PROJECT SUMMARY AND PRODUCTS
NPA ADVANCE Project Summary

NPA ADVANCE: From Postdoc to Faculty: Transition Issues for Women Scientists is a project to foster the transition of women postdocs into the professoriate. Supported by a three-year grant from the National Science Foundation’s ADVANCE program for “advancing” the representation of women in academic careers, the project will adapt and disseminate promising institutional practices for assisting women scientists and engineers in making this transition. The NPA will draw on successful models from both past ADVANCE programs as well as from the postdoctoral community, then adapt and promote them through various avenues.

Project Staff
- Principal Investigator: Cathee Johnson Phillips, NPA Executive Director
- Project Manager: Kathleen Flint Ehm, NPA Project Manager
- Project Evaluator: Laura Kramer, Kramer Consulting

Project Advisory Committee
- Sibby Anderson-Thompkins, Director, Postdoctoral Affairs, University of North Carolina at Chapel Hill
- Jabbar Bennett, Assistant Dean, Recruiting and Professional Development, Brown University
- Daryl Chubin, Program Director, Center for Advancing Science and Engineering Capacity, American Association for the Advancement of Science
- Lisa Frehill, Executive Director, Commission on Professionals in Science and Technology
- Donna Ginther, Associate Professor, Department of Economics, University of Kansas
- Janet Bandows Koster, Executive Director, Association for Women in Science
- Linda Siebert-Rapoport, Director, WISEST (Women in Science & Engineering System Transformation), University of Illinois at Chicago
- Hui Zhao, Senior Data Analyst, Department of Breast Medical Oncology, The University of Texas, M. D. Anderson Cancer Center

Mission Statement
The mission, goals, and duties of NPA ADVANCE are:
- To conduct a review of all institutional efforts made by ADVANCE recipients to address the outlined issues facing women postdocs, including surveys, targeted follow-up and focus groups
- To organize a National Summit on Gender and the Postdoctorate
- To prepare and disseminate a compendium resource handbook of models and recommended practices for helping women make a successful transition from postdoc to faculty
- To hold workshops on these recommended models and practices at NPA Annual Meetings
- To provide on-going technical assistance to summit participants and others who wish to implement programs for postdocs at their institutions
- To develop online informational clearinghouse on best practices, including resource handbook
Statistics on Postdocs and Gender

The postdoctoral position - a temporary period of training and mentored research following the receipt of a doctoral degree - is a critical transition point in the academic career pipeline where the numbers of women scientists and engineers significantly decline. While the relative fraction of women in academic science and engineering decreases at every successive step along the career pipeline (see Figure 1 below), these decreases primarily occur before the tenure track and are greatest for the fields where the postdoctoral position is most common\(^1\). Increasingly, the postdoctoral position has become a required step for continuing into the professoriate in these fields, creating an additional career hurdle and lengthening the total elapsed time until the first permanent position. Moreover, the likelihood that a postdoctoral scholar (postdoc) obtains a tenure-track position also has decreased\(^2\).

**Demographics.**

- Women are a smaller fraction of the overall postdoc population than men; however, this seems primarily due to the fact that most postdocs are international (temporary visa holders) and most international postdocs are men (see Figure 2). The fraction of male vs. female postdocs who are U.S. citizens and permanent residents is roughly equal. (Sigma Xi)

- The postdoctoral career phase coincides for many scientists with the time of family formation. The majority of postdocs (male and female) are between the ages of 30 and 35 and are married or partnered, and approximately one-third have children (Sigma Xi). The proportion of postdocs who are married/partnered or have children is higher among men than women (see Figure 3).

**Postdocs and Families.**

- Postdoc women with children spend more on childcare than men, spend more of their time on child rearing duties, and are more likely to have a spouse who also works. (Sigma Xi, Martinez et al. 2007)

- Postdoc women are more likely than postdoc men to include children as an important consideration in their career planning (Mason & Goulden 2002, Martinez et al. 2007).

**Postdoc Careers.**

- Postdoc women are more likely than postdoc men to opt against the academic or principal investigator (PI) path (Mason & Goulden 2002, Ley et al. 2008, Martinez et al. 2007, Goulden et al. 2009).

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\(^1\) For a discussion of this issue, see for example, Goulden, Frash & Mason 2009; Ginther & Kahn 2009; Ley et al. 2008; NRC 2007 *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering*, Martinez et al. 2007; Nelson 2007; NRC 2001 *From Scarcity to Visibility: Gender Differences in the Careers of Doctoral Scientists and Engineers.*

\(^2\) National Science Foundation *Science and Engineering Indicators 2008*, see Figure 3-40.
• There have been a number of studies examining the possible reasons postdoc women leave the academic career path. Some of the key issues for postdoc women appear to be family considerations (c.f. Goulden, Frasch & Mason 2009) and confidence issues (Martinez et al. 2007).

