

## **ABSTRACT: 2014 ELAM Institutional Action Project Poster Symposium**

**Project Title:** Improving the Pipeline for Women Principal Investigators in the NHLBI Intramural Program

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**Collaborators:** Michelle Bennett, Deputy Director, DIR, NHLBI; Herbert Geller, Office of Education, DIR, NHLBI; Michael Gottesman, MD, Deputy Director for Intramural Research, NIH; Sharon Milgram, Assistant Director and Head of the Intramural Office of Education and Training; Roland Owens, Assistant Director for Diversity, NIH.

**Background, Challenge or Opportunity:** A rapid transformation of United States medical schools and biomedical PhD programs has occurred over the past thirty years, with women now constituting approximately half of graduating classes from MD and PhD programs. Within the intramural NIH, half of current postdoctoral fellows are women. However, the representation of female MDs or PhDs as principal investigators at the NIH has barely changed over the same time period. Only 24% of NIH intramural tenure-track and tenured investigators are women, and even fewer (16%) hold leadership positions as Lab, Branch or Center Directors, not significantly increased since the mid 1980s. The NHLBI Intramural program lags behind these NIH-wide numbers, with only 15 and 22% tenured and tenure-track female investigators respectively, and only one female Branch or Center Chief.

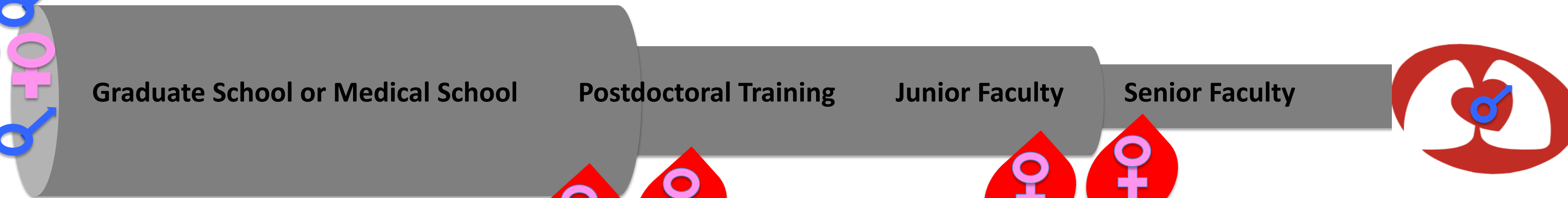
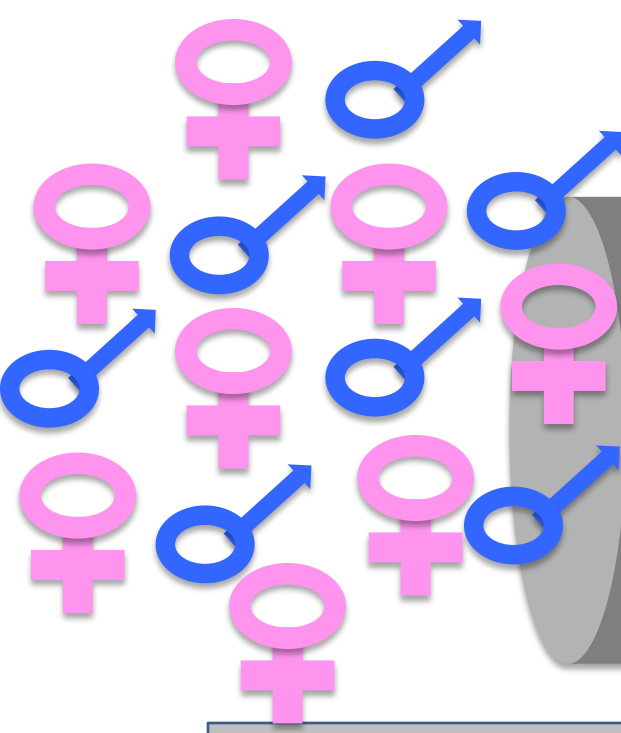
**Purpose/Objectives:** 1) Identify the stage at which female doctoral-level biomedical researchers at the National Institutes of Health leave the principal investigator career ladder and pursue alternative career options. 2) Search for the factors contributing to the loss of female researchers from the principle investigator career track. 3) Design and implement interventions within the NHBLI intramural research program to enhance the retention of female investigators in the pipeline towards success as a tenured senior investigator at the NHLBI or elsewhere.

