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

NICHD Scholars Summer Workshop

August 1, 2013

Women in Biomedical Research

Why Sex and Race/Ethnicity Matters for Health

Meghan Mott, Ph.D.

NIH Office of Research on Women's Health

Did You Know?

- The basic anatomy of the female and male brain is different
  - Women have 10 times more white matter
  - Men have 7 times more gray matter
- Stroke usually occurs earlier in a man's life than it does in a woman's life
- Autism, stuttering, and ADHD are more common in males
- Anorexia and depression are more common in females
- Women and men have different heart attack symptoms
- Women and men respond differently to some drugs like sleep aids (Ambien) and aspirin

Office of Research on Women's Health (ORWH)

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

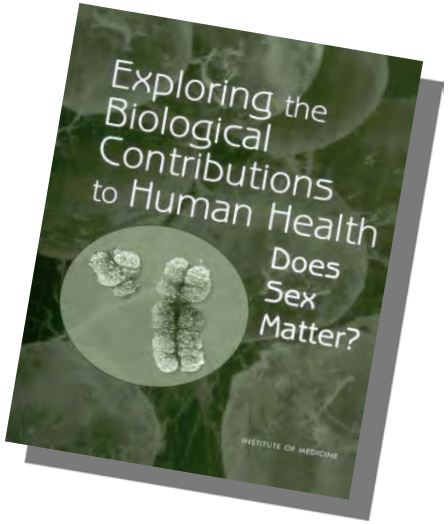
- Founded in 1990
- 1991: Women's Health Initiative
- 1993: NIH Mandate to include women and minority groups in clinical trials
- 2010: 10-year strategic vision for research on women's health
- 2013: Focal point for NIH research agenda on women's health, sex and gender factors

ORWH: Missions and Purpose

- Enhance, stimulate, and expand efforts to improve the health of women through biomedical and behavioral research, *across NIH*
- Examine the role of sex/gender in health and disease, *across NIH*
- Promote recruitment, retention, reentry, and advancement of women in biomedical careers

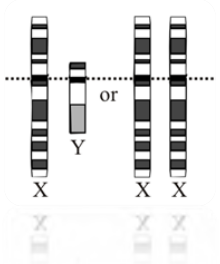
Why Sex/Gender Matters in Biomedical Research

- Every cell has a sex
- Sex begins *in utero*
- Sex affects behavior and perception
  - Gender also affects behavior and perception
- Sex affects health
  - Gender also affects health



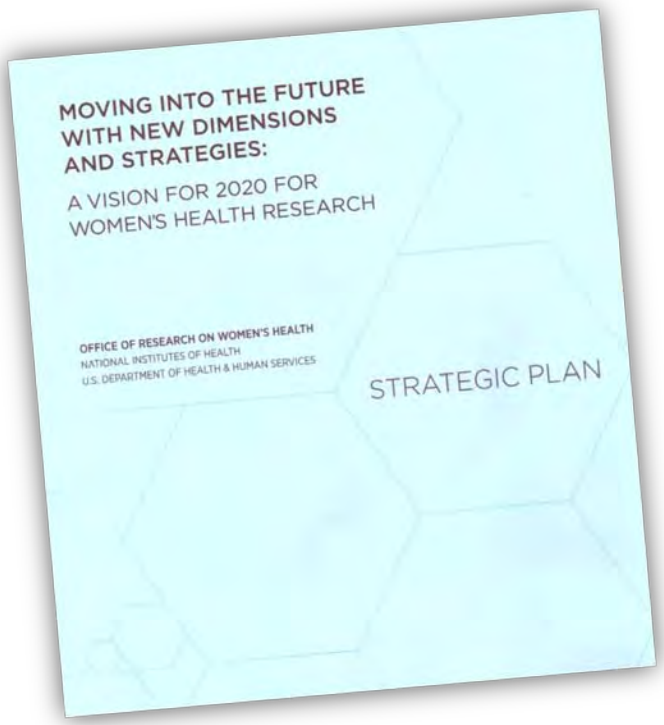
"Sex": classification derived from the chromosomal complement (reproductive organs and functions)

"Gender": a person's self-representation as male or female



Source: Exploring the Biological Contributions to Human Health: Does Sex Matter, IOM Report , 2001

NIH Research on Women's Health: Strategic Goals



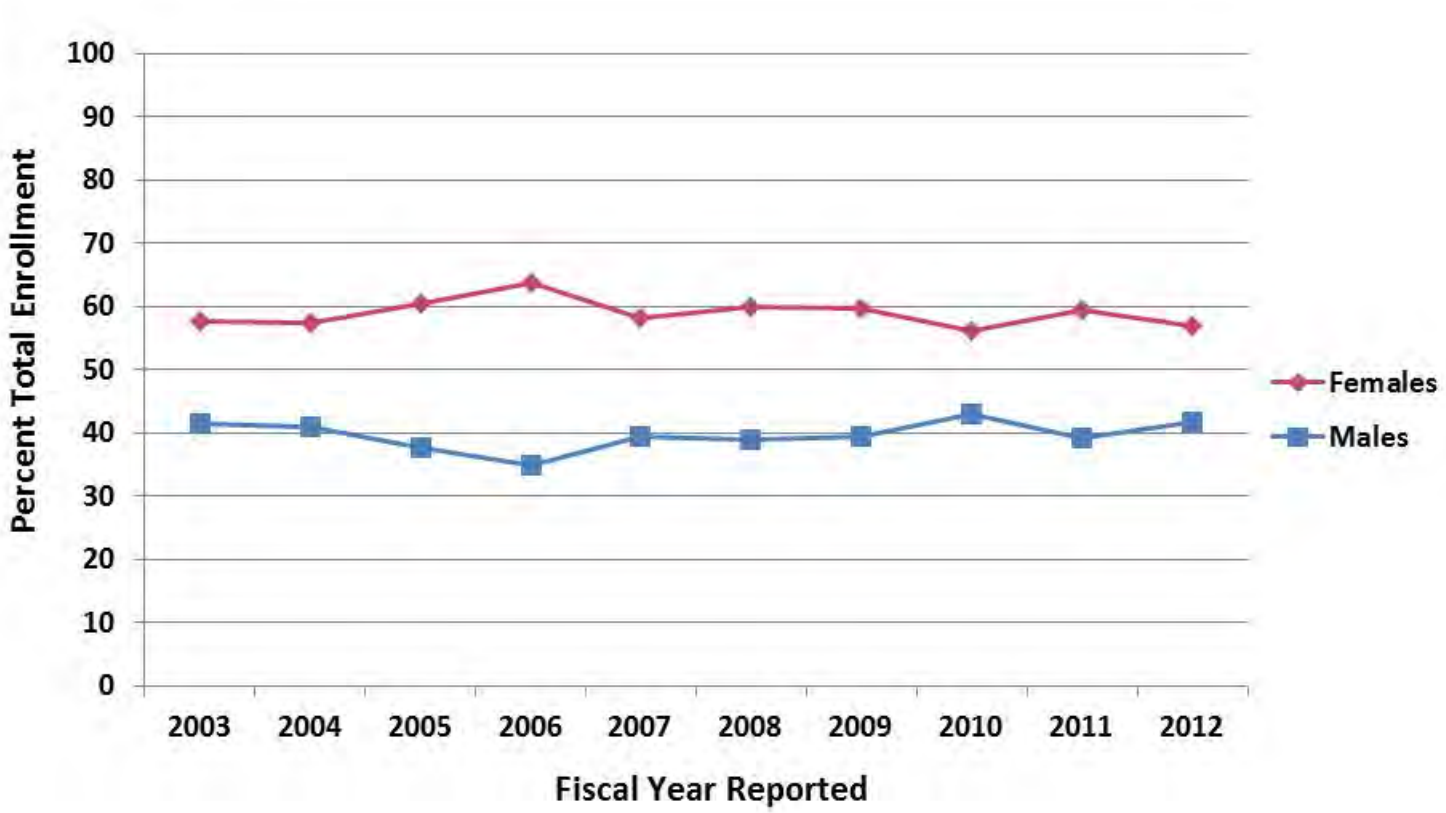
- Consider **sex as a biological variable** in **basic science** studies
- Incorporate findings of sex/gender differences in the **design and application of new technologies**
- Actualize **personalized health** for girls and women
- Create **strategic alliances and partnerships** to maximize the domestic and global impact of research on women's health
- Develop and implement **new communication and social networking** technologies to advance research on women's health
- Employ innovative strategies to build a well-trained, diverse, and vigorous **women's health research workforce**

