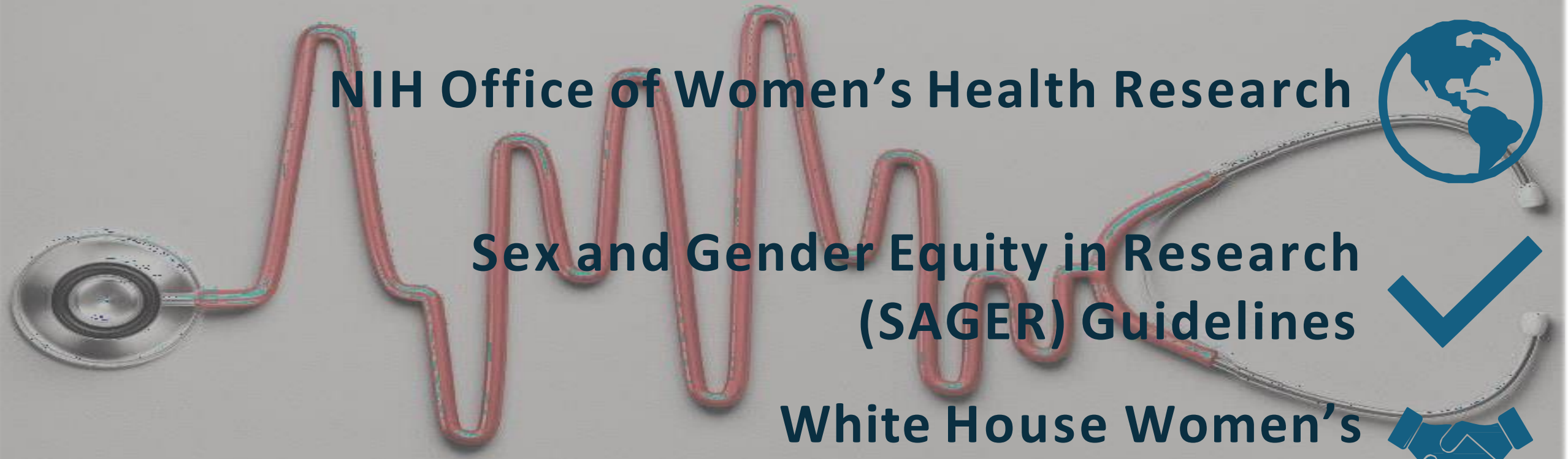
Why Sex and Gender Matter

NIH Office of Women's Health Research

Sex and Gender Equity in Research (SAGER) Guidelines

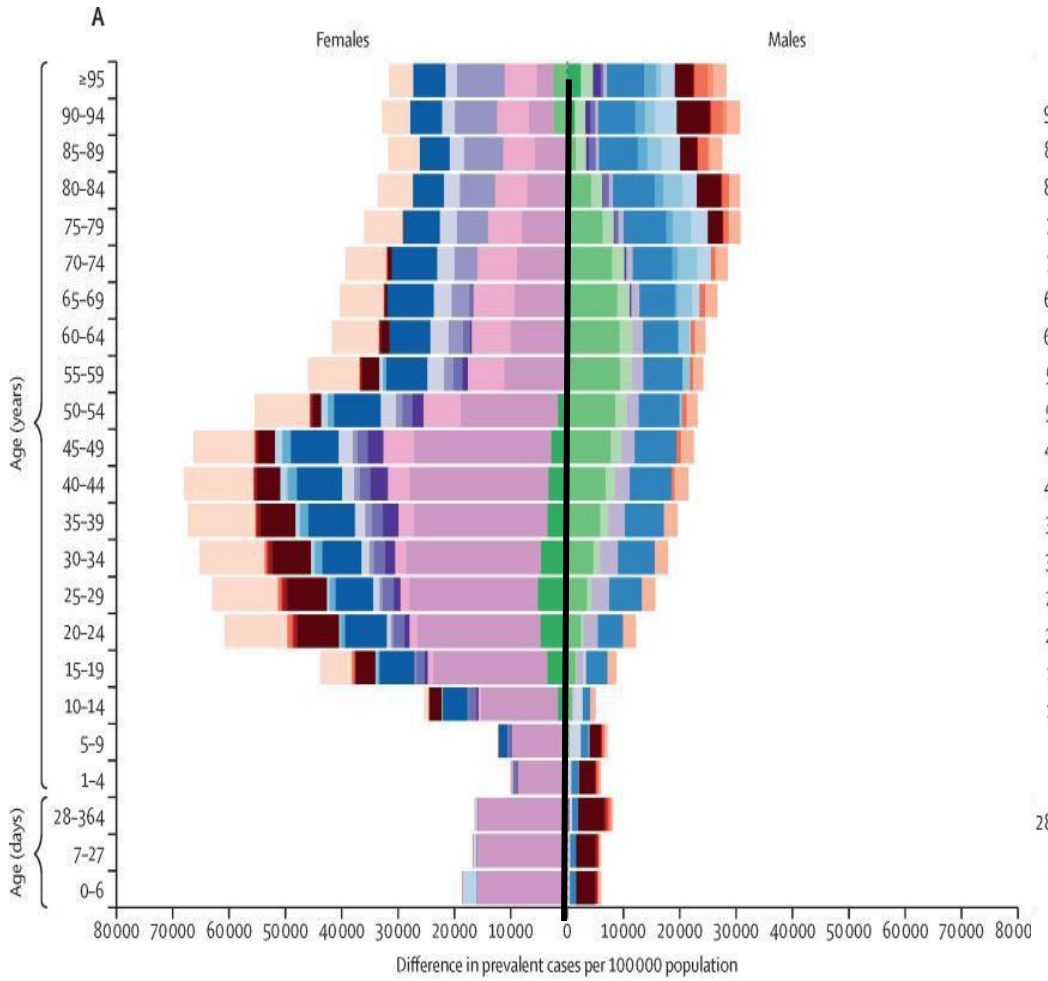
White House Women's Health Research Initiative

Implications and Next Steps

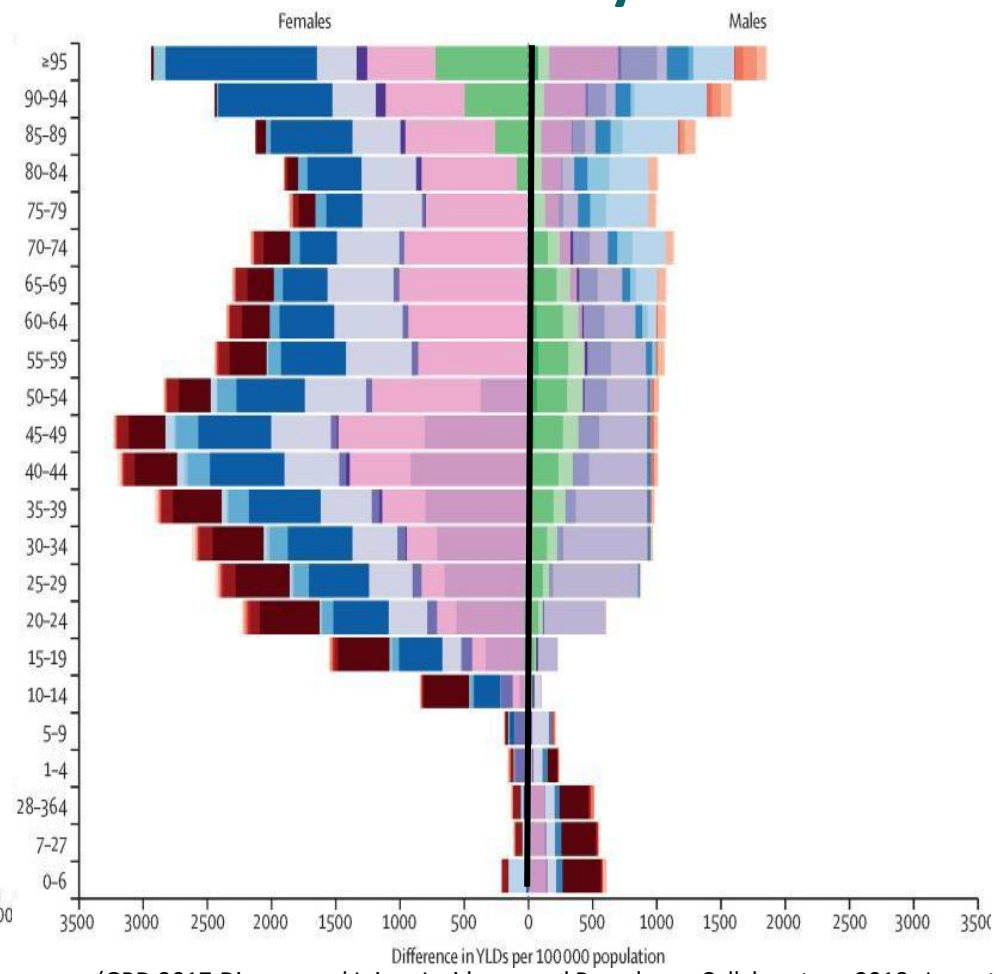


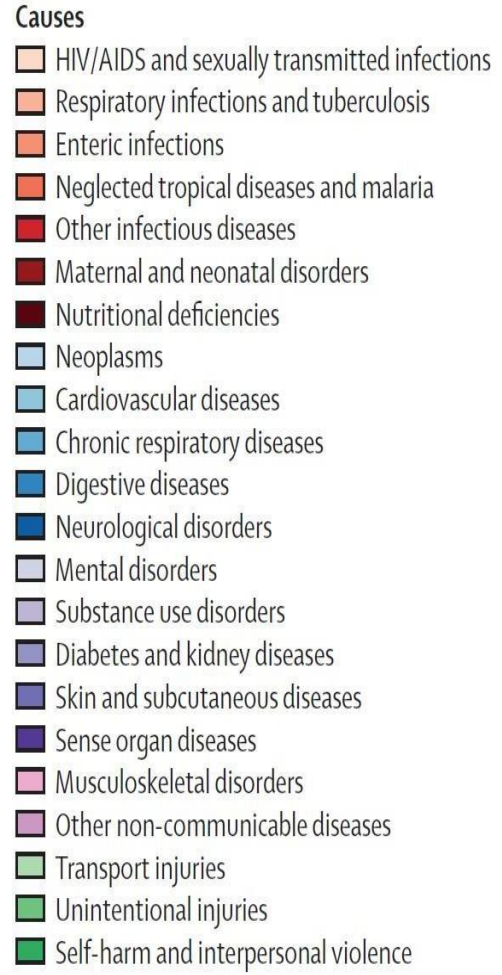
Women Experience Health and Disease Differently

Difference in Disease Prevalence



Difference in Years Lived with Disability

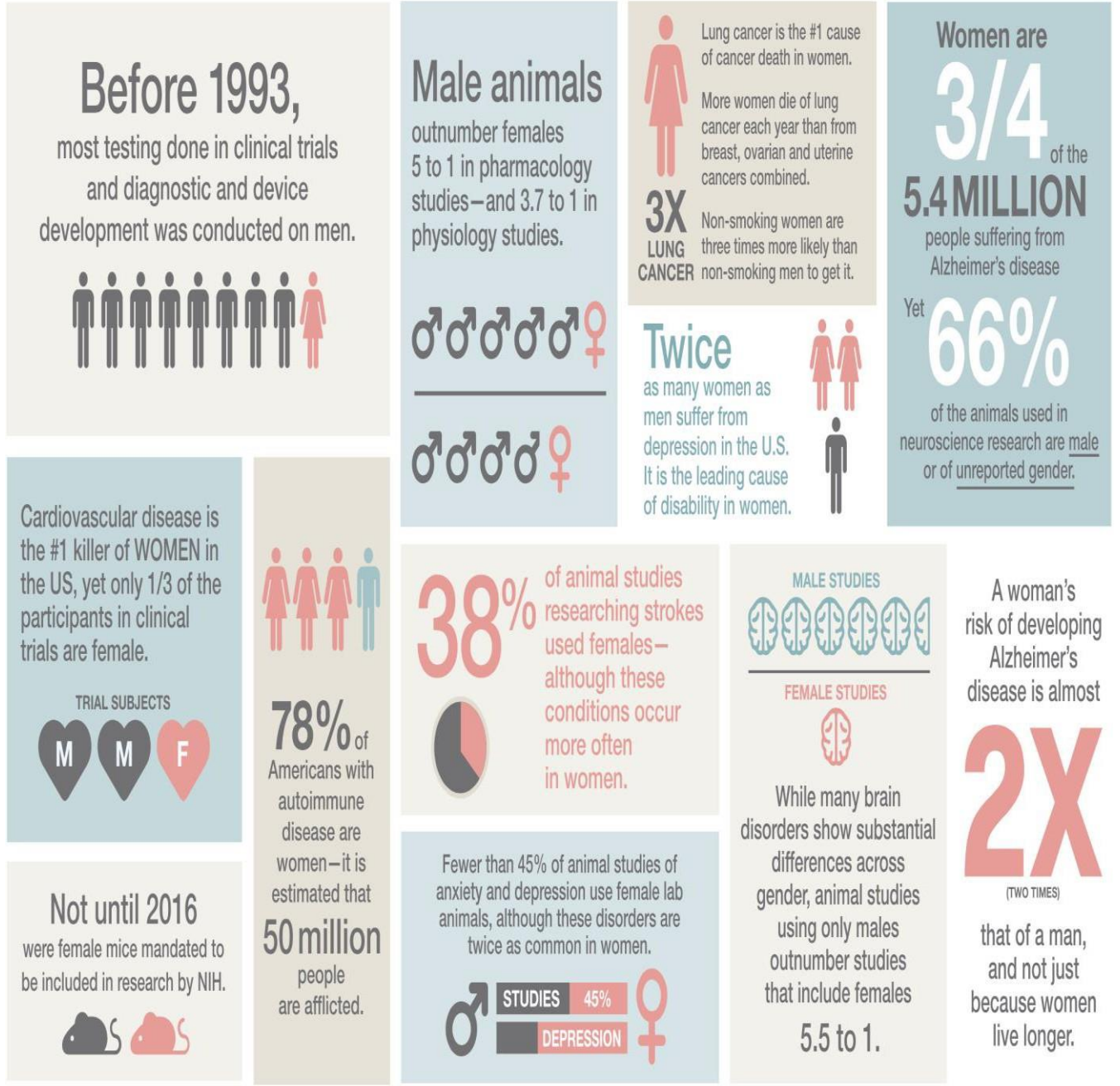




(GBD 2017 Disease and Injury Incidence and Prevalence Collaborators. 2018. *Lancet.* DOI: 10.1016/S0140-6736(18)32279-7)

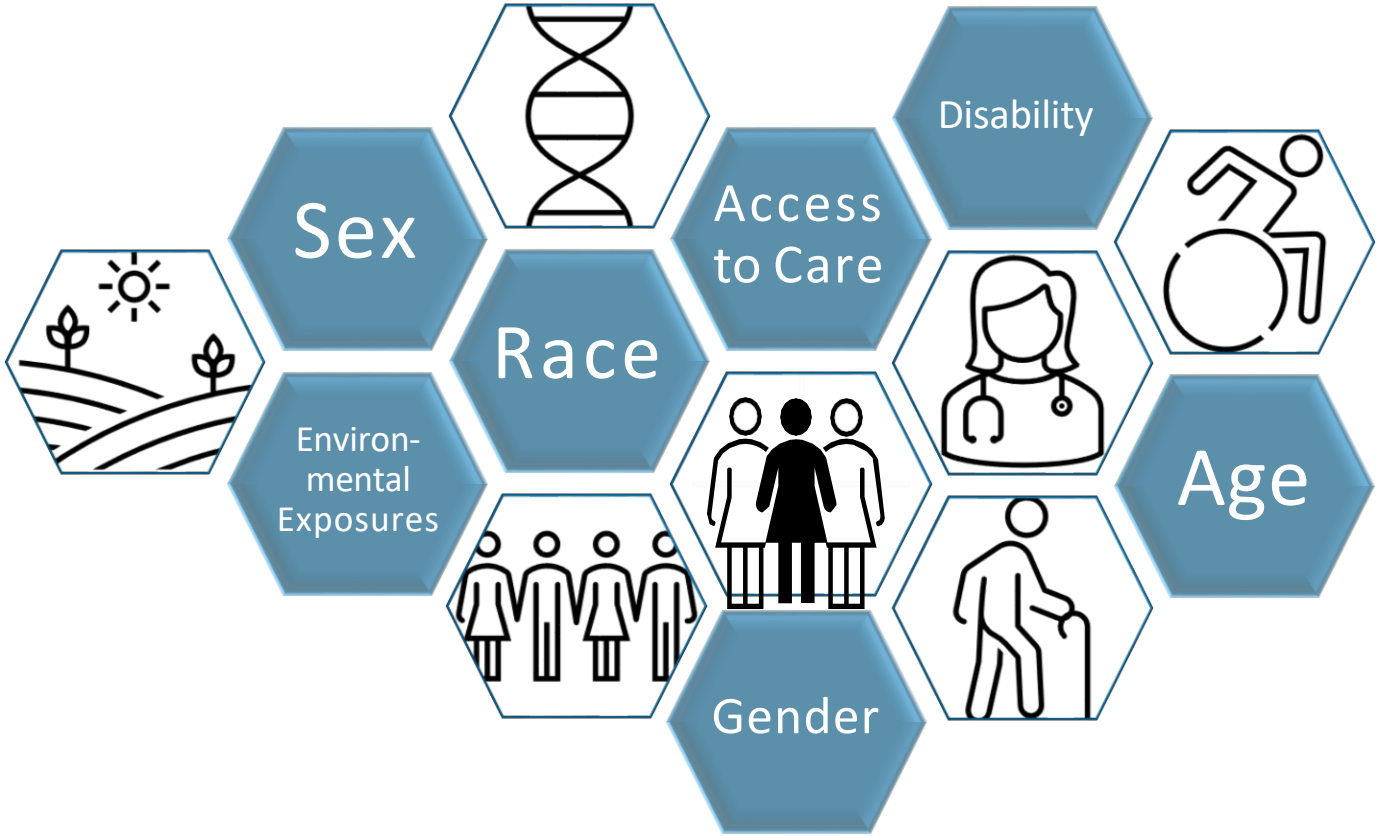
DOES SEX MATTER?