**Methods/Approach:** 1) and 2) Three sources of data are being obtained and analyzed. An NIH-wide fellow survey designed with my input and conducted by the Deputy Director for Intramural Research identified a decrease in the percentage of female vs male postdoctoral fellows planning on pursuing a career as a PI between postdoctoral years 1-3 versus 3 or more. A significantly lower percentage of female versus male NHLBI postdoctoral fellows over the past 5 years moved onto tenure-track positions, and comparison of eventual fellow disposition to stated career goals at entry is ongoing. A detailed postdoctoral survey regarding factors contributing to career decisions has been distributed and results will be available in April. 3) Since women seem to move disproportionately away from the PI track during their postdoctoral training, we designed a program to target this stage of the pipeline. In my role as the NHLBI Women Scientists Advisor, and in collaboration with all NHLBI tenured and tenure-track women, we have begun implementation of a new program to provide NHLBI female postdoctoral fellows with periodic access to senior NHLBI women scientists, in the context of didactic programs on career strategies, a book group/journal club to discuss relevant literature relevant to career progression, and small group or 1:1 interactions for support and advice regarding career strategies as well as sharing of personal stories that may encourage postdoctoral fellows to consider careers as PIs.

**Outcomes and Evaluation Strategy:** We will collect career planning documents yearly from NHLBI postdoctoral fellows, adding questions regarding the utility of the new postdoctoral support program. We hope to detect a measurable increase in women applying to be PIs at the completion of training.

# Fixing the Leaky Supply Pipeline for Female Principal Investigators in the NHLBI Intramural Program

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## Challenges and Opportunities

- A rapid transformation of United States medical schools biomedical PhD programs has occurred over the past thirty years
- Women now constitute half of graduating classes from MD and/or biomedical PhD programs
- At intramural NIH, half of current postdoctoral fellows are women
- The representation of female MDs or PhDs as principal investigators at the NIH
  - 24% of NIH intramural tenure-track and tenured principal investigators
  - 16% of leadership positions (Lab, Branch or Center Directors)
  - No improvement since the mid 1980s
- The NHLBI Intramural program lags behind these NIH-wide numbers
  - 15 and 22% tenured and tenure-track female investigators respectively
  - Only 1 female Branch or Center Chief

## Objectives

- Identify the stage at which female doctoral-level biomedical researchers at the NHLBI/NIH leave the principal investigator (PI) career ladder and pursue alternative career options
- Search for the factors contributing to the loss of female researchers from the PI career track at NHLB and NIH
- Design and implement interventions within the NHLBI intramural research program to enhance retention of female investigators in the pipeline towards success as a tenured PI at the NHLBI/NIH or elsewhere in academia

## Approach

- Analysis of NHLBI postdoctoral fellow entry surveys and disposition database 2009-2013
- Perform and analyze two surveys of NIH postdoctoral fellows regarding career plans and the time during training that changes in career plans occur
- Comparison of gender balance in applicants versus hires in the NIH-wide Earl Stadtman centralized tenure-track PI recruitment process
- Analysis of salaries for female and male NHLBI and NIH investigators

