

Women's Health Research Funding at NIH: Gaps and Opportunities

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Background

- The U.S. is a leader in research innovation and health discoveries, but scientific enterprises have not yielded the anticipated breakthroughs to improve health and well-being for over half the population: women and girls.
 - Lack of understanding of basic sex-based differences in physiology (e.g., chromosomal and hormonal)
 - Lack of attention and support for research into conditions specific to, more common among, or that affect women and girls differently
- Advances in women's health research are critical to contributing to overall scientific progress and innovation.

The Need for Women's Health Research

- Healthy women are vital to a healthy society and growing economy.
 - Women live nearly 6 years longer than men, in poorer health and with higher rates of disabilities.
 - Historical exclusion of women from research has led to persistent gaps in the evidence base on women's health that still impact research today.
 - Women face intersecting barriers to care, including economic, geographic, institutional, social, and cultural barriers, discrimination and bias, lack of education and health literacy, and stigma.
 - Breakthroughs in women's health improve understanding of health for everyone.



Identifying Gaps and Opportunities in Women's Health Research



Information gathering meetings where the committee heard from researchers, patients, and other stakeholders



Review of primary literature, past National Academies and other reports



Analysis of women's health research funding at the National Institutes of Health

Key Findings



- Limited research on diseases affecting women and girls.
- Limited understanding of biological differences between sexes.
- Need for better ways to prevent, diagnose, and treat conditions that impact women differently.
- Investing in women's health research benefits both women's health, men's health and society as a whole.

Funding Analysis



Committee's Funding Analysis

- The committee was tasked with analyzing the proportion of research that the NIH funds on conditions that are female-specific, more common amongst women, or that impact women differently
 - The committee developed a novel multimethod, multistage approach for its funding analysis, including LLM, to analyze FY 2013-2023 data from NIH RePORTER
 - Over 800,000 grants were downloaded in April, 2024.
 - The committee only had access to publicly available grant data, such as titles, numbers, PI names, funding details, abstracts, and public health relevance—excluding grant proposals and progress reports.
 - Examined overall funding by Institutes, Centers, Offices, grant type, and women's health-related conditions.

Committee's Funding Analysis: NIH Spending on Women's Health Research

- FY 2013–FY 2023: total grant funding for women's health research amounted to 8.8% of all NIH research grant spending.
- In FY 2023 7.9% was spent on women's health research.
- A similar pattern of low funding holds for intramural research.

Committee Funding Analysis: NIH Spending on Women's Health Research is a Small Fraction of Overall Grant Spending

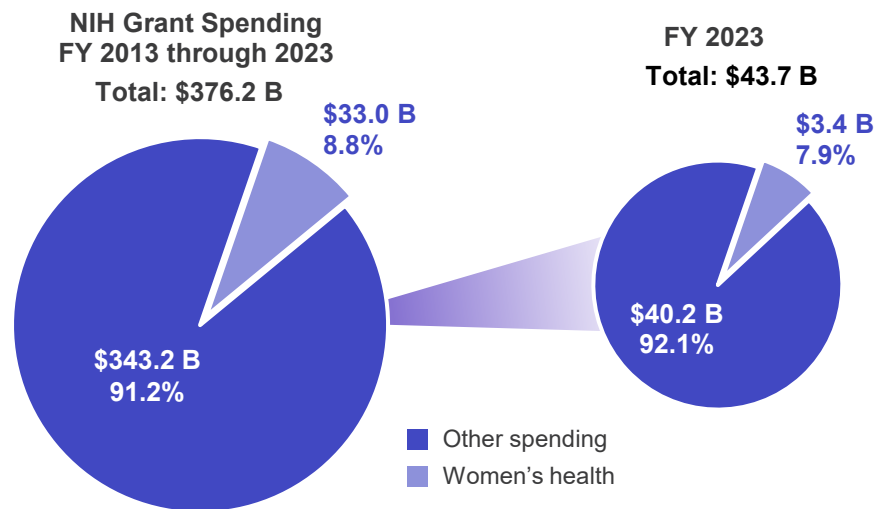


FIGURE. Total NIH grant funding on women's health research, FY 2013–2023 and for FY 2023.

SOURCE: Committee analysis.