"[Sex]…*is an important* basic human variable that should be considered when *designing and analyzing the results of studies* in *all areas* and at *all levels of biomedical* and health related research



https://thewhamreport.org/report/

Society, *Policy*, and Biology Influence Human Health



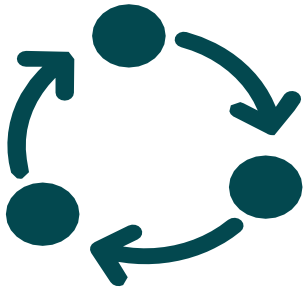
Society, *Policy*, and Biology Influence Human Health

1993

NIH Policy and Guidelines on The Inclusion of Women and Minorities as Subjects in Clinical Research

The NIH Revitalization Act of 1993 (Public Law 103–43) directed NIH to ensure **women and racial and ethnic minorities** are appropriately represented in ***NIH-funded clinical research***

2016



Inclusion Across the Lifespan Policy

Section 2038(H) of the 21st Century Cures Act requires NIH to update guidelines for the ***inclusion of women and minorities in clinical research*** to reflect ***individuals of all ages*** included in ***NIH clinical research***

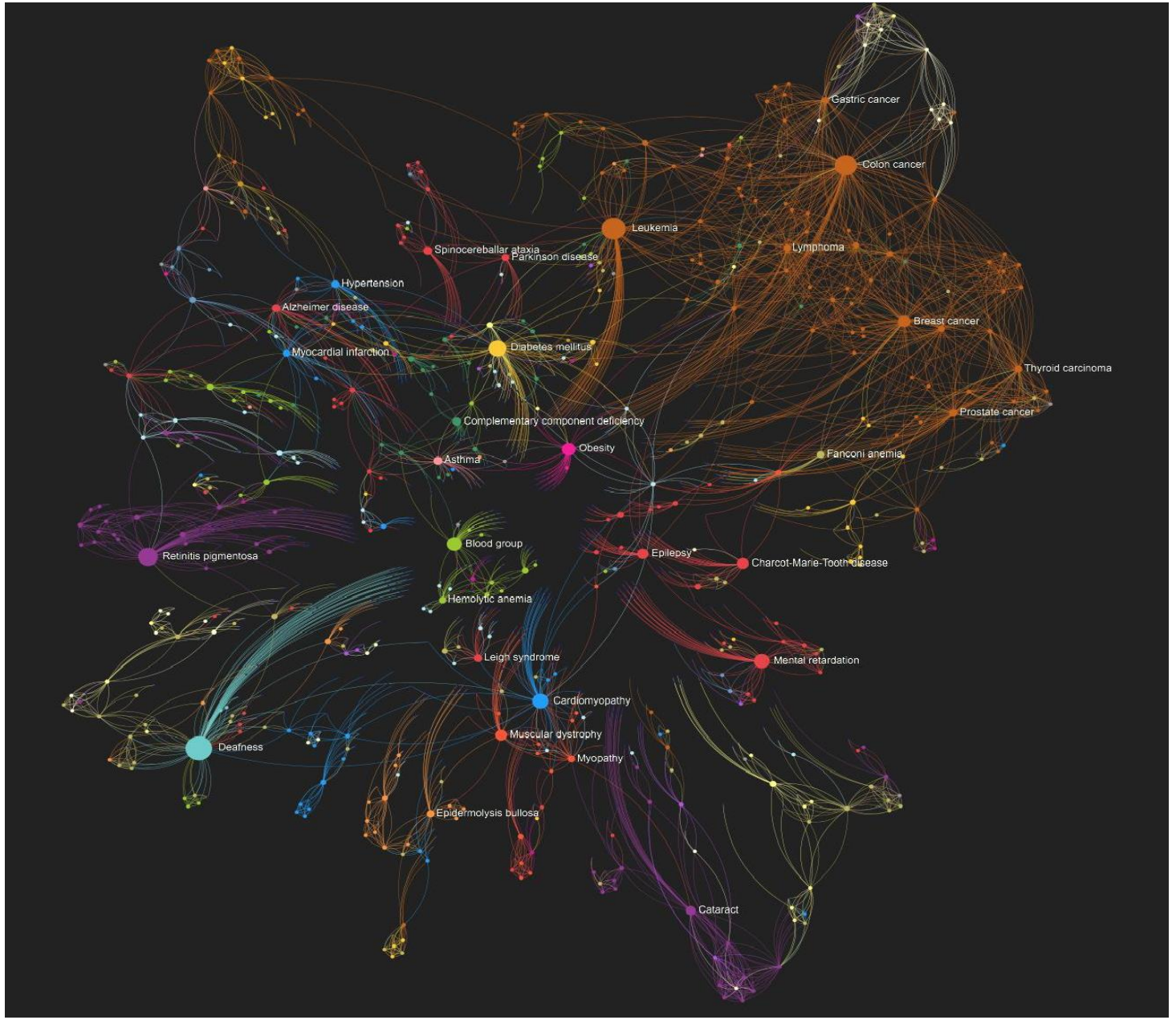
Requires

2019

Expansion of The NIH Inclusion Policy and Guidelines

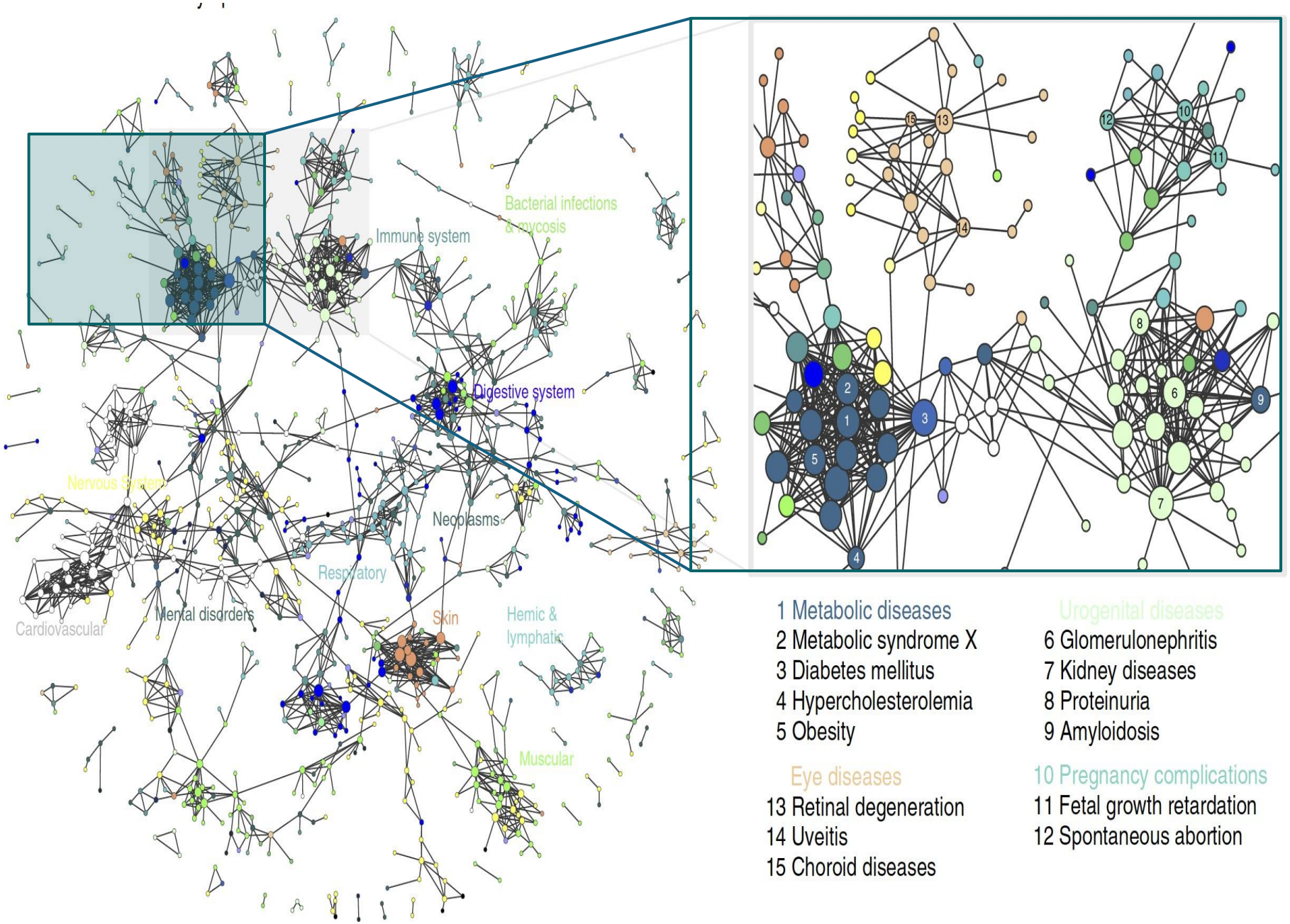
A provision was made requiring that applicable ***NIH-defined Phase III clinical trials report results of valid analysis by sex/gender, race, and ethnicity*** on ClinicalTrials.gov.

Society, *Policy*, and Biology Influence Human Health



Greene, CS, et al, (2015) *Nature Genetics,* 47, 569-576. https://doi.org/10.1038/ng.3259
https://visual.ly/community/interactive-graphic/health/network-graph-human-diseases

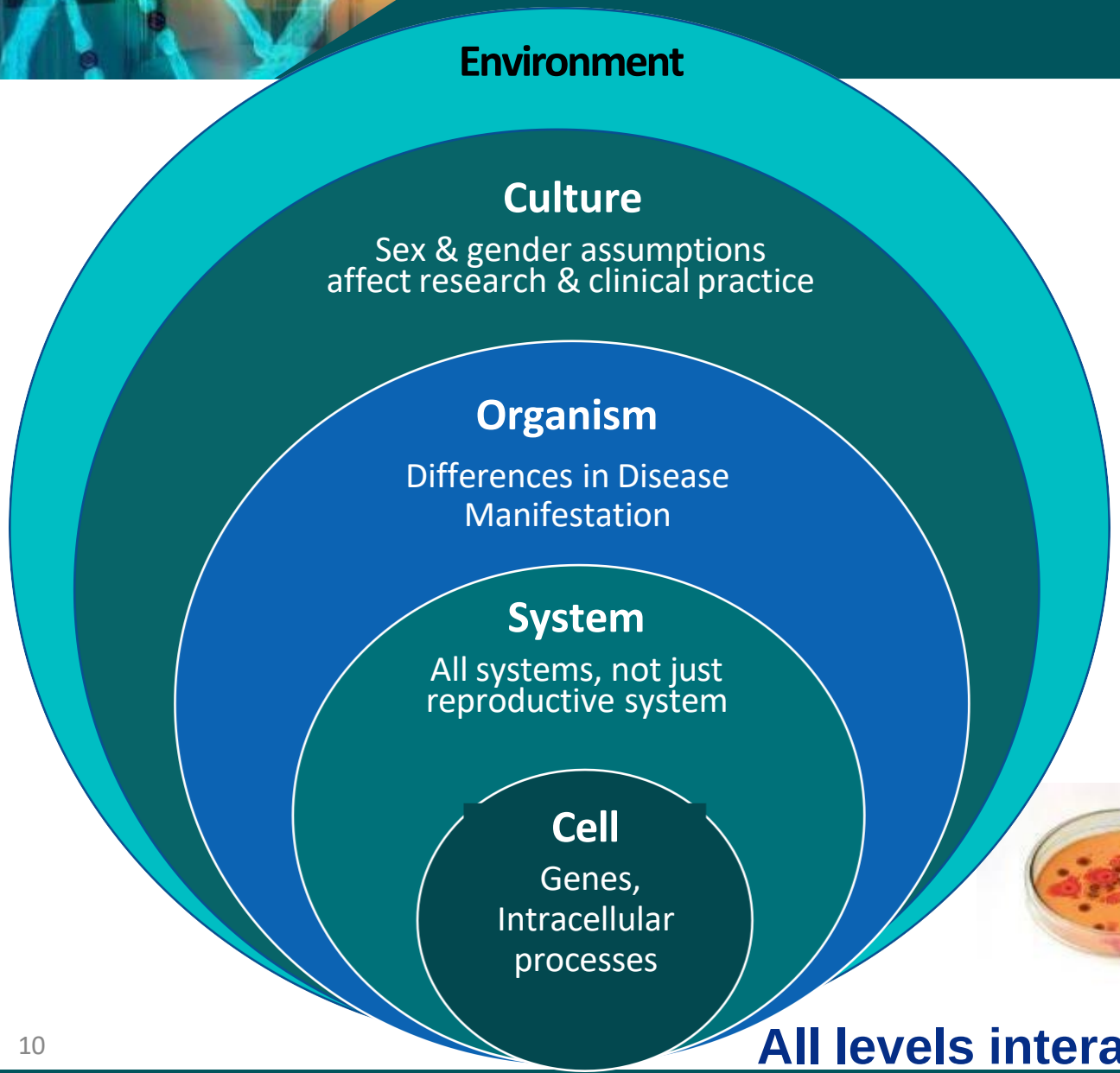
Society, *Policy*, and Biology Influence Human Health

