



Gender Issues for Postdocs: Navigating the Leaky Pipeline

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National Postdoctoral Association

*July 19, 2011
Woods Hole Oceanographic Institute*





National Postdoctoral Association

- *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

- **WHOI is an NPA Sustaining Member**
- Free affiliate memberships for WHOI students, postdocs & staff!
- Access to members-only resources and Web content
- Discounts on meetings & other services
 - **Our 10th Annual Meeting: March 2012**
- Receive e-alerts and news
- *Sign up online for immediate access*
<http://www.nationalpostdoc.org/affiliatemembership>





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 resources for institutions and postdocs
- 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

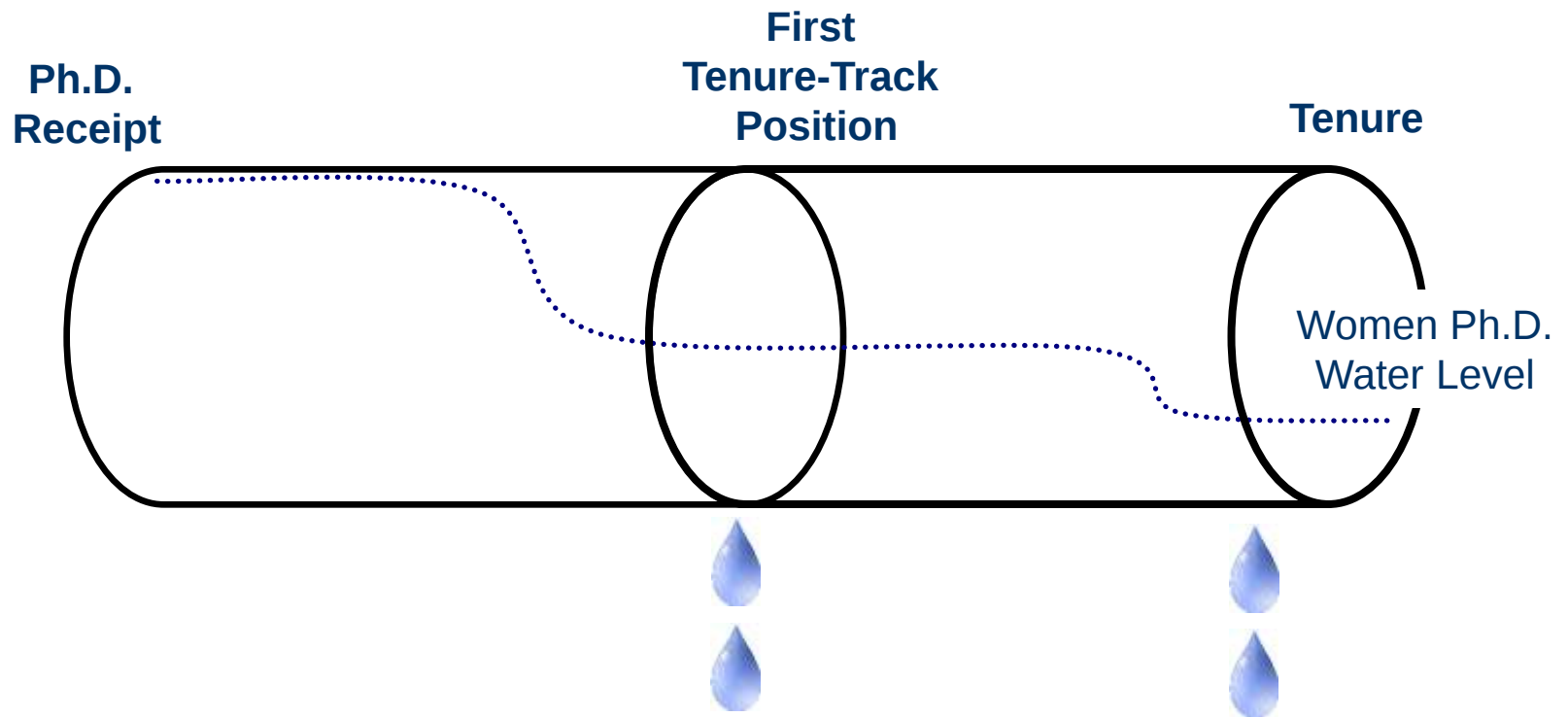


Figure adapted from Mary Ann Mason, based on study from Goulden, Mason & Frasch 2009, "Staying Competitive Patching America's Leaky Pipeline in the Sciences."

