

Women's Health Research is Trending at NIH

Janine A. Clayton, M.D.

NIH Associate Director for
Research on Women's Health
Director, Office of Research on
Women's Health

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Society Congressional Briefing



OFFICE OF RESEARCH
ON WOMEN'S HEALTH

*Advancing the Health of
Women Through Science*

 /NIHORWH

 @NIH_ORWH

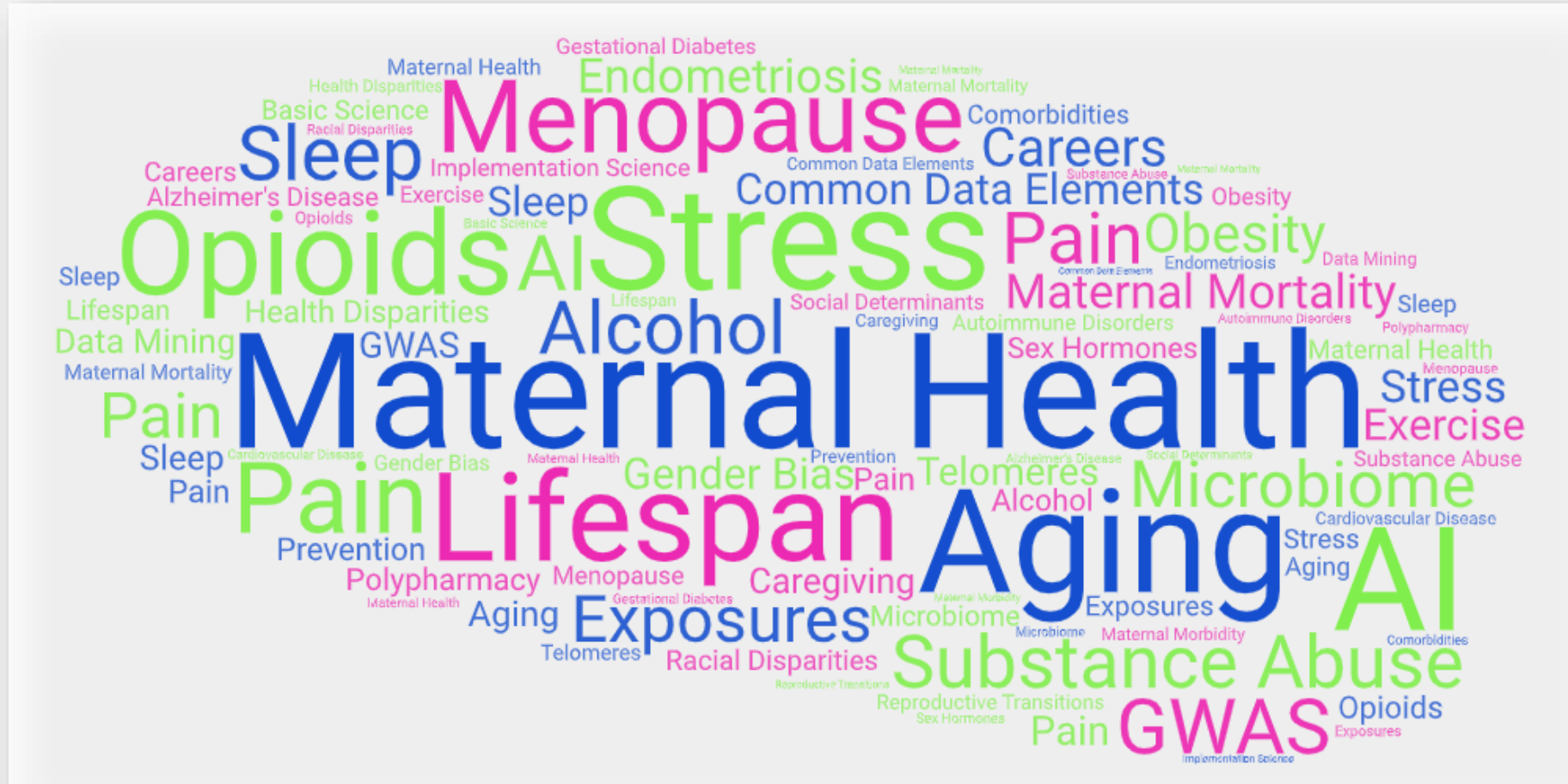
 nih.gov/women

[#ResearchForWomen](https://twitter.com/ResearchForWomen)