## Postdoctoral Fellow Disposition and Surveys

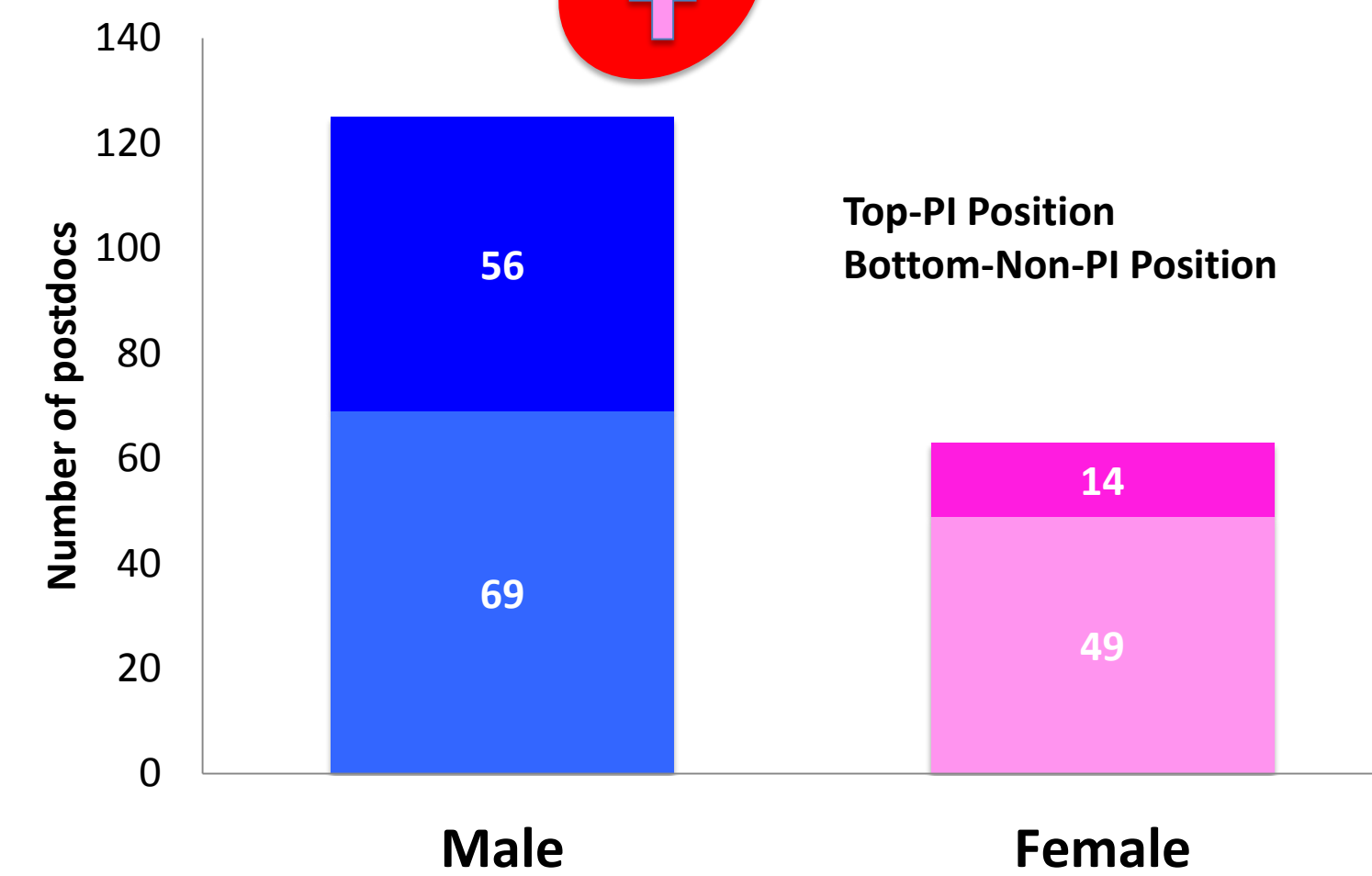