Committee's Funding Analysis

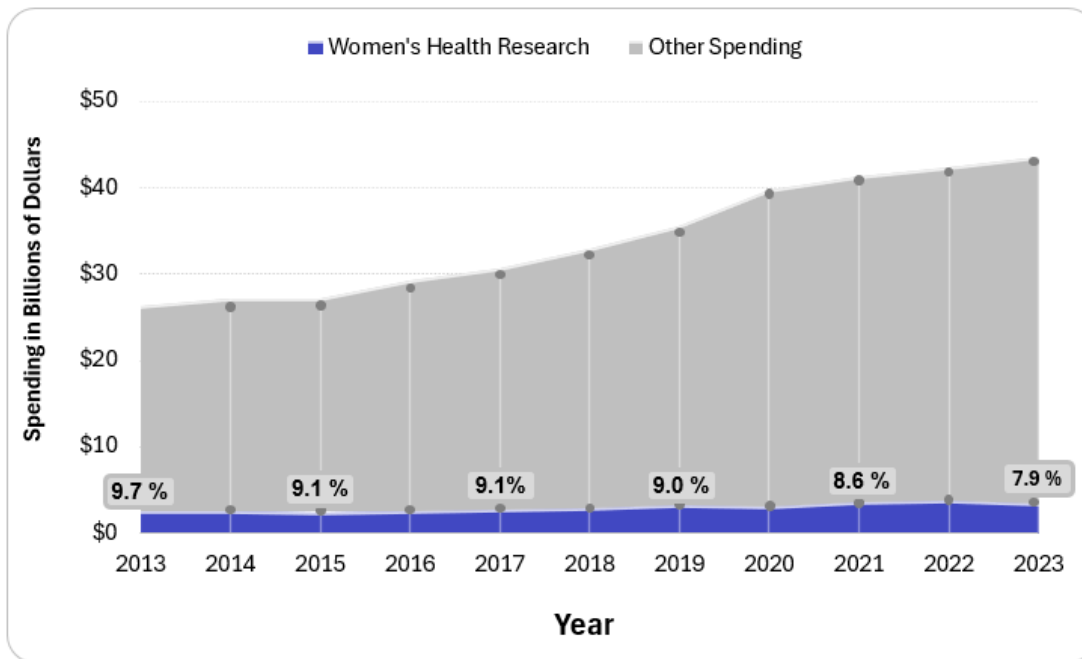


FIGURE. Overall NIH grant funding and the proportion of NIH funding on women's health research, FY 2013–2023; share of NIH grant spending on women's health has shrunk in the past decade.

SOURCE: Committee analysis.

Low Proportion Of Funding For Women's Health Research (WHR) Seen Across All Institutes And Centers (ICs).

IC with largest proportion of funding allocated to WHR was the National Institute of Child Health and Human Development (NICHD; 37%)

All other ICs spent less than 20%, and many less than 10%.

Of the \$33 billion NIH spent on WHR grants in the analysis period:

- NCI: \$9.2 billion
- NICHD: \$5.3 billion
- NIAID: \$4.1 billion
- Other ICs: about \$2 billion or less

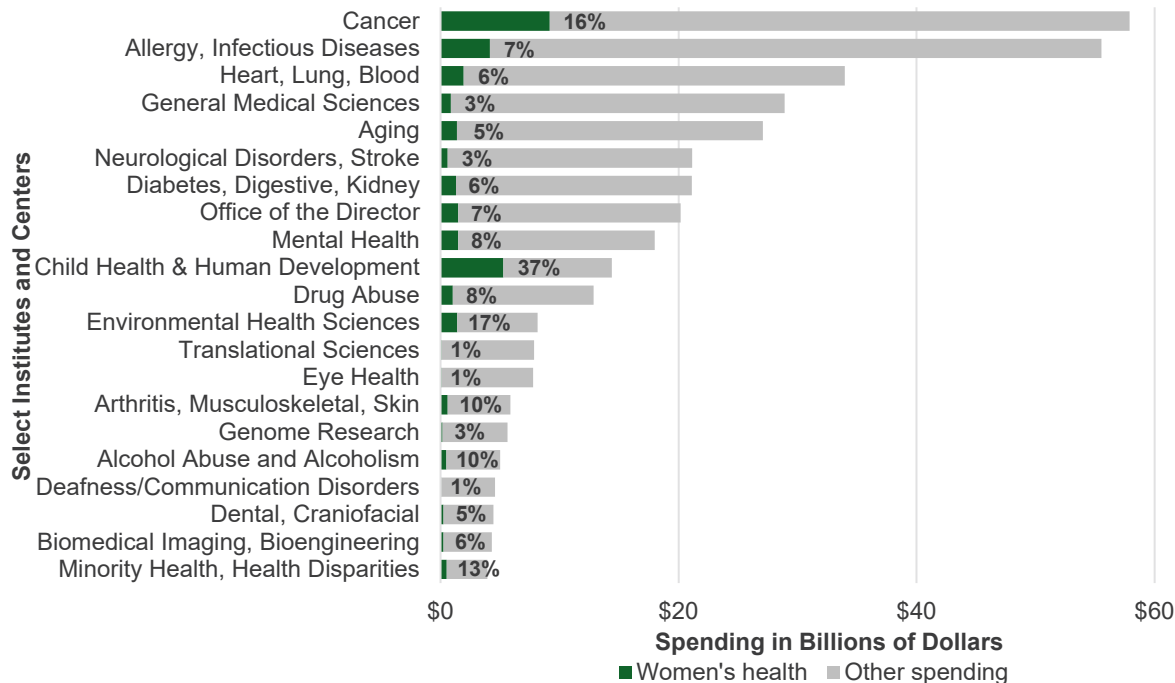


FIGURE. NIH grant funding for women's health research, FY 2013 through 2023.
SOURCE: Committee analysis.