The Leaky Pipeline of Scientist Women

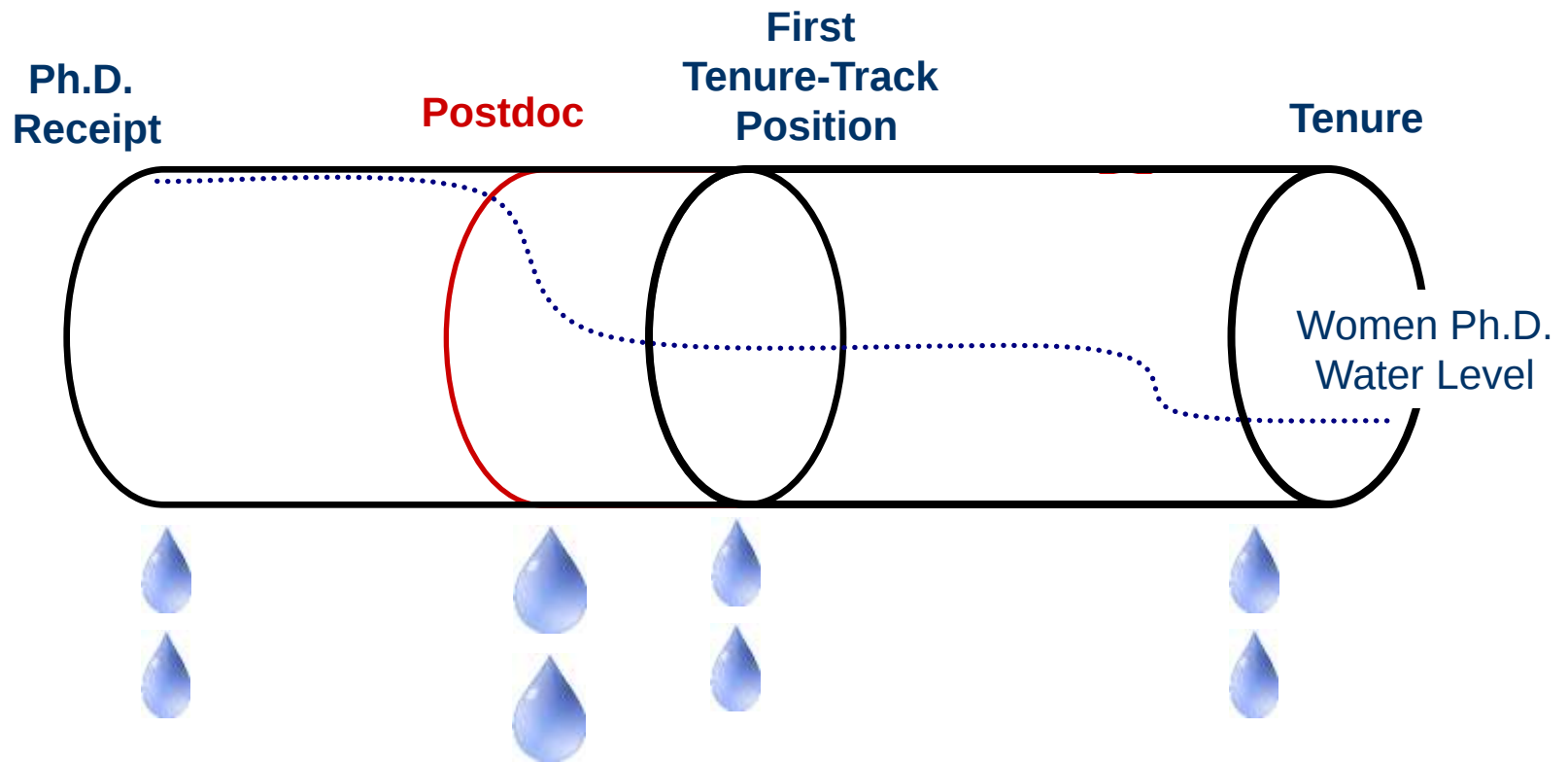


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Who are the postdocs?

- NSF/NIH Definition: A postdoctoral scholar ("postdoc") is an individual holding a doctoral degree who is engaged in a **temporary** period of **mentored** research and/or scholarly **training** for the purpose of acquiring the professional skills needed to pursue a **career path of his or her choosing**

post·doc (pōst'dŏk'), *n.*
adj. Postdoctoral.

1. A postdoctoral scholar

2. A postdoctoral program



Who are the postdocs?

- Most in biomedical sciences (67%)
 - 13% Physical Sciences
 - 10% Engineering
 - 2.5% Earth, Atmospheric, Ocean Sciences
- Most aged 30-35 (58%)
- Most married or partnered (69%)
- Most are visa holders (57%)
- 34% are women
- 34% have children

DATA SOURCES: NSF *Science and Engineering Indicators 2010*; NSF Graduate Students and Postdoctorates in Science and Engineering: Fall 2007; Sigma Xi Postdoc Survey (2005): postdoc.sigmaxi.org





Postdoc Career Path

More recent Ph.D.s do at least one postdoc

- Ph.D.s in <1972 vs. 2002-05:
 - All Science & Engineering: 31% → 46%
 - Life Science: 46% → 60%
 - Physical Science*: 41% → 61%



% Ph.D.s who do postdocs

DATA SOURCE: National Science Foundation Division of Science Resource Statistics. (January 2010). Science and engineering indicators 2010. Arlington, VA: National Science Board.

*Includes Earth, Atmospheric & Ocean Sciences





Postdoc Career Path

The academic job market has changed dramatically over time

- Recent Ph.D.s Employed at Academic Institutions:
 - 1979: 42% Full-Time TT Faculty vs. 25% Postdocs
 - 2006: 29% Full-Time TT Faculty vs. 45% Postdocs