NIH Research on Women's Health: Sex/Gender Differences

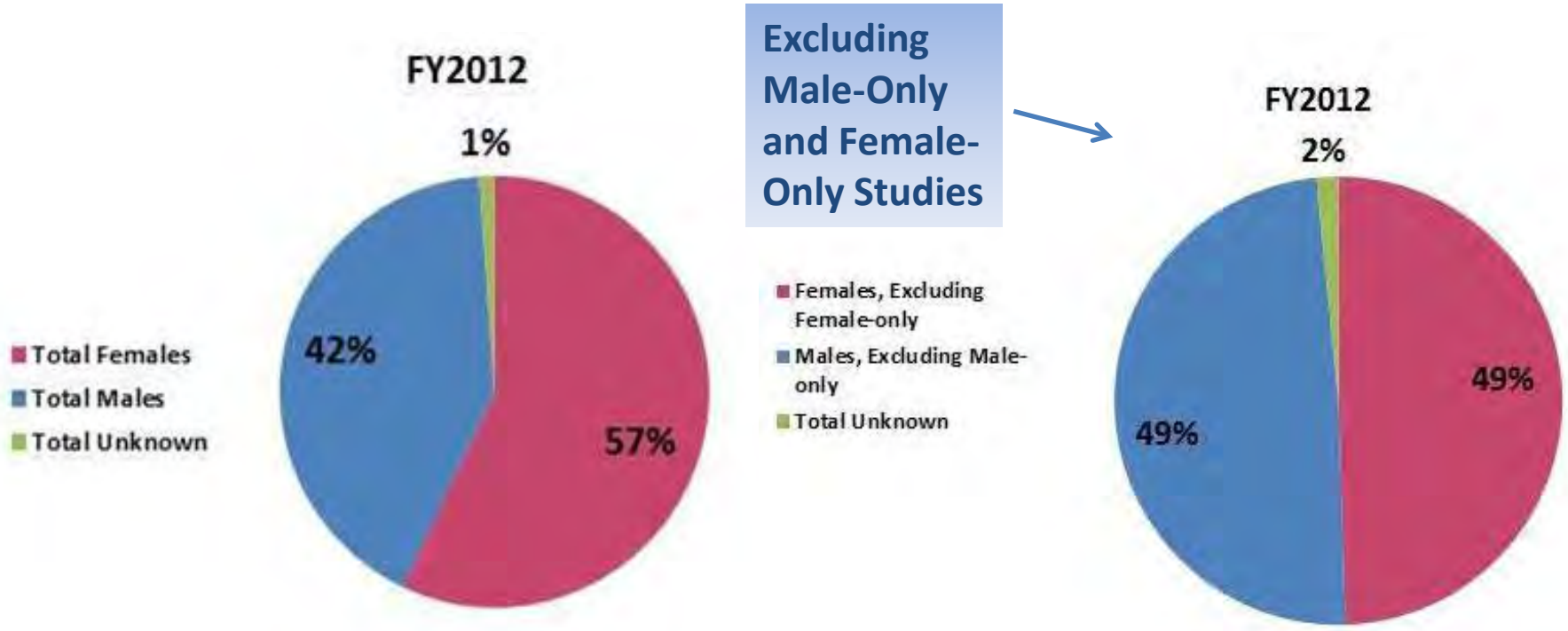
Goal: Consider **sex as a biological variable** in **basic science** and clinical! studies

- Importance of investigating the role of sex/gender at all levels of the research continuum, from cells to societies
- Addressing disparities in health
- Promoting recruitment, retention, reentry, and advancement of women in biomedical careers

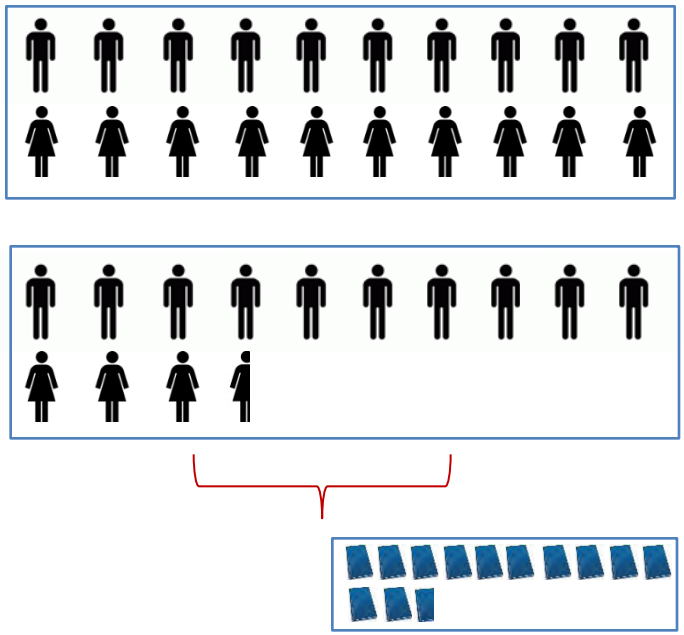
Enrollment by Sex/Gender: NIH Clinical Research