Committee's Funding Analysis: Distribution of NIH Funding for Women's Health

- Grants funded to study conditions relevant to women's health favored certain conditions.
 - Top 10: breast cancer and some female-specific cancers, pregnancy and infertility, and perimenopause and menopause, as well as conditions that also affect men, such as HIV/AIDS, diabetes, and depressive disorders.
- Low levels of funding for many female-specific conditions.
 - Endometriosis, fibroids, pelvic floor disorders, polycystic ovary syndrome, postpartum depression, uterine cancer, vulvodynia, and others;
 - Yearly funding has been flat over the last decade for many of these conditions.

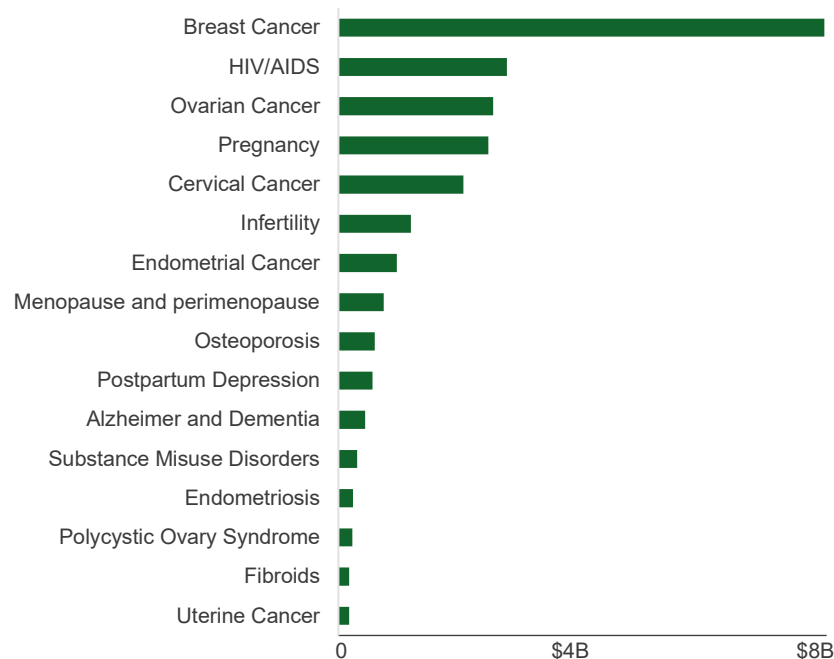


FIGURE NIH grant funding for select conditions relevant to women's health, FY 2013–FY 2023.
SOURCE: Committee funding analysis.

Grant Funding Over Time: Top 10 Highest Funded Among Selected Conditions Relevant to Women's Health