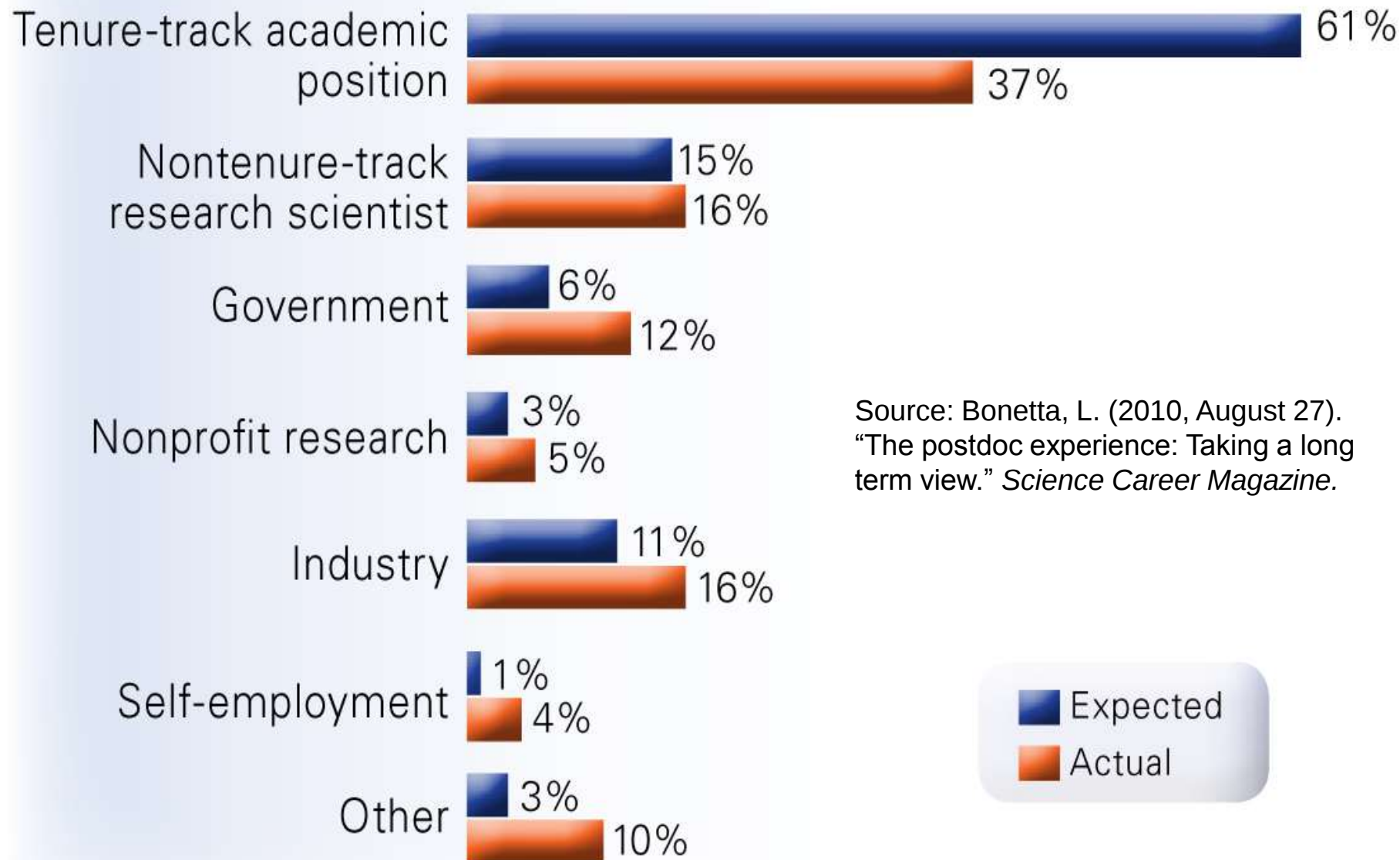
% TT faculty jobs



% postdoc jobs

DATA SOURCE: National Science Foundation Division of Science Resource Statistics. (January 2010). Science and engineering indicators 2010. Arlington, VA: National Science Board.

Type of Position Expected vs. Actually Obtained (Former Postdocs)



Source: Bonetta, L. (2010, August 27).
"The postdoc experience: Taking a long
term view." *Science Career Magazine*.