Percent Enrollment by Sex/Gender: NIH Clinical Research 2012



Beyond Inclusion: Sex-Specific Reporting



U.S. Population

NIH-funded clinical trial sex/gender **inclusion** (average enrollment of women): 37 percent[1]

NIH-funded clinical trial sex/gender **reporting**: 28 percent[1] (of the above group)

Intersecting roles:

- Journal editors
- Government funding agencies
- Industry
- Basic researchers
- Professional societies
- Other stakeholders

[1]Foulkes MA. After inclusion, information and inference: reporting on clinical trials results after 15 years of monitoring inclusion of women. *J Womens Health*. 2011;20:829-36

Database of Clinical Research Studies

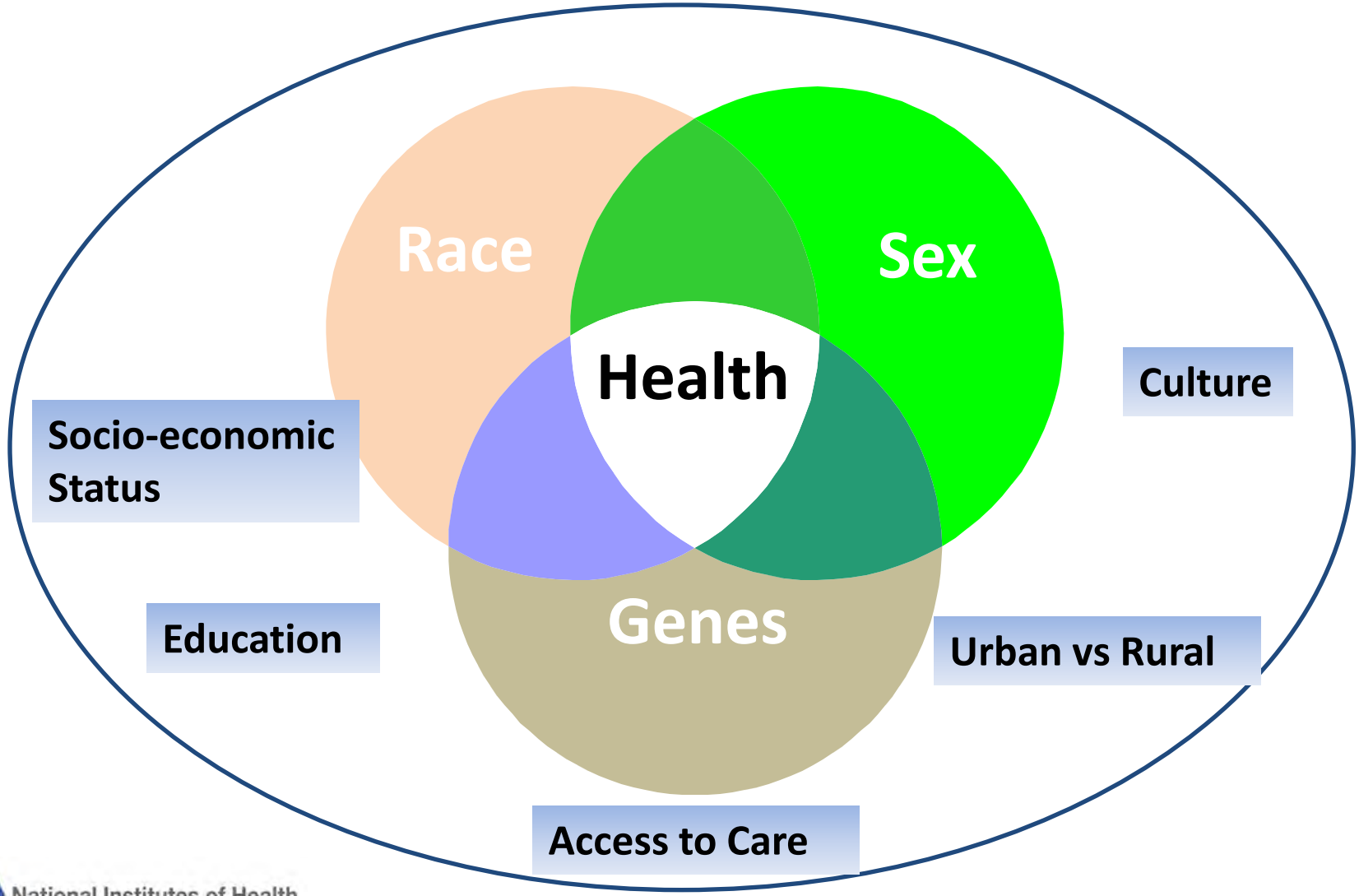
http://clinicaltrials.gov/

Research on Women's Health: Disparities