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

Women's Health Research Across NIH's 27 Institutes and Centers





30 years of addressing women's health at NIH



- 50% participants of NIH clinical studies are women
- Women's Health Initiative (WHI) reported risks of menopausal hormone therapy
- Decreased breast cancer rates
- Development of HPV vaccine – prevents cervical cancer
- Prevention of maternal to child transmission of HIV





PROMISE

21st Century Cures Act promotes progress

- Report % women/men by disease categories
- Report clinical trial results by sex/gender and race/ethnicity in ClinicalTrials.gov
- Include all age groups in studies
- Increase coordination of women's health research across NIH
- Establish Task Force Specific to Pregnant and Lactating Women

ORWH Mission



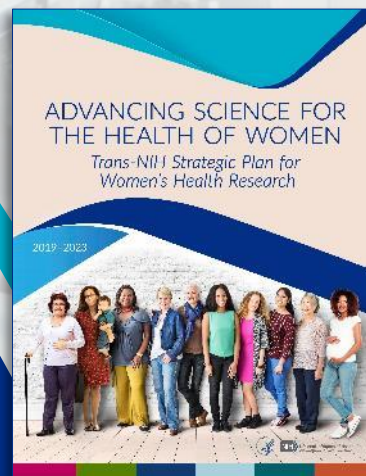
Enhance and expand women's health research



Include women and minority groups in clinical research



Promote career advancement for women in biomedical careers



NIH Vision



Sex and gender integrated into biomedical research



Every woman receives evidence-based care



Women in science careers reach their full potential

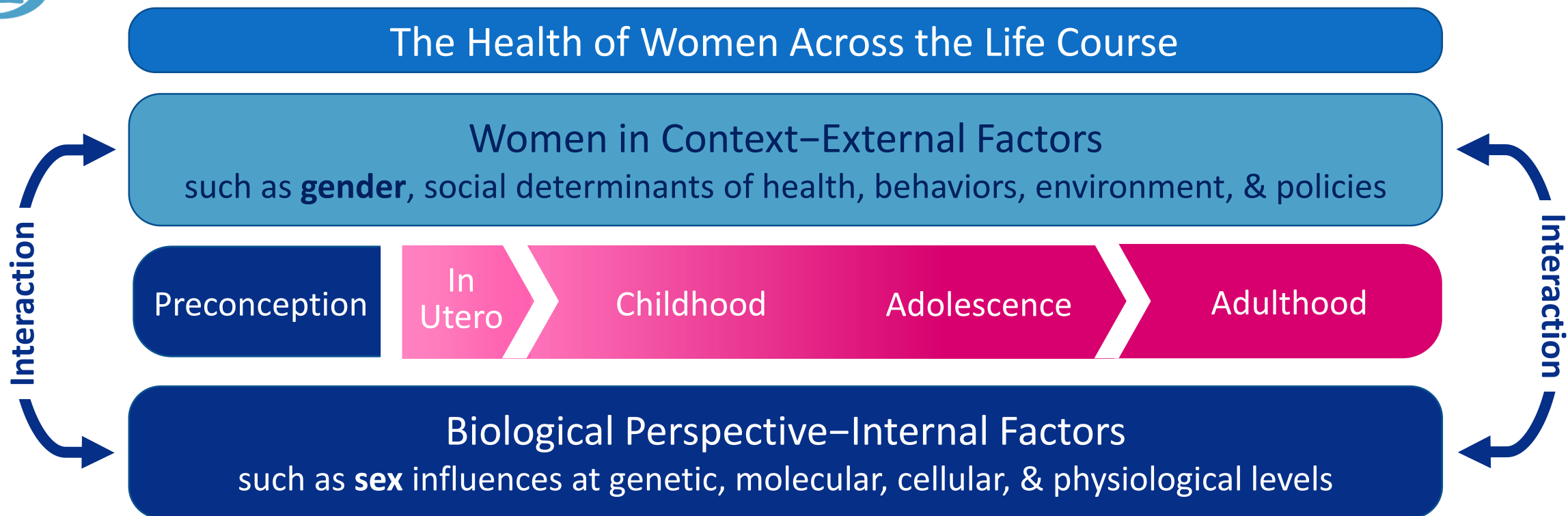


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Men and women may follow different paths to disease