The Leaky Pipeline of Scientist Women

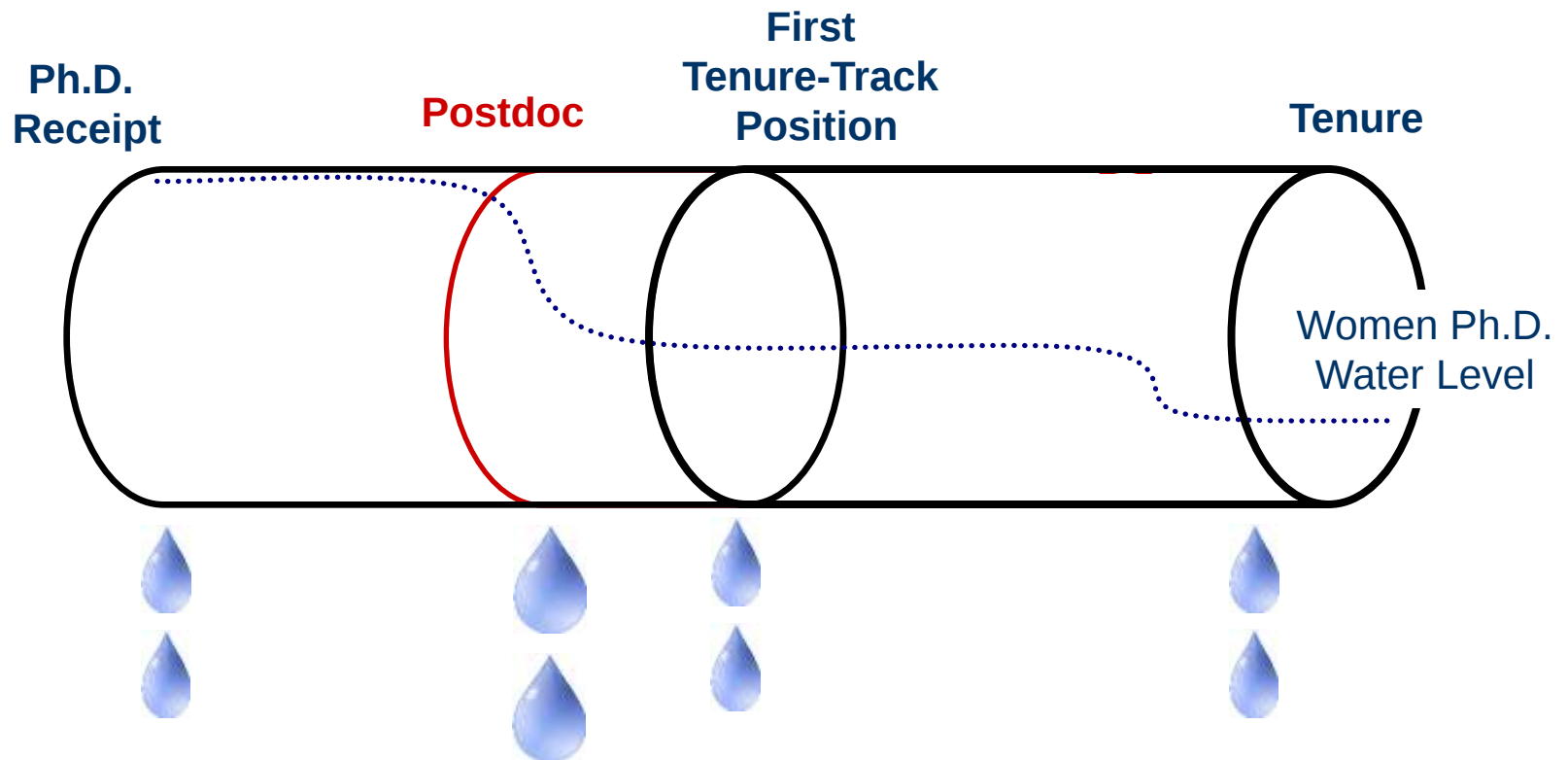
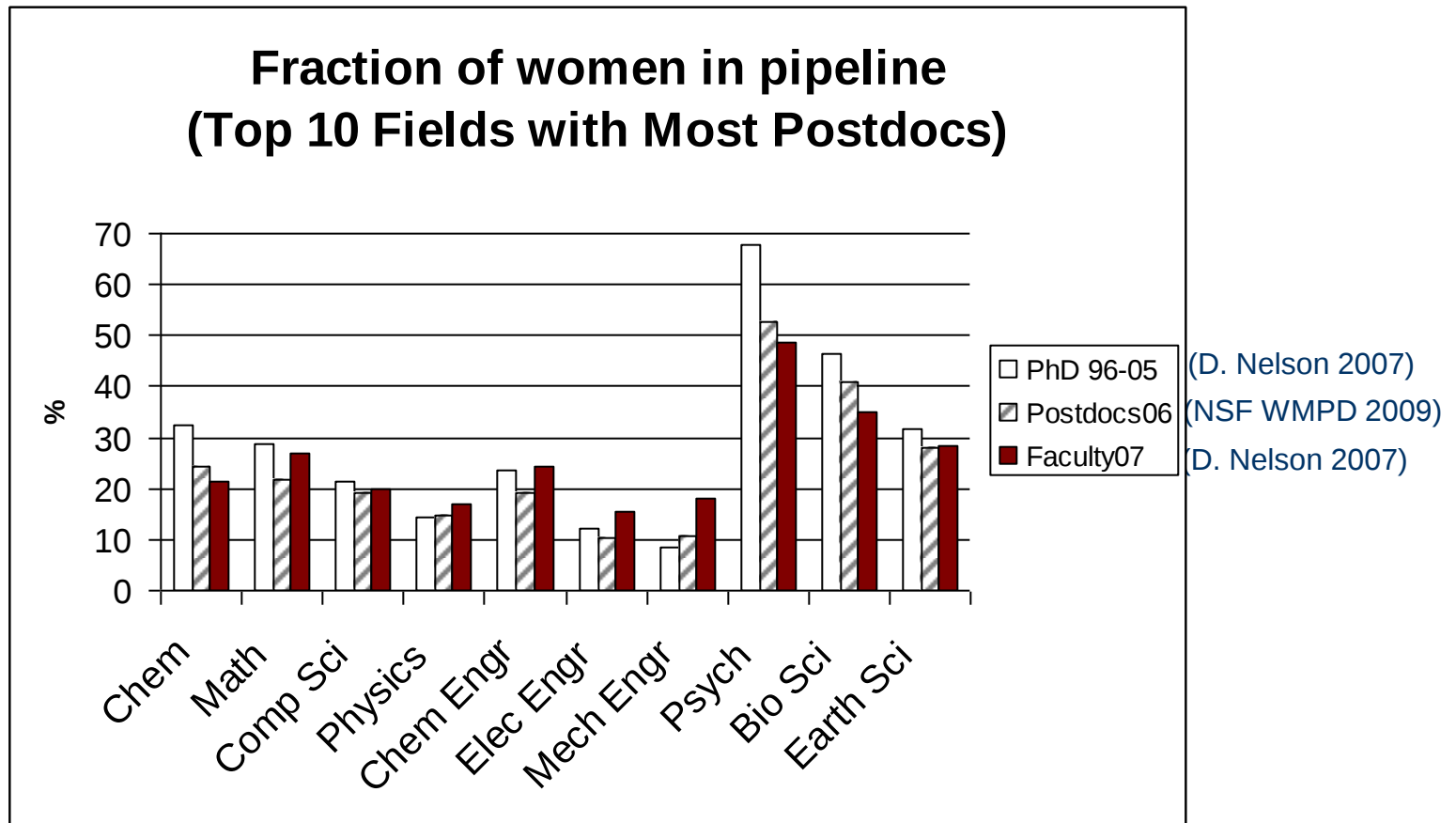


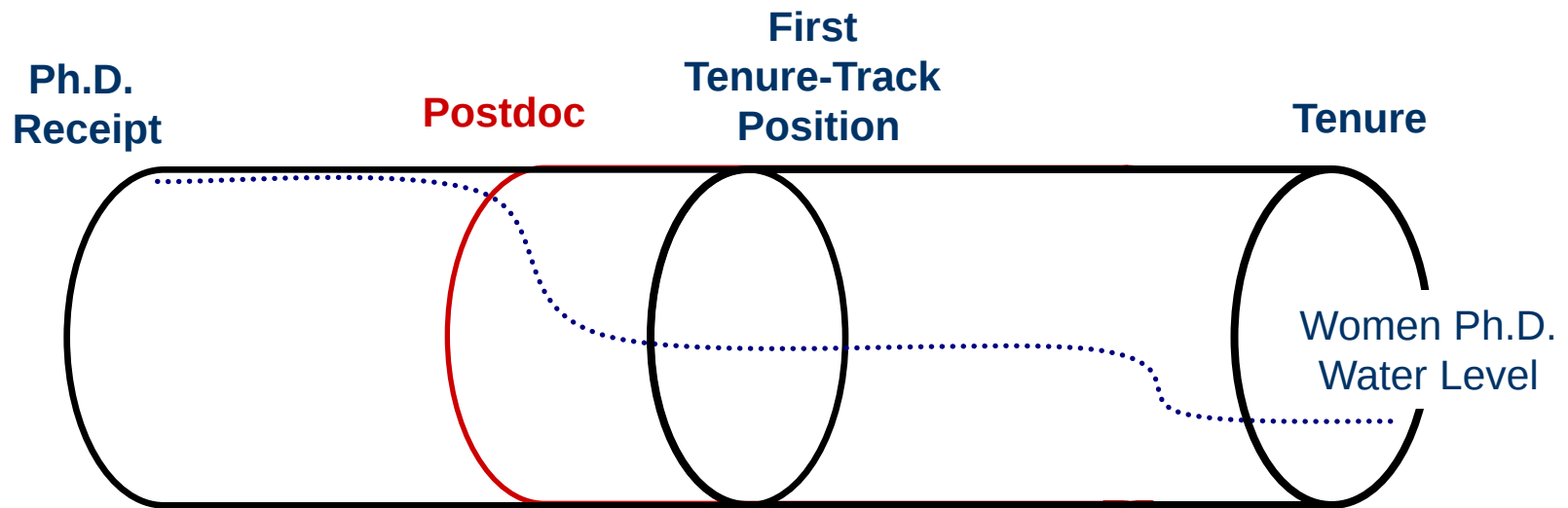
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The Leaky Pipeline of Scientist Women