Goal: Actualize **personalized health** for girls and women

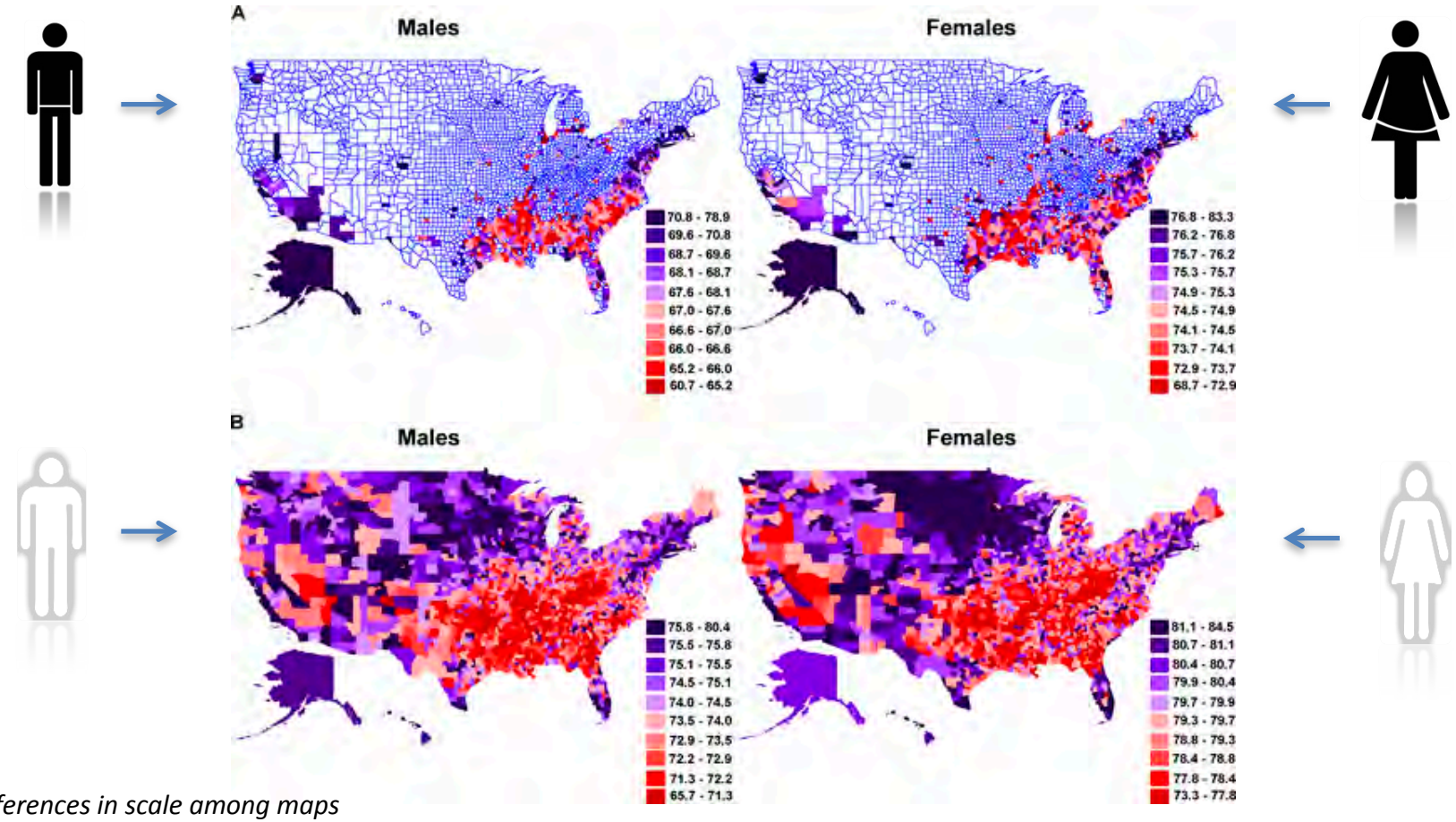
- Importance of investigating the role of sex/gender at all levels of the research continuum, from cells to societies
- Addressing disparities in health
- Promoting recruitment, retention, reentry, and advancement of women in biomedical careers

Factors Influencing Health



Geography, Race, and Gender Affect U.S. Health

County Life Expectancies at Birth by Race



** note differences in scale among maps*

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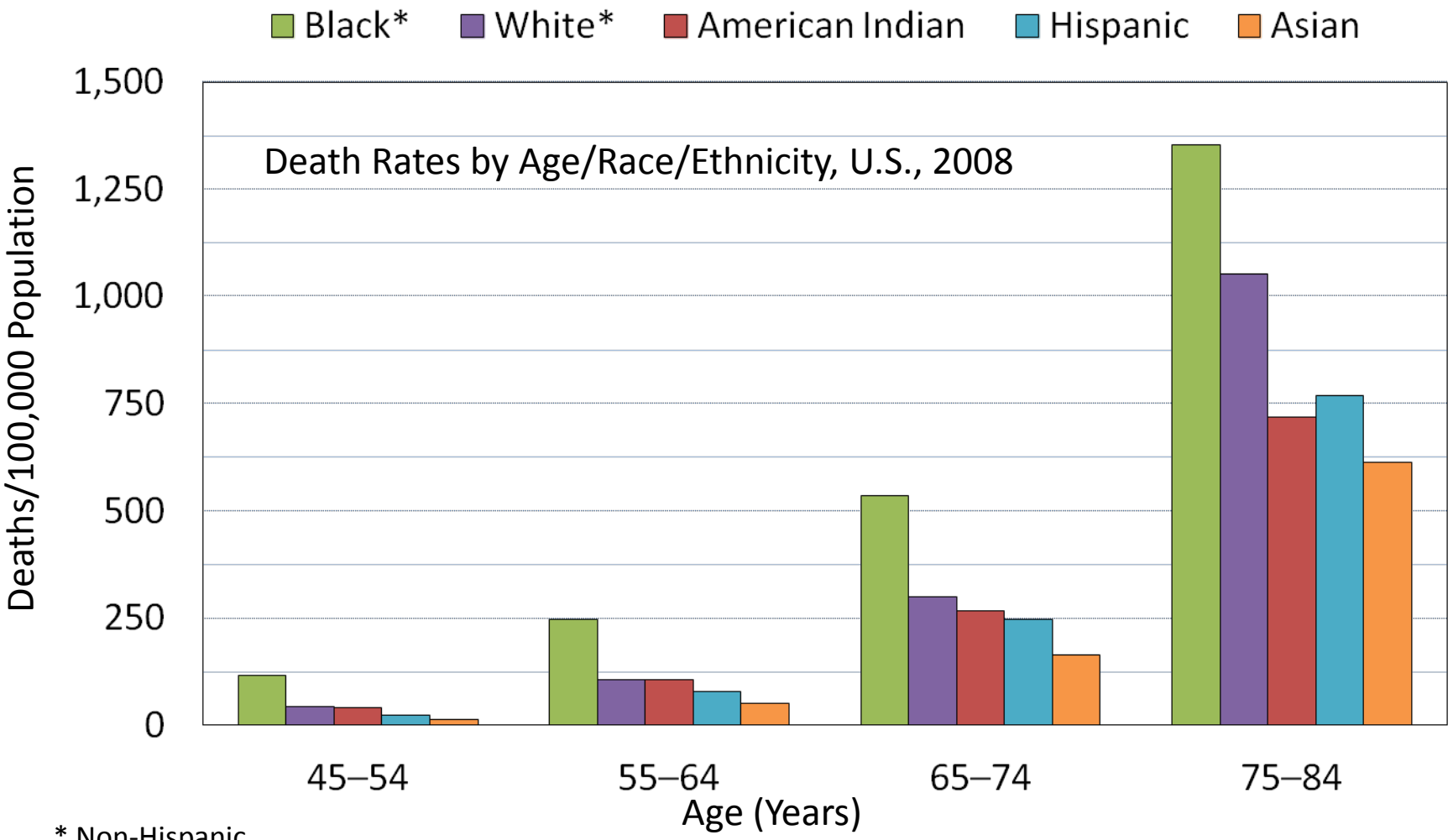
Source: Murray CJL et al. (2006) Eight Americas: Investigating Mortality Disparities across Races, Counties, and Race-Counties in the United States. *PLoS Med* 2006: 3:e260

