

THE REALITY OF THE DATA: EMPLOYMENT OF WOMEN WITH PhDs IN BIOMEDICAL SCIENCE

NIH Workshop, March 25, 2008

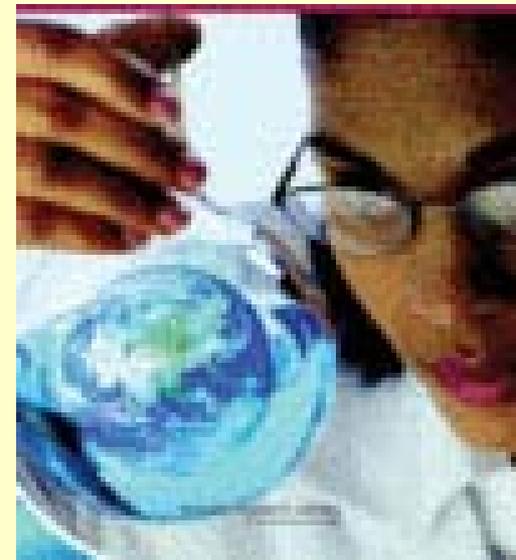
*Women in Biomedical Research: Best Practices for
Sustaining Career Success*

Phoebe S. Leboy

President

Association for Women in Science

www.awis.org



A PREVIEW OF CONCLUSIONS RE: WOMEN IN BIOMEDICAL SCIENCE

1. There is no problem recruiting women into biomedical doctoral programs- except for women of color.
2. Non-academic employment: We lack data on women in biomedical fields with non-faculty jobs.
3. Faculty employment (tenured & tenure/track): the proportion of women at research universities reached a plateau at <60% of expected... and is now declining.
4. Women are avoiding tenure-track faculty jobs in academic health centers and research universities.

THE PROPORTION OF WOMEN IN MOST STEM* FIELDS IS STILL INCREASING

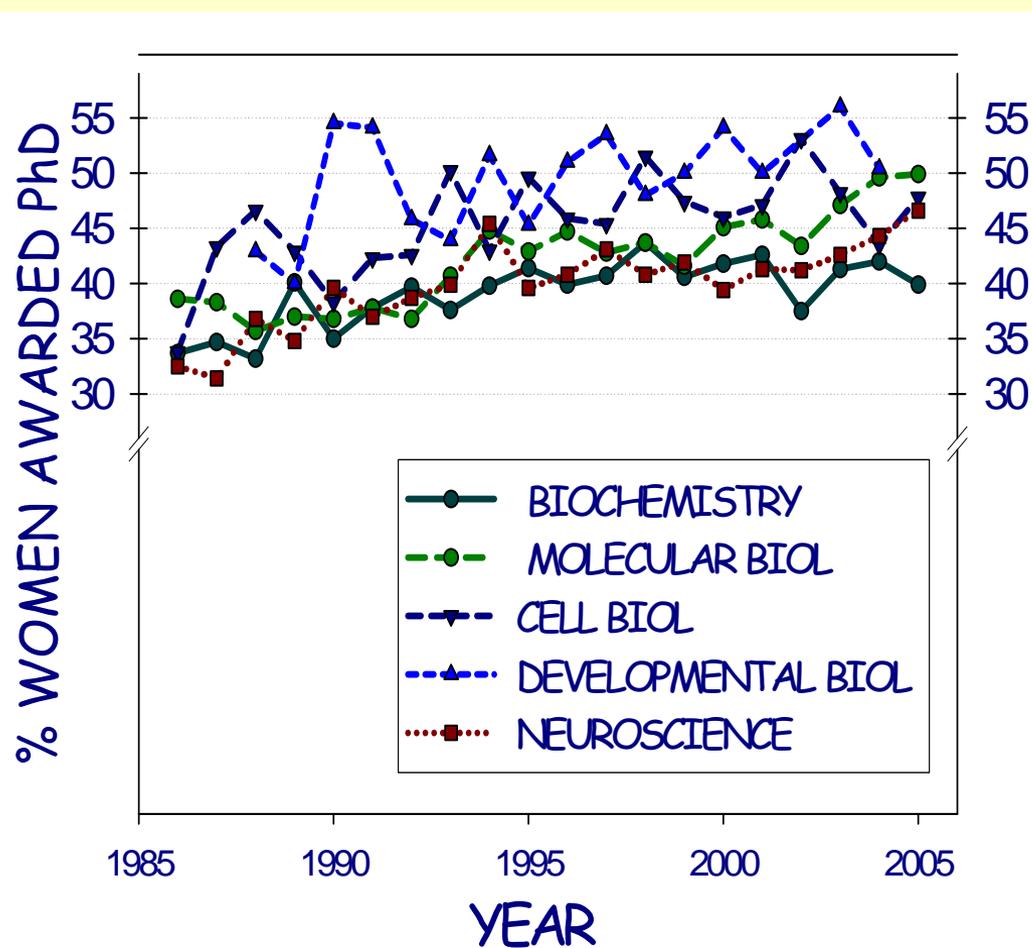
	<i>% OF PhDs AWARDED TO WOMEN</i>	
	1987	2006**
Physics	9%	18%
Engineering	7%	20%
Computer Science	14%	21%
Math	16%	27%
Chemistry	21%	34%
Biomed. Sciences	39%	50%

* STEM = Science, Technology, Engineering, Math

** NSF Survey of Earned Doctorates 2006; Table A-3a

BIOMEDICAL DISCIPLINES:

WOMEN HAVE BEEN A HIGH PROPORTION OF PhDs FOR 20 YEARS



AVERAGE % WOMEN*

YEARS:	'86-95	'96-05
Biochem	37%	41%
Mol Biol	39%	45%
Cell Biol	43%	48%
Dev Biol	47%	52%
Neurosci	38%	43%

*These averages define the "availability pool" of women qualified for appointments as senior faculty ('86-95 data) or junior faculty ('96-05 data).