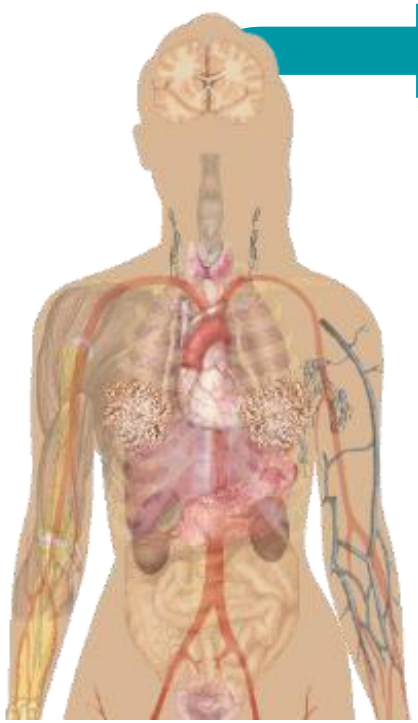


Women and Men May Follow Different Paths to Disease and Health

Starting Point: Sex-specific Physiology, Causes, and Risk Factors

Biopsychosocial Interactions of Biology and Culture



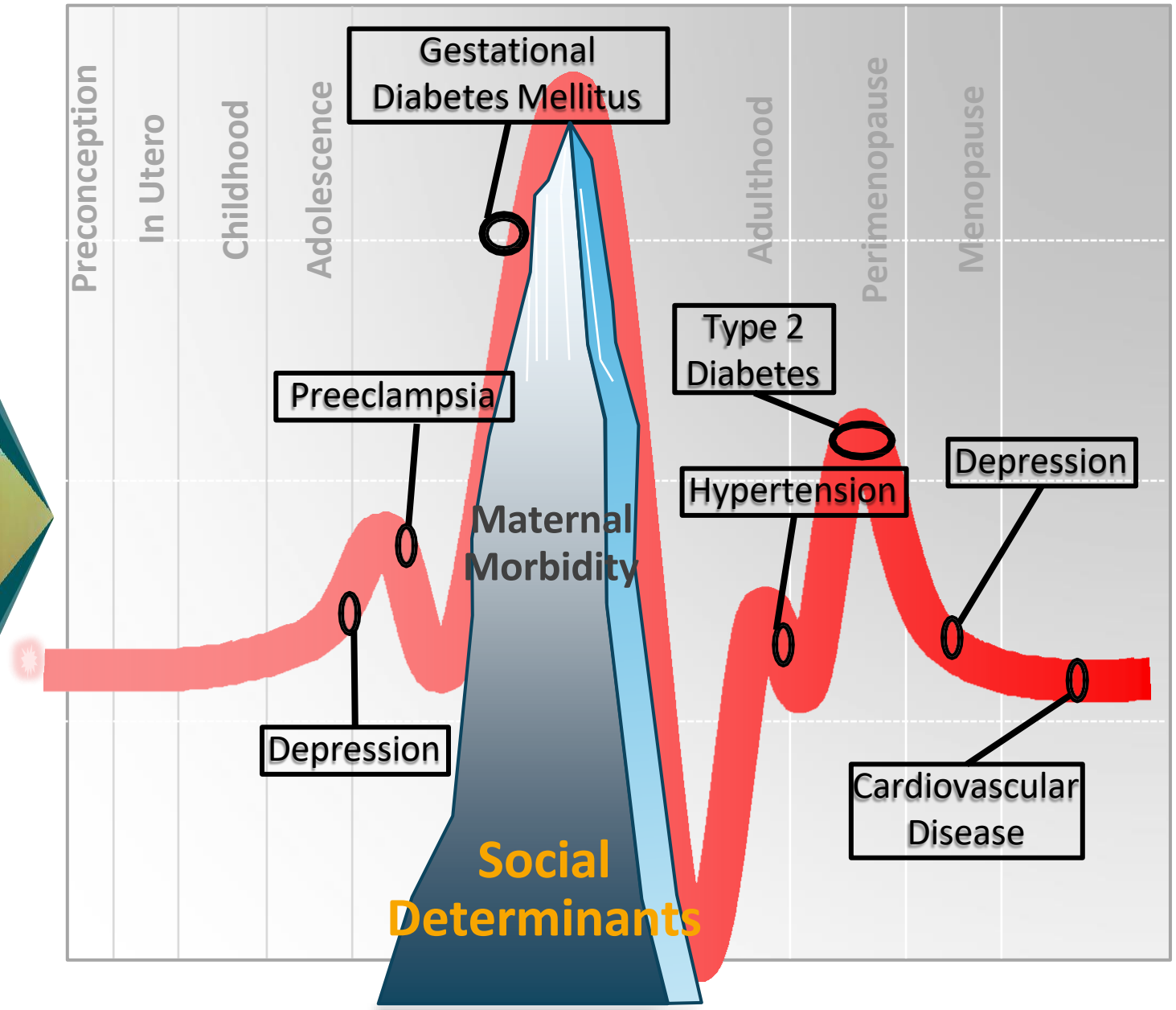


Gendered assumptions affect the ***nature, interactions,*** and ***practices*** of research

- Researchers
- Research participants,
- Communities
- Institutions

All levels interact and simultaneously influence each other

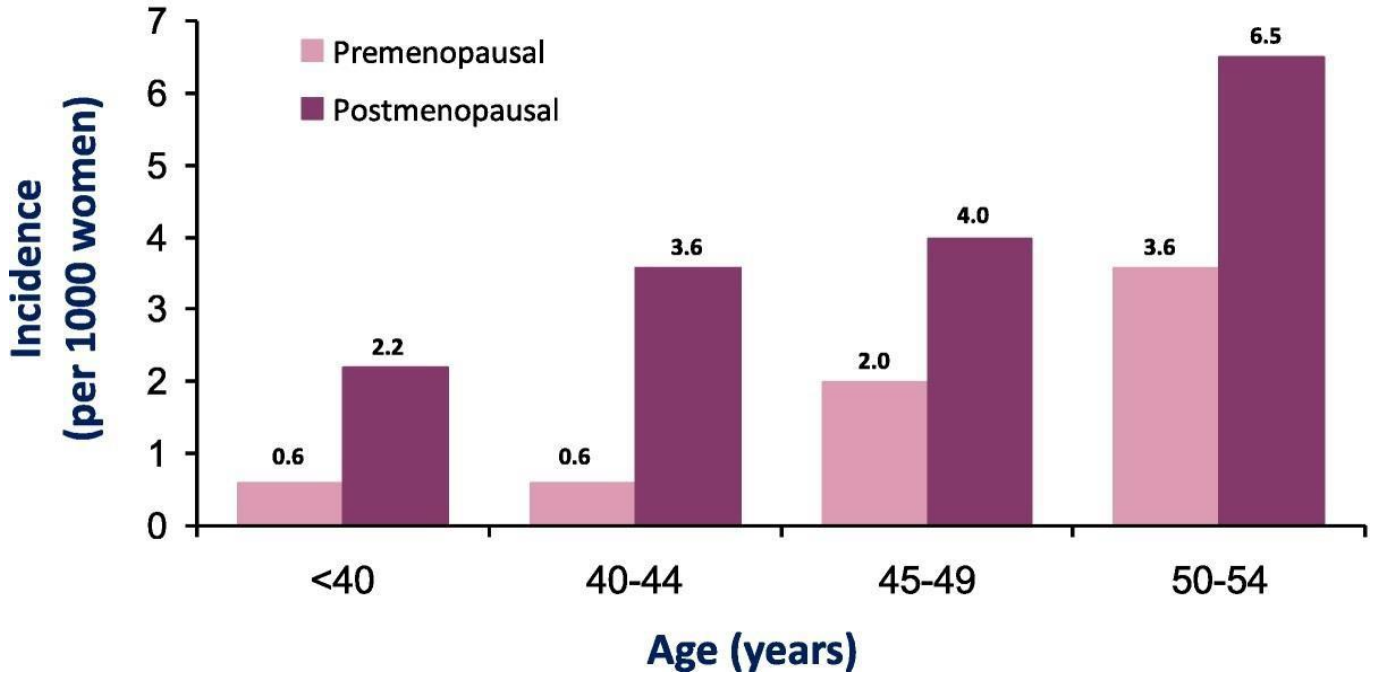
Pregnancy: Can be a Stress Test



NIH National Institutes of Health
Office of Research on Women's Health

Midlife: Pivotal Time for Chronic Disease Onset Among Women

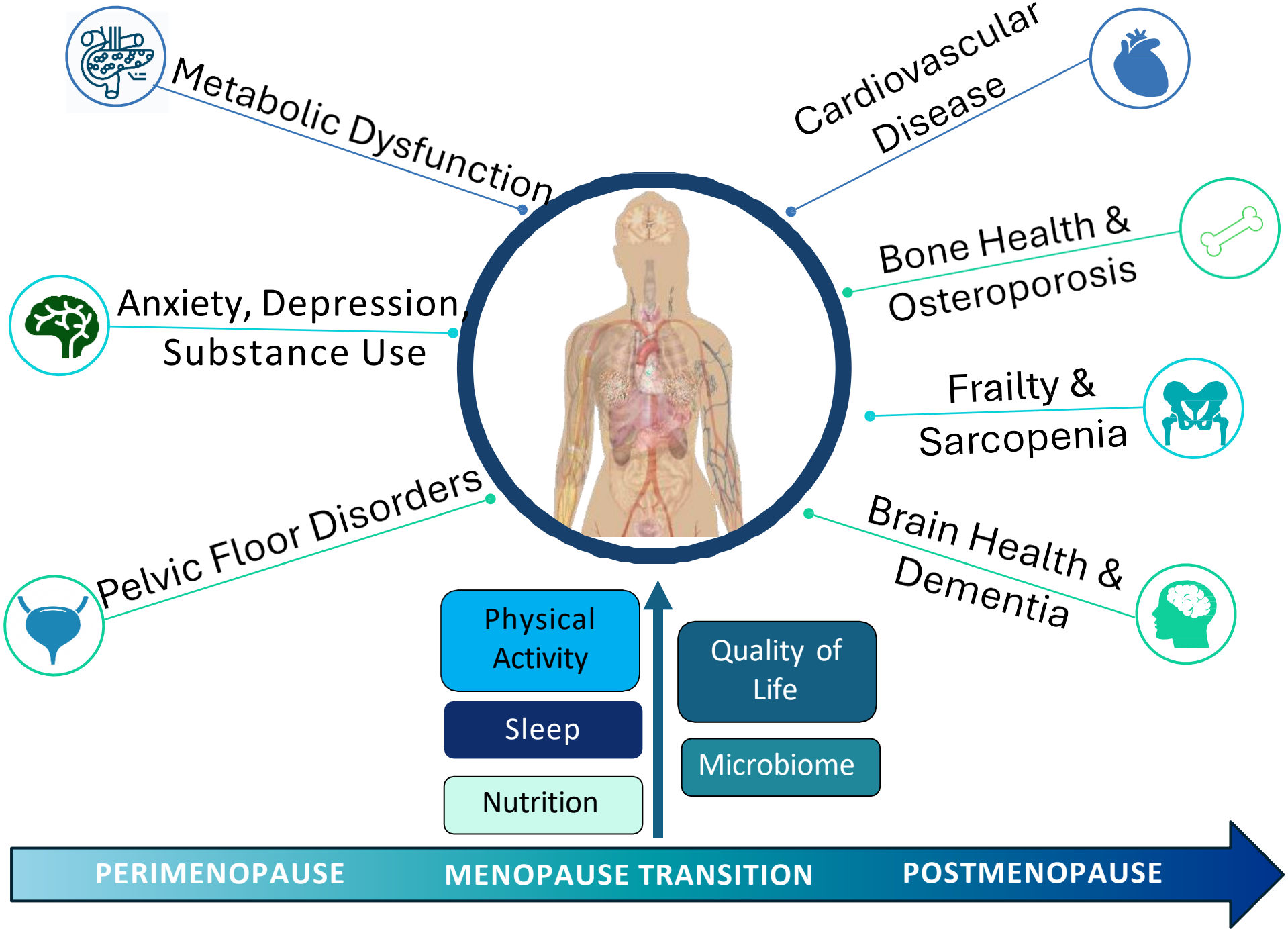
Postmenopausal Women: At *Significantly Higher* Cardiovascular Disease Risk Than Premenopausal Women



CRITICAL: Address role of menopause in health of midlife women for preventing, diagnosing, and treating chronic disease(s)

(Hodis & Mack. 2022. *Cancer J.* DOI: 10.1097/PPO.0000000000000591)

Systems Biology and the Midlife Health of Women



Defining Women's Health

Condition Type	Examples
Distinctly Female Specific	• *Endometriosis* • *Cervical Cancer* • *Menopause*
Disproportionately Impact Women	• *Autoimmune Disease* • *Osteoarthritis* • *Chronic Pain*
Present and Progress *Differently* in Women	• *Cardiovascular Disease* • *Stroke* • *Metabolic Disorders*

(NIH Revitalization Act of 1993)

Menopause

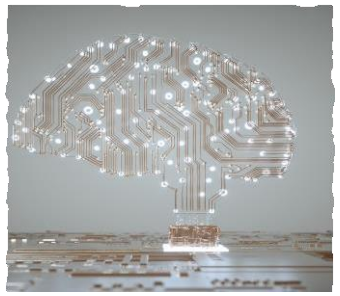
Menopause is the first 12 months after a woman's last period

- Menopause is a "stress test" that may help predict later-life health concerns
  - Menopausal transition, perimenopause, typically between the ages of 45 and 55

Distinctly Female

- **Affects women differently**
- Irregular periods, vaginal dryness
- Hot flashes, chills, night sweats
- Sleep problems and mood changes
- Weight gain and slowed metabolism
- Thinning hair and dry skin; loss of breast fullness

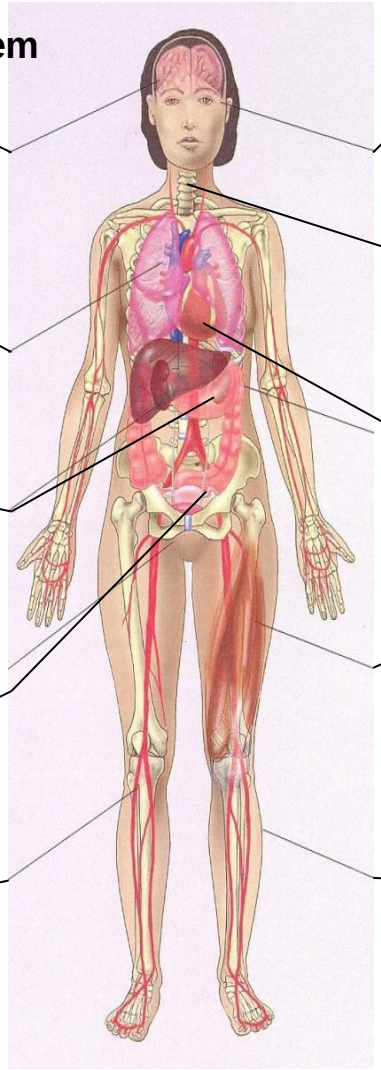
- **Leads to brain changes among women**
  - Significantly impacts
    - Brain structure and functions
    - Connectivity, metabolic functioning during hormonal and chronological aging of the female brain



Mosconi, et al., 2021. *Nature*. DOI: 10.1038/s41598-021-90084-y

Autoimmune Diseases

Disproportionately Impacts Women



Brain & Nervous System

Multiple Sclerosis

Lungs

Autoimmune PulmonaryFibrosis

Kidneys

Lupus
Juvenile Diabetes
Glomerulonephritis

Gastrointestinal

Crohn's Disease
Celiac Sprue

Joints

Rheumatoid Arthritis

Eye and Mouth

Sjogren's Syndrome
Uveitis (eye)

Thyroid

Grave's Disease/Hashimoto's Thyroiditis

Heart

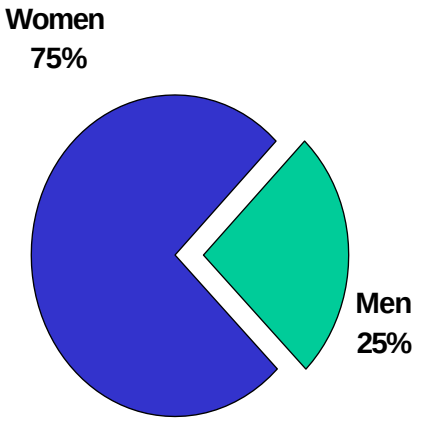
Cardiomyopathy
Autoimmune Myocarditis

Skin

Pemphigus
Scleroderma

Blood

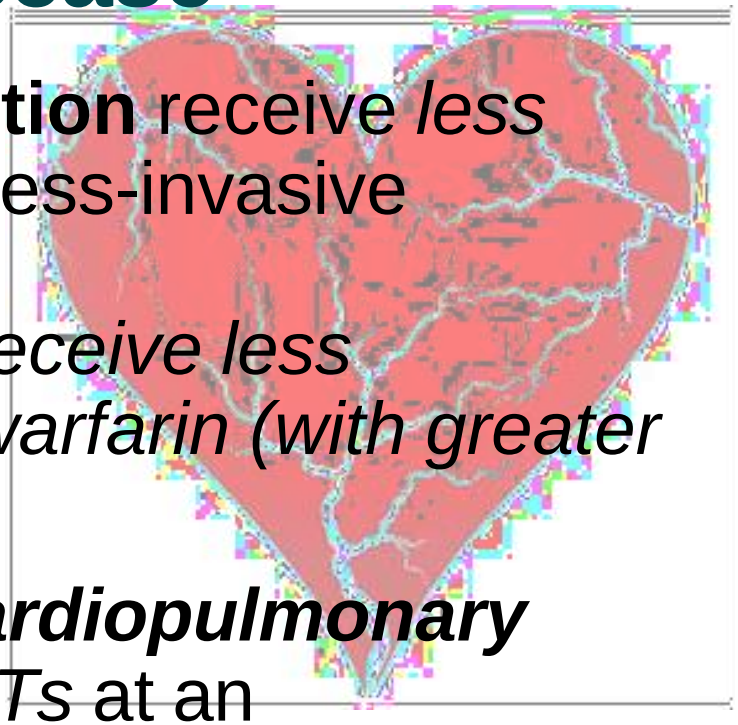
Hemolytic Anemia
Neutropenia
Autoimmune Thrombocytopenic Purpura
Pernicious anemia