Disparities in Heart Disease for Women of Color



* Non-Hispanic

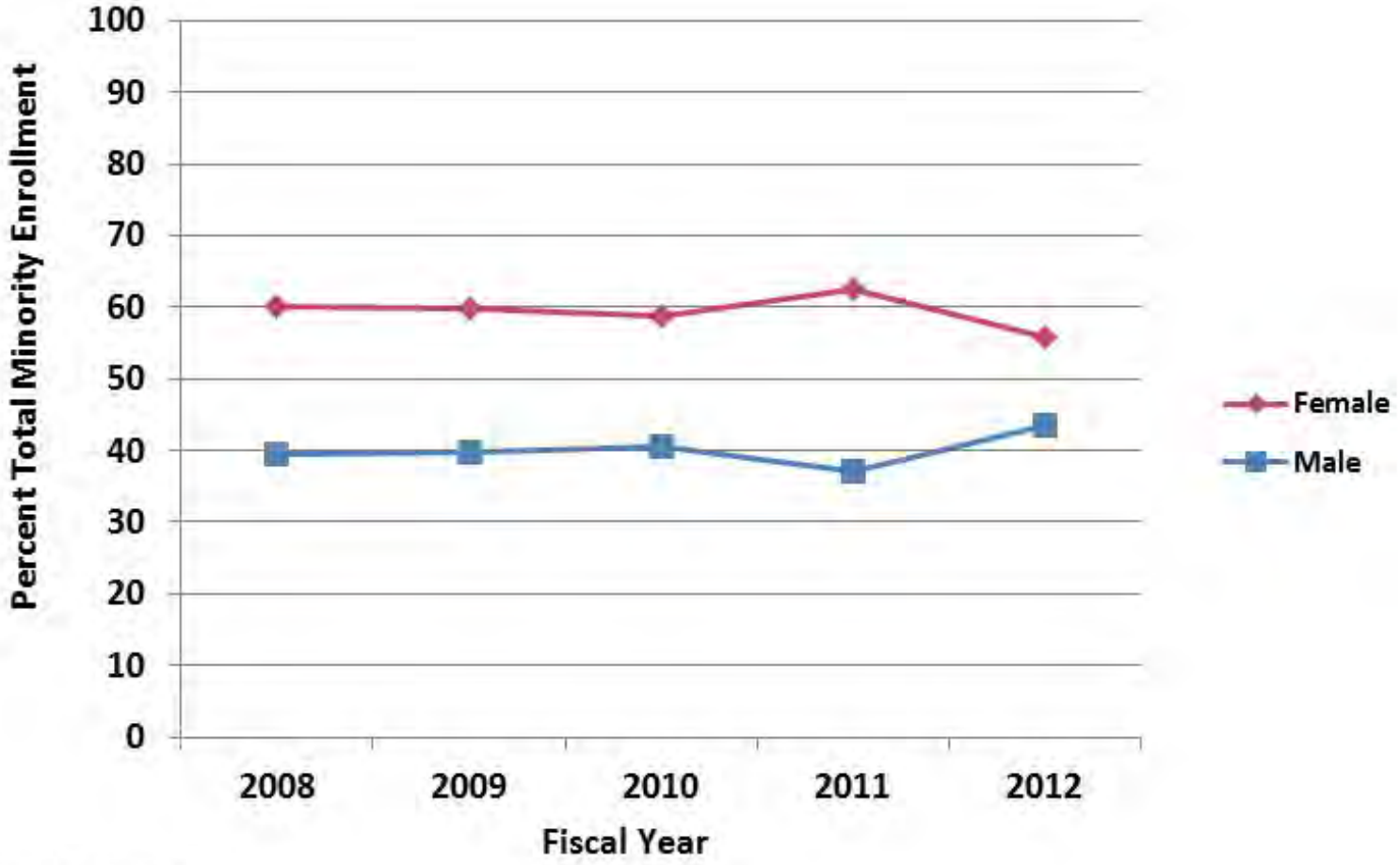
NHLBI Chartbook 2012

Personalized Health: Not All Women Are the Same

- Women who die from stroke before age 75
  - Why is the rate for black women 39% and the rate for white women 17%?
- Why are Hispanic/Latina women four times more likely to be HIV-infected than white women?
- Why do Asian-American women have the highest rates of new cases of stomach cancer compared to women of all other groups?

Sources: CDC Health Disparities and Inequalities Report, 2011; WomensHealth.gov, NCI SEER database

Percent Minority Enrollment by Sex/Gender: Domestic NIH Clinical Research



Benefits from Diversity in Inclusion

- Advances in knowledge from research
- Incorporating knowledge into education, training
- Implementing new concepts into

Need diversified workforce to design studies, recruit participants, implement findings

c

health

- Providing access to sex/gender and ethnic/racial/culturally sensitive and appropriate healthcare

Research on Women's Health: Lifting All Boats

Goal: Employ innovative strategies to build a well-trained, diverse, and vigorous **women's health research workforce**

- Importance of investigating the role of sex/gender at all levels of the research continuum, from cells to societies
- Addressing disparities in health
- Promoting recruitment, retention, reentry, and advancement of women in biomedical careers

NIH Working Group on Women in Biomedical Careers

- Established in 2007 to consider recommendations from the National Academies report *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering*
- Seeks innovative strategies to address concerns of NIH intramural and extramural communities
- Pays special attention to issues of barriers, minority women scientists, and mentoring

NIH Working Group on Women in Biomedical Careers

Our Goal:

Not just recruitment and entry,
but providing, supporting,
and encouraging
opportunities for retention
*and **sustained advancement** of women*
in biomedical, practice, and research careers…

Causal Factors and Interventions Affecting Women in Biomedical Careers

- **2008:** The National Institute of General Medical Sciences released RFA:

  Research on Causal Factors and Interventions that Promote and Support the Careers of Women in Biomedical and Behavioral Science and Engineering

- **2009:** NIH funded 14 grants in this research area, estimated to total $16.8 million over 4 years

- **2012:** ORWH- and NIGMS- sponsored workshop served as a forum for data presentations, discussions, and brainstorming

Causal Factors and Interventions Affecting Women in Biomedical Careers

Key Findings

- **Bias** is powerful, often unconscious, can be measured, and can be altered
- The NIH can lead by example to "de-silo" **diversity** and inclusion
- **Mentor networks** are more effective than mentor dyads
- **Culture** affects career satisfaction and performance, and can be measured
- Institutional **flexibility policies** are under-recognized and under-used, in part due to ingrained academic culture and lack of leadership buy-in

Research Results:
Utilization of Flexible Career Policies

Improving Knowledge, Awareness, and Use of Flexible Career Policies Through an Accelerator Intervention at the University of California, Davis, School of Medicine