IN THE BIOMEDICAL SCIENCES- THE FOCUS IS ON EMPLOYMENT

WE MUST BALANCE THE FORCES

A system designed
for men



A stretch
for many women

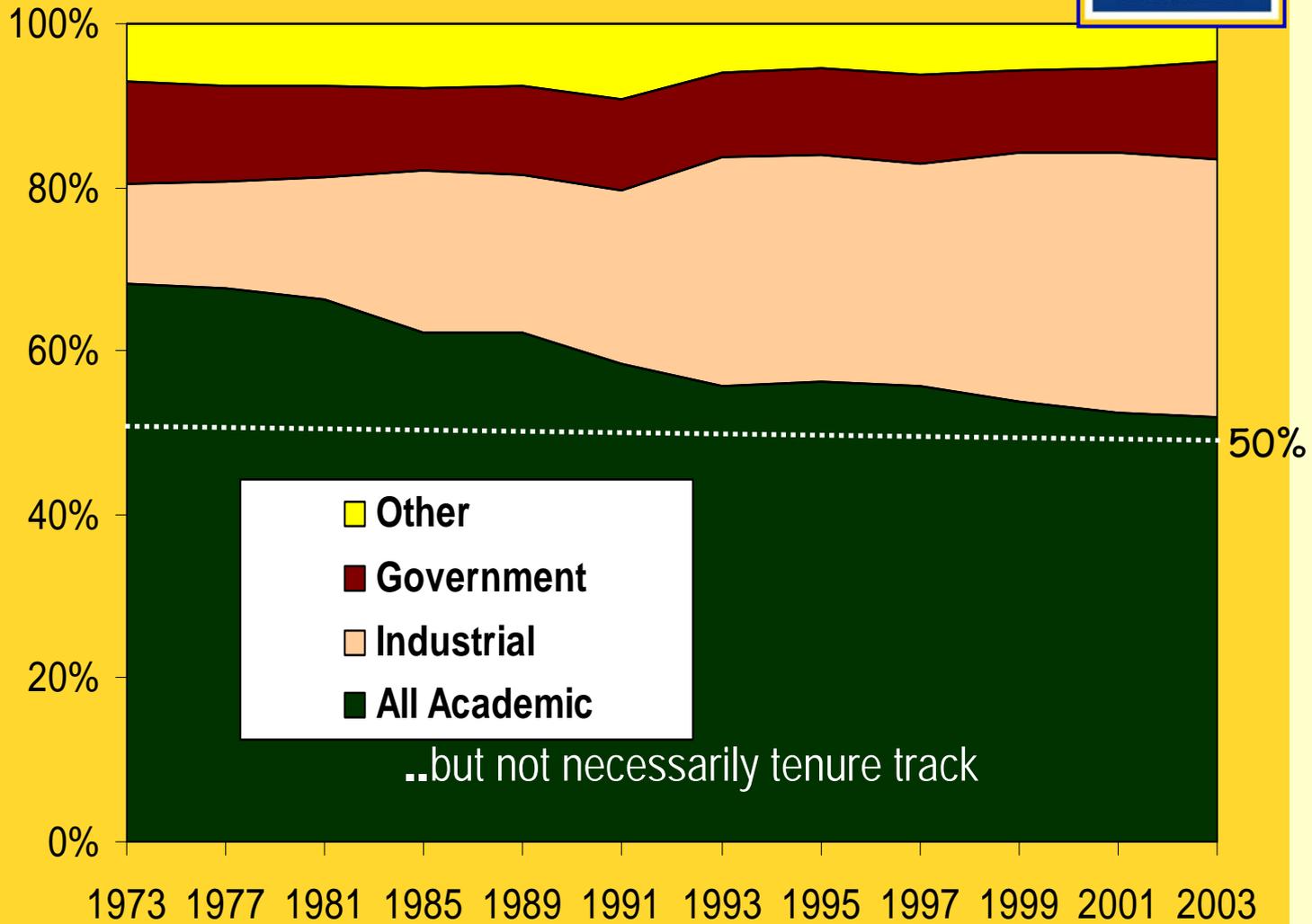


Swiss National Science Foundation

EMPLOYMENT: THE MAJORITY OF BIOMED PHDs ARE IN ACADEMIA