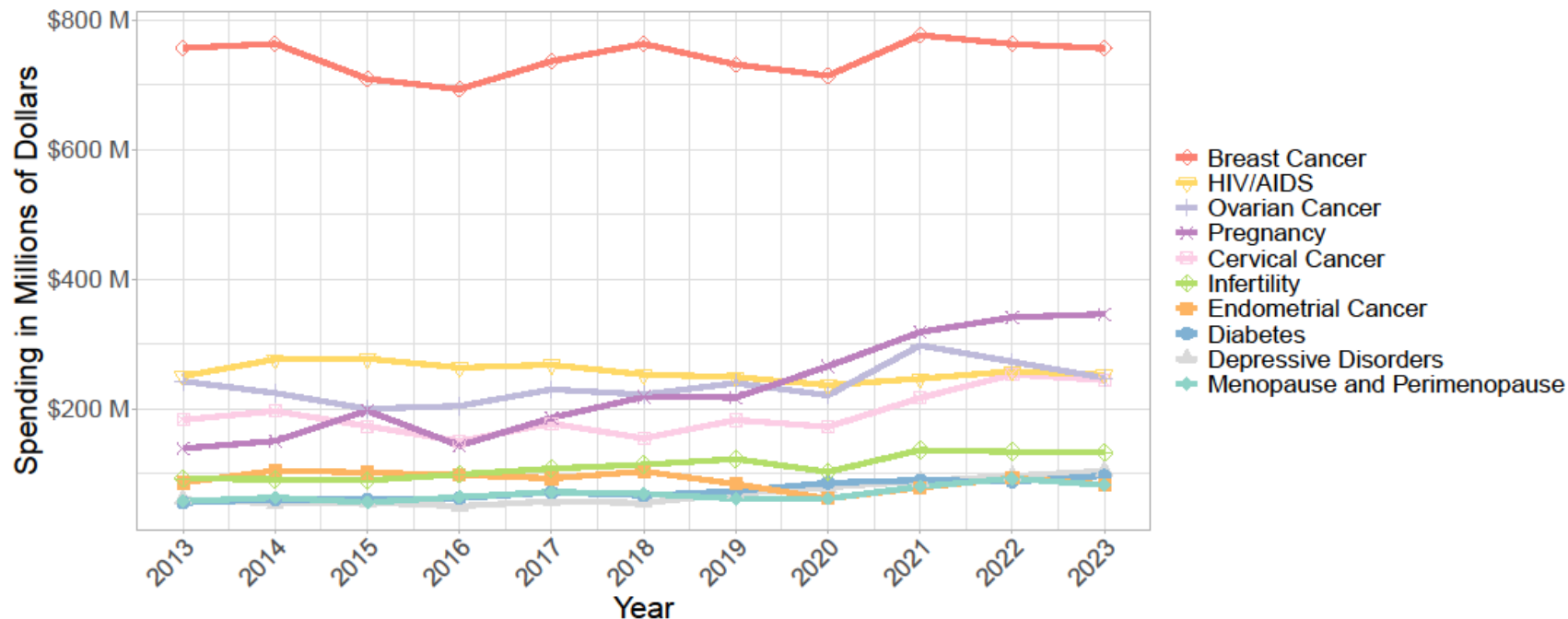


FIGURE. NIH grant funding for women's health research, FY 2013 through 2023, for the top 10 highest funded among select conditions relevant to women's health.
SOURCE: Committee analysis.