Amparo C. Villablanca, MD, Laurel Beckett, PhD, Jasmine Nettiksimmons, PhD, and Lydia P. Howell, MD

Abstract

The challenges of balancing a career and family life disproportionately affect women in academic health sciences and medicine, contributing to their slower career advancement and/or their attrition from academia. In this article, the authors first describe their experiences at the University of California, Davis, School of Medicine developing and implementing an innovative accelerator intervention designed to promote faculty work–life balance by improving knowledge, awareness, and access to comprehensive flexible career policies. They then summarize the results of two faculty surveys—one conducted before the implementation of their intervention and the second conducted one year into their three-year intervention—designed to assess faculty's use and intention to use the flexible career policies, their awareness of available options, barriers to their use of the policies, and their career satisfaction. The authors found that the intervention significantly increased awareness of the policies and attendance at related educational activities, improved attitudes toward the policies, and decreased perceived barriers to use. These results, however, were most pronounced for female faculty and faculty under the age of 50. The authors next discuss areas for future research on faculty use of flexible career policies and offer recommendations for other institutions of higher education—not just those in academic medicine—interested in implementing a similar intervention. They conclude that having flexible career policies alone is not enough to stem the attrition of female faculty. Such policies must be fully integrated into an institution's culture such that faculty are both aware of them and willing to use them.

Summary of the University of California, Davis, School of Medicine's Flexible Career Policies, 2010 to Present*

Characteristic	Childbearing or adoption leave	Family and medical leave	Parental leave	Active service modified duties	Part-time appointment
Eligible faculty	Parent who is giving birth or adopting	≥1 year university service, responsible for ≥50% of child care	Any faculty member	≥1 year university service, responsible for ≥50% of child care	At chair's discretion, and academic/ business needs
Time and duration	Full-time leave for 12 weeks maximum	Full-time leave for 12 weeks maximum	Full-time leave for 1 year maximum (other leaves included)	Negotiated part-time leave for 12 weeks maximum	Negotiated percent reduction, renewable at reappointment time
Salary	Preserved	None	None	Full base, negotiated component of salary (Y*)[†] reduced proportionate to duty reduction	Base and negotiated component of salary (Y*) reduced proportionate to duty reduction
Health care benefits	Maintained	Maintained	None	Maintained	Maintained if 50% appointment

* In addition, the University of California, Davis, School of Medicine offers flexible career policies for tenure clock extension and deferral of review.
[†] (Y*) indicates negotiated component of faculty salary.

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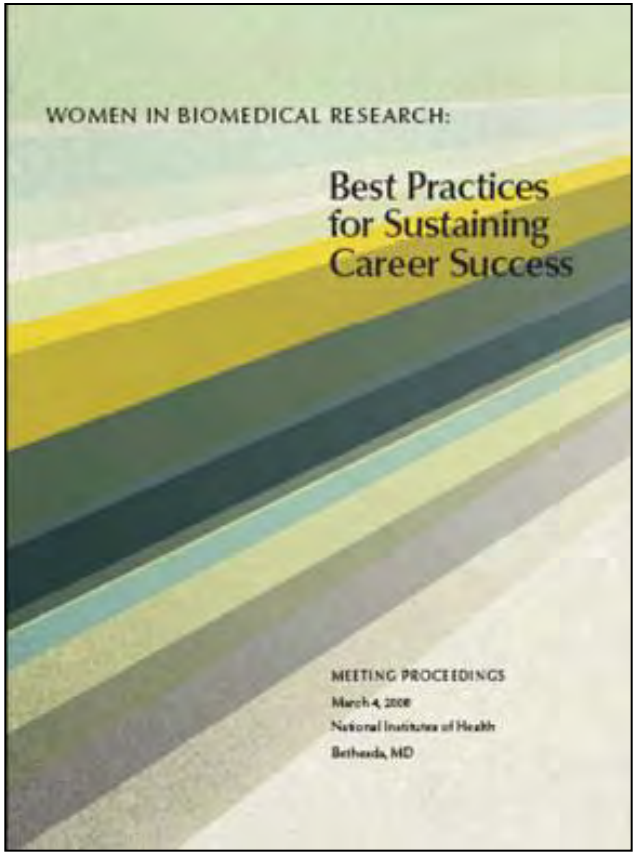
Villablanca, AC, Beckett, L, Nettiksimmons, J, Howell, L,. *Academic Medicine*. 88. 2013.

New Initiatives to Support NIH Scientists with Family Responsibilities

- 3-year pilot **Back-Up Care program**
  - Launched in January 2012
  - Provides short-term care for children, elders, and adult dependents
- **"Keep the Thread"** accommodation and reentry program for intramural postdoctoral fellows
  - Flexible schedule options
  - Part-time work options
  - Position holding whenever possible during extended leave
- Planned construction of additional **child care center**
  - Will add 130 additional child care slots on campus

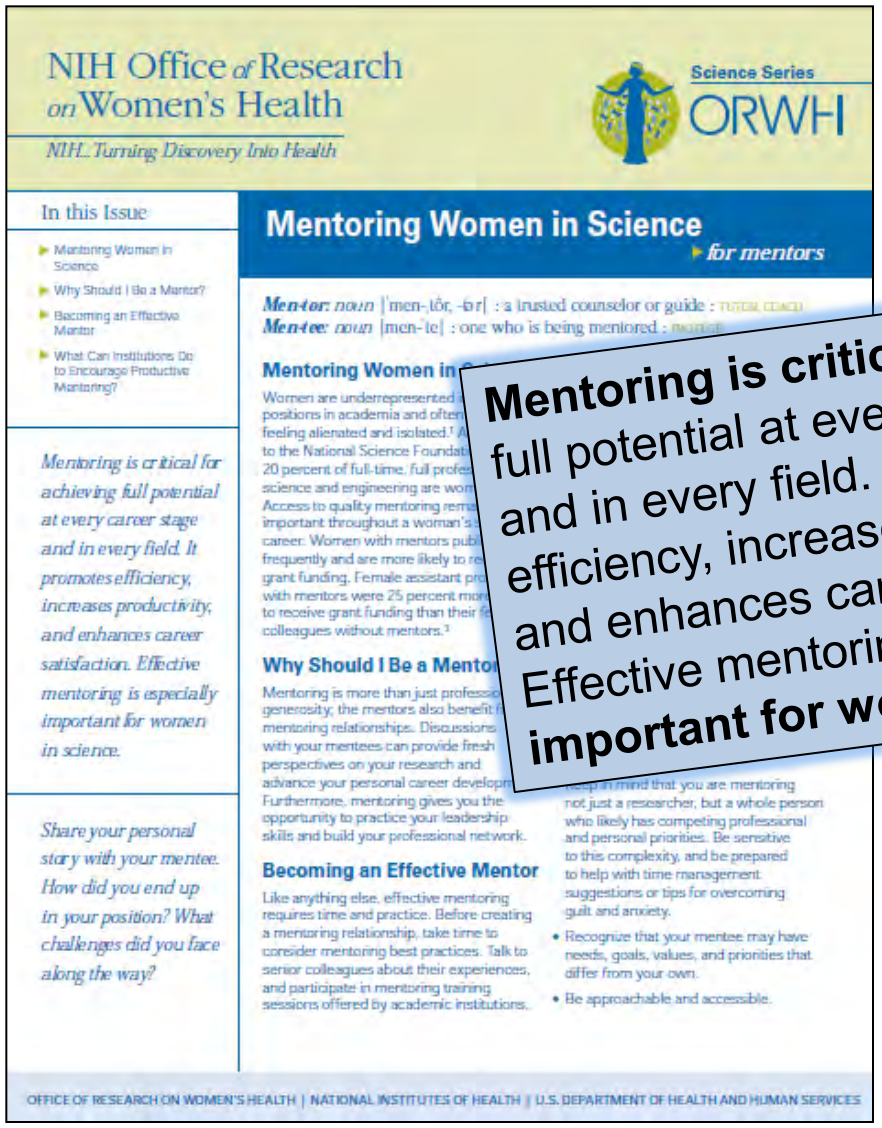
Resources Available from ORWH and the Working Group