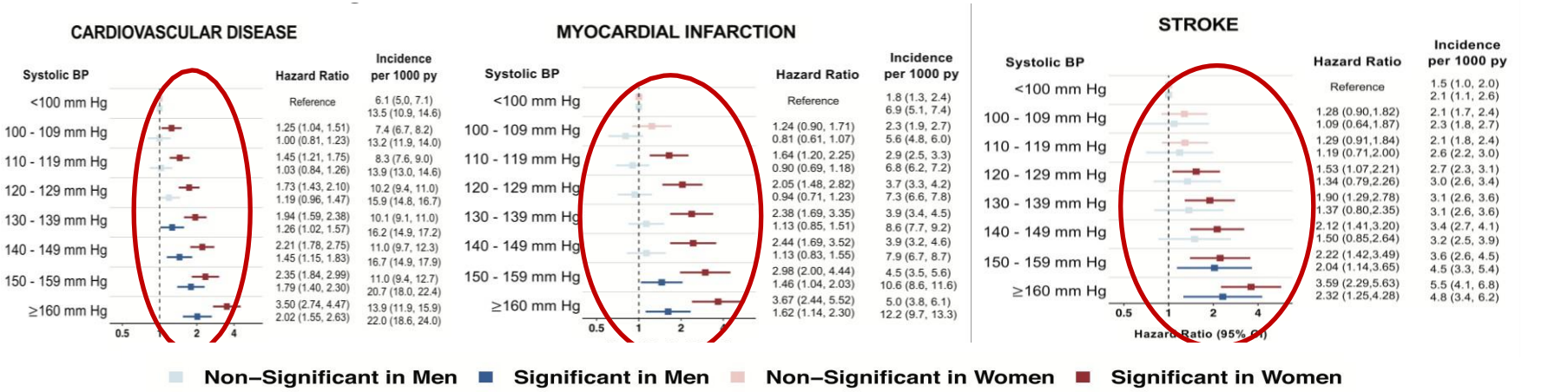
- Autoimmune diseases affect 7-8% of population (23.5 million Americans)
- 4X more women than men affected by autoimmune diseases

Cardiovascular Disease

Present and Progress Differently in Women



- Women with **myocardial infarction** receive *less guideline-based diagnosis* and less-invasive treatment than men[1]
- Women with **atrial fibrillation** *receive less anticoagulation treatment with warfarin (with greater risk for stroke than men)*[2]
- Women *less likely to receive* ***Cardiopulmonary Resuscitation*** *(CPRP from EMTs* at an



([1] Regitz-Zagrosek V. Therapeutic implications of the gender-specific aspects of cardiovascular disease. Nat Rev Drug Discov 2006; 5: 425–438.
[2] Humphries KH et al. New-onset atrial fibrillation: sex differences in presentation, treatment, and outcome. Circulation 2001; 103: 2365–2370.
[3] Rubenson Wahlin R, et al. Do male and female trauma patients receive the same prehospital care?: an observational follow-up study. BMC Emerg Med. 2016; 16: 6
Regitz-Zagrosek V. Sex and gender differences in health. EMBO Rep. 2012 Jul; 13(7): 596–603)

Gaps and Incomplete Knowledge

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

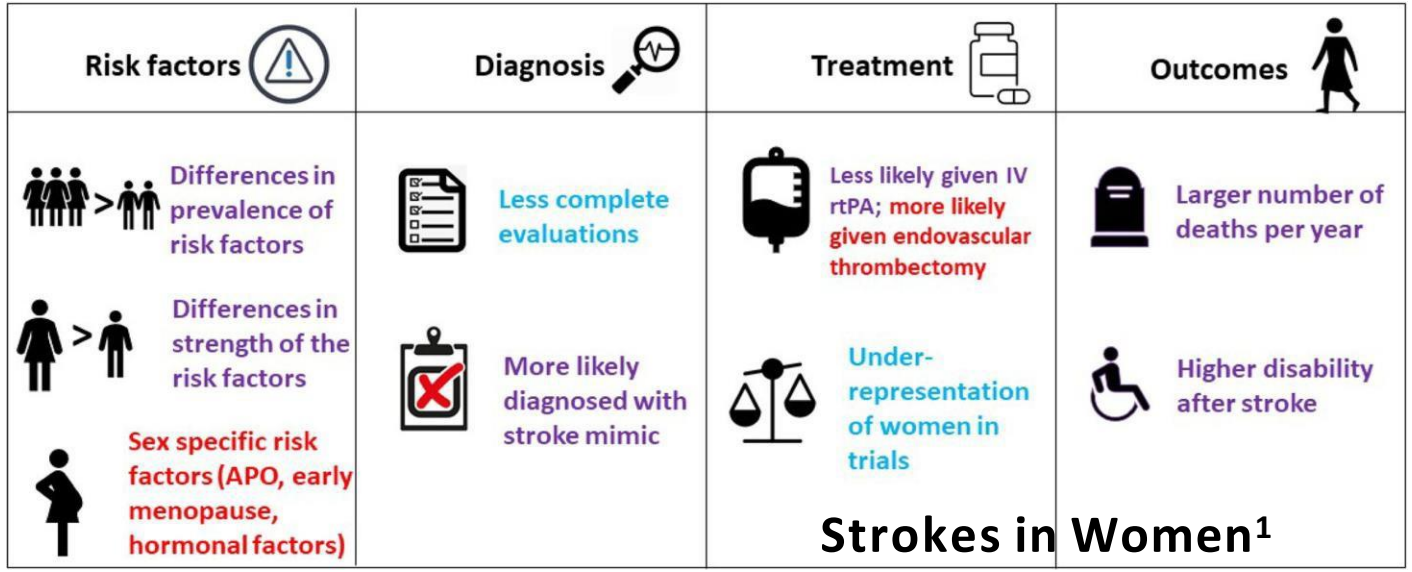
About 20% of women report mistreatment while receiving maternity care

THE LANCET

Globally, cancer ranks in **Top 3 Causes** of Premature mortality among women

80%

People living with autoimmune diseases are women



Strokes in Women[1]

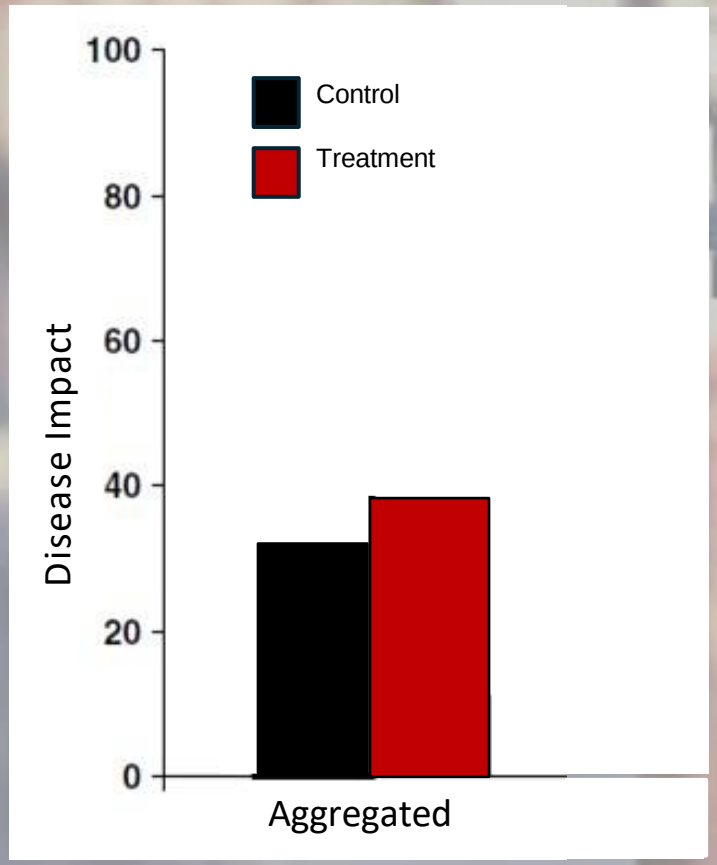
[1]Rexrode, et al. 2022. *Circ Res*. DOI: 10.1161/CIRCRESAHA.121.319915
[2]Presto, et al. 2022. *Neuropharmacology*. DOI: 10.1016/j.neuropharm.2022.109030

Disaggregating Results by Sex Reveals Differences

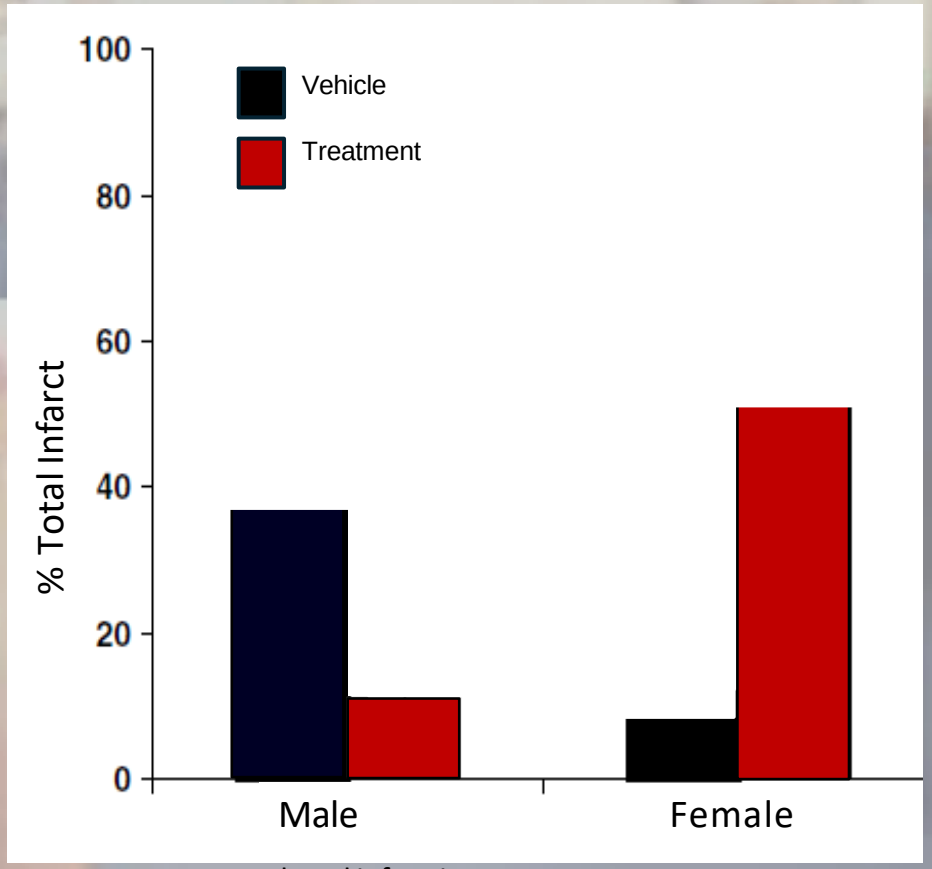
Study produced novel findings due to disaggregating results by sex

HIDING IN PLAIN SIGHT

Aggregated Results



Disaggregated Results



Reduced infarction (obstruction of blood supply)

Increased ischemic (stroke) damage

McCullough, et al. *Journal of Cerebral Blood Flow & Metabolism.* 2005. DOI: 10.1038/sj.jcbfm.9600059

Office of Research on Women's Health (ORWH) Mission

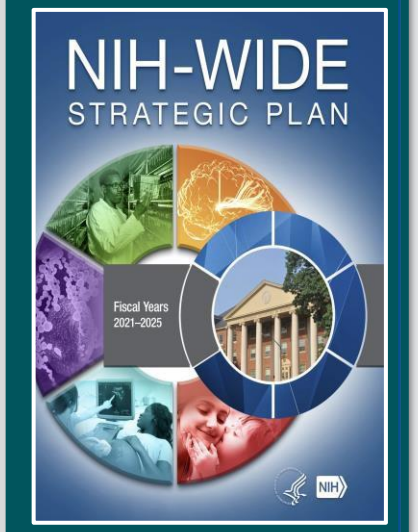
- Enhance and expand women's health research
- Include women and minority groups in clinical research
- Promote career advancement for women in biomedical careers

National Institutes of Health (NIH) Vision

- Sex and gender integrated into biomedical research
- Every woman receives evidence-based care
- Women in science careers reach their full potential