“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."



Why do postdoc women leave academia?

First, a note about causality:

- Identifying factors, not reasons
- “Leaving” academia can include:
 - Opting against next job
 - Inability to get next job



Why do postdoc women leave academia?

- Leading factors appear to be:
 - Challenges related to family formation
 - Children
 - Dual-career partners
 - “Postdoc clock” vs. “Biological clock”
 - Disenfranchisement
 - Feelings of isolation and alienation
 - Lack of encouragement and confidence
 - *Perceived lack of status*





#1 Factor: Family Formation

- Leading factor cited for career goal change: Issues related to children¹
 - For men: career advancement & compensation
 - Postdoc women with **new children** during postdoc **twice** as likely to change goal as:
 - postdoc men with new children, and
 - postdoc women with no kids/no plans for kids

DATA SOURCES:[1]Goulden, Mason & Frasch 2009



#1 Factor: Family Formation

- Dual-career concerns
 - Academic women more likely than men to be partnered with another academic¹
 - More common for scientists, and early-career academics
 - Postdoc women more likely than men to make career concessions for partner²

DATA SOURCES:[1]Schiebinger et al. 2008, *Dual-Career Academic Couples: What Universities Need to Know*, Michelle R. Clayman Institute for Gender Research; [2]Martinez et al. 2007 *EMBO reports* 8(11):977



#1 Factor: Family Formation

- “Postdoc clock” vs. “Biological clock”
 - “Long enough, but short enough”
 - Family needs can cause delays
- Delays can impact:
 - Funding durations
 - Fellowship & grant eligibility
 - CV evaluation
 - Both postdoc and PI/boss

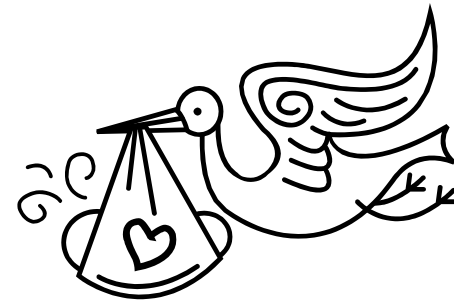




#1 Factor: Family Formation

- “You know having a baby during grad school, maybe not the best idea. Having your baby while your tenured, 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?”

-- *NPA ADVANCE Focus Group
with current postdoc women*





#2: Lack of Confidence & Isolation

- Lack of Confidence
 - Less confident they will obtain PI position and tenure, despite feeling their preparation is adequate¹
 - Lack of encouragement, mentoring and role models^{2,3}
 - Especially important for postdoc women of color
- Feelings of isolation/alienation²

DATA SOURCES: [1]Martinez et al. 2007; [2]Goulden, Mason & Frasch 2009; [3]Nolan et al. 2008, *Sex Roles*, 58, 235



#2: Lack of Confidence & Isolation

- Perceived lack of status
 - Neither student nor faculty
 - More dependent on PI/boss than institution
 - Commonly described as being in a “gray area” or “limbo”

“I’m actually in that uncomfortable position for me, because even in meetings, I don’t know how to introduce myself.”

“I was nobody’s responsibility any longer really. I was sufficiently grown up and all the practical attention is given mainly to the students and to the faculty members.”

-- NPA ADVANCE Focus Groups with former postdoc women



Other Considerations

- 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





Harvard is planning to build kids' nightcare facilities for postdoc couples.

*“Harvard is planning to build kids’ **nightcare** facilities for postdoc couples.”*



Other Considerations

- “Work, work, work” ethic often precludes professional development
 - Including mentoring
- Low salaries
 - Secondary issue for postdocs
 - Finances linked to: Childcare, mortgages, immigration, dual-career decision-making



Other Considerations

- Greater job market challenges?
 - On average, postdoc women may have fewer publications¹ and have attended fewer conferences than postdoc men.²
 - Letters of recommendation may not be as strong as those for men due to unconscious bias.³