Reports are available in hardcopy and for download at

http://womeninscience.nih.gov

Mentoring Materials from ORWH



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NIH...Turning Discovery Into Health

Science Series ORWH

In this Issue

- Mentoring Women in Science
- Why Should I Be a Mentor?
- Becoming an Effective Mentor
- What Can Institutions Do to Encourage Productive Mentoring?

Mentoring is critical for achieving full potential at every career stage and in every field. It promotes efficiency, increases productivity, and enhances career satisfaction. Effective mentoring is especially important for women in science.

Share your personal story with your mentee. How did you end up in your position? What challenges did you face along the way?

Mentoring Women in Science

for mentors

Mentor: *noun* |'men-,tôr, -tər| : a trusted counselor or guide : TUTOR, COACH

Mentee: *noun* |men-'tē| : one who is being mentored : PROTÉGÉ

Mentoring Women in S

Women are underrepresented
positions in academia and often
feeling alienated and isolated.[1] A
to the National Science Foundat
20 percent of full-time, full profes
science and engineering are wom
Access to quality mentoring rema
important throughout a woman's
career. Women with mentors pub
frequently and are more likely to re
grant funding. Female assistant pr
with mentors were 25 percent mo
to receive grant funding than their
colleagues without mentors.[3]

Why Should I Be a Mentor

Mentoring is more than just professi
generosity; the mentors also benefit
mentoring relationships. Discussions
with your mentees can provide fresh
perspectives on your research and
advance your personal career develop
Furthermore, mentoring gives you the
opportunity to practice your leadership
skills and build your professional network.

Becoming an Effective Mentor

Like anything else, effective mentoring requires time and practice. Before creating a mentoring relationship, take time to consider mentoring best practices. Talk to senior colleagues about their experiences, and participate in mentoring training sessions offered by academic institutions.

p in mind that you are mentoring not just a researcher, but a whole person who likely has competing professional and personal priorities. Be sensitive to this complexity, and be prepared to help with time management suggestions or tips for overcoming guilt and anxiety.

- Recognize that your mentee may have needs, goals, values, and priorities that differ from your own.
- Be approachable and accessible.

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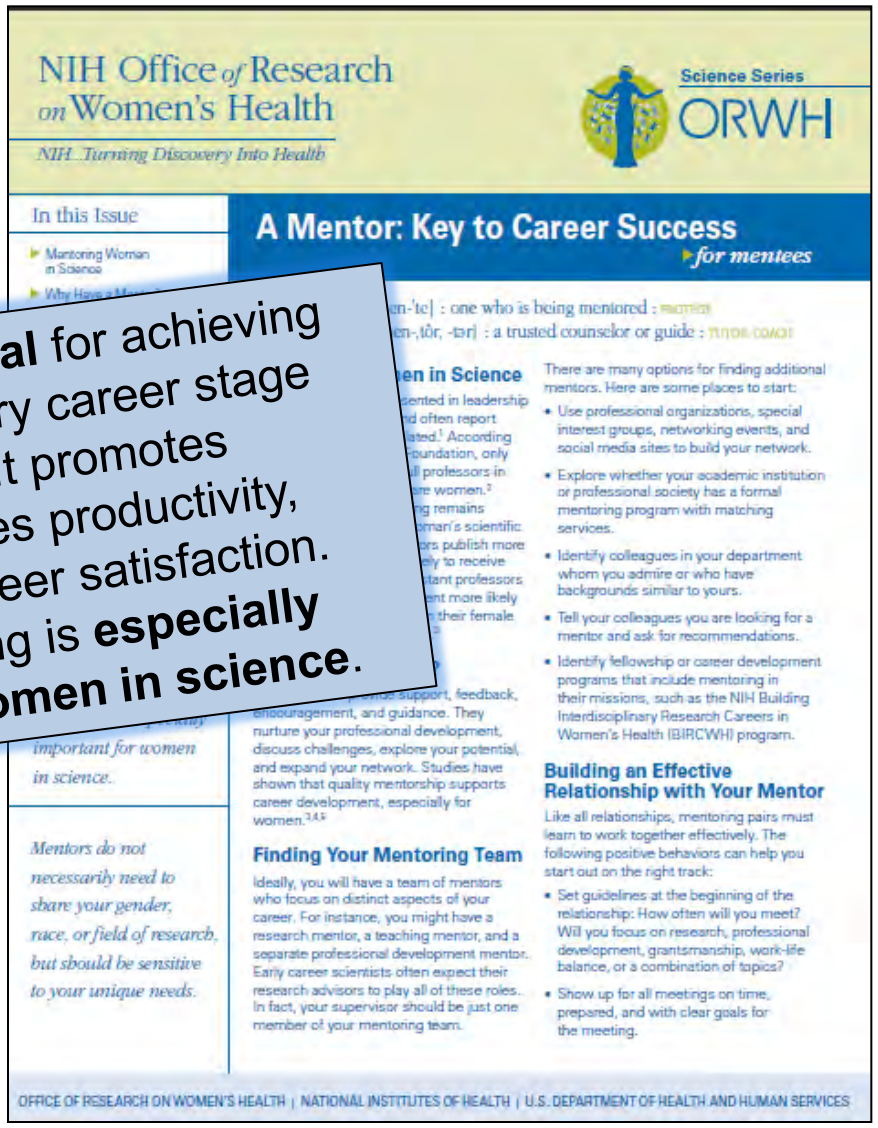

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NIH...Turning Discovery Into Health

Science Series ORWH

In this Issue

- Mentoring Women in Science
- Why Have a M

important for women in science.