NIH National Institutes of Health
Office of Research on Women's Health

Collaboration is Key to Women's Health Research at NIH



NIH Institutes and Centers

Partnership

Office of Research on Women's Health

Workshops

Priority Setting

Driving synergistic research priorities

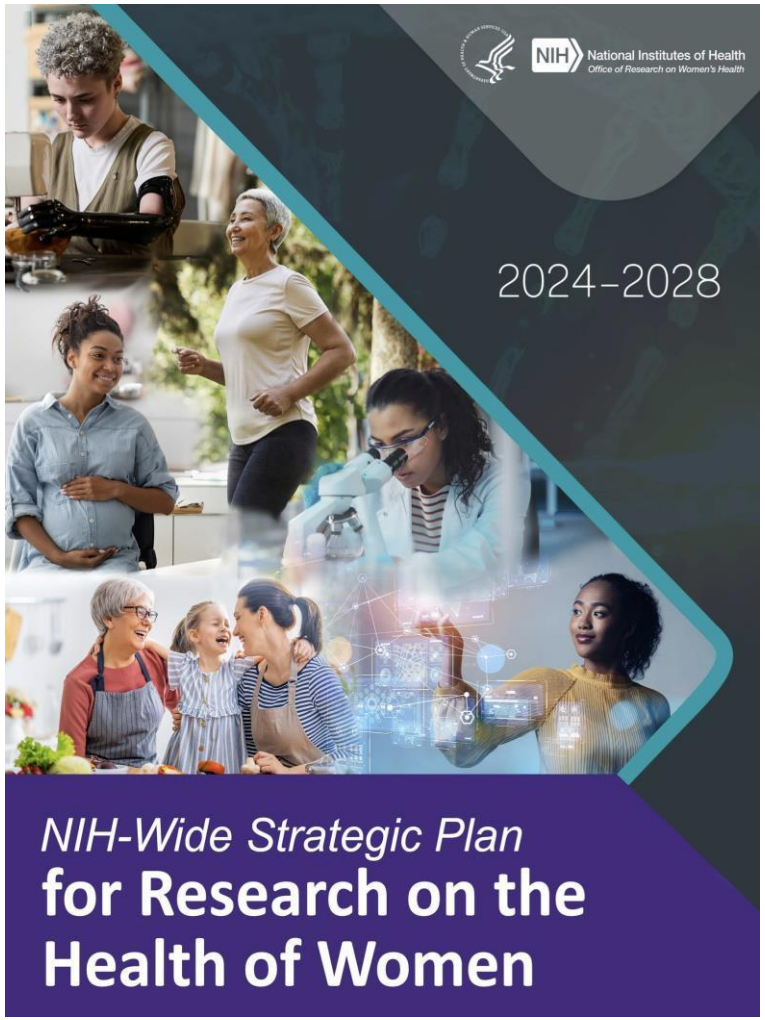
NIH-Wide Workgroups

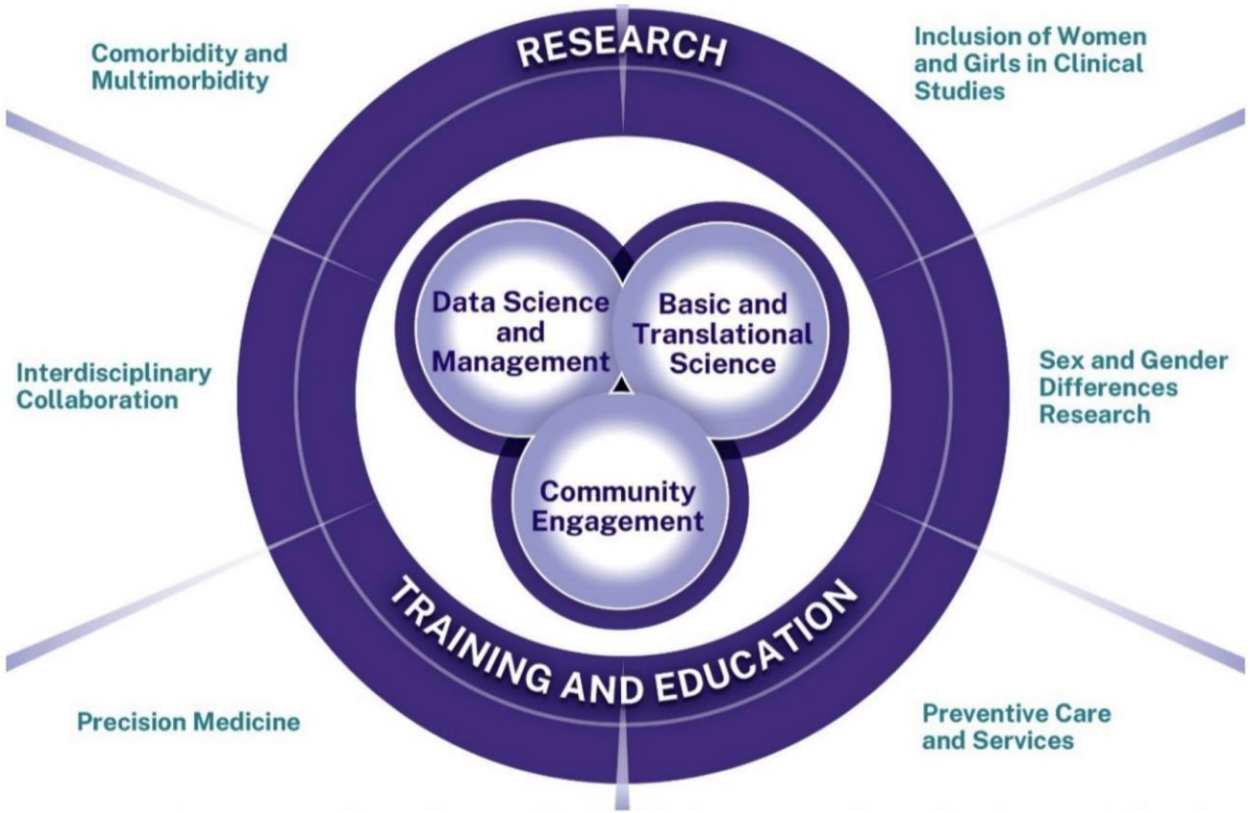
Funding Opportunities & Initiatives

NIH Vision

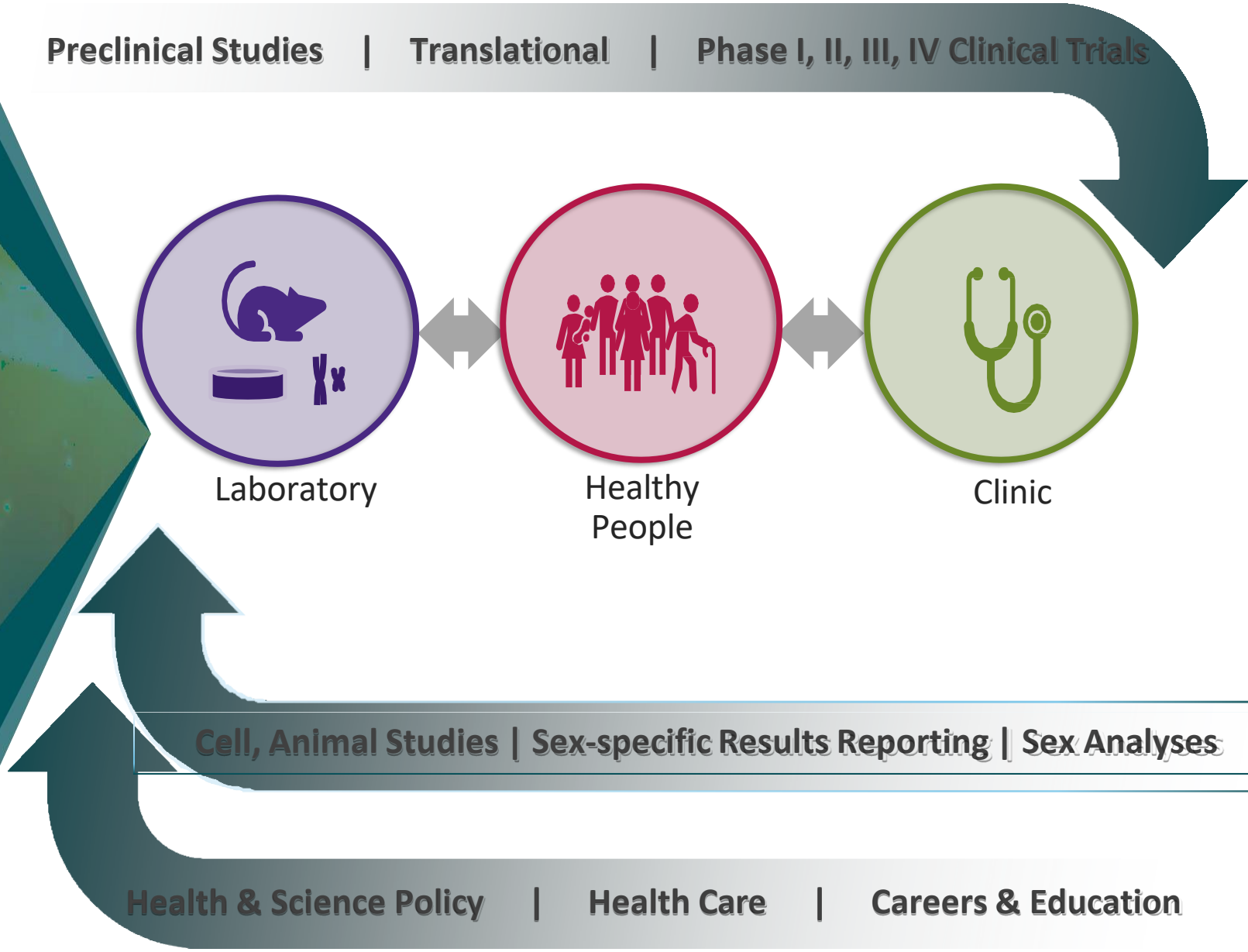
NEW

2024-2028 NIH-Wide Strategic Plan for Women's Health Research





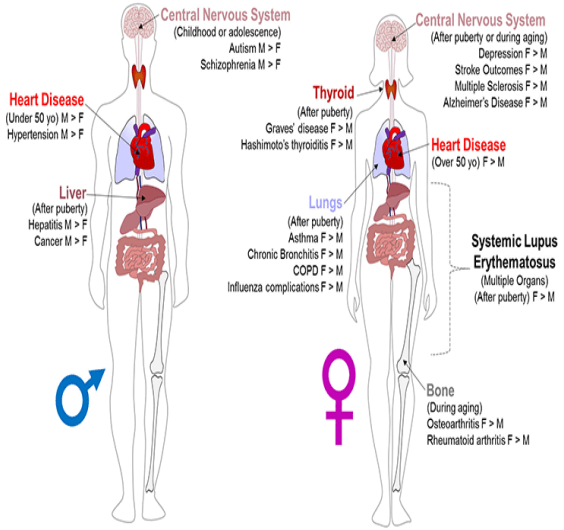
Incorporating Sex & Gender Across the Research Continuum Advances *Rigor*, *Discovery*, *Innovation*, and *Equity*



Biological Factors

Sex

- Anatomy
- Physiology
- Genetics
- Hormones



Social, Psychological, & Cultural Factors

Gender

- Identity
- Roles & Norms
- Relations
- Power

NIH Sex & Gender Website

[1]Exploring the Biological Contributions to Human Health: Does Sex Matter, IOM Report , 2001

[2]The Integration of Sex and Gender Considerations into Biomedical Research: Lessons from International Funding Agencies, JCEM, 2021

Advancing the Health of Women Through NIH Institute/Center/Office (ICO) Collaborations

SIGNATURE PROGRAMS

BIRCWH

Building **I**nterdisciplinary **R**esearch **C**areers in **W**omen's **H**ealth

8 ICOs*

Mentored Career Development

SCORE

Specialized **C**enters **o**f **R**esearch **E**xcellence on Sex Differences

6 ICOs*

Disease-Agnostic Research Centers

RFA-OD-22-014

Administrative Supplements

Sex and Gender

22 ICOs*

Understudied, Underrepresented, & Underreported (U3)

16 ICOs*

Funding Program to Expand Sex & Gender Data

R01

Intersection of sex & gender influences on health & disease

11 ICOs*

Sex & Gender Influences on Health & Disease

RFA-OD-22-028

R21 & R01

Understanding Chronic Conditions Understudied Among Women

6 ICOs*

Perspectives on Advancing NIH Research to Inform and Improve the Health of Women Health Conference Report (2021)

RFA-OD-23-103
RFA-OD-23-014

NIH Office of Autoimmune Disease Research (OADR-ORWH)

https://nap.nationalacademies.org/catalog/26554/enhancing-nih-research-on-autoimmune-disease

- *Coordinate* NIH Strategic *Research Plan*
  - *Identify innovation and research* opportunities
    - Coordinate & foster trans-NIH *collaborative research*
    - *Annual* NIH autoimmune disease research portfolio *evaluation*
    - Provide *resources* to support planning, innovation, and collaboration
- Develop *publicly accessible central autoimmune disease research repository*

Path to Better Science and Health Equity

Improves design of **clinical research and trials**

Informs sex- and gender-aware.
Diagnosis and treatment

Enables **individualized approaches**
for women and men

Fosters **system-based understanding** of
sex and gender influences on health & disease

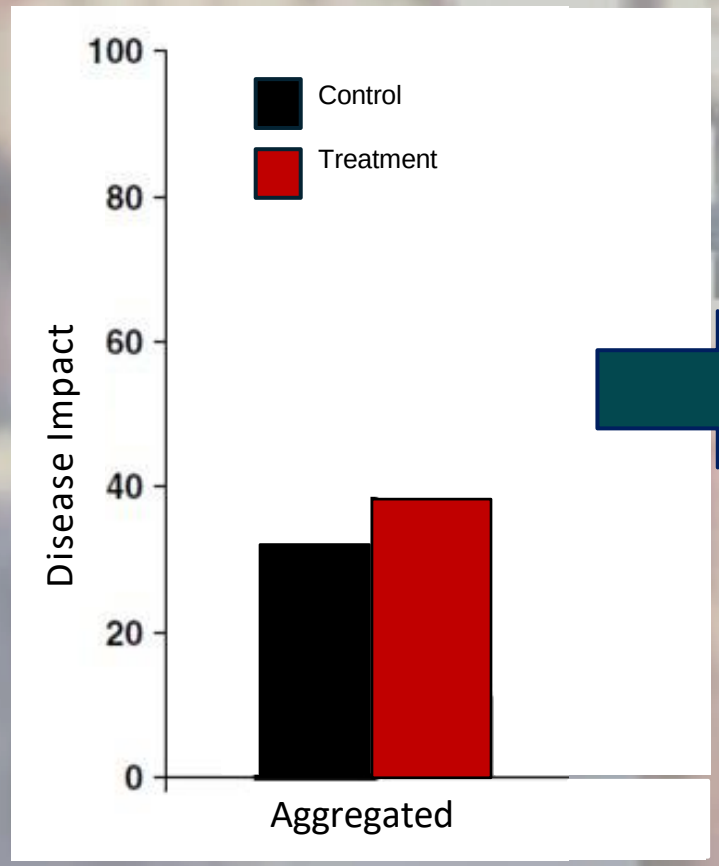
(Clayton. 2016. *FASEB J.* 30: 519-524)

Disaggregating Results by Sex Reveals Differences

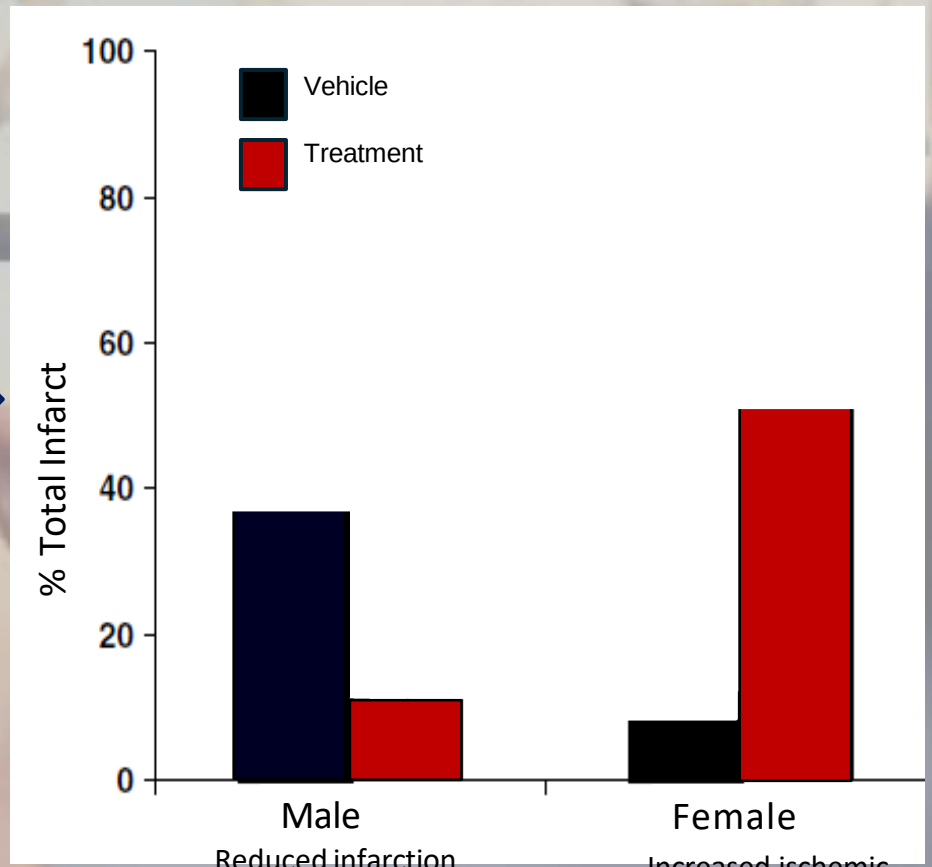
Novel Findings Due to Disaggregated Analysis by Sex

HIDING IN PLAIN SIGHT

Aggregated Results



Disaggregated Results



(McCullough, et al. *Journal of Cerebral Blood Flow & Metabolism.* 2005. DOI: 10.1038/sj.jcbfm.9600059)

Sex and Gender Equity in Research (SAGER) Guidelines

Authors should use the terms *sex and gender* carefully to avoid confusing both terms

Where subjects can be differentiated by gender (social and cultural circumstances), **research should be conducted similarly** at this additional level of distinction

Research organisms capable of differentiation by sex, **research should be designed and conducted that can reveal sex-related differences in the results,** even if not initially expected

Heidari et al. *Research Integrity and Peer Review* (2016) 1:2 DOI 10.1186/s41073-016-0007-6

Adoption of SAGER Guidelines

ICMJE INTERNATIONAL COMMITTEE of MEDICAL JOURNAL EDITORS

https://www.icmje.org/recommendations/

World Health Organization

World Health Organization adopts SAGER

A significant step to bridge the gender evidence gap

nature

Explore content | About the journal | Publish with us | Subscribe

nature > editorials > article

EDITORIAL 18 May 2022

Nature journals raise the bar on sex and gender reporting in research

Authors will be prompted to provide details on how sex and gender were considered in study design.

White House Women's Health Research Initiative

NOVEMBER 17, 2023

Launch of White House Initiative on Women's Health Research

GPC › BRIEFING ROOM › BLOG

On November 13, President Biden announced the first-ever White House Initiative on Women's Health Research, an effort led by First Lady Jill Biden and the White House Gender Policy Council.

White House Establishes Women's Health Research Initiative | Office of Research on Women's Health (nih.gov) Press Release

Executive Order 14120: Advancing Women's Health Research and Innovation

Directs most comprehensive set of xecutive actions to expand and improve research on women's health

MARCH 18, 2024

- **Integrates Women's Health Across the Federal Research Portfolio |** *develop and strengthen research and data standards* on women's health across all relevant research and funding opportunities
- **Prioritizes Investments in Women's Health Research |** towards funding and encourages *high-impact research and innovation*
- **Galvanizes New Research on Women's Midlife Health |** narrow research gaps more likely to *occur after menopause and diseases and conditions associated with women's midlife health*
- **Assesses Unmet Needs to Support Women's Health Research |** *determine gaps in federal funding for women's health research and identify changes*—whether statutory, regulatory, or budgetary—that are needed to maximally support the broad scope of women's health research.