FASEB

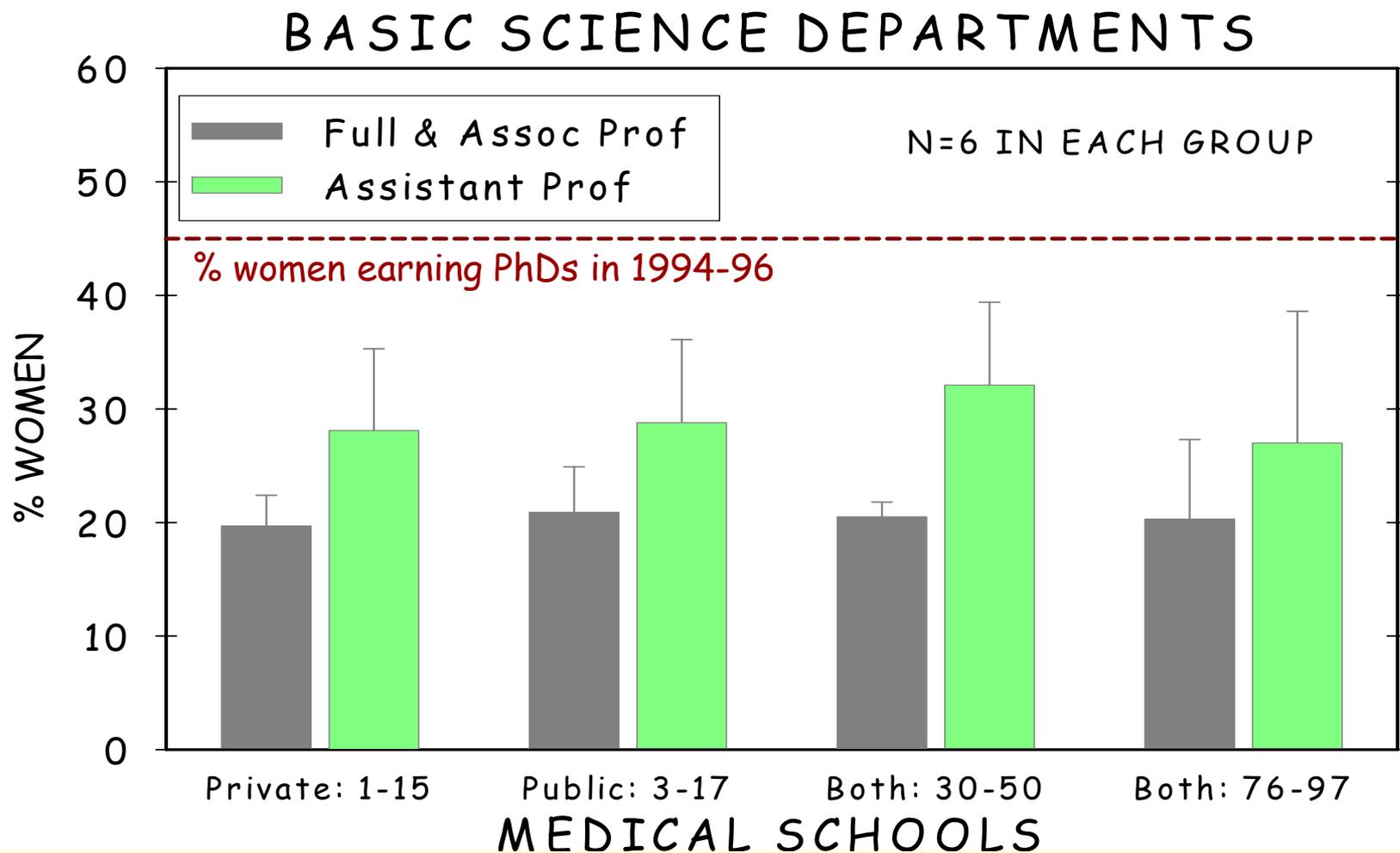
Percentage of all Biomedical PhDs



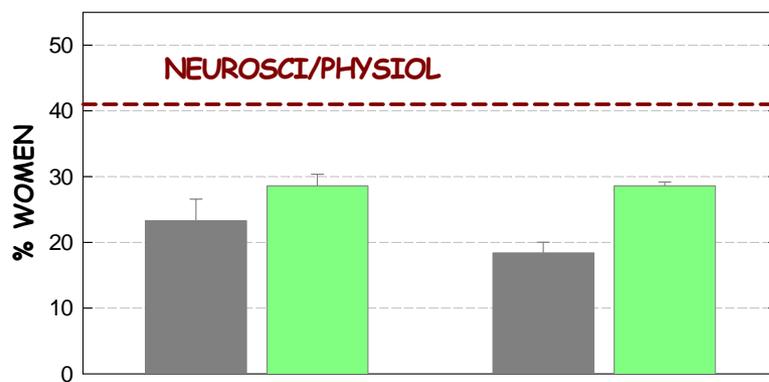
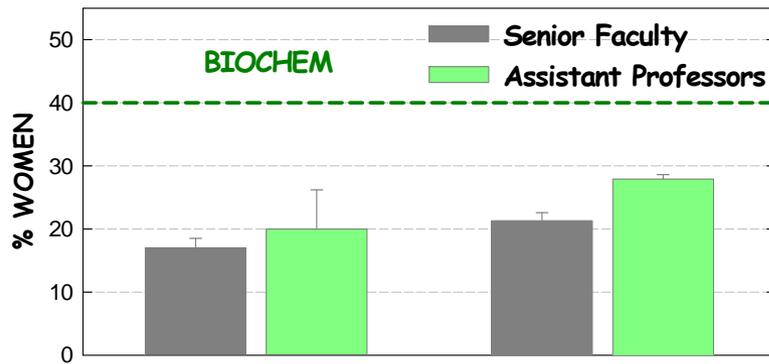
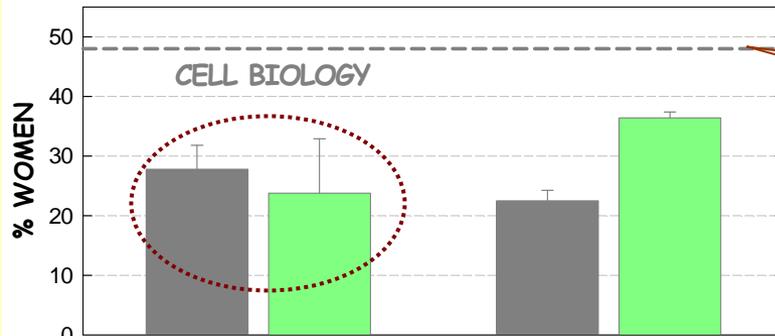
Other
Government
Industrial
All Academic