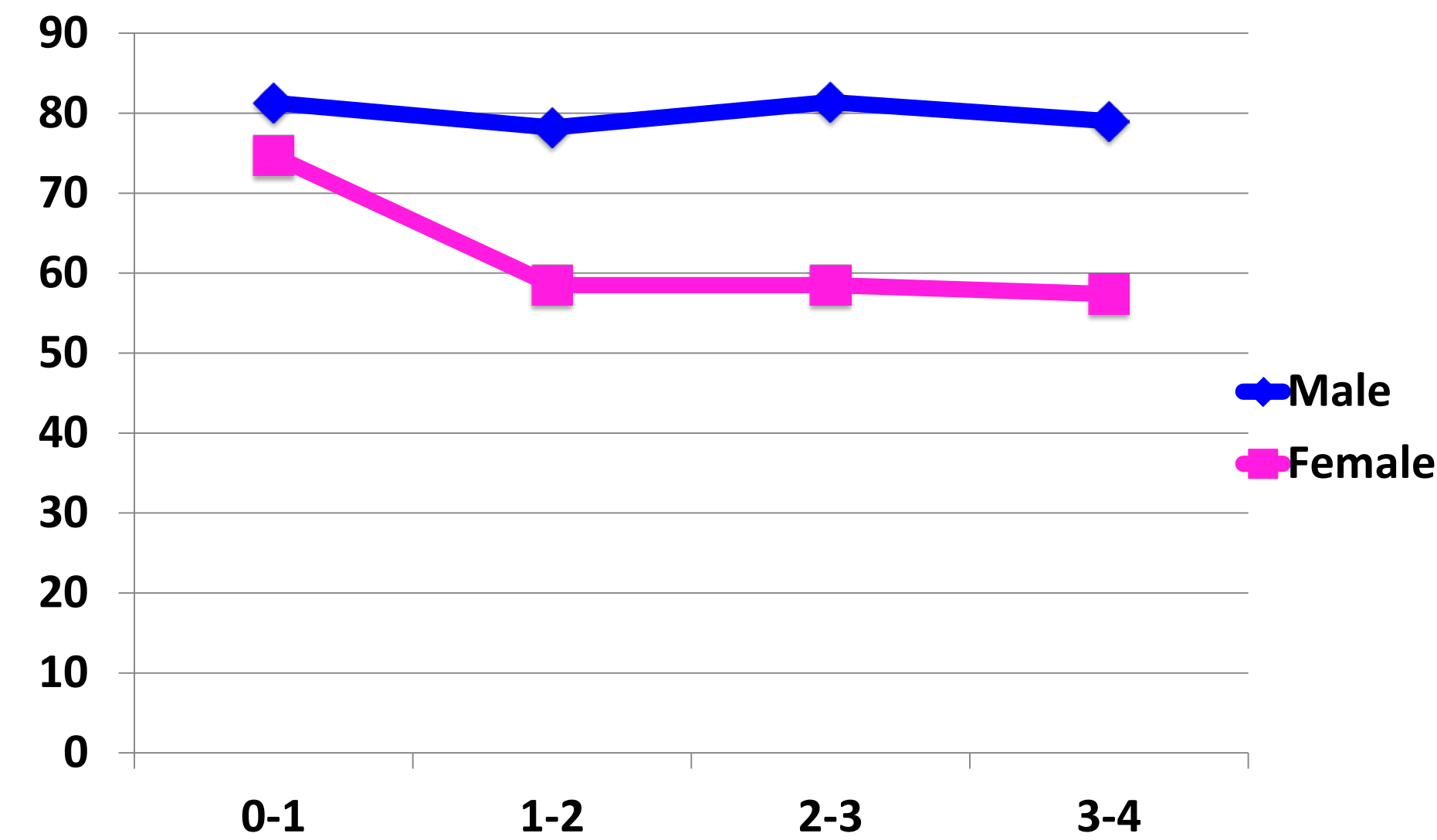
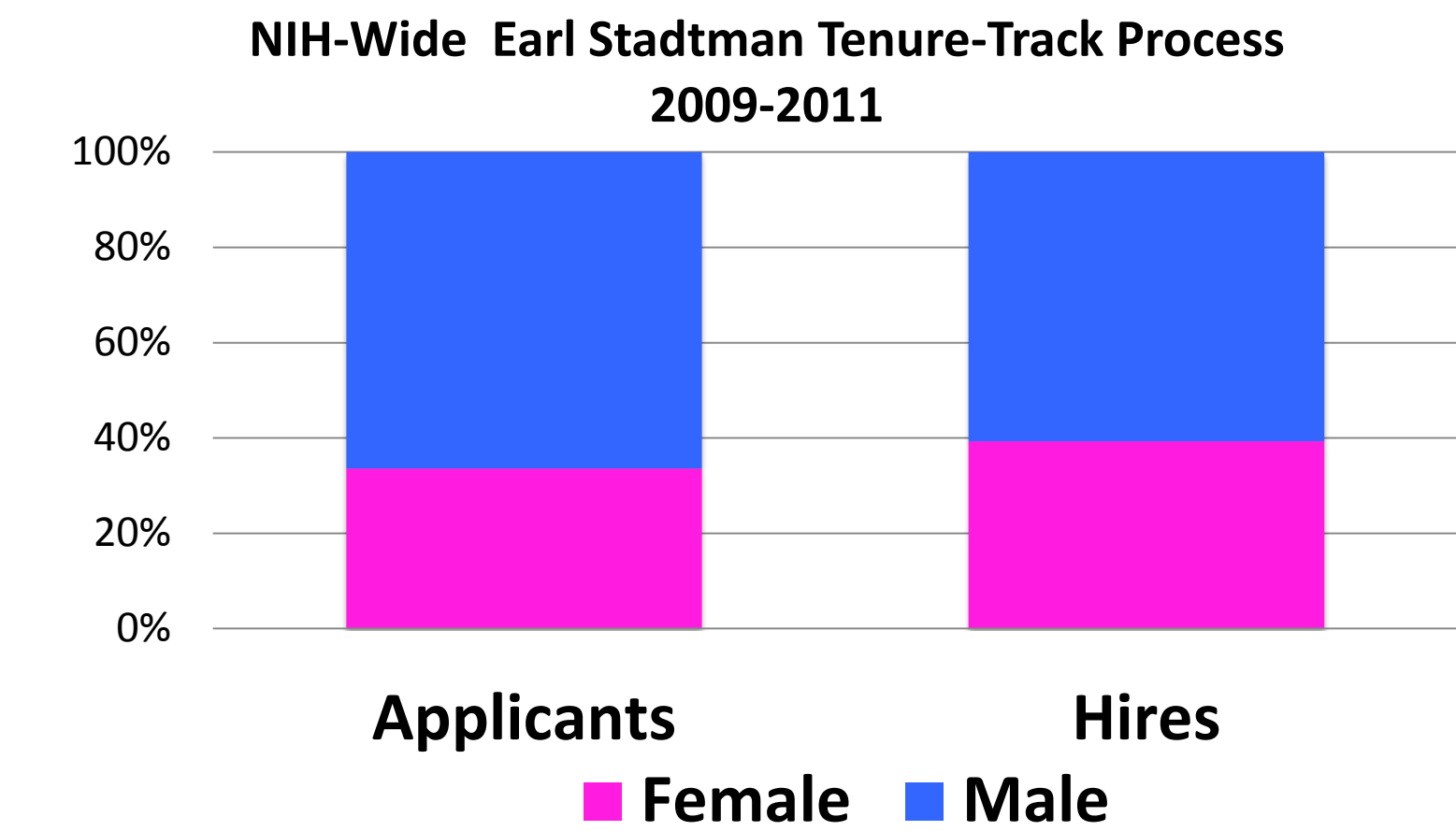