Framework for the health of women across the life course



Strategic Plan | Goals

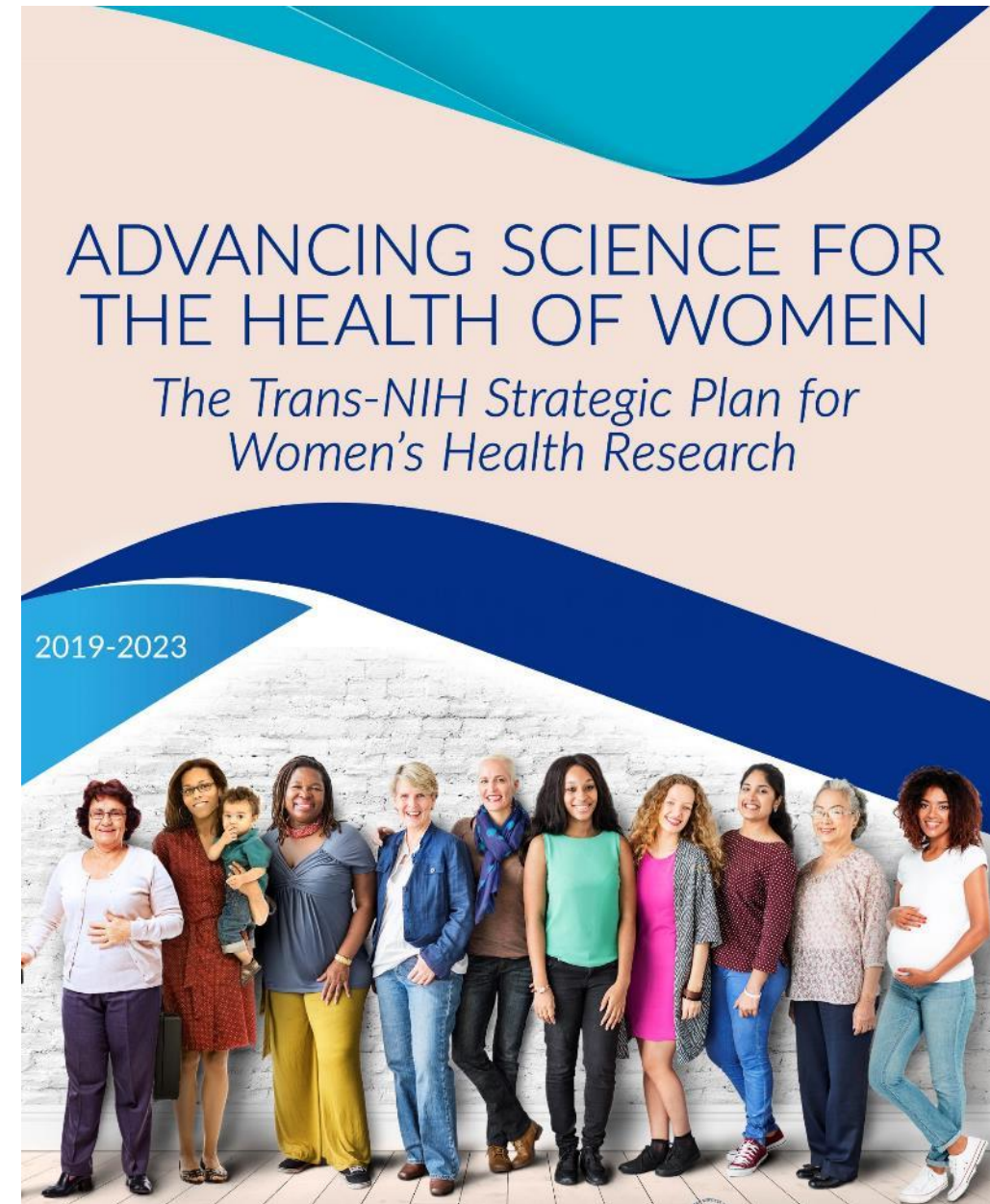
Advance rigorous research relevant to the health of women

Develop methods & leverage data sources that consider sex and gender

Enhance dissemination & implementation of evidence to improve the health of women

Promote training & careers to advance science for the health of women

Improve evaluation of research relevant to the health of women



bit.ly/TransNIH-StrategicPlan-WomensHealth

ORWH signature **research** programs advance science



SCORE

Specialized
Centers of
Research
Excellence on
Sex Differences

**Disease Agnostic
Research Centers**



Sex/Gender

Studies that are
preclinical,
clinical, or both
preclinical and
clinical

**Program to
Expand Sex &
Gender Data**




U3

Understudied,
Underreported, or
Underrepresented
populations

**More Populations
of Women**





SCORE
investigates
sex differences
in diseases of
women



Sabra Klein, PhD

Bloomberg School of Public Health
Johns Hopkins University

Differences between women & men in:

- Vaccine response
- Metabolism & bioenergetics
- Obesity, diabetes, dyslipidemia



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

Accelerating research on sex and gender differences by augmenting funding



Esther Dupont-Versteegden, Ph.D.