Grant Funding Over Time: Select Cancers

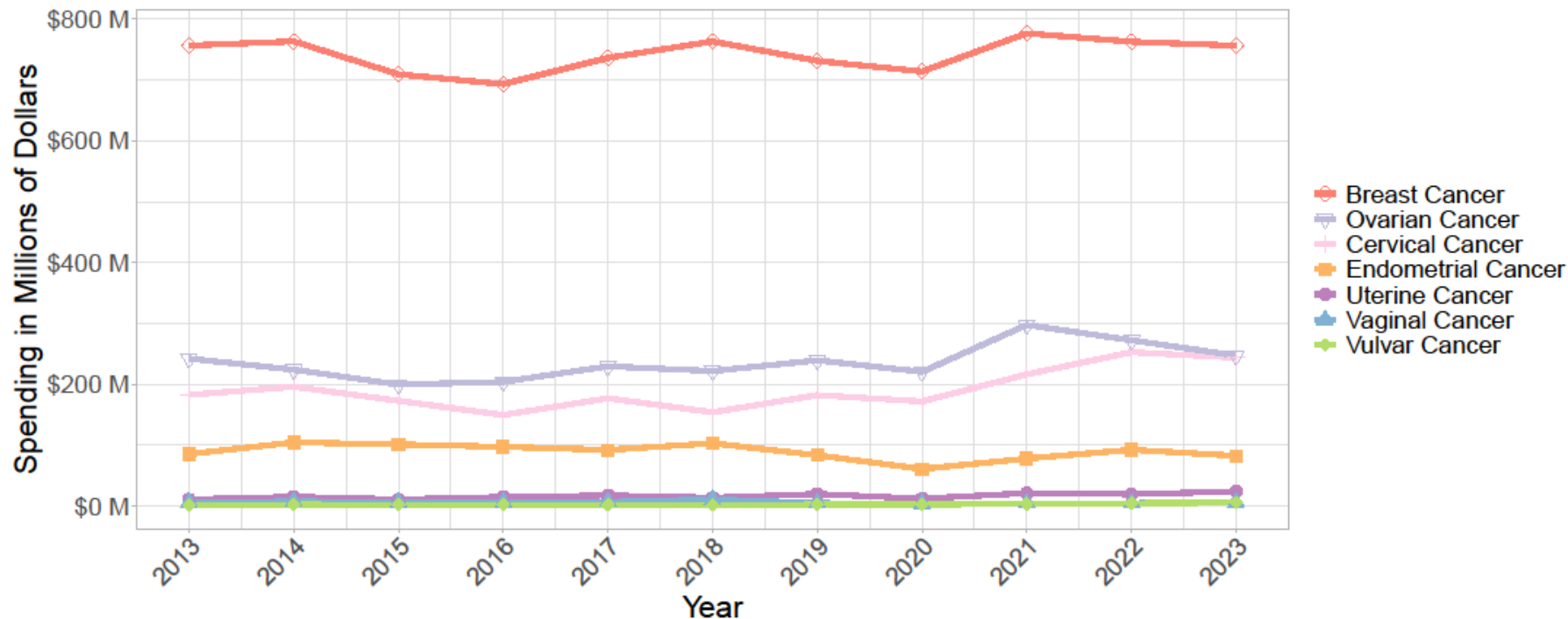
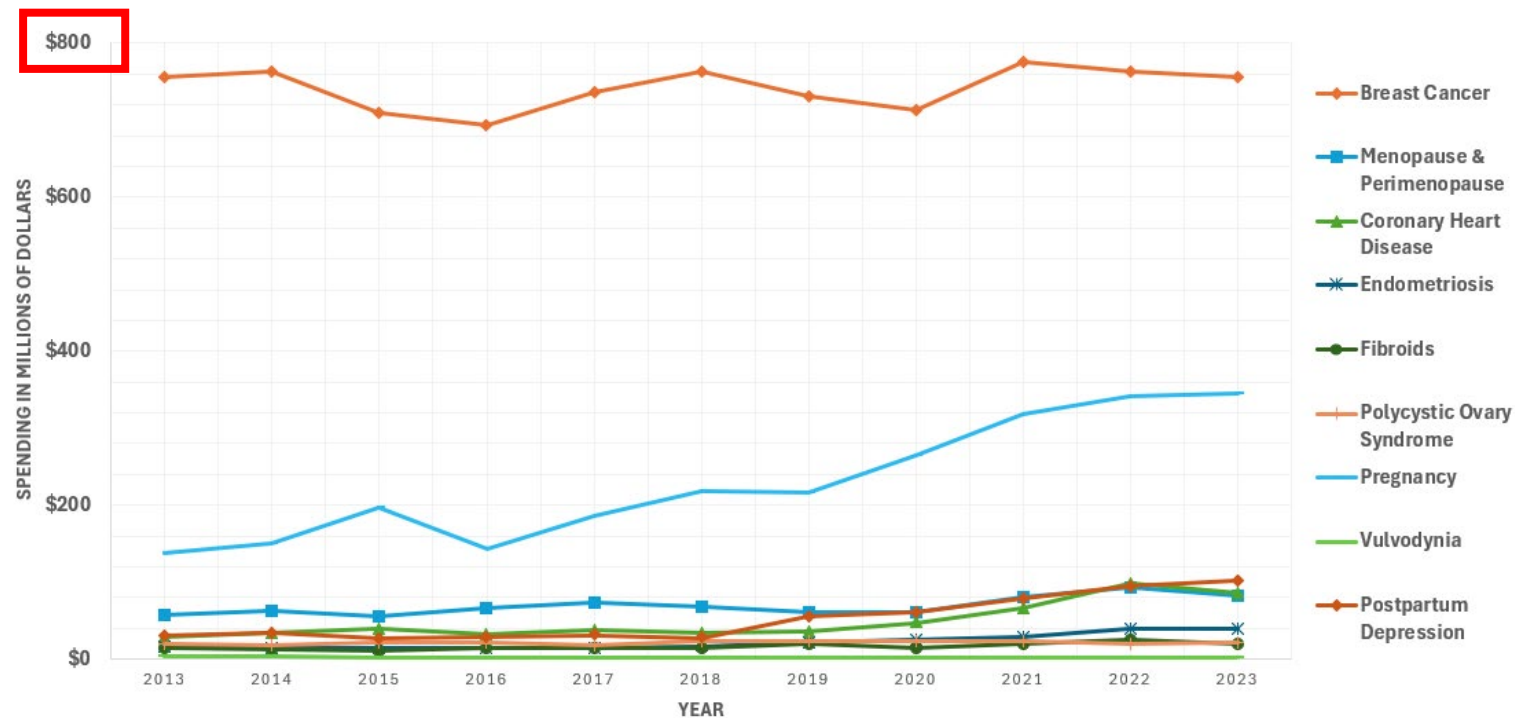


FIGURE. NIH grant funding for women's health research, FY 2013 through 2023, for select cancers.

SOURCE: Committee analysis.