FACT SHEET: President Biden Issues Executive Order and Announces New Actions to Advance Women's Health Research and Innovation | The White House

Executive Order Extends Across U.S. Government Partners

Department of Veterans Affairs

Office of Management and Budget

AHRQ Agency for Healthcare Research and Quality

Department of Defense

- Collaborative, Multi-agency, Cross-cut Program
- 11 Federal agencies
- Advance *new*, *interdisciplinary*, *transformative* research and development in women's health
- Presidential Budget Request: $25B FY2025

CMS Center for Medicare & Medicaid Services

National Science Foundation

NIH National Institutes of Health

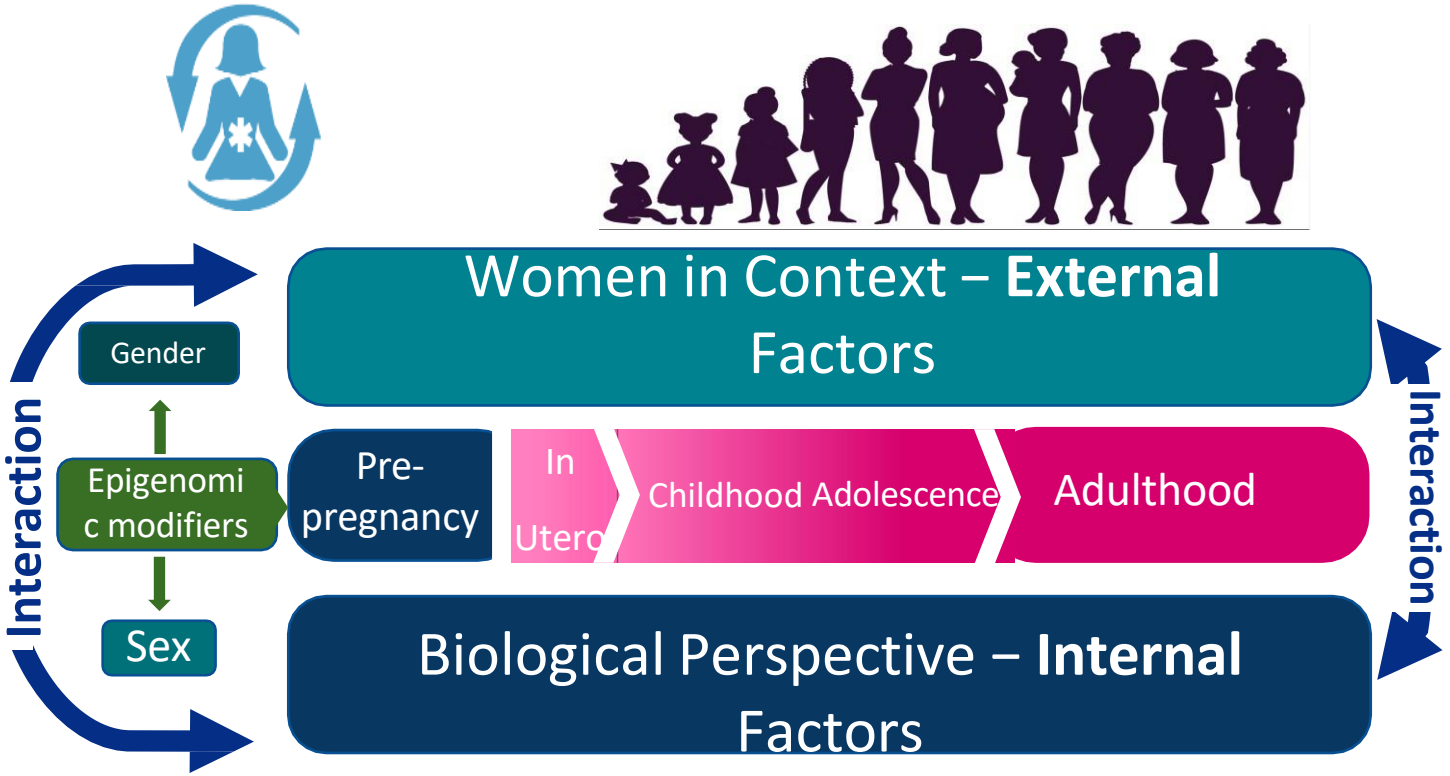
U.S. Food and Drug Administration

USDA U.S. Department of Agriculture

Department of Health and Human Services

EPA U.S. Environmental Protection Agency

Transforming Women's Health Throughout the Lifespan



NIH-wide FY2025 $200M Launch

- Close women's health research gaps across the lifespan
- New, interdisciplinary women's health research traversing traditional NIH Institute and Centers' missions

Co-chaired: NIH Office and Institute Directors

- ***Office of Research on Women's Health (ORWH)***
- National Institute on Aging (NIA)
- National Institute on Arthritis, Musculoskeletal and Skin Disease (NIAMS)
- *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD)
- National Institute on Drug Abuse (NIDA)
- National Heart, Lung and Blood Institute (NHLBI)

NIH Strategic Plans and Visions https://report.nih.gov/strategicplans

(Adapted from Image Creators: Samia Noursi, Ph.D.; Elizabeth Barr, Ph.D.; Kelly Chandler, Ph.D.; Sarah Temkin, M.D.; Sarah Heilman, M.S., & Janine Clayton, M.D., FARVO)

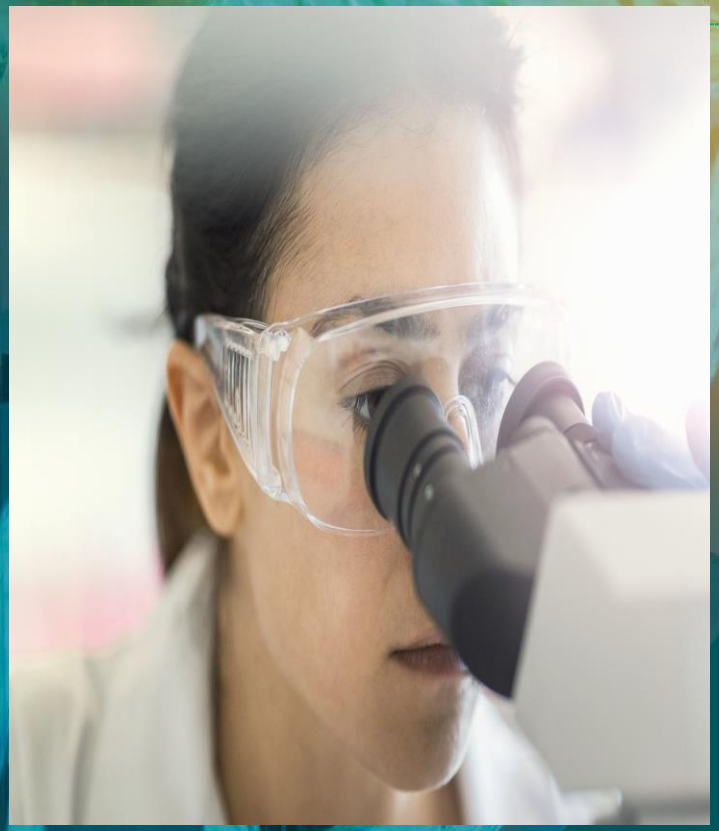
NIH National Institutes of Health Office of Research on Women's Health

https://vizhub.healthdata.org/gbd-compare/

NEW

Notice of Special Interest: Women's Health Research

First Available Due Date: May 6, 2024
Expiration Date: November 5, 2027

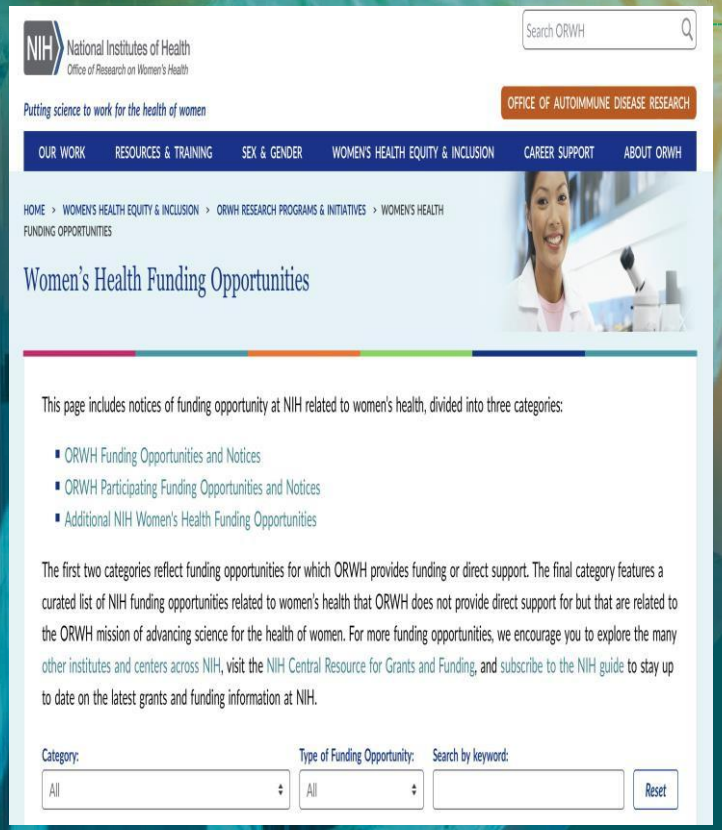


https://grants.nih.gov/grants/guide/notice-files/NOT-OD-24-079.html

- Aligned with *White House Initiative on Women's Health Research*
- ***Highlights NIH interest*** in receiving research applications focused on diseases and health conditions that:
  - **predominantly affect women** (e.g., autoimmune diseases; depressive disorders, Alzheimer's disease and Alzheimer's disease-related dementias, gender-based-violence)
  - **present and progress differently in women** (e.g., cardiovascular disease; HIV; reproductive aging and its implications), or
  - **are female-specific** (e.g., uterine fibroids; endometriosis; menopause)

NEW

The NIH Women's Health Funding FRONT DOOR



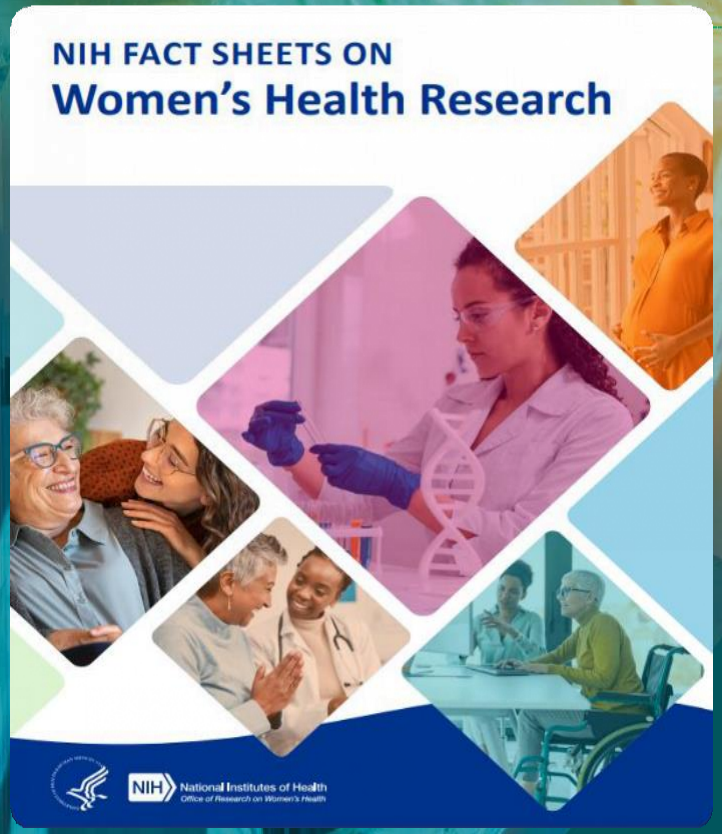
https://orwh.od.nih.gov/mmm-portal/funding-opportunities

NIH Women's Health Funding Opportunities

- ***ORWH Opportunities and Notices***
- ***ORWH Participating*** Funding Opportunities and Notices
- **Additional NIH Women's Health** Funding Opportunities
  - Highlights +45 NIH **N**otices **o**f **F**unding **O**pportunities (NOFOs) advancing research for the health of women
  - Features ~200 NOFOs (*Regularly Updated*)

NEW

NIH FACT SHEETS on Women's Health Research



https://orwh.od.nih.gov/in-the-spotlight/all-articles/new-resource-nih-fact-sheets-on-womens-health-research-highlights-key-womens-health-issues

*H*ighlights **D**epartment of **H**ealth and **H**uman **S**ervices *Priority Topics* and *Federally Supported Research*

The Fact Sheets: *State-of-the-Science for Women's Health*

- Autoimmune Diseases
- Cancer
- Cardiovascular Disease
- Dementia
- HIV
- Maternal Morbidity and Mortality
- Menopause
- Mental Health
- Substance Use
- Violence Against Women

CONNECT WITH ORWH

The Pulse
Monthly Email

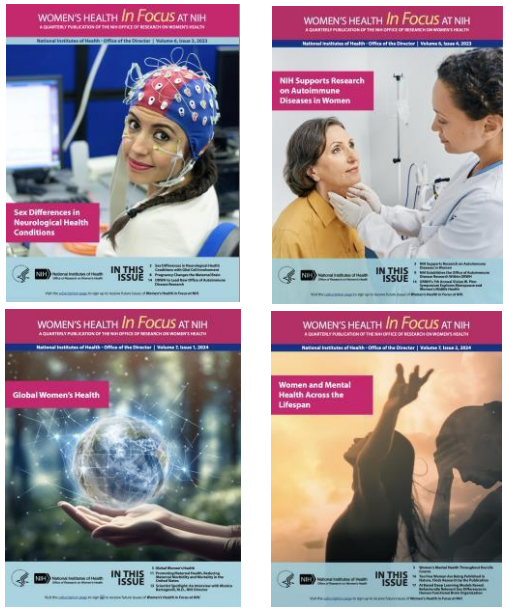
bit.ly/ORWHpulse *

bit.ly/ORWHevents

Women, Science, and the Impact of COVID-19

bit.ly/ORWHcovid

WOMEN'S HEALTH *In Focus* AT NIH
A QUARTERLY PUBLICATION OF THE NIH OFFICE OF RESEARCH ON WOMEN'S HEALTH



bit.ly/ORWHInFocus

@NIH_ORWH
NIHORWH
NIH.gov/women

E-LEARNING

Free CMEs available

- Bench to Bedside: Integrating Sex & Gender to Improve Human Health
- SABV Primer
- SABV Primer Instructor Guide
- Intro. to Scientific Basis of Sex- & Gender-Related Differences

bit.ly/ORWHeLearning

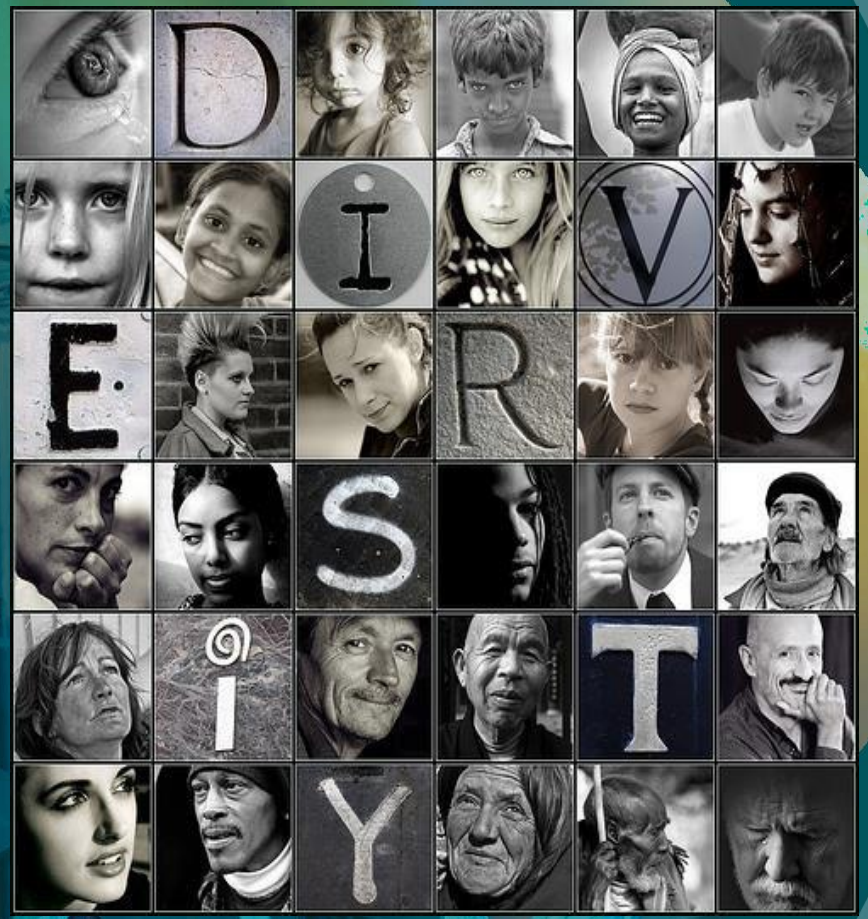
www.nih.gov/women

**All Bitly addresses are case-sensitive*

National Institutes of Health
Office of Research on Women's Health

[Information, information uses],
and
“definitions belong to the definers, not the defined

- Toni Morrison
Beloved



If not designed
to address equity,
research
will perpetuate
disparities
and injustices

- me

NIH

Office of Research on Women's Health

ncbi.nlm.nih.gov/cgr

Revolutionizing Biological Research with the NIH Comparative Genomics Resource (CGR)

Terence Murphy, Ph.D. 7/24/2024

National Library of Medicine
National Center for Biotechnology Information

Why We Are Here

In what ways does your work relate to CGR-related resources?