Anabolic effects of cyclic compressive loading in muscle

Preclinical

Add subjects to increase power

NCCIH



Forest White, Ph.D.

Glioblastoma cell invasion profiles/therapeutic response

Preclinical + Clinical

Add new S/G to single S/G study

NCI



Monica Uddin, Ph.D.

Epigenomic predictors of PTSD & traumatic stress in African Americans

Clinical

S/G-based analysis of existing data

NIMHHD



ORWH co-funds research on Understudied, Underreported & Underrepresented Populations of Women

- **Study intersections** of sex/gender, race/ethnicity, and influences of other social determinants
- **Focuses on health disparities**
- U3's focus will lead to **better interventions** for these populations

- PTSD
- Chronic pain/urban women
- Shared decision-making for Gestational Diabetes
- Breast cancer surveillance in Black & Hispanic women

U3

R01

An ORWH **first**
An NIH **first**—

*First investigator-initiated
R01 on sex and gender
influence*

Advances rigorous research relevant to women's health

Supports research **across various scientific areas**

Understand **how sex and gender influence** health and disease

Address **Strategic Goal** of Trans-NIH Strategic Plan

Investigate

- Basic differences between females & males
- Influence of sex & gender on disease
- Effects of exposures on health outcomes

Promote research on influence of sex & gender and mind & body and its impact on health

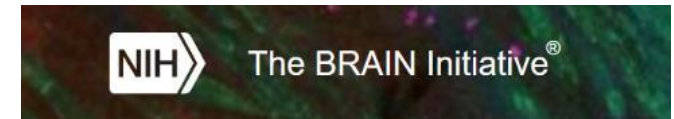
Expand research on female-specific conditions

Multiple ORWH collaborations across NIH

- NIH Pain Consortium
- Diabetes Prevention Program Outcomes Study
- Brain Research through Advancing Innovative Neurotechnologies[®] (BRAIN) Initiative
- HEAL (Helping to End Addiction Long-termSM)



Diabetes Prevention Program
Outcomes Study



Women's health research across NIH

Research Highlights

Recent Advances

Future Direction

- NHLBI**
- WHI Strong and Healthy trial
 - WHI Sleep Hypoxia Effects on Resilience

- Mental Stress–Induced-Myocardial Ischemia in Women
- Objective Physical Activity & Cardiovascular Health Study

- TransOmics in Precision Medicine
- Role of Sex/Gender in Mechanisms of Heart, Lung, Blood, and Sleep Diseases and Disorders

- NICHD**
- Gynecological Issues and Disorders
 - Fertility, Infertility, and Contraception
 - Pregnancy, Childbirth & Pregnancy Outcomes
 - Adolescent Health

- Disparities in Uterine Fibroids
- **Gut Microbiome Associated with Polycystic Ovarian Syndrome**

- Gynecologic Health & Disease
- Study: Pluripotent progenitor/stem cells

- NIEHS**
- **Premenopausal Breast Cancer Collaborative Group**
 - Endocrine Disrupting Chemicals and the Health of Women

- Environmental Exposure and Women's Health
- Sex Specific Associations Between Perfluoroalkyl Substances and Obesity

- Breast Cancer & Environment Communication Research Initiative
- Common Chemicals Evaluated for Mechanisms of Uterine Tumors

- NIA**
- Study of Women's Health Across the Nation (SWAN)
 - Women's Health Initiative Memory Study (WHIMS)

- Genetic Variants Associated with Early Menopause Increase Risk of Cardiovascular Events in Women
- Group Class Reduces Urinary Incontinence (UI) Symptoms in Women