Grant Funding Over Time: Select Female-Specific Health Conditions



Grant Funding Over Time: Chronic Conditions

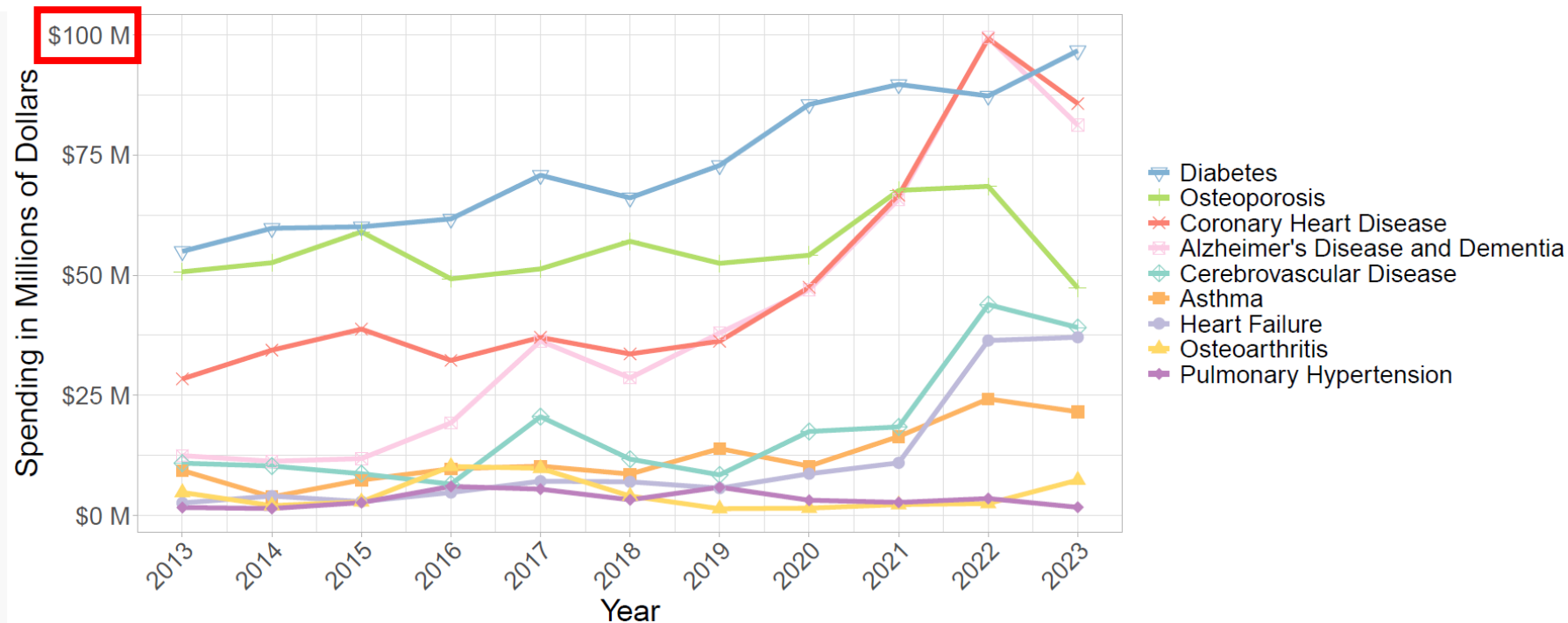


FIGURE. NIH grant funding for women's health research, FY 2013 through 2023, for select cancers.

SOURCE: Committee analysis.

Gaps and Opportunities in Women's Health Research



Gaps in Women's Health Research at NIH

- NIH is underspending on women's health.
- Inadequate funding has led to an insufficient number of women's health research investigators.
- Improvements needed in several NIH processes (e.g., priority setting, tracking of funding, peer review)
- Sex as a Biological Variable is not meaningfully factored into research designs, analyses, and reporting in vertebrate animal and human studies; overall uptake and application has not been optimal.

Report Recommendations

- **Enhance NIH Structure for Women's Health Research:** Strengthen leadership, funding, and oversight to prioritize women's health across NIH
- **Improve Data for Women's Health Research Funding:** Improve grant coding, reporting, and data accessibility for better accountability.
- **Establish a Transparent Process for Women's Health Research Priorities:** Use data and stakeholder input to set research priorities and guide funding.

Report Recommendations

- **Strengthen Peer Review for Women's Health Research:** Ensure balanced representation and expertise in evaluating women's health grant proposals.
- **Improve Implementation of the Sex As a Biological Variable (SABV) Policy**
Strengthen training, grant review, and funding protections to advance sex differences research.
- **Expand programs and funding to attract, retain, and advance** researchers in women's health.

Workforce Needs

- Mentorship and career development are vital to the development of the women's health research workforce.
- Loan repayment for investigators conducting research on women's health or sex differences is needed
- Allow support for mentorship in various types of funding
- Career development support for researchers moving from mentored career development to independent research

Priorities for Advancing Women's Health Research

Recommendation 8 describes areas for prioritization needed to advance WHR across the research spectrum, specifically in basic, preclinical, clinical, population, and implementation science research.

- Considerations across the research continuum include:
 - Quality of Life: Address conditions like depression, endometriosis, fibroids, IBS, osteoarthritis, osteoporosis, and PCOS.
 - Early Mortality: Focus on CVD and female-specific cancers.

Priorities in Women's Health Research

Basic Research

- Study hormonal profiles and female physiology to understand sex-based differences in disease risk, pathology, and progression.

Preclinical & Clinical Research

- Investigate causes of female-specific and gynecologic chronic conditions.
- Collect and analyze sex- and gender-specific data to improve treatment efficacy and assess side effects.