• Although a majority of both men and women biomedical postdocs feel their professional preparation is adequate, women are less confident they will obtain a PI position and tenure (Martinez et al. 2007).

• Postdoc women who have had children since becoming postdocs are twice as likely as men who also have had children to change their career goal away from professor with a research emphasis. These women are also twice as likely to change their career goal from the professoriate as women who have not had children and have no future plans to have children (Goulden et al. 2009).

• Postdoc women with children are significantly less likely than men and women without children to get a tenure-track job within nine years of the Ph.D. (Ginther & Kahn 2009).

**FIGURE 1:** Percentage of women in each step in the pipeline for the disciplines with the largest numbers of postdocs: Biological Sciences, Chemical Engineering, Chemistry, Physics and Psychology. Careers steps include: Those receiving their PhD between 1996-2005 (Nelson 2007); Postdoctoral scholars in 2006 (NSF 2009); and tenured and tenure-track assistant professors in 2007 (Nelson 2007)

**FIGURE 2:** The breakdown of postdocs by gender and visa status. SOURCE: Sigma Xi National Postdoc Survey 2005 postdoc.sigmaxi.org
FIGURE 3: The fraction of male and female postdocs who are partnered or married and those who have children. SOURCE: Sigma Xi National Postdoc Survey 2005 postdoc.sigmaxi.org

References.


NPA ADVANCE Products

**From Ph.D. to Professoriate: The Role of the Institution in Fostering the Advancement of Postdoc Women** is a resource book developed by the National Postdoctoral Association as part of NPA ADVANCE. The book provides an overview of our current understanding of the various factors impeding postdoc women's continuation in academia and recommended practices that have shown promise for aiding these women in overcoming these obstacles. The goal is to help focus institutions' efforts to support postdoc women to foster their career advancement.

**A Postdoc's Guide to Paternity Leave** is a guide developed as part of the NPA ADVANCE. The guide about paternity leave for expectant postdoc fathers includes tips for where postdocs might look for information on their leave options as well as suggestions for talking with their supervisor about taking leave.

**A Postdoc's Guide to Pregnancy and Maternity Leave** is a guide developed as part of the NPA ADVANCE for women who are pregnant or planning for pregnancy during their postdoc.
More Resources from NPA ADVANCE

Overviews:

- NPA ADVANCE Fact Sheet: [Postdoctoral Scholars, Gender, and the Academic Career Pipeline](#)

- **NPA ADVANCE Focus Group Findings:** In 2010, NPA ADVANCE conducted a series of four focus groups with current and former postdoc women about their career paths and the influences on their career decisions.

Presentations:

- "**Mentoring Plans for Postdoctoral Associates,**" NSF Joint Annual Meeting (JAM) June 2009, Cathee Johnson Phillips, NPA Executive Director and ADVANCE PI, spoke on postdoc mentoring plans.

- **Poster:** "**NPA ADVANCE: Helping Postdoc Women Advance in the Academic Pipeline,**" ADVANCE PI Meeting October 2009, Kathleen Flint, NPA ADVANCE Project Manager.

- **Amber Budden:** [Postdocs & Gender: What Do We Know? Data from the Sigma Xi Postdoctoral Survey](#) March 2010 National Summit on Gender and the Postdoctorate

- **Donna Ginther:** [The Postdoc and Women’s Academic Careers - More Questions than Answers](#) March 2010 National Summit on Gender and the Postdoctorate

- **Mary Ann Mason:** [Staying Competitive: Patching the Leaky Pipeline in the Sciences](#) March 2010 National Summit on Gender and the Postdoctorate

- **Jeri Metzger Mulrow:** [NSF Data on Postdocs: What Do We Know? What Else Should We Know?](#) March 2010 National Summit on Gender and the Postdoctorate

- **Diana Stavreva:** [Falling off the Academic Bandwagon: Why women are more likely to quit at the postdoc to principal investigator transition](#) March 2010 National Summit on Gender and the Postdoctorate

- **Conference:** National Summit on Gender and the Postdoctorate March 2010, slides from the plenary and breakout presentations are available on the Summit website, [See all summit presentation slides](#).

- "**Tips and Tools for Mentoring Postdoc Women,**" American Chemical Society Meeting March 2010, Kathleen Flint, NPA ADVANCE Project Manager, presented at a symposium on "Successful Mentoring Strategies to Facilitate the Advancement of Women Faculty"

- "**Postdocs and Title IX,**" ADVANCE PI Meeting November 2010, Cathee Johnson Phillips, NPA Executive Director and ADVANCE PI, presented at a session on "Title IX and the ADVANCE Mission," examining the implications of Title IX for broadening the participation of women in academic science.

- "**Early-Career Gender Issues: Navigating the Leaky Pipeline,**" Medical College of Wisconsin February 2011, Kathleen Flint Ehm, NPA ADVANCE Project Manager, presented data on reasons graduate student and postdoc women state for leaving the academic career pipeline and strategies these women can use to optimize their career choices.