- **Sex and Gender Differences in Alzheimer's Disease**

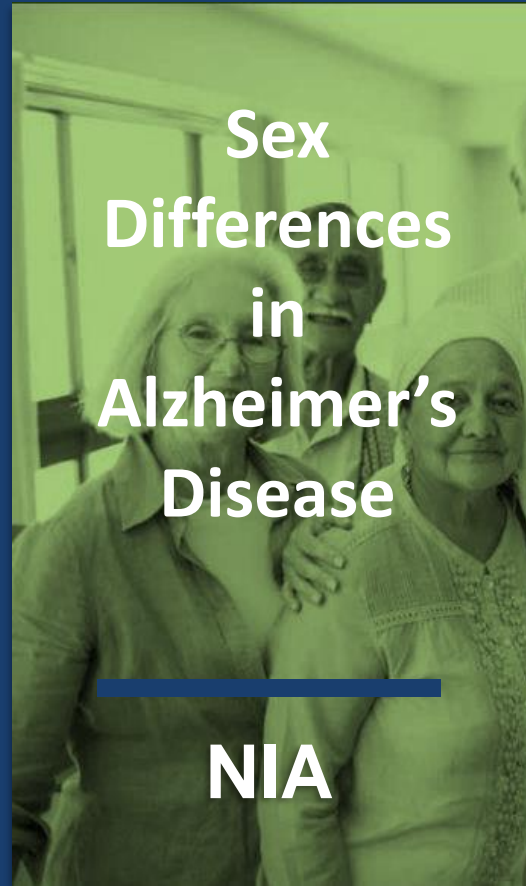
NIH **research** addresses women's health from head to toe