Priorities in Women's Health Research

Population Research

- Research that studies how policies at the system, payor, local, state and national levels affect women's health

Implementation Science Research

- Research that develops and tests strategies for implementing innovative health care services delivery approaches

SABV vs. Sex Differences Research



Key Differences

- **SABV:** Requires considering sex as a variable in NIH-funded studies but does not replace dedicated sex differences research.
- **Sex Differences Research:** Focuses on identifying sex-based variations in conditions or treatments, often requiring larger sample sizes and funding.

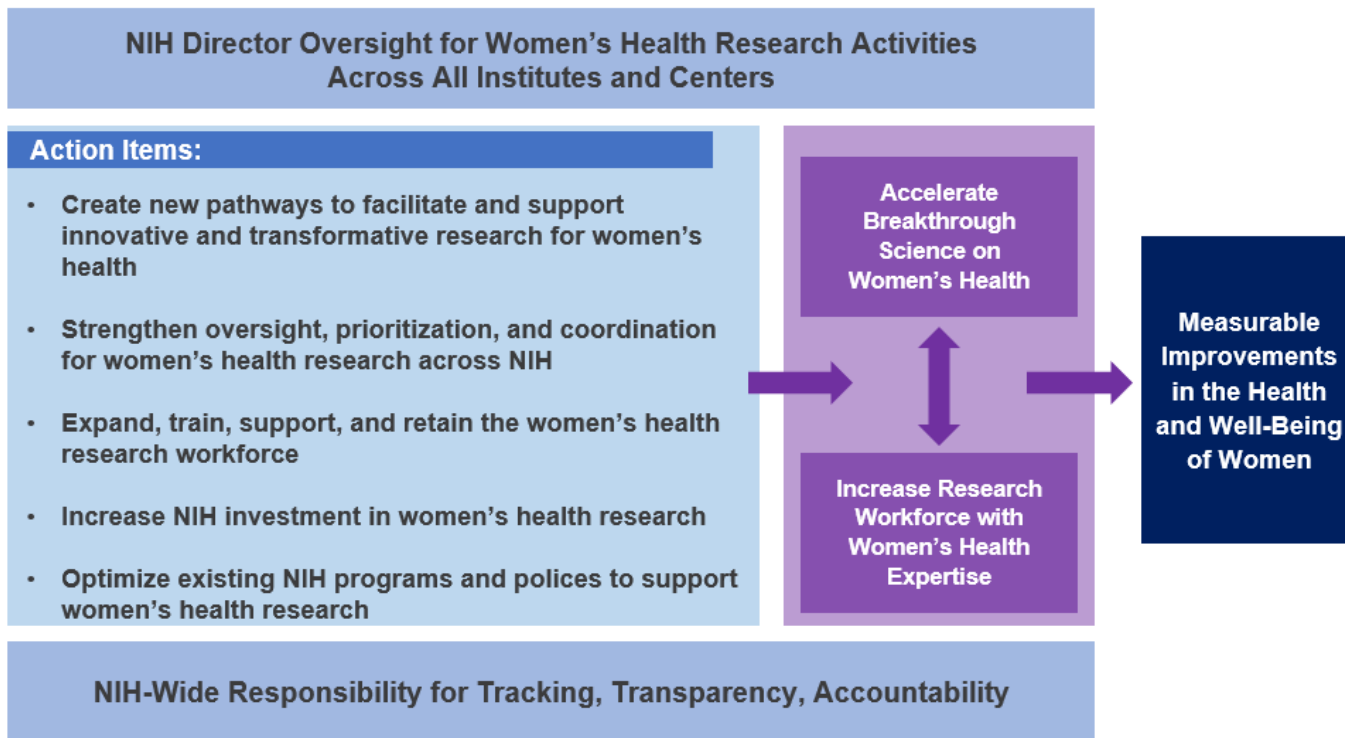
Why It Matters

- Integrating sex into study design enhances findings that benefit both sexes.
- True sex differences research assesses biological mechanisms driving differences.

More Info

- A 2-pager on SABV is available on the project [website](#)

Structural Elements of Committee Recommendations to Fill Research Gaps



New Funding to Fill Women's Health Research Gaps

New WHR Fund

to support and foster interdisciplinary research on women's health and sex differences

Year 1 (\$900m)

Year 2 (\$1.5b)

Years 3-5 (\$3b/year)

New WHR Institute

on female physiology and chromosomal differences, reproductive life course, and female-specific conditions not under purview of other ICs

\$800m/year

Workforce Programs

Year 1 (\$42.8m)

Year 2 (\$56.8m)

Year 3 (\$66.8m)

Years 4-5 (\$74.3m/year)

Total New Gap Funding*

A 5-year Investment of **\$15.71 billion**

Reaching ~\$3.87 billion/year in new funding in Years 4–5

Conclusions & Future Directions

Key Gaps in Women's Health Research

- **Limited understanding** of basic female physiology.
- **Understudied conditions** that affect women disproportionately or differently than men.