- **Workshop:** "**NPA ADVANCE: Facilitating the Advancement of Postdoc Women at Your Institution,**" NPA Annual Meeting March 2011, a NPA ADVANCE-sponsored workshop.
which provided an overview of the key challenges for postdoc women and an introduction to some promising practices for assisting these women to advance their careers.

- **Workshop Presentations:**
  - "Postdoc Gender Issues: Patching the Leaky Pipeline," Kathleen Flint Ehm, NPA ADVANCE Project Manager
  - "Postdocs, Federal Initiatives and Title IX," Cathee Johnson Phillips, NPA Executive Director and ADVANCE PI
  - "Programs and Lessons Learned Through ADVANCE," Jan Rinehart, Executive Director, ADVANCE Program, Rice University

- **Poster:** "NPA ADVANCE: Facilitating Women's Advancement in the Academic Career Pipeline," NPA Annual Meeting March 2011, Kathleen Flint Ehm, Project Manager, and Cathee Johnson Phillips, NPA Executive Director and ADVANCE PI.

- "Facilitating Postdoc Women's Advancement in the Academic Career Pipeline," Oregon State University May 2011, Cathee Johnson Phillips, NPA Executive Director and ADVANCE PI, presented an overview of national trends for postdocs and postdoc women and offered recommendations for how institutions, federal agencies and individual postdocs can foster postdoc women's career advancement in academia.

- "Postdoc Women and the Leaky Pipeline: Strategies for Advancing Your Academic Career," Stony Brook University June 2011, Kathleen Flint Ehm, NPA ADVANCE Project Manager, presented data on reasons postdoc women state for leaving the academic career pipeline and strategies these women can use to advance their academic career.

- "Gender Issues for Postdocs: Navigating the Leaky Pipeline," Woods Hole Oceanographic Institute July 2011, Kathleen Flint Ehm, NPA ADVANCE Project Manager, presented data on the factors influencing postdoc women's continuation in the academic career pipeline, and offered recommendations for what institutions and individual postdocs can do to optimize postdocs' career choices.

- **Poster:** "NPA ADVANCE: Family-Friendly Resources for Women Postdocs," ADVANCE PI Meeting November 2011, Kathleen Flint Ehm, NPA ADVANCE Project Manager, and Cathee Johnson Phillips, NPA ADVANCE PI and NPA Executive Director.

- **Workshop:** "Institutional Strategies for Advancing Postdoc Women's Careers," NPA Annual Meeting March 2012, a NPA ADVANCE-sponsored workshop which provided an introduction to challenges and strategies for fostering the advancement of postdoc women's careers, including discussion of specific challenges for institutions in implementing such strategies.
  - **Workshop Presentations:**
    - "Institutional Strategies for Advancing Postdoc Women's Careers," Kathleen Flint Ehm, NPA ADVANCE Project Manager
    - "Do Babies Matter?" Mary Ann Mason, Professor of the Graduate School and Faculty Co-Director of the Earl Warren Institute for Law and Social Policy, University of California, Berkeley
• Poster: "From Ph.D. to Professoriate: The Role of the Institution in Fostering the Advancement of Postdoc Women," ADVANCE PI Meeting March 2013, Kathleen Flint Ehm, NPA Program Manager, and Cathee Johnson Phillips, NPA ADVANCE PI and NPA Executive Director.

Reports:

• Sigma Xi Postdoc Survey Results: Doctors Without Orders (2005)

• Postdocs: What We Know and What We Would Like to Learn (2002)

National Academies Reports:

• Gender Differences at Critical Transitions in the Careers of Science, Engineering, and Mathematics Faculty (2010)

• Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering (2007)

• From Scarcity to Visibility: Gender Differences in the Careers of Doctoral Scientists and Engineers (2001)

• Enhancing the Postdoctoral Experience for Scientists and Engineers: A Guide for Postdoctoral Scholars, Advisers, Institutions, Funding Organizations, and Disciplinary Societies (2000)

National Science Foundation Data:

• Women, Minorities, and Persons with Disabilities in Science & Engineering (See Data Tables section on Postdoctorates)

• Graduate Students and Postdoctorates in Science & Engineering (annual survey of U.S. academic institutions)

• Science and Engineering Indicators (postdocs are typically covered in the S&E labor force chapter)

News

• "Greater Retention Efforts Aimed at Postdoc Women," May 2010, Kathleen Flint, NPA ADVANCE Project Manager, University of California Postdoc newsletter

• "Planning for Maternity Leave: A Postdoc's Tale," November 2011, Kathleen Flint Ehm, NPA ADVANCE Project Manager, University of California Postdoc Newsletter

• "Demystifying Maternity Planning for Postdocs," November 2011, Kathleen Flint Ehm, NPA ADVANCE Project Manager, ASBMB Today, November 2011
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