**Breast Cancer
In Young
Women**



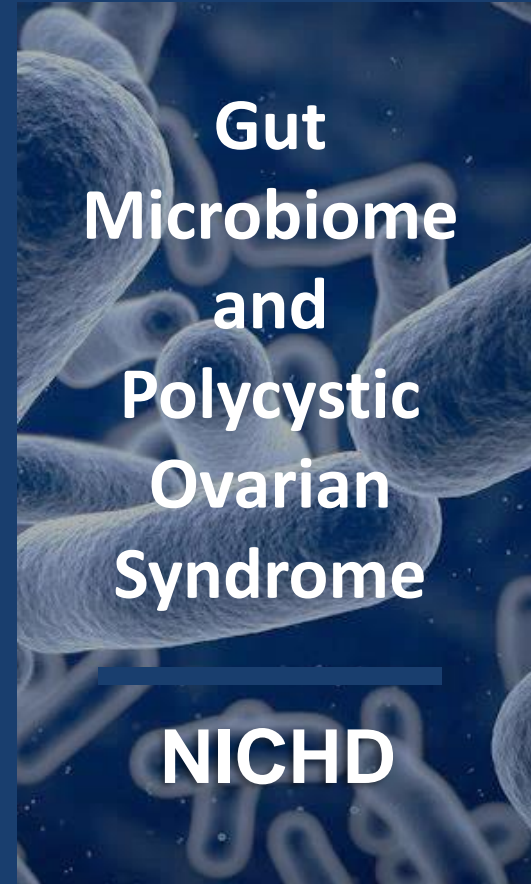
NIEHS

**Sex
Differences
in
Alzheimer's
Disease**



NIA

**Gut
Microbiome
and
Polycystic
Ovarian
Syndrome**



NICHD

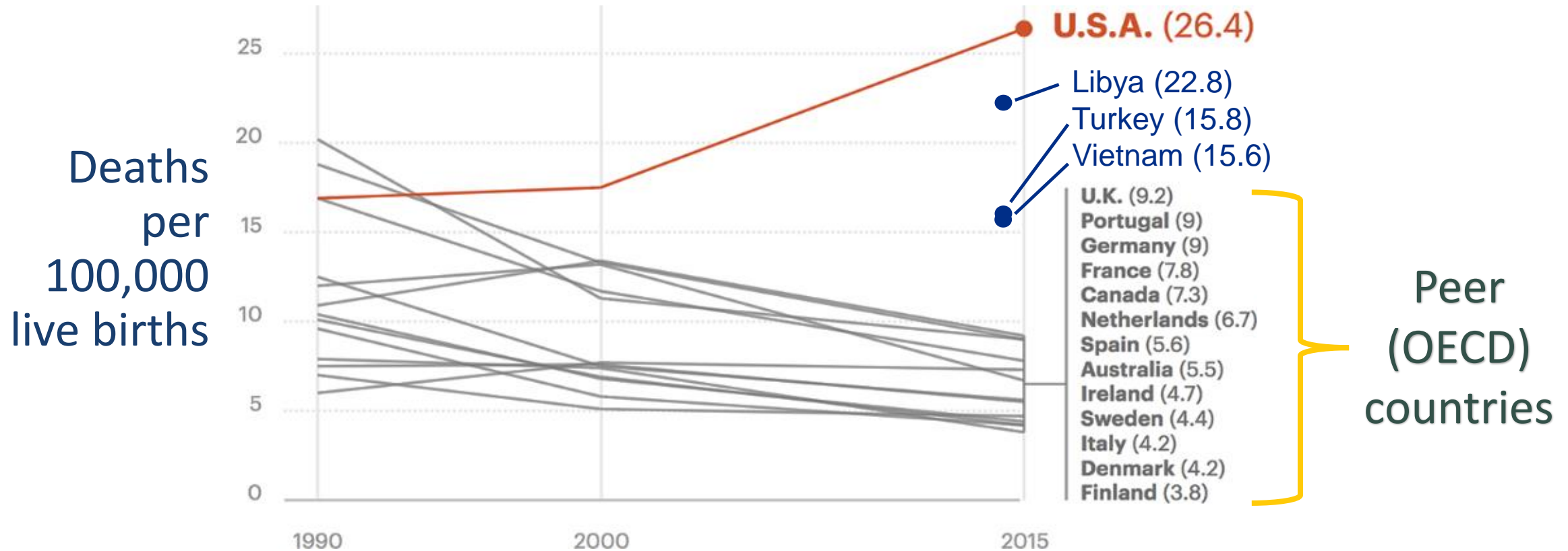


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Maternal Health



U.S. maternal mortality rate rises, as peer nations' decline



GBD 2015 Maternal Mortality Collaborators Agrawal P. 2015. *Bulletin of the World Health Org.* 93: 135. 2016. *Lancet* 388: 1775-1812. Chart: GBD 2015 Maternal Mortal. Collab., 2016.

NIH invests in maternal health research

Chronic Hypertension and Pregnancy evaluates treatment effectiveness & safety during pregnancy

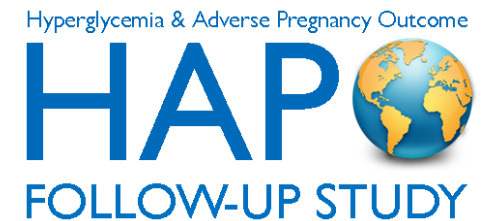
Heart Health Study evaluates links between preeclampsia, sleep & future maternal CV health

HAPO Follow-up Study found high blood sugar during pregnancy ups risk of mother's T2D & child's obesity

Human Placenta Project is developing tools to study how the placenta develops and functions throughout pregnancy

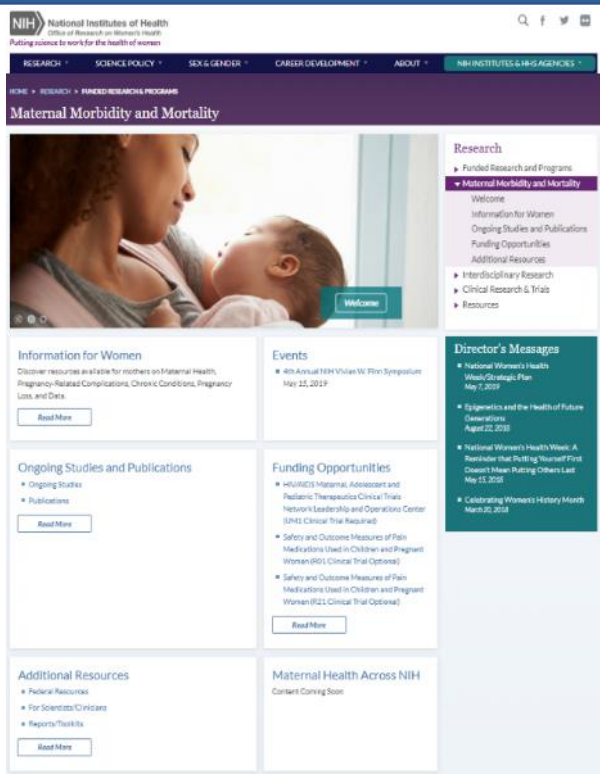
Task Force on Research Specific to Pregnant and Lactating Women