Mentors do not necessarily need to share your gender, race, or field of research, but should be sensitive to your unique needs.

A Mentor: Key to Career Success

for mentees

-'tē| : one who is being mentored : PROTÉGÉ
-,tôr, -tər| : a trusted counselor or guide : TUTOR, COACH

en in Science

ented in leadership
d often report
ated.[1] According
oundation, only
ll professors in
re women.[2]
g remains
man's scientific
rs publish more
ly to receive
tant professors
nt more likely
their female

support, feedback, encouragement, and guidance. They nurture your professional development, discuss challenges, explore your potential, and expand your network. Studies have shown that quality mentorship supports career development, especially for women.[3,4,5]

Finding Your Mentoring Team

Ideally, you will have a team of mentors who focus on distinct aspects of your career. For instance, you might have a research mentor, a teaching mentor, and a separate professional development mentor. Early career scientists often expect their research advisors to play all of these roles. In fact, your supervisor should be just one member of your mentoring team.

There are many options for finding additional mentors. Here are some places to start:

- Use professional organizations, special interest groups, networking events, and social media sites to build your network.
- Explore whether your academic institution or professional society has a formal mentoring program with matching services.
- Identify colleagues in your department whom you admire or who have backgrounds similar to yours.
- Tell your colleagues you are looking for a mentor and ask for recommendations.
- Identify fellowship or career development programs that include mentoring in their missions, such as the NIH Building Interdisciplinary Research Careers in Women's Health (BIRCWH) program.

Building an Effective Relationship with Your Mentor

Like all relationships, mentoring pairs must learn to work together effectively. The following positive behaviors can help you start out on the right track:

- Set guidelines at the beginning of the relationship: How often will you meet? Will you focus on research, professional development, grantsmanship, work-life balance, or a combination of topics?
- Show up for all meetings on time, prepared, and with clear goals for the meeting.

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Mentoring is critical for achieving full potential at every career stage and in every field. It promotes efficiency, increases productivity, and enhances career satisfaction. Effective mentoring is **especially important for women in science**.

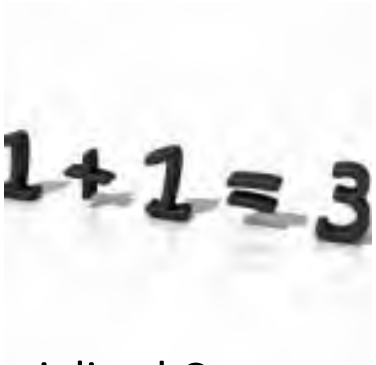
WoCRn National Institutes of Health
WOMEN OF COLOR RESEARCH NETWORK

http://www.wocrn.nih.gov/

Nearly 1,000 members and growing
JOIN NOW!

- Social media site for **everyone** interested supporting the development of a diverse scientific workforce
- Facilitates interaction and collaboration between students, researchers, and policy makers
- Provides information, networking, mentoring, and career development opportunities for women of color in biomedical careers

ORWH Interdisciplinary Programs: SCOR, BIRCWH



- Specialized Centers of Research on Sex Differences (**SCOR** – P50 mechanism)
- Interdisciplinary research program focusing on sex differences through integrated basic, clinical, and translational research

SCOR

- Building Interdisciplinary Research Careers in Women's Health (**BIRCWH** - K12 mechanism)
  - Institutional mentored career development program designed to increase the number of women's health researchers

BIRCWH

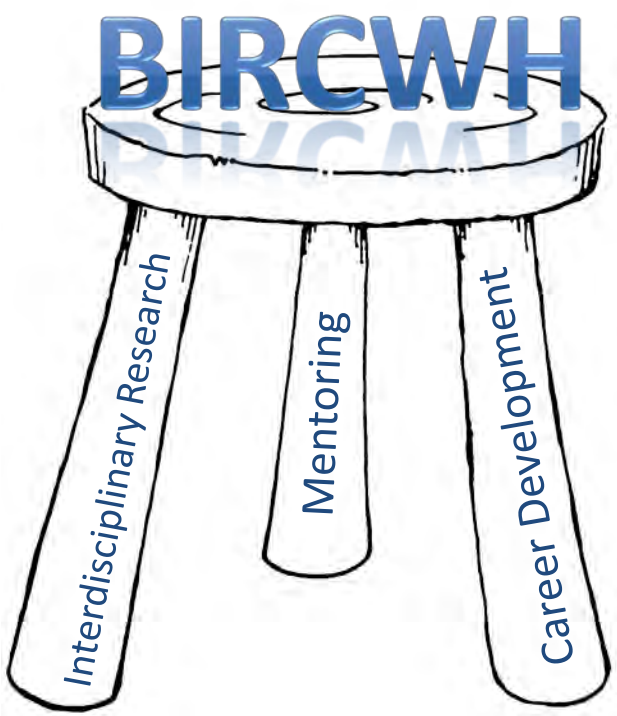
Specialized Centers of Research on Sex Differences

- ORWH/FDA
- Interdisciplinary collaborations
- Research on sex/gender factors underlying a priority women's health issue
- Bridges basic and clinical research
- $89 million investment over last decade

11 Funded SCOR Centers

- Sex-Specific Risk for Vascular Dysfunction and Cognitive Decline
- Sex and Gender Differences in Addictions and Stress Response
- Genes, Androgens and Intrauterine Environment in PCOS
- Sex Differences in Musculoskeletal Diseases
- Sex Differences in Pain
- Metabolic Consequences of Loss of Gonadal Function
- Birth, Muscle Injury, and Pelvic Floor Dysfunction
- Sex Differences and Progesterone effects on Impulsivity, Smoking, and Cocaine Stress
- Pre-pubertal Stress, Windows of Risk and Sex Bias for Affective Disturbance
- Molecular and Epidemiologic Basis of UTI in Women
- Gender-Sensitive Treatment for Tobacco Dependence

Building Interdisciplinary Research Careers in Women's Health



- Main goal is support for transition to research independence
- Aims to reduce fragmentation in women's health issues
- 493 scholars trained to date
  - ~ 80 percent women
  - ~ 20 percent men
- Scholars successful at getting NIH funding

A New Lens for Research on Women's Health

- **Advance** understanding of biological sex differences
- **Apply** new technologies to maximize research potential and impact
- **Expand** understanding of health and disease in women
- **Foster** partnerships to conduct and translate research

http://orwh.od.nih.gov/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Thank You!