..but not necessarily tenure track

PROPORTION OF WOMEN AMONG TENURED/ TENURE-TRACK FACULTY IN 24 MEDICAL SCHOOLS (Acad Year 2007)



MED SCHOOL TENURE-TRACK WOMEN IN SELECTED DEPARTMENTS



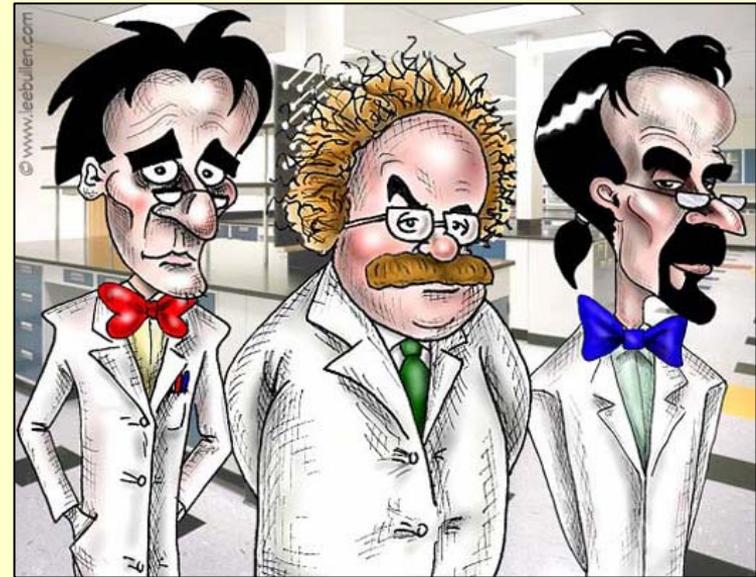
Senior Faculty
 Assistant Prof

NIH ranking: 1-20

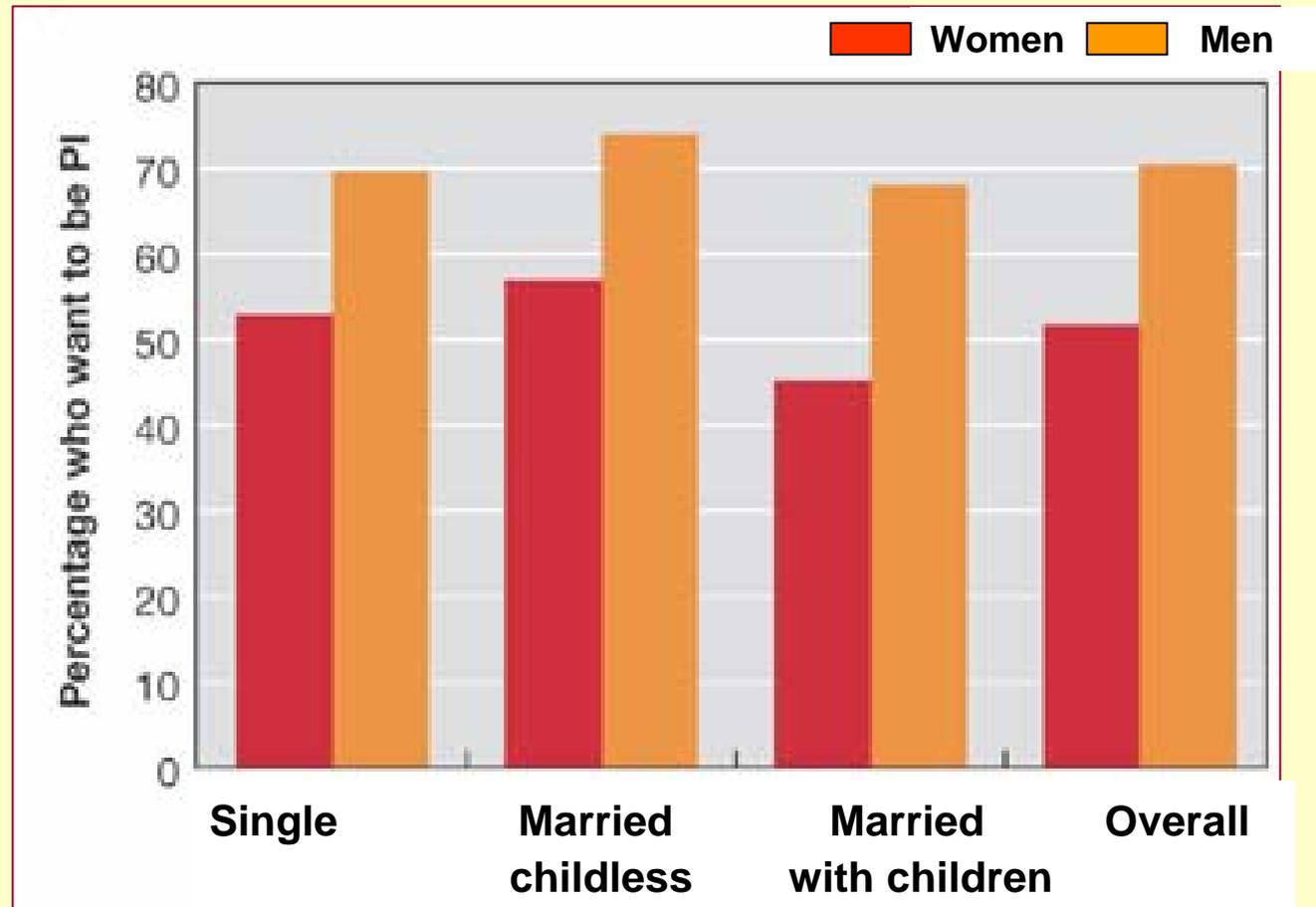
40-97

WHY ARE THERE SO FEW WOMEN IN TENURE TRACK JOBS IN BASIC SCIENCE DEPARTMENTS?

- Are departments refusing to hire them?
- Are their qualifications or interviewing skills deemed inadequate?
- Are they not applying?



