



## NIH **U**pdates on Women in Science News for Yo**U** to Use!

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*NIH Updates on Women in Science* is brought to you by the [NIH Working Group on Women in Biomedical Careers](#). We encourage you to share this e-newsletter with colleagues.

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### NIH Pittman Lecture Given by Bonnie Berger

This year, the NIH selected Dr. Bonnie Berger, Professor of Applied Mathematics and Computer Science at the Massachusetts Institute of Technology, to give the annual Margaret Pittman Lecture. Dr. Berger, a computational biologist, designs algorithms to extract meaningful biological information from large data sets. The Margaret Pittman

Lecture is named for the microbiologist and immunologist who made major contributions to the whooping cough vaccine. Dr. Pittman also served as chief of the Laboratory of Bacterial Products, Division of Biologics Standards, at the NIH from 1957 to 1971. She was the first woman to lead a major NIH laboratory and was dedicated to supporting women scientists. Dr. Berger presented “Computational Biology in the 21st Century: Making Sense Out of Massive Data.” During her visit to the NIH, Dr. Berger also participated in a networking event, organized by the Bethesda Chapter of the Association of Women in Science, where she shared insight into her professional journey.

## **Chicago Schools Strive for Better Representation of Women among Science and Math Faculty**

Northwestern University and the University of Chicago have embarked on a three-year collaboration to improve recruitment, advancement, and retention of female faculty members. The joint project, called the Chicago Collaboration for Women in Science, Technology, Engineering, and Mathematics, originates from dissatisfaction at both universities with the representation of women on the tenure track in science and mathematics. Through this initiative, the schools will assess their progress in this arena and offer professional development programs for tenure track and tenured faculty. These programs aim to increase networking, management, and negotiation skills, to encourage women to apply for and thrive in leadership positions.

[New Collaboration Benefits Women Faculty in Science, Technology, Engineering, and Mathematics](#)

## **Equal Retention for Men and Women in Most Science and Engineering Departments**

A new study of nearly three thousand assistant professors in science and engineering departments at 14 universities examined retention rates of faculty members hired since 1990. The authors found high departure rates for both men and women. Fifty percent of faculty members left within 10.9 years of beginning their faculty appointment. Faculty members were most likely to leave before gaining tenure, with extremely high departure rates after three to six years in faculty positions. Retention and promotion rates in this study were not statistically different for men and women. Women achieved promotion to full professor after an average of 10.91 years, compared to 10.73 years for men. While these findings were consistent across most scientific disciplines, they changed dramatically for mathematics professors. Overall retention in mathematics was much lower for both sexes, with a more pronounced reduction for female faculty members. Male professors in mathematics departments remained on the faculty for a median of 7.33 years, while women stayed for only 4.45 years. While women are underrepresented as full professors in science and engineering departments, this study argues that the gender disparity in most fields does not arise from differential attrition. Thus, efforts to increase the percentage of female professors in science and engineering may be more effective if they focus on recruitment issues rather than retention.

[Survival Analysis of Faculty Retention in Science and Engineering by Gender](#)

## **Journal Impact Factor: A Fair Tool to Assess Publication Quality?**

The quality of a publication is sometimes judged by the impact factor of the journal. Impact factors reflect the average citation rate of all articles published in a journal over the most recent two years, and, thus, may fail to accurately

represent the citation rate of any single journal article. In a recent article in *Perspectives on Psychological Science*, Peter Hegarty and Zoe Walton analyzed the legitimacy of using journal impact factors to evaluate the impact of individual articles. Using data from nine high-impact psychology journals, they found that journal impact factor was only modestly correlated with the citation rate for individual articles. In fact, article length, publication year, and number of references were all better indicators of the actual citation rate than journal impact factor. A male author in either the primary or senior author position correlated with journal impact factor, but not with actual citation rate, suggesting that the journal impact factor metric might disadvantage female scientists. The authors found discipline-specific differences in the validity of this metric: Social science psychology journals had a more severe discrepancy than natural science psychology journals. This could explain the disproportionate affect on female authors, as female authors were found to publish more frequently in psychology journals that fall into the social sciences category. As publication in high-impact journals, as gauged by journal impact factor, is a common criterion for promotion and tenure, use of this metric might negatively affect career advancement of female scientists. The authors recommend that the scientific community carefully consider the metrics it uses to assess publication quality and impact.