PregSource[®] crowdsourcing research project

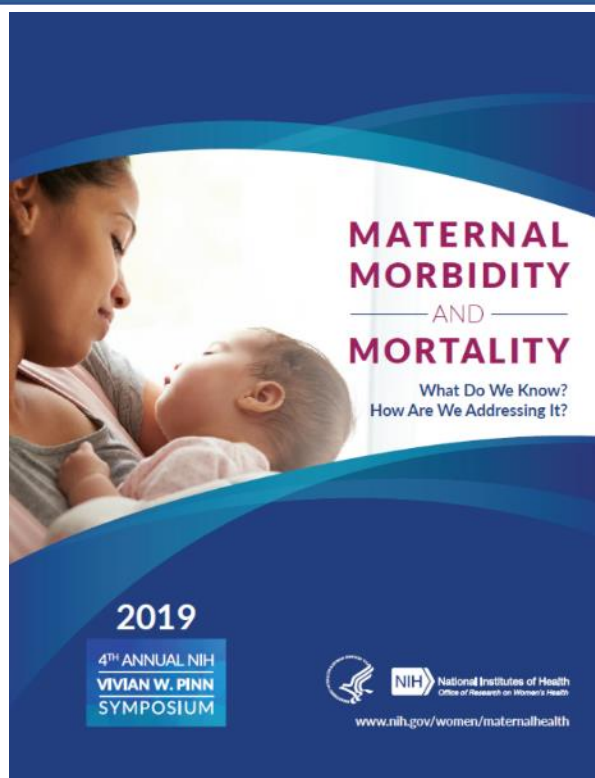


*Estimates for FY 2019 and future years are based on RCDC actual data.
https://report.nih.gov/categorical_spending.aspx

Coordinating resources to drive impact



3,171 Total
2,139 Unique



600
Disseminated



Online audience
>213M

Stay tuned for NASEM report!



NIH Working Group on Women in Biomedical Careers

womeninscience.nih.gov

The National Academies of SCIENCES ENGINEERING MEDICINE

Develop family friendly policies

Evaluate programs to advance women

Share best practices



“NIH expects that sex as a biological variable will be factored into research designs, analyses, and reporting in vertebrate animal and human studies.”

NIH's Landmark

“Sex as a Biological Variable”

policy sets new expectations



SABV

SABV

More
Complete
Knowledge
Base

Informs and improves **design** of clinical research and human trials

Informs development of sex- and gender-appropriate **medical care**

Enables **individualized** care for women and men

Foster systems-based understanding of influences of sex & gender on health & disease

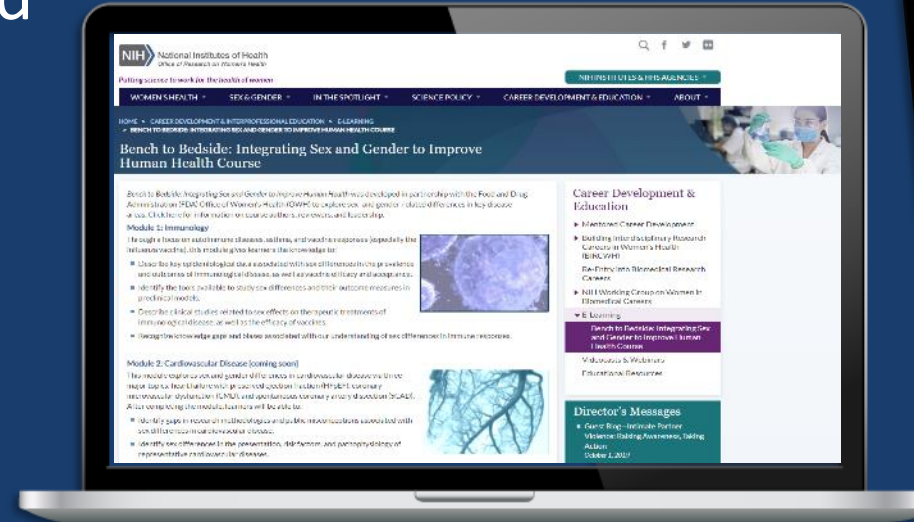
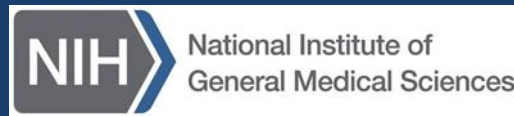
ORWH is developing new courses to educate the biomedical community on sex & gender

New!