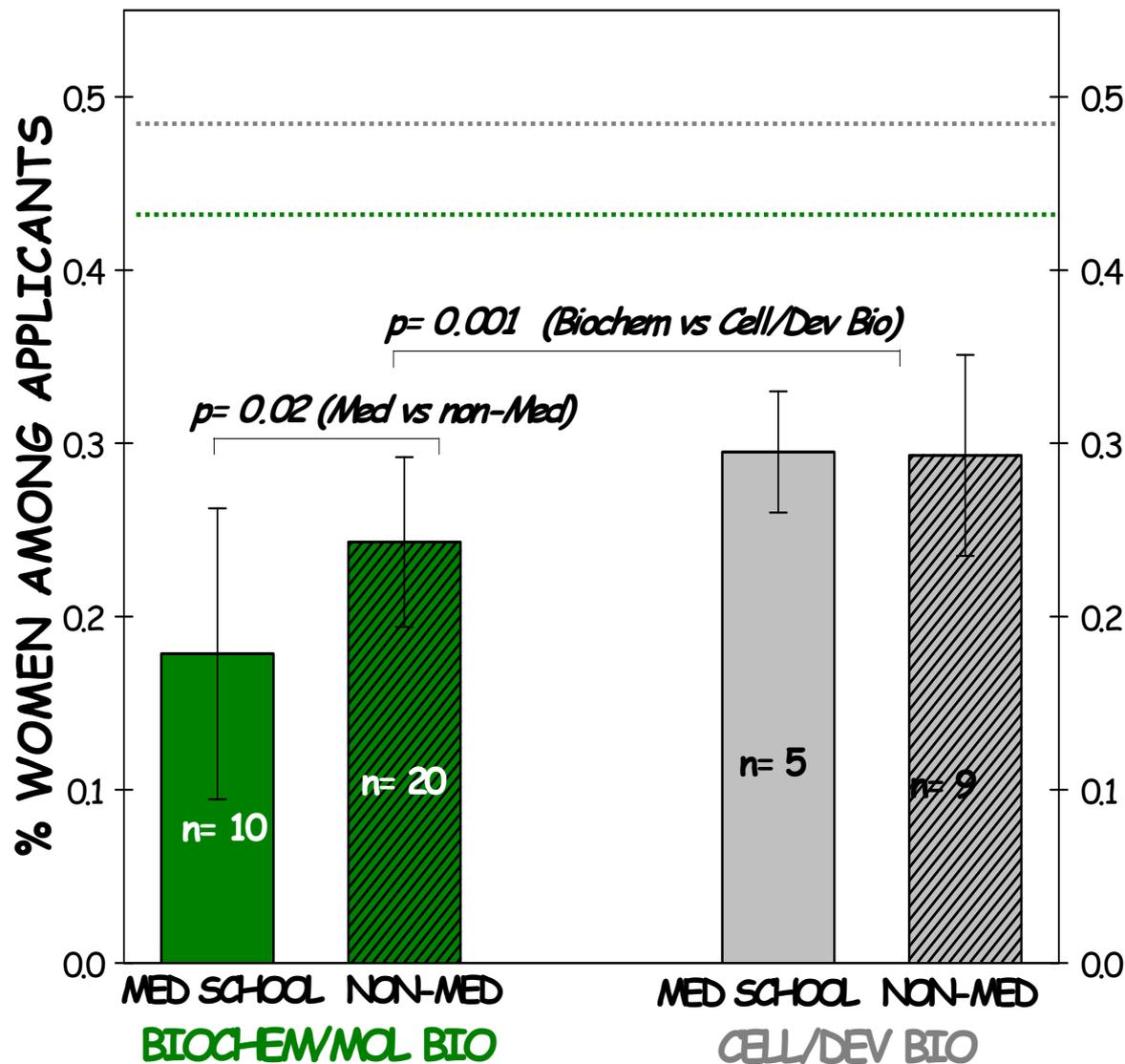
GENDER DIFFERENCES IN ASPIRATIONS OF NIH POST-DOCS



Falling off the academic bandwagon: Women are more likely to quit at the postdoc to principal investigator transition EMBO reports 8: 977-981 (2007)

Elisabeth D. Martinez, Jeannine Botos, Kathleen M. Dohoney, Theresa M. Geiman, Sarah S. Kolla, Ana Olivera, Yi Qiu, Geetha Vani Rayasam, Diana A. Stavreva & Orna Cohen-Fix