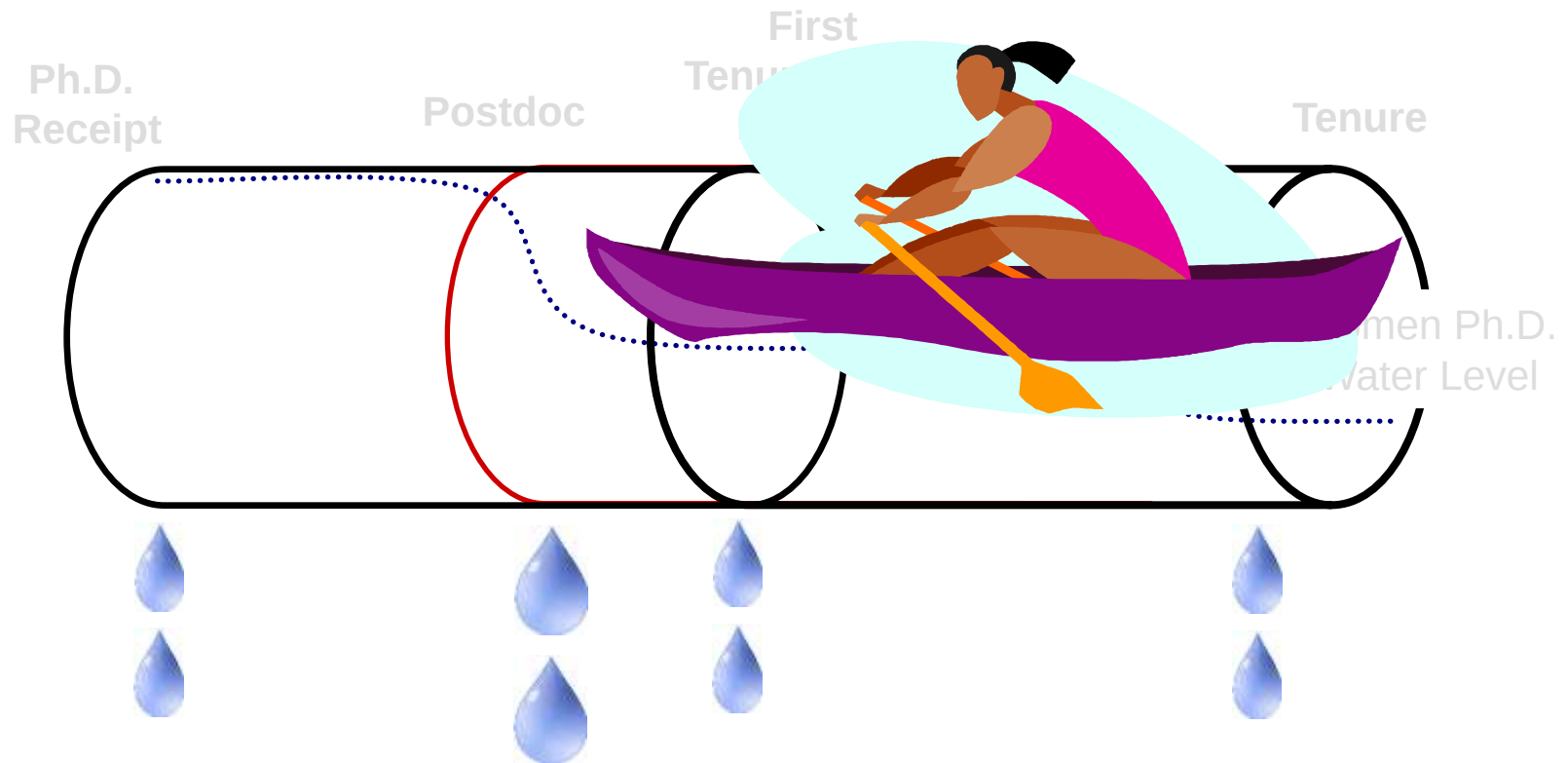
DATA SOURCES:[1] Davis, G. 2009. "Improving the Postdoctoral Experience: An Empirical Approach," In R. Freeman and D. Goroff (Eds.), *Science and Engineering Careers in the United States*; [2] Mason, M.A. & Goulden, M. 2002, *Academe*, 88(6): 21; [3] Steinpreis, R., Anders, K.A., and Ritzke, D. 1999, *Sex Roles*, 41, 509; See also Madera, Heibl & Martin 2009, *Journal of Applied Psychology*, 94(6):1591



International Postdocs

- Geographic (i.e., distance from family)
- Visa concerns
- Cultural differences
- Language barriers
- Additional Needs for Career Guidance
 - May have limited networks in the U.S.
 - Less familiarity with U.S.-based funding procedures; fewer opportunities