Opportunities for Advancement

- Research can drive **better prevention, diagnosis, & treatment**.
- Potential breakthroughs will **benefit both women's health & society overall**.

Supporting the Women's Health Workforce

- A trained and ready workforce focused on women's health will be needed for these advancements.

Resources

[PDF of full report](#)

[Report highlights \(4-pages\)](#)

[Report Summary](#)

[1-pager on sex as a biological variable and sex differences research](#)

[Report conclusions](#)

[Report recommendations](#)

[Short animation](#)

[Proceedings of Workshops in Brief:](#)

- [Overview of Research Gaps for Selected Conditions](#)
- [Discussion of Policies, Systems, and Structures for Research on Women's Health NIH](#)

A New Vision for Women's Health Research

Transformative Change at the National Institutes of Health

Women spend more years living with disability and poor health—13 years on average, or 25 percent longer than men—significantly affecting their quality of life and productivity. Despite significant advancements in medical research, the health needs of women and girls remain underexplored, underfunded, and overlooked in national research. Many studies still focus predominantly on male physiology or do not explore sex differences. There are many reasons for this gap, including a lack of baseline understanding of sex-based differences in physiology and a lack of attention to and support for research on conditions in women and girls. This has led to a lack of health care knowledge, preventative approaches, diagnostic tools, and treatments for many conditions that are female specific, more prevalent in women, or that affect women differently than men. Addressing these gaps is crucial for improving women's health outcomes and advancing medical science overall. Despite the creation of the National Institute of Health's (NIH) Office of Research on Women's Health (ORWH) in 1990, many research questions about women's health remain underexplored, and this research remains underfunded at NIH, NIH, women, families, the economy, and broader society pay a heavy price for these gaps.

In response to a request from Congress, ORWH tasked the National Academies of Sciences, Engineering, and Medicine with convening a multidisciplinary committee to assess the state of women's health research (WHRR) at NIH, identify knowledge gaps, and analyze the proportion of NIH-funded research on women's health conditions. The committee's report, *A New Vision for Women's Health Research: Transformative Change at the National Institutes of Health*, contains



Overview of Research Gaps for Selected Conditions in Women's Health Research at the National Institutes of Health

Proceedings of a Workshop—in Brief

The National Academies of Sciences, Engineering, and Medicine (the National Academies) convened an ad hoc committee with scientific, ethical, regulatory, and policy expertise to address the persistent gaps that remain in the knowledge of women's health research across the National Institutes of Health (NIH). It was tasked with analyzing the proportion of NIH funding that supports conditions that are female specific, and/or more common in women or affect women differently and to determine the level of funding needed to address gaps in women's health research. The committee was also tasked with developing recommendations regarding the structure of the NIH and the systems and processes needed to ensure optimal women's health research. To inform its deliberation process, the Committee on Assessment of NIH Research on Women's Health held a second public workshop on March 3, 2024. The discussions included the science of sex differences, research needs within reproductive and geriatric health, and research efforts aimed at women's mental and behavioral health, women's careers, and nonreproductive geriatric conditions. Speakers shared suggestions for how to improve and advance women's health research at NIH (see box 1).

SCIENCE OR SEX DIFFERENCES

Marjorie Healy, University of Maryland School of Medicine, studies sex differences in the brain. The neurology are typically more likely to be seen primarily, suffer injuries at birth, and be diagnosed with neurodegenerative or neurological disorders originating in development. Conversely, the conditions women are more likely to experience interpersonal sexual violence, suffer from affective disorders and chronic pain, and be diagnosed with autoimmune disorders. Overall, male-biased disorders are typically diagnosed in childhood and female-biased disorders in adulthood. This profound gender bias compels her research team to understand the origins of risk and resilience to brain disorders, said Healy. Brain sexual differentiation occurs during a sensitive period early in development. Her lab focuses on the sensitive period when this cellular

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To access the report and supporting materials, visit

www.nationalacademies.org/womens-health-research

For more information, contact:

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The Committee's Recommendation on Women's Health Research Workforce Programs

NIH should augment existing programs and develop new grant initiatives specifically designed to promote interdisciplinary science and career development in areas related to women's health. NIH should:

- Expand the **Building Interdisciplinary Research Careers in Women's Health (BIRCWH)** program to 40 centers over 5 years; increase funding to \$1.5 million annually per center,
- Expand the **Specialized Centers of Research Excellence (SCORE) on Sex Differences** to 17 centers over the next 5 years; increase funding to \$2.5 million annually per center,
- Fund additional **multi-project program grants**, with or without built-in training components, that focus on women's health research (e.g., P and U grants),
- Expand the **Women's Reproductive Health Research (WRHR)** program to 20 centers over 2 years; increase funding to \$500,000 annually per center, and
- Expand the **Research Scientist Development Program (RSDP)** to support 10 scholars with full support for 5 years at \$1.25 million annually.