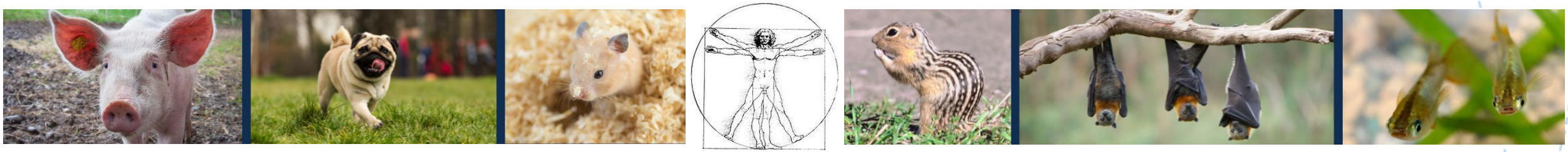
Where do you think CGR might have the greatest impact on your goals?

What types of CGR-engagement opportunities might be most valuable?

Outline

- Intro to Comparative Genomics
- The Value of Research Organisms
- Problem
- CGR Solution
- CGR Impact
- What's Next

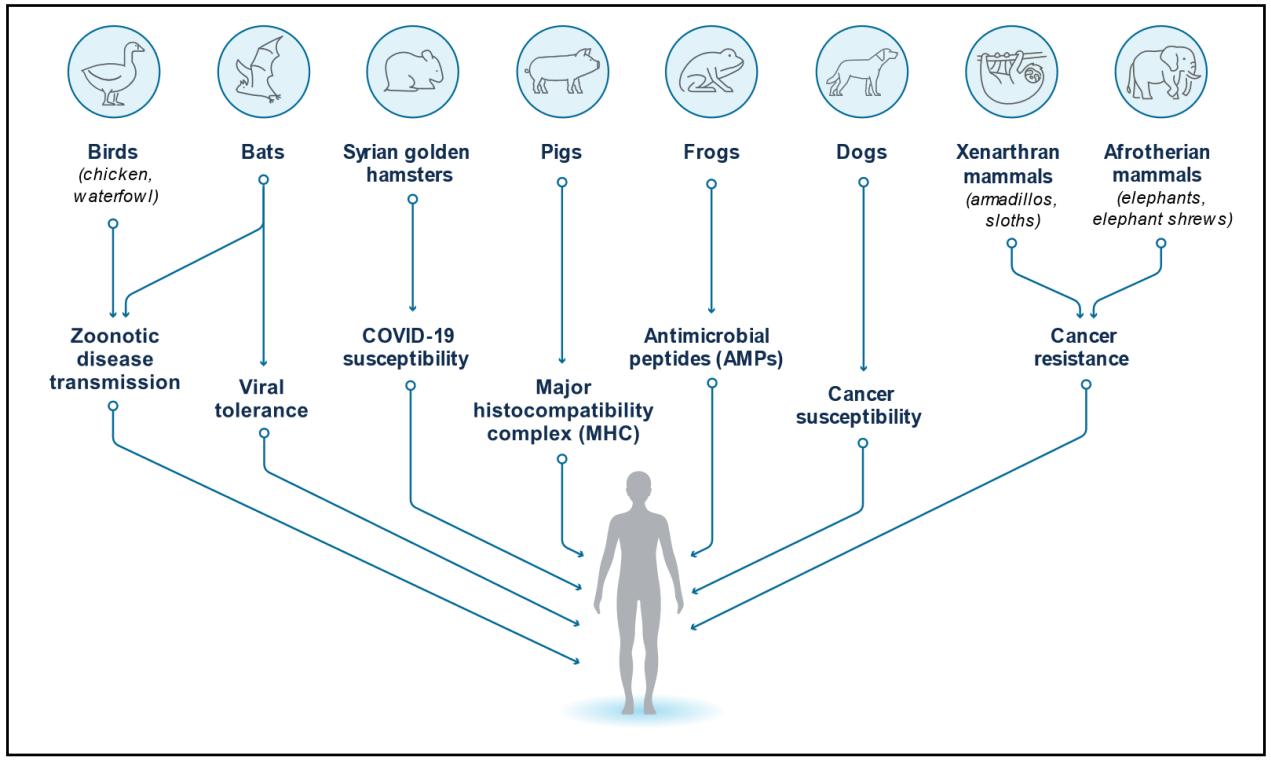
What is comparative genomics?



sequence gene protein phenotype biological process

The Value of Research Organisms

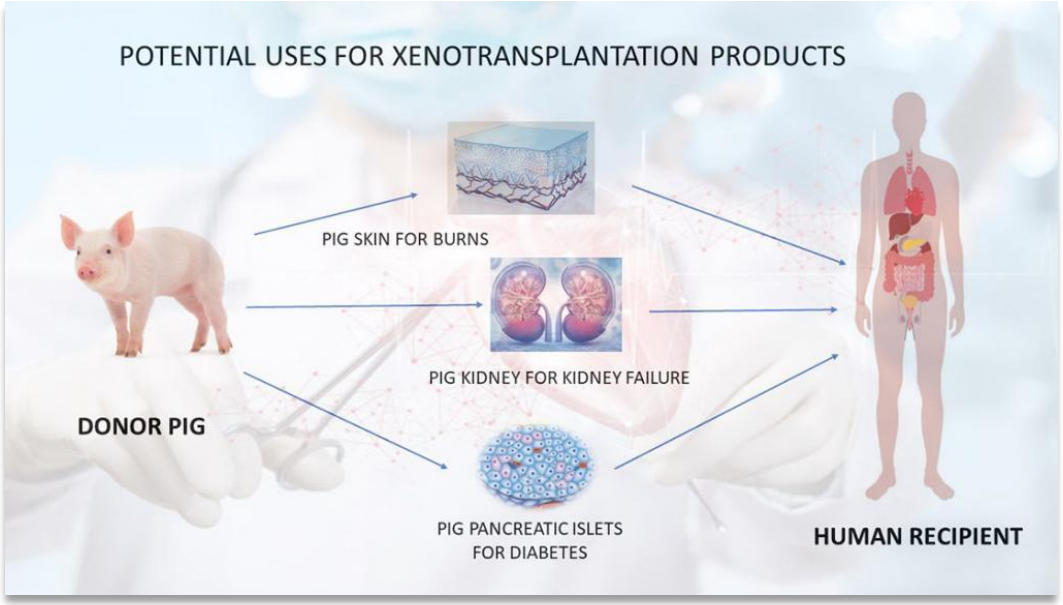
Understand Basic Biological Processes & Human Disease



Broad host range of SARS-CoV-2 predicted by comparative and structural analysis of ACE2 in vertebrates

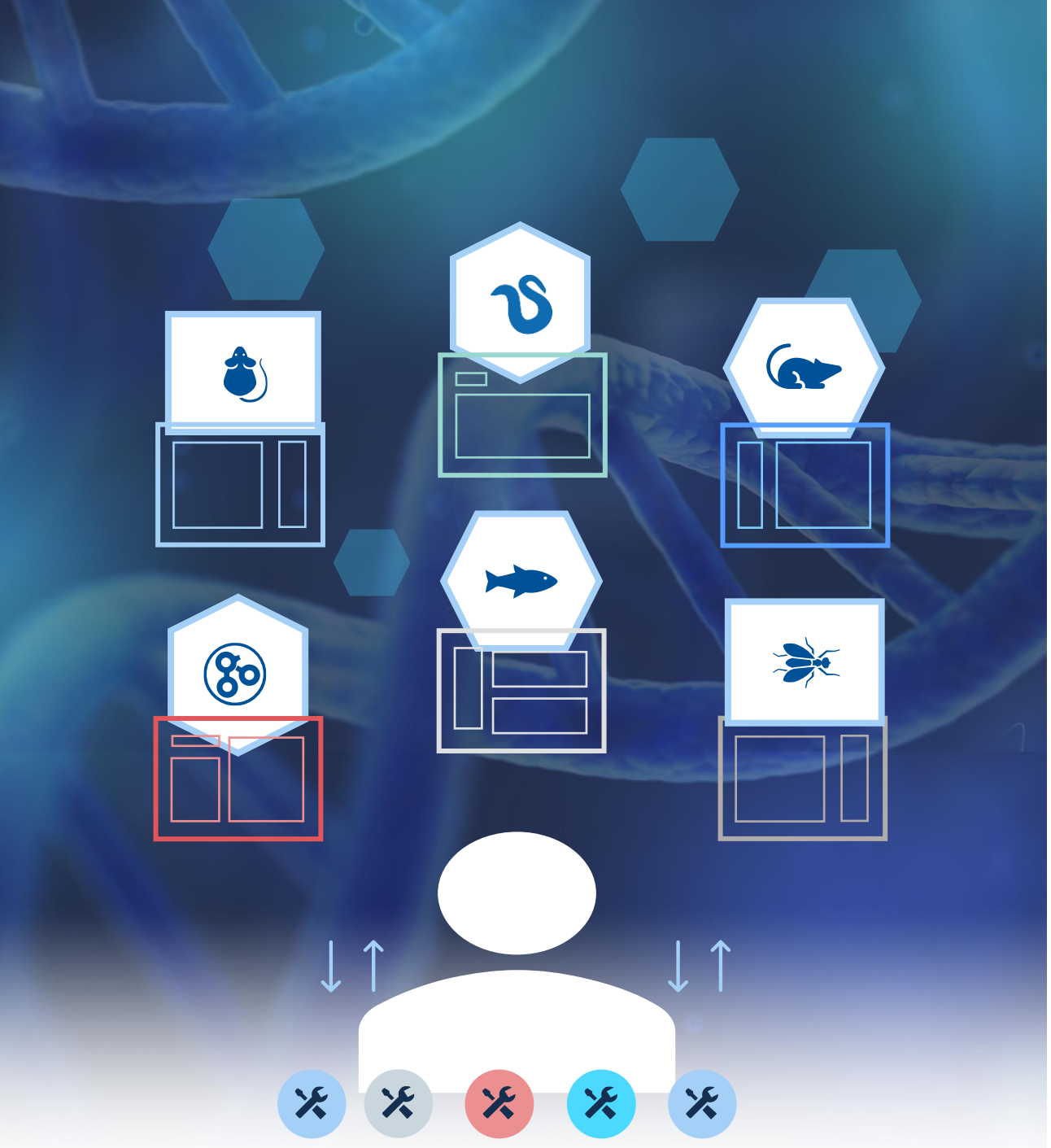
Joana Damas[a,1], Graham M. Hughes[b,1], Kathleen C. Keough[c,d,1], Corrie A. Painter[e,1], Nicole S. Persky[f,1], Marco Corbo[a], Michael Hiller[g,h,i], Klaus-Peter Koepfli[j], Andreas R. Pfenning[k], Huabin Zhao[l,m], Diane P. Genereux[n], Ross Swofford[n], Katherine S. Pollard[d,o,p], Oliver A. Ryder[q,r], Martin T. Nweeia[s,t,u], Kerstin Lindblad-Toh[n,v], Emma C. Teeling[b], Elinor K. Karlsson[n,w,x], and Harris A. Lewin[a,y,z,2]

https://www.pnas.org/doi/10.1073/pnas.2010146117



https://www.fda.gov/vaccines-blood-biologics/xenotransplantation

NIH National Library of Medicine
National Center for Biotechnology Information



Problem

Comparative genomics research faces several limitations and challenges

- **Exponential data growth; variable data quality**
- Siloed data and applications
- Limited number of organisms supported
- Multiple different user interfaces
- Must download data to apply tools
- Limited scalability

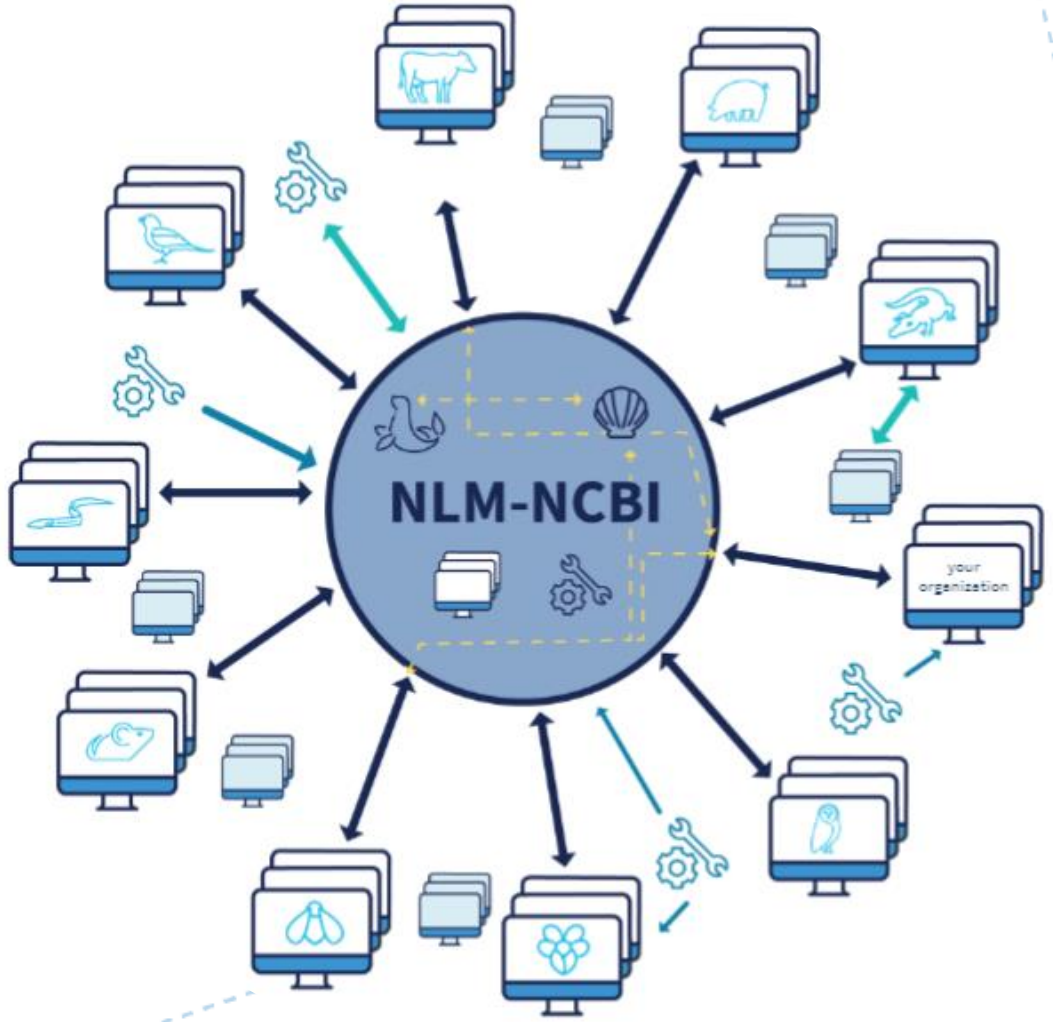
Solution

NIH Comparative Genomics Resource (CGR)

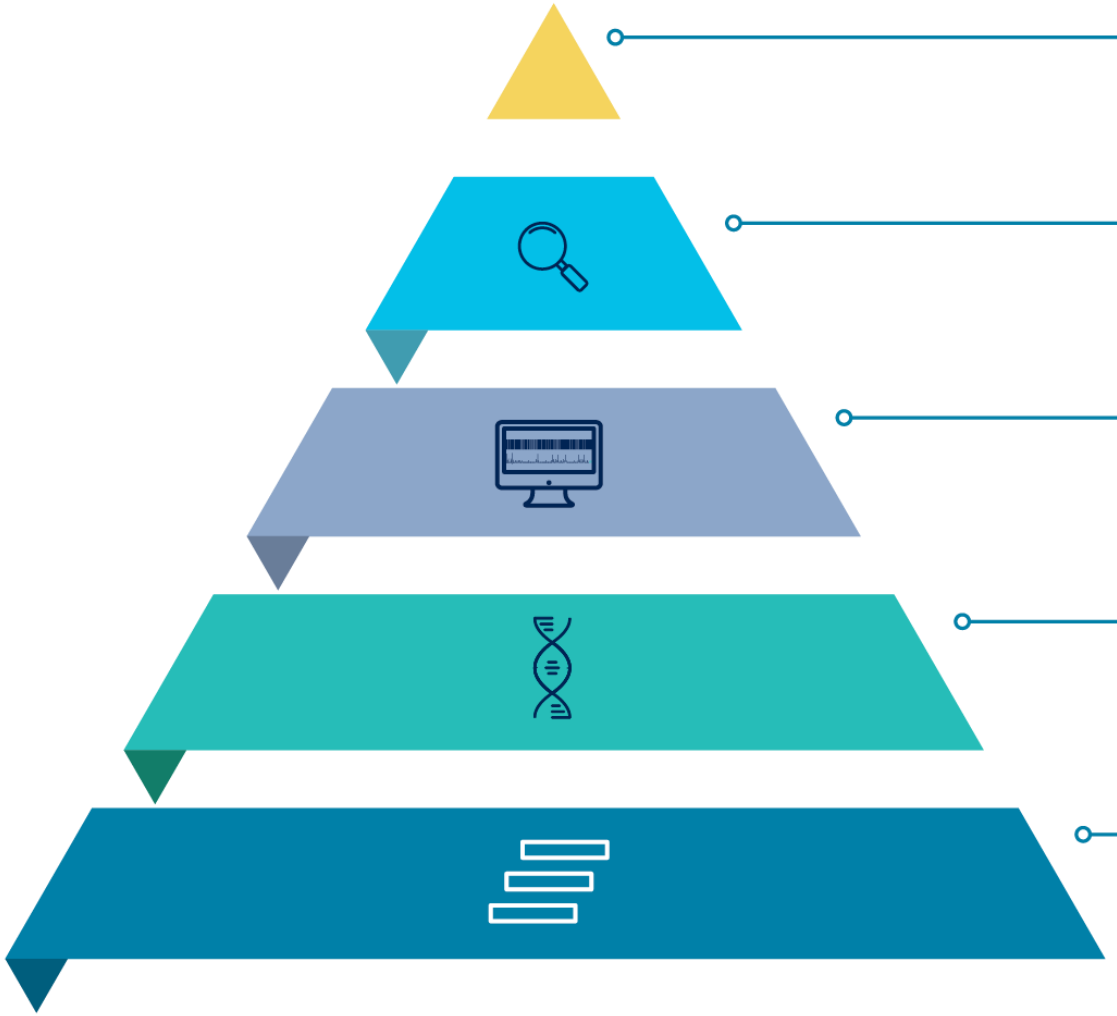
What: CGR **maximizes the impact of eukaryotic research organisms** and their genomic data to biomedical research.