Chart showing next position obtained for NHLBI postdocs completing postdoctoral training 2009-2013, and moving onto a non-training position. A significantly higher fraction of males versus females entered PI positions ( $p=0.0025$ , Fischer's exact test)



% of NIH postdoctoral fellows indicating they have interest in applying for a PI position following their training, by the number of years post PhD degree (from NIH fellow survey, open-ended question allowing checking of box for categories of career pathways they are interested in pursuing)

## Tenure-Track Recruitment



## Salary Survey

- NHLBI survey demonstrated no significant differences in salaries, comparing male to female tenured PIs, tenure-track PIs, staff clinicians, or staff scientists
- NIH survey of PIs also demonstrated no significant differences in salary by gender

## Discussion

- We have identified the early postdoctoral training period as the most vulnerable time for women in losing interest/motivation to become a PI
- In comparison to the 1991 NIH salary survey, there were no pervasive gender discrepancies in salaries to explain this loss of interest/motivation
- The NIH tenure-track recruitment process appears to be effective in hiring women at a rate equal or greater than their representation in the applicant pool
- **Interventions need to target women at NIH early in postdoctoral training in order to have an impact on preventing the loss of women from the biomedical research PI and academic leader pipeline**

## Next Steps

- Design of a program for NHLBI women postdoctoral fellows to provide:
  - Access to and advice PIs regarding career progress and career-life balance
  - Journal club/discussion group regarding current literature on career progression and success and the impact of gender
  - Mentorship/sponsorship to increase visibility and confidence
- Implementation and evaluation of the program together with the NHLBI/NIH Women Scientists Advisors, and the NHLBI Office of Education