Gender Issues for Early-Career Scientists: Navigating the Leaky Pipeline

Kathleen Flint Ehm, Ph.D.
National Postdoctoral Association

February 14, 2011
Medical College of Wisconsin
What is the NPA? A non-profit, member-driven professional organization providing a national voice for postdoctoral scholars.

Mission: To advance the U.S. research enterprise by maximizing the effectiveness of the research community and enhancing the quality of the postdoctoral experience for all participants.

Activities: National Advocacy, Resource Development, Community Building
NPA is a Member Organization

- **MCW is an NPA Sustaining Member**
- Free affiliate memberships for MCW students, postdocs & staff!
- Access to members-only resources and Web content
- Discounts on meetings & other services
  - Next Annual Meeting: March 25-27, 2011
- Receive e-alerts and news
- **Sign up online for immediate access**
  [http://www.nationalpostdoc.org/affiliatemembership](http://www.nationalpostdoc.org/affiliatemembership)

www.nationalpostdoc.org/advance
NPA ADVANCE

- NPA ADVANCE is a project to adapt and disseminate promising institutional practices that can help women postdocs successfully transition to faculty careers.
- We provide:
  - Summary of current data on postdocs and gender
  - Clearinghouse of promising practices for institutions
  - Technical assistance to institutions seeking to implement programs for postdoc women
  - Forthcoming resource guide
- Supported by National Science Foundation’s ADVANCE program

This material is based upon work supported by the National Science Foundation under Grant No. 0819994. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.
The Leaky Pipeline of Scientist Women

Figure adapted from Mary Ann Mason, based on study from Goulden, Mason & Frasch 2009, "Staying Competitive Patching America’s Leaky Pipeline in the Sciences."
The Leaky Pipeline of Scientist Women

Figure adapted from Mary Ann Mason, based on study from Goulden, Mason & Frasch 2009, "Staying Competitive Patching America’s Leaky Pipeline in the Sciences."
At every academic career milestone the proportion of women in science and engineering declines. In examining the transition into academic positions, the declines are greatest in fields requiring a period of postdoctoral study. Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering (2007)
The Leaky Pipeline of Scientist Women

Getting First Tenure-Track Job:
- Married women with children 37% less likely than married men with children
- Married women with children 33% less likely than single women without children

Figure & data adapted from Mary Ann Mason, based on study from Goulden, Mason & Frasch 2009, *Staying Competitive Patching America’s Leaky Pipeline in the Sciences.*
Early Career vs. Family Formation

**Graduate students**

- Most aged 26-35 (69%)
  - 30% aged 30-35
- Most married (~60%)
- About a third are visa holders
- 47% are women

Early Career vs. Family Formation

**Postdocs**
- Most in life/health sciences (66%)
- Most aged 30-35 (58%)
- Most married or partnered (69%)
- Most are visa holders (57%)
- 42% are women
- 34% have children
- Men more likely to have:
  - children
  - non-working spouse/partner
  - family-based childcare

DATA SOURCES: NSF Graduate Students and Postdoctorates in Science and Engineering: Fall 2007; Sigma Xi Postdoc Survey: postdoc.sigmaxi.org
Why do graduate student women leave academia?

- Leading reasons: work-life balance
  - Larger fraction of women than men changed their career goal from professor with research emphasis (Goulden, Mason & Frasch 2009)
  - Four of top five reasons: work-life balance
- Ph.D. women twice as likely as men to cite children as important reason
- Group with greatest % change: new mothers
Why do postdoc women leave academia?

- Leading reasons appear to be:
  - Challenges related to family formation
    - Dual-career partners
    - Childcare
    - Family leave
  - Disenfranchisement
    - Feelings of isolation and alienation
    - Lack of encouragement and confidence
#1 Reason: Issues related to children

- Leading reason for career goal change: Issues related to children\(^1\)
  - For men: career advancement & compensation
  - Postdoc women with new children during postdoc twice as likely to change goal as:
    - postdoc men with new kids, and
    - postdoc women with no kids/no plans for kids
- Postdoc women more likely to cite children as important in career decisions\(^2\)
- Being a postdoc has impacted their decisions to have children\(^3\)

Focus Group comment

• “You know having a baby during grad school, maybe not the best idea. Having your baby while you’re tenure track, maybe not the best idea. So does that mean that I have to get pregnant right now because my postdoc is 24 months long and that's it?”
Other Reasons

- Dual-career concerns
  - More likely than men to make career concessions for partner\(^1\)
- Confidence
  - Less confident they will obtain PI position and tenure, despite feeling their preparation is adequate\(^1\)
- Lack of encouragement, mentoring and role models\(^2,3\)
- Feelings of isolation/alienation\(^2\)

DATA SOURCES:
What are Institutions Doing?

- A LOT
- Institutions becoming more family-friendly and supportive of career development -- even for trainees!
- NPA ADVANCE survey of 70 institutions
  - Asked about the presence of a series of promising practices for postdocs
  - Most practices had recently been offered, most of which directed at or available to postdocs
But also some limitations

- Most postdoc policies adopted
  - *Notable exception:* 28% **paid** maternity leave program for postdocs
- Other less common practices:
  - Financial support for childcare
  - Dual-career assistance for postdocs
Lingering Structural Problems

- Limited family-friendly benefits for trainees
  - Lack of maternity guidelines
    - Leave often negotiated case-by-case
    - Few institutions offer paid leave to trainees
    - Lack of awareness of unpaid leave protections
      - e.g. Title IX covers pregnancy discrimination
  - No dual-career assistance
    - Few incentives to “keep” contingent researchers
Lingering Structural Problems

- “Postdoc clock”
  - Need to allow for breaks and delays for caregiving
    - Funding durations
    - Fellowship & grant eligibility
    - CV evaluation
  - Limit penalties to postdocs and PIs
Lingering Structural Problems

• Incentivize mentorship
  • Needs to become part of core activities, rewarded as such

• Salaries
  • Secondary issue for postdocs
  • Finances linked to: Childcare, mortgages, immigration, dual-career decision-making
Navigating The Leaky Pipeline

What can you do to optimize your career choices?
First - the Normal Stuff

• What should you do to get that next job?
  • Do great research
  • Publish great papers
  • Attend great conferences

• What else can you do?
What Else Can You Do?