How:

- NCBI genomics toolkit
  - High-quality data
  - Tools
  - Interfaces
- Community collaboration
  - Data exchange
  - Interconnectivity



CGR Impact



Scientific Advancement
Maximize impact of eukaryotic research organisms and their genomic data resources to biomedical research

New Discovery Amplification
Equal access to all eukaryotic organism data with better connections to community resources

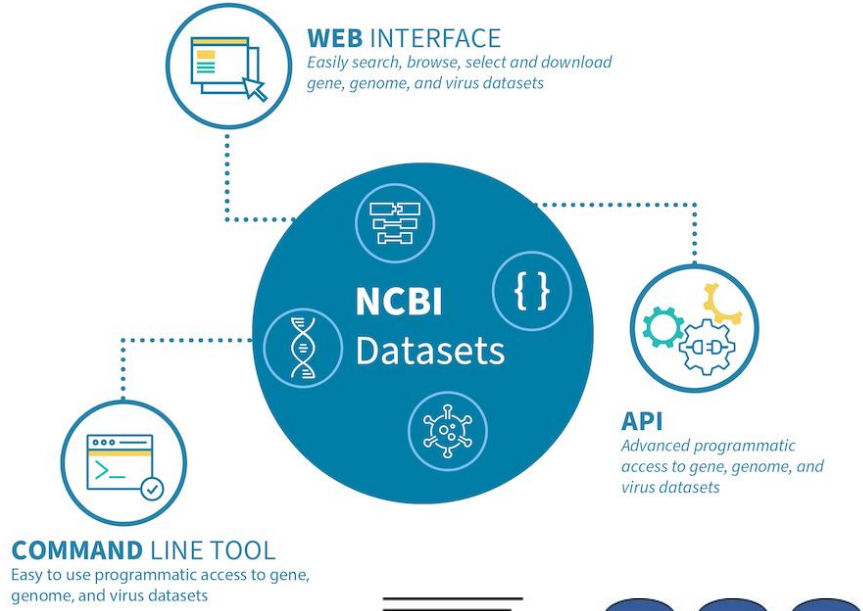
Scalable Analyses
Support data growth with emerging big data approaches

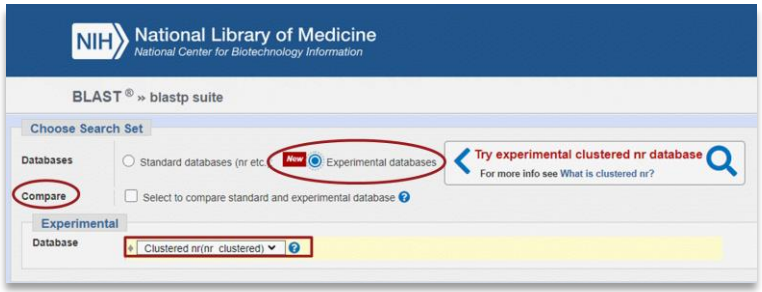
New and Improved Comparative Genomics Tools
Promote high-quality data submission, exploration, analysis, and retrieval with seamless user experiences

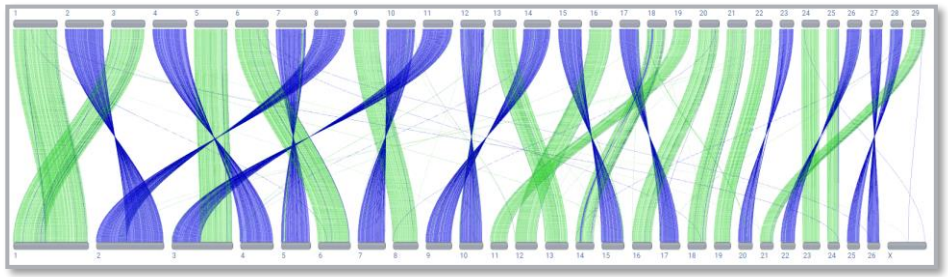
High Quality Genomic Data
Serve standardized, uncontaminated, and consistently annotated eukaryotic genomic data from NCBI Archives

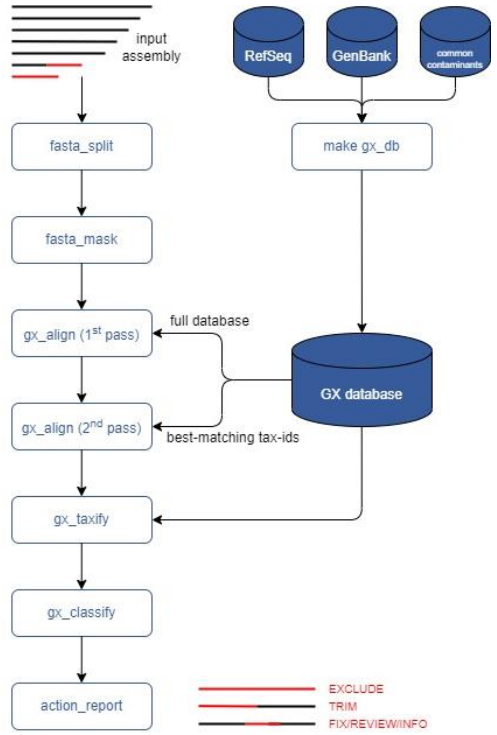
CGR Advancements

- NCBI Datasets
- BLAST
- Comparative Genome Viewer (CGV)
- Foreign Contamination Screen (FCS) Tool
- Eukaryotic Genome Annotation Pipeline (EGAPx)
- NCBI Gene
- NCBI Orthologs
- SPARCLE









CGR Impact: Two Case Studies

cgr@nlm.nih.gov

Finding genomic resources for organisms on NCBI

A public health biologist wants to find and contribute data for an invasive tick species

They need to:

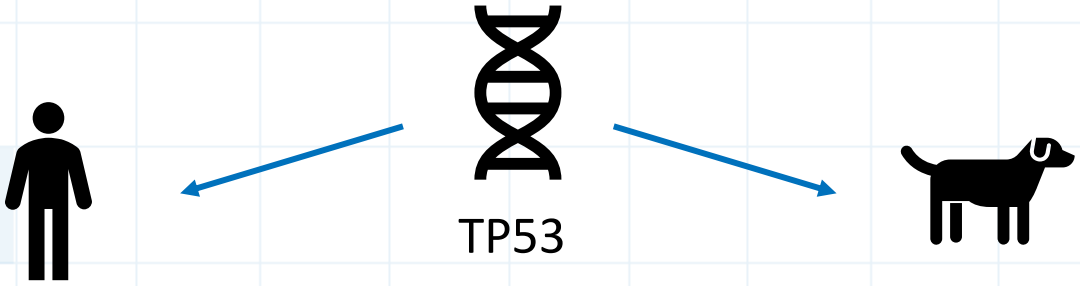
- Identify available genomic data on NCBI for tick species:
  - Datasets Taxonomy
  - Datasets Genome
  - Datasets Command Line

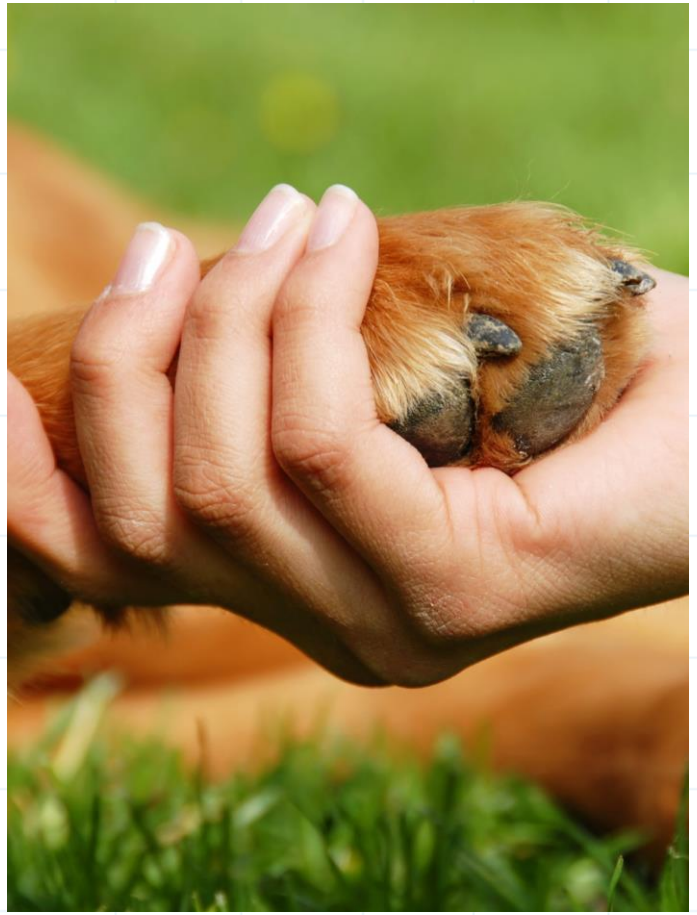
- Improve the quality of their own data:
  - Foreign Contamination Screen
  - Genome Annotation

Haemaphysalis longicornis
Asian longhorned tick
Recently found on the East Coast!

https://www.cdc.gov/ticks/longhorned-tick/index.html

Making discoveries in cancers common to humans and dogs





The following are some resources that can help in this research:

NCBI Gene

Multiple Sequence Alignment (MSA) Viewer

Comparative Genome Viewer (CGV)

NCBI Orthologs

Genome Data Viewer (GDV)

iCn3D

What’s next for CGR?

- Ongoing resource improvements based on community feedback
  - Redesign NCBI Gene to better leverage data across species
- Public EGAPx pipeline to generate high-quality annotation for more genomes
- Multiple Comparative Genome Viewer to explore genomic differences across multiple organisms

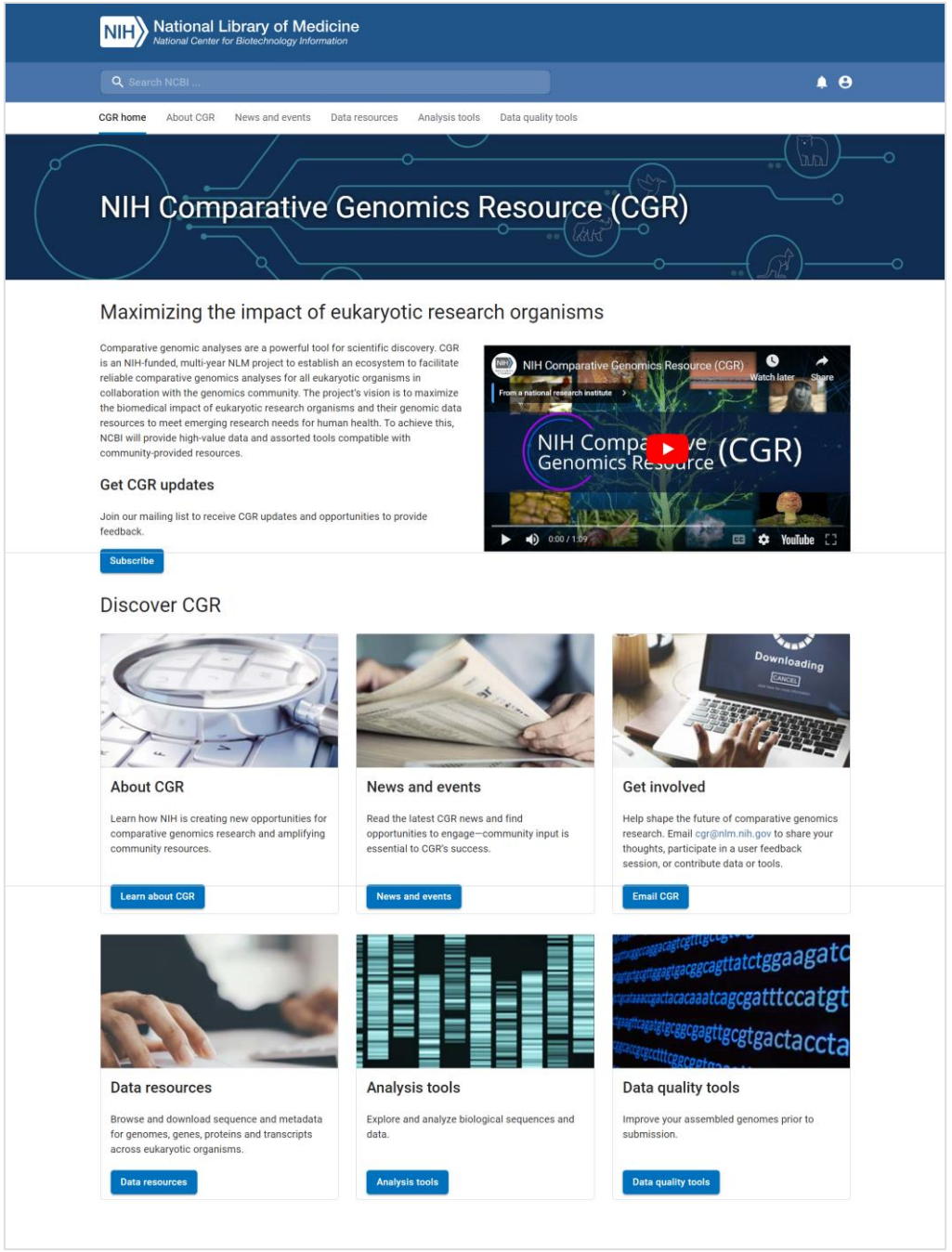
How Do I Learn More and Get Involved?

Reach out to us at cgr@nlm.nih.gov

Visit the CGR website ncbi.nlm.nih.gov/cgr and click the yellow Feedback button on the bottom right of the page

Sign up for our mailing list - bit.ly/Subscribe_CGR

Look out for future meetings, workshops, webinars, surveys, small group sessions, user testing, and interviews to inform the development process



Thank You

NLM-NCBI

Kim Pruitt

Valerie Schneider

Janet Coleman

Anatoly Mnev

Anne Ketter

Katya Sukharnikov

Wratko Hlavina

Françoise Thibaud-Nissen

Nuala O'Leary

Sanjida Rangwala

Vamsi Kodali

Preye Akuiyibo

Aron Marchler-Bauer

Rana Morris

Sally Chang

NLM

Steve Sherry

Jodi Nurik

Diane Tuncer

NLM Board of Regents
CGR Working Group

NIH Oversight

NIH CGR Steering Committee

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Thank you!

Next webinar is September 25, 2024

(August webinar is cancelled)