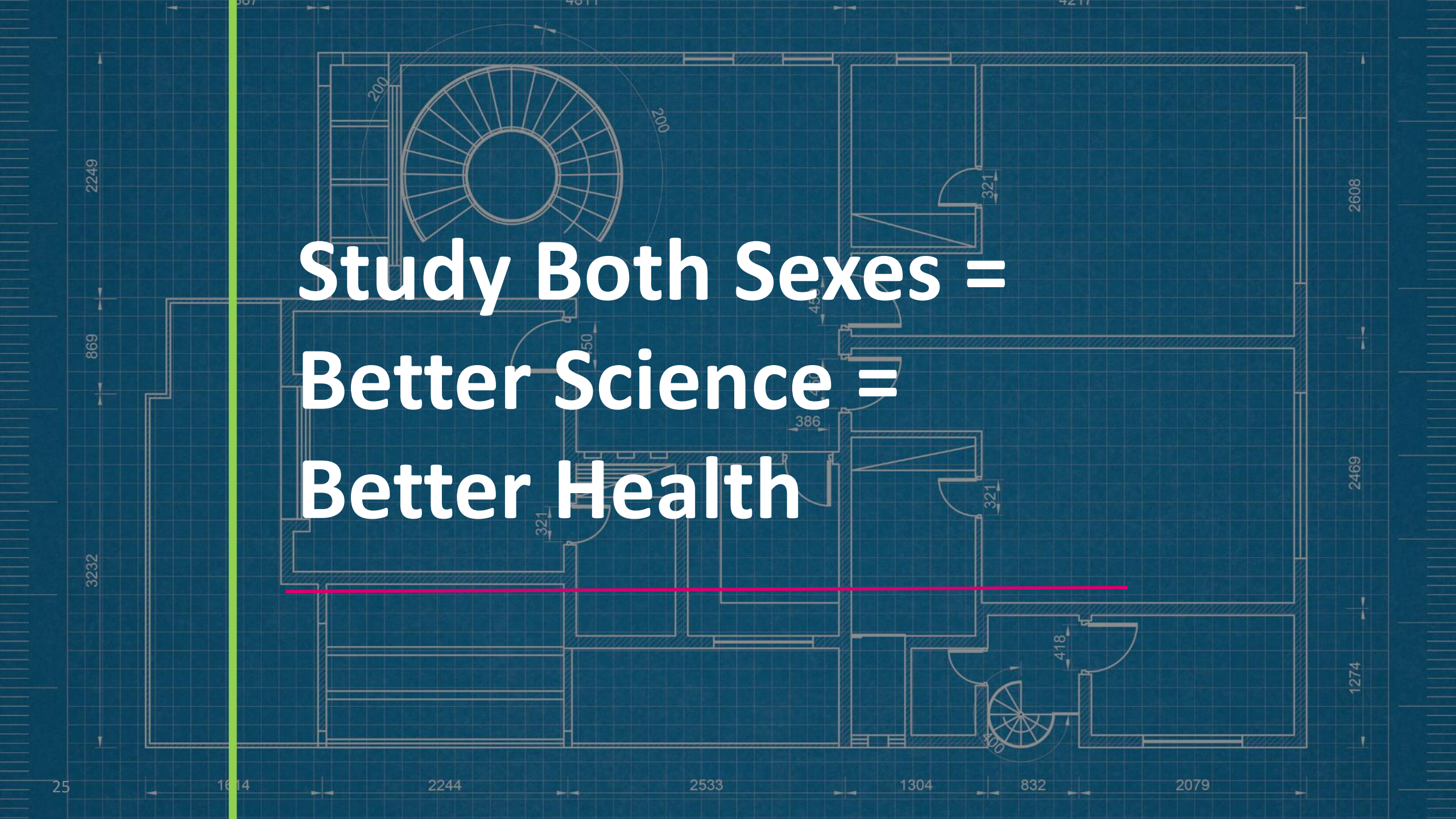
- Bench to Bedside: Integrating Sex and Gender to Improve Human Health



- Sex as a Biological Variable (SABV)*
Primer



* In development

The image shows a detailed architectural floor plan of a building, overlaid with a grid. The plan includes several rooms, corridors, and two circular staircases. A prominent text overlay is centered on the plan. A vertical green line is on the left side, and a horizontal pink line is below the text. Dimensions are provided in millimeters along the edges of the plan.

**Study Both Sexes =
Better Science =
Better Health**



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In Focus Quarterly <http://bit.ly/ORWHInFocus>