• Do your homework
  • Choose the best-fitting institution
  • Policies & benefits?
  • Strategies?
• Conduct self-assessment
  • Use NPA Core Competencies:
    www.nationalpostdoc.org/core-competencies
www.nationalpostdoc.org/core-competencies

Competencies Needed for Career Success in the 21st Century

- Scientific Knowledge
- Communication Skills
- Professionalism
- Management and Leadership Skills
- Responsible Conduct of Research
- Research Skill Development
<table>
<thead>
<tr>
<th>1</th>
<th>Discipline-Specific Conceptual Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Professional/Research Skill Development</td>
</tr>
<tr>
<td>3</td>
<td>Communication Skills</td>
</tr>
<tr>
<td>4</td>
<td>Professionalism</td>
</tr>
<tr>
<td>5</td>
<td>Leadership &amp; Management Skills</td>
</tr>
<tr>
<td>6</td>
<td>Responsible Conduct of Research</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Analytical Approach to Defining Scientific Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design of Scientifically Testable Hypotheses</td>
</tr>
<tr>
<td>Broad-Based Knowledge Acquisition</td>
</tr>
<tr>
<td>Interpretation and Analysis of Data</td>
</tr>
<tr>
<td>Literature Search Strategies and Effective Interpretation</td>
</tr>
<tr>
<td>Experimental Design</td>
</tr>
<tr>
<td>Statistical Analysis</td>
</tr>
<tr>
<td>Data Analysis and Interpretation</td>
</tr>
<tr>
<td>Laboratory Techniques and Safety</td>
</tr>
<tr>
<td>Principles of the Peer Review Process</td>
</tr>
<tr>
<td>Writing</td>
</tr>
<tr>
<td>Speaking</td>
</tr>
<tr>
<td>Teaching</td>
</tr>
<tr>
<td>Interpersonal</td>
</tr>
<tr>
<td>Special Situations</td>
</tr>
<tr>
<td>Workplace</td>
</tr>
<tr>
<td>Institutional</td>
</tr>
<tr>
<td>Collegial</td>
</tr>
<tr>
<td>Universal</td>
</tr>
<tr>
<td>Leadership-Strategic Vision</td>
</tr>
<tr>
<td>Leadership-Motivating and Inspiring Others</td>
</tr>
<tr>
<td>Management-Project Management</td>
</tr>
<tr>
<td>Management-Data and Resource Management</td>
</tr>
<tr>
<td>Management-Research Staff Management</td>
</tr>
<tr>
<td>Conflicts of Interest</td>
</tr>
<tr>
<td>Data Ownership and Sharing</td>
</tr>
<tr>
<td>Publication Practices and Responsible Authorship</td>
</tr>
<tr>
<td>Identifying and Mitigating Research Misconduct</td>
</tr>
<tr>
<td>Research with Human Subjects (when applicable)</td>
</tr>
<tr>
<td>Research Involving Animals (when applicable)</td>
</tr>
</tbody>
</table>
What Else Can You Do?

• Make a career plan
  • Include back up plans
  • Think long-term, esp. if visa involved
  • IDP can help with this!
    • Consult your Virtual Career Center!

• Find multiple mentors
  • Doesn’t need to be your PI

• Enhance your network
Dual-Career Concerns?

- Talk with partner before applying
  - Willing to commute? Live apart?
  - Discuss possible compromises
- Do your homework about job scenarios
  - Nearby institutions?
  - Shared positions?
  - Soft money or postdoc?
    - Odds of becoming permanent?
- Brush up on your negotiating
  - Partner assistance available?
  - Prepare for when to bring up partner
  - Negotiate up front
Taking Maternity Leave?

- Make a research plan
  - Willing to work from home?
  - Hire someone to fill in for you? (NIH allows this!)
- Make a salary plan
  - Paid leave options?
    - Short-term disability? Sick leave? Vacation leave?
    - NIH also allows for paid maternity leave...
  - Unpaid options?
    - This should be an option for you under Title IX
- Discuss in advance with PI
- Keep in mind - it’s OK not to work during leave!
For More Information

• Federal Funding Guidance
  • NIH Parental Leave/Childcare FAQ:
    http://grants.nih.gov/training/faq_childcare.htm
  • NIH Rock Talk Blog: Family-Friendly Policies Apply to All Grants
    http://nexus.od.nih.gov/all/2011/01/19/family-friendly-policies-apply-to-all-grants/

• NPA ADVANCE: www.nationalpostdoc.org/advance
  • Clearinghouse of institutional practices
  • Forthcoming resources:
    • Resource book for institutions on postdoc women
    • How to take maternity leave
    • Managing your research while on maternity leave
    • Postdocs and Dual-Career Job Searches
Thank you!

• Any questions? Feel free to contact me at kflint AT nationalpostdoc.org