APPLICANTS FOR ASSISTANT PROF JOBS FALL 2007



PhD POOL (1997-2005)

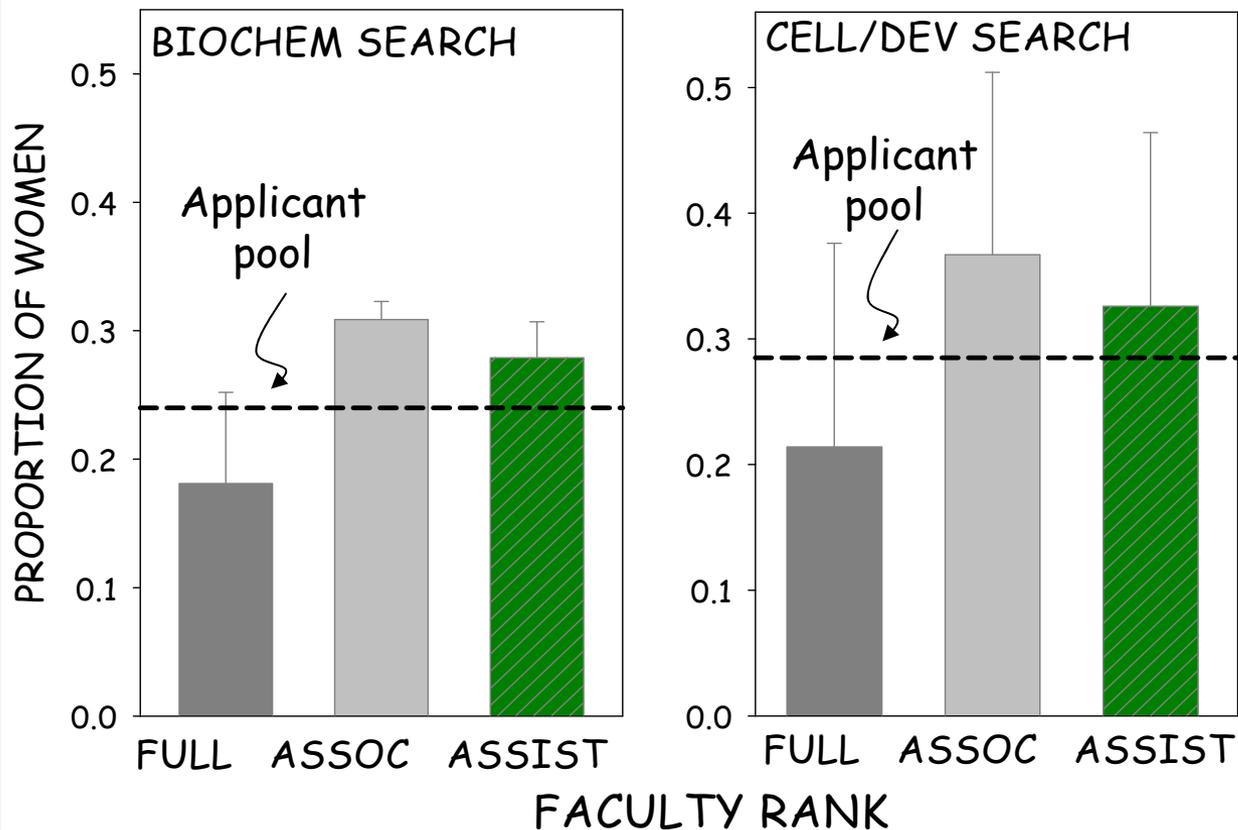
Cell/Dev Biol: 48.6%

Biochem/MB: 43.3%

ARE THEY SEEING TOO FEW WOMEN FACULTY AS POTENTIAL COLLEAGUES?

Women Assoc Prof > Women Asst Prof > Women Applicants!

WOMEN FACULTY IN SEARCHING DEPARTMENTS*



The numbers of women applicants probably started declining several years ago!

*non-Medical departments

WHY AREN'T WOMEN APPLYING (I)?