[The Consequences of Predicting Scientific Impact in Psychology Using Journal Impact Factors](#)

## **Motherhood and the Gender Gap**

What factors contribute most substantially to the gender gap in science and engineering? In a recent article in *American Scientist*, Wendy Williams and Stephen Ceci of Cornell University analyzed factors contributing to the underrepresentation of women as professors in academic science departments. They found little validity to several popular explanations, including sex differences in ability, innate career and lifestyle preferences, and sex discrimination. Instead, they put forward the opinion that motherhood is the single factor that best explains the lack of women in high-level academic positions. Citing data from multiple studies, they argue that the overlap of prime childbearing and child-rearing years with the training and pre-tenure period creates a conflict that many women find insurmountable. They describe research findings demonstrating that single and childless women fare remarkably similar to men in most metrics of career success, and discuss obstacles to balancing motherhood with a successful research career. Finally, Williams and Ceci present a series of policy recommendations with potential to help narrow the gender gap. These recommendations include position-sharing for couples, increased use of telework accommodations, reentry programs, part-time tenure track positions that eventually convert to full-time effort, adequate parental leave for all caregivers (male or female), enhanced flexibility in the tenure clock, and improved availability of on-site high-quality childcare and emergency back-up care. Williams and Ceci suggest that modest institutional changes could make a big difference to women facing career decisions and wondering whether it's possible to have it all.

[When Scientists Choose Motherhood](#)

## **Highlighting Best Practices- Back-up Care Programs**

Thanks to the efforts of the NIH Child Care Board and the NIH Working Group on Women in Biomedical Careers, the NIH is now the first Executive Branch Federal agency to have a [back-up care program](#) in place to provide coverage to employees who find themselves scrambling for last minute caregiving solutions. This three-year pilot program launched in January 2012, through a contract with [Bright Horizons](#). All NIH trainees and employees can register for this service, which covers back-up care for healthy or mildly ill children, adult dependents, elderly parents, or the employees

themselves. The NIH Office of Research Services covers administrative costs for this program and users pay an hourly rate for professional caregivers to either visit their homes or watch healthy children at a local center. Since Bright Horizons is a nationwide company, this program can also provide care for elderly parents who are not local and for children traveling with NIH trainees and employees on official business anywhere in the country. For more information about the NIH back-up care program and other related resources, please visit <http://childcare.ors.nih.gov>.

Families might need back-up child care if their usual caregiver is ill or on vacation, if their usual day care center is closed for staff training, or if their child is mildly ill. Back-up programs already exist in many university and corporate settings. Providing back-up care is good for business, because it facilitates recruitment and retention of family-conscious employees, and it increases productivity by minimizing the number of days that employees must stay home for family responsibilities. Like the NIH pilot program, many back-up programs extend beyond child care, also offering services for elderly parents and dependents of any age.

Back-up care programs are becoming more common in academic settings. [Columbia University](#), [Princeton University](#), [Washington University in St. Louis](#), and the [University of Virginia](#) offer similar programs to the NIH pilot program, also through Bright Horizons. Policies specific to each institution dictate user fees, use limits, and eligibility for the program. Another popular provider, called [Parents in a Pinch](#), is used by [Vanderbilt University](#), [Harvard University](#), and [Johns Hopkins University](#). This provider offers home back-up care for both children and elders. Other academic institutions, such as [Yale University](#), use the provider [Caregivers on Call](#). This organization offers emergency in-home childcare around the clock for healthy and mildly-ill children over six months of age.

Back-up care programs are also common in law firms and large corporations. While the details and scope of each program differ, they all share the goals of minimizing caregiver stress and maximizing the ability of employees to work productively.

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