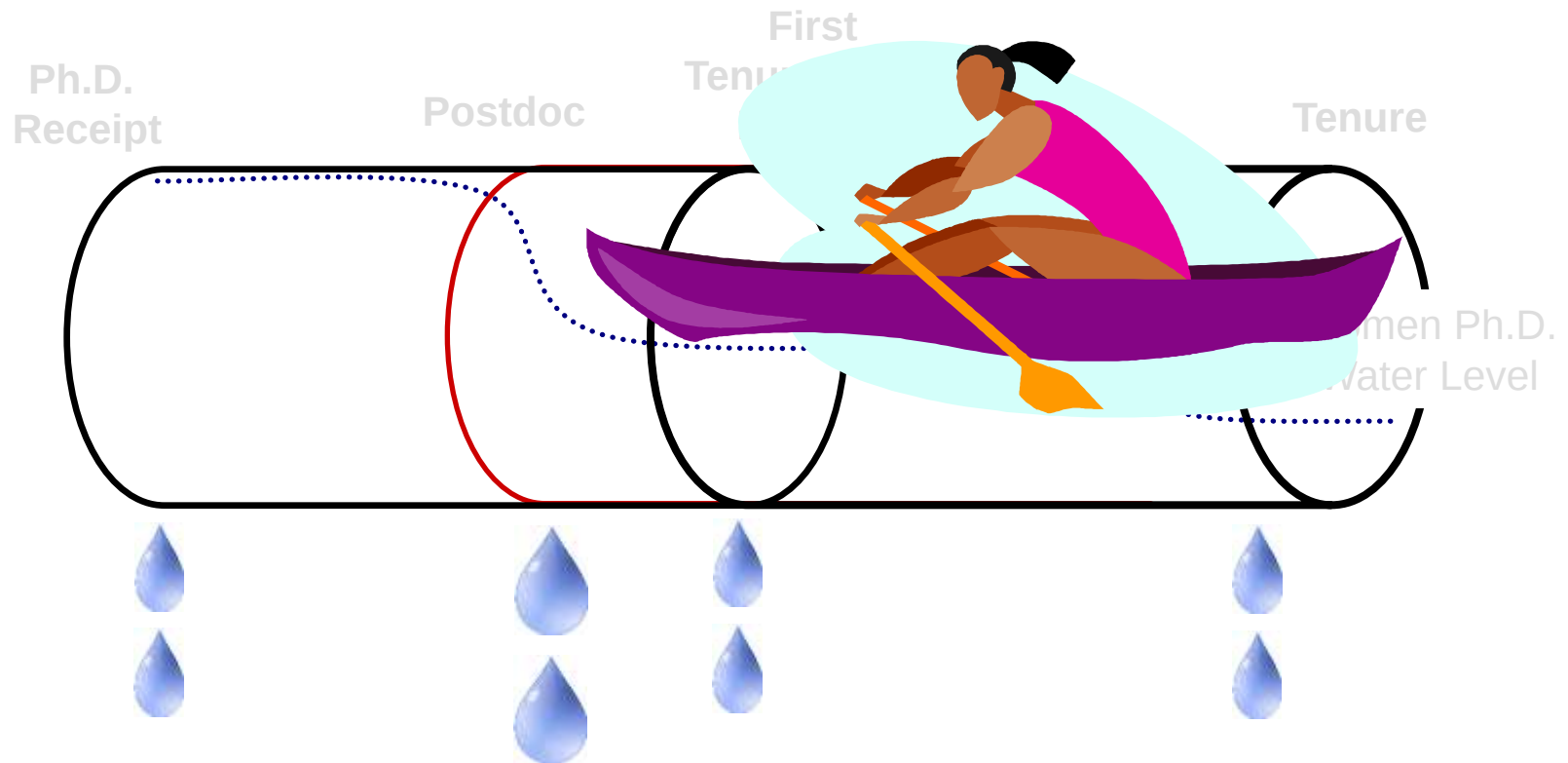
Navigating The Leaky Pipeline



*What can **we** do?*

- ➔Funding Agencies
- ➔Institutions
- ➔Professional Societies
- ➔Postdoc Supervisors/PIs
- ➔Postdocs

Navigating The Leaky Pipeline



*What can **we** do?*

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What Can Institutions Do?

- **MENTORING**

- Reward mentoring as “core” activity
- Offer structured programs to encourage multiple mentors
 - Include mentoring training

- **PROFESSIONAL & CAREER DEVELOPMENT**

- Negotiating, Networking, Grant Writing, Research & Career Planning, etc.



What Can Institutions Do?

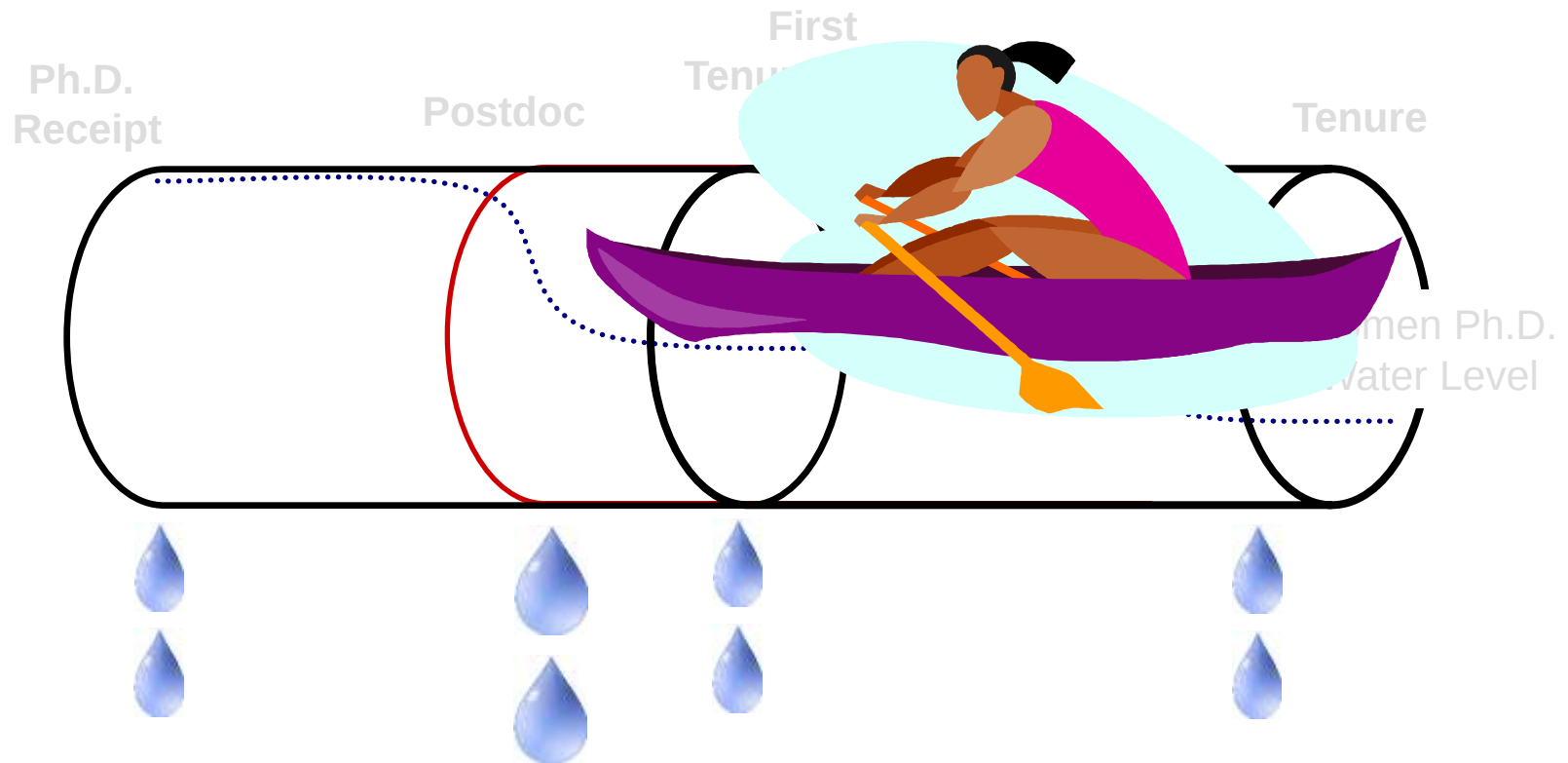
- **FAMILY-FRIENDLY POLICIES & BENEFITS**
 - Clear guidance on:
 - Maternity/parental leave guidelines
 - Including paid and unpaid options
 - Flexible work arrangements
 - Provide assistance where possible:
 - Childcare services & subsidies
 - Provide postdocs access to dual-career assistance



What Can Institutions Do?