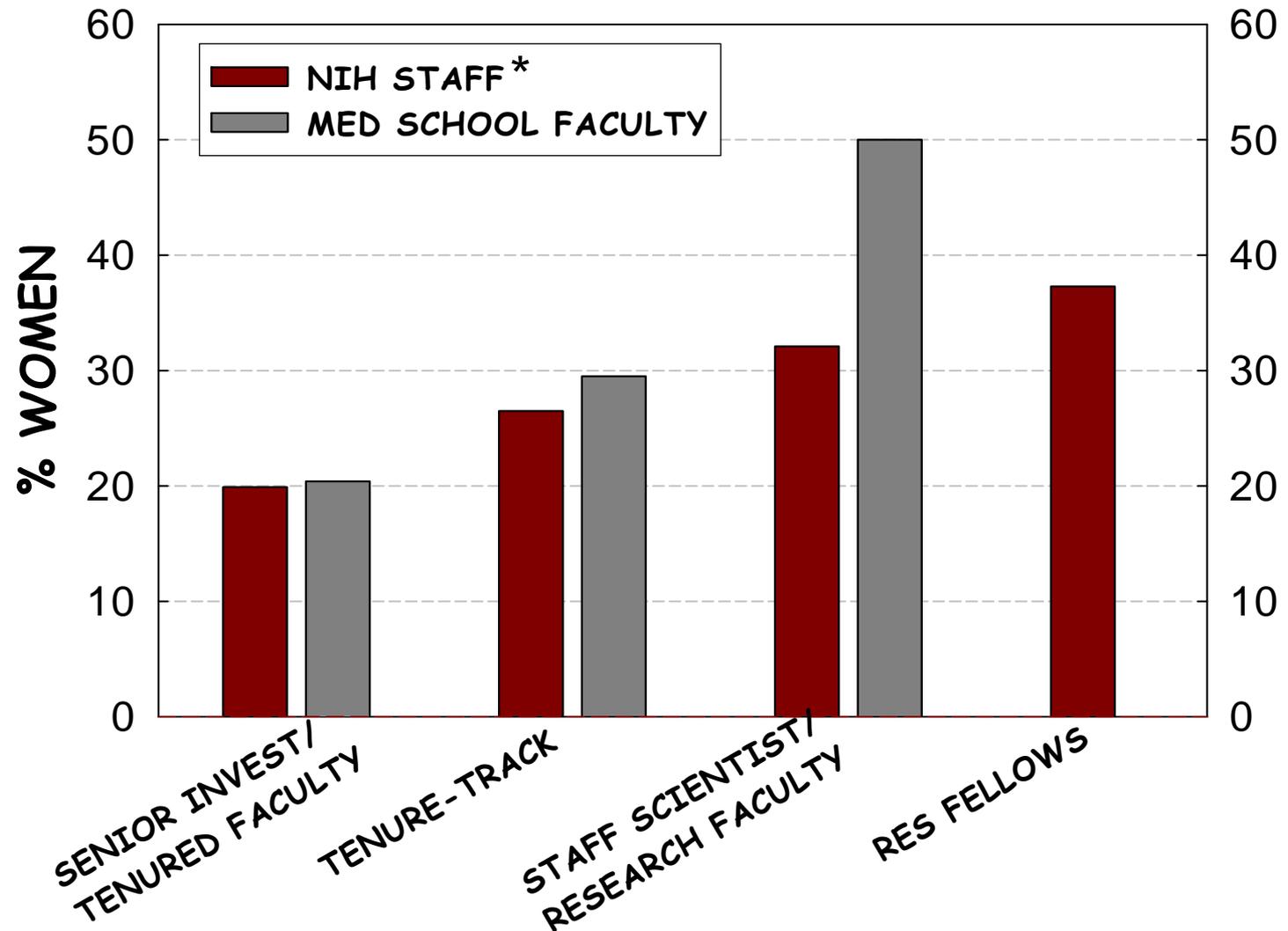
- Many women are deciding that a tenure-track job in an academic medical center is not a good choice for a smart young woman.

WHY?

"Lower confidence"

"Women underestimate their abilities"

NIH vs ACADEMIC BASIC SCIENCE: 2007 (24 ACADEMIC HEALTH CENTERS)