- **FAMILY-FRIENDLY POLICIES & BENEFITS**
 - Consider “permanently” hiring your own postdocs, which can help “dual-career” geographical constraints.
 - Include postdocs in any institution-wide assessment of climate for women

Navigating The Leaky Pipeline



*What can **postdocs** do to optimize their 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?*





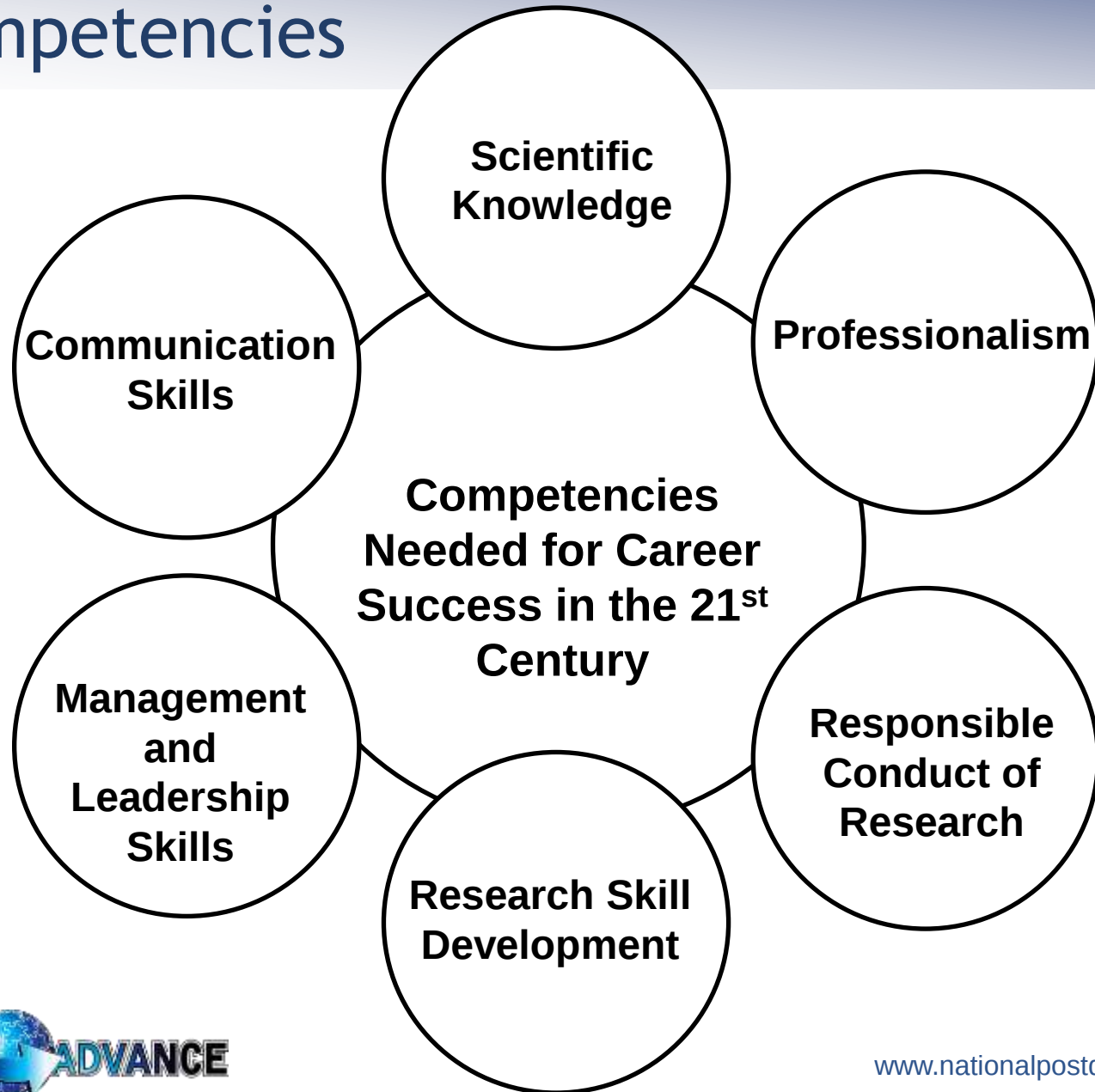
What Else Can You Do?

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





NPA Core Competencies





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!
 - Individual Development Plan
 - Helps: set milestones, self-assessment, foster mentoring
 - Google *FASEB IDP* for a great template!





What Else Can You Do?

- Find multiple mentors
 - *Doesn't need to be your PI/boss*
 - Potential conflict of interest?
 - Multiple mentors provide well-rounded advice
 - Consider mentoring tools & models:
 - Peer mentoring
 - Group mentoring
 - E-mentoring
- Enhance your network





For More Information

- NPA ADVANCE:
www.nationalpostdoc.org/advance
 - Clearinghouse of institutional practices
 - Forthcoming resources:
 - Resource book for institutions on postdoc women
 - *A Postdoc's Guide to Pregnancy and Maternity Leave*
 - *Family-Friendly Resources for Postdocs*
 - *A Postdoc's Guide to Paternity Leave*
 - *Job Search Tips for Postdocs in Dual-Career Couples*



Take Aways

- While there are a number of challenges for women in academia, *more women than ever before* have successful and fulfilling careers there
- Institutions play a key role in the success of postdoc women
- Be deliberate about your career
- Find a mentor or mentoring model that works for you



Thank you!

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



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