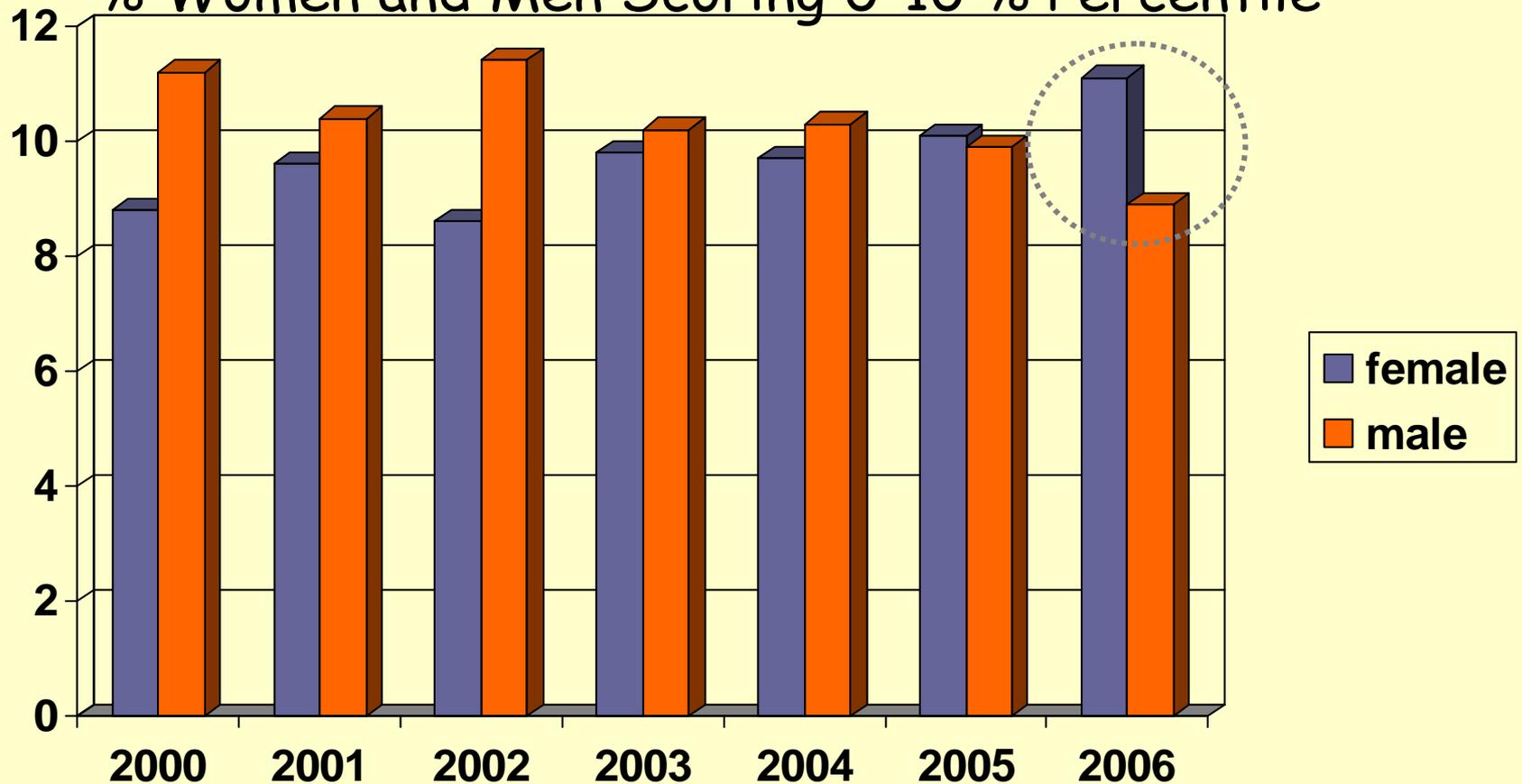


*NIH Intramural Program FY 2005;

http://grants2.nih.gov/grants/policy/sex_gender/q_a.htm#q9

THE REALITY: WOMEN ARE GETTING GOOD SCORES

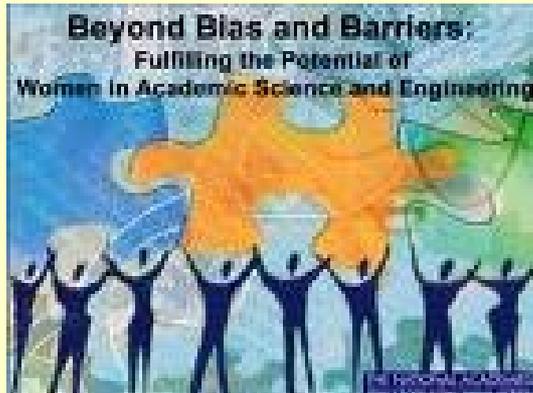
CSR Review of NIH Research Grant Applications;
% Women and Men Scoring 0-10 % Percentile



But- they have fewer grants/PI

WHY AREN'T WOMEN APPLYING (II)?

"The playing field is not level."



Beyond Bias and Barriers
National Academies, 2006

"It is not lack of talent, but unintentional biases and outdated institutional policies and structures"

THE INSTITUTIONAL POLICIES AND STRUCTURES

The reality most young women face:

- A chilly, unsupportive climate
- Unconscious gender bias in evaluations
- Lower prestige- which impacts on ability to recruit good students and postdocs....

Which affects grant funding and numbers of publications

"The Leaky Pipeline"

The Scientist 8: 67-70 (2008)

WHY AREN'T WOMEN APPLYING (III)?

"SUCCESS AS A BIOMEDICAL PI THESE DAYS
REQUIRES NOT ONLY TALENT AND LONG HOURS,
BUT ALSO AN INCREASING LEVEL OF
AGRESSIVENESS AND COMPETITIVENESS"

HI-RANK MED



But these attributes are
perceived as incompatible with
"acceptable" female behavior.

BEST PRACTICES FOR WOMEN IN BIOMEDICAL CAREERS:

Can the solutions we propose deal with
these issues??



Christiane
Nüsslein-Volhard



Nancy Hopkins



Shirley Tilghman



Pamela Bjorkman



Mary Claire King



Liz Blackburn