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ADVANCES & INSIGHTS:
The NIH Women in Science Newsletter

This e-newsletter is brought to you by the NIH Working Group on Women in Biomedical Careers.

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Recent Research

A Facilitated Peer Mentoring Program for Junior Faculty To Promote Professional Development and Peer Networking

Fleming GM, Simmons JH, Xu M, Gesell SB, Brown RF, Cutrer WB, Gigante J, Cooper WO. *Ac Med*. Jun 2015; 90(6) [Epub ahead of print].
http://www.ncbi.nlm.nih.gov/pubmed/25830537

A cohort of 104 junior faculty members from the Department of Pediatrics at Vanderbilt University School of Medicine participated in a peer mentoring program to promote professional development. From 2011 to 2013, the faculty met monthly in small groups led by senior faculty members. At the end of the study, the faculty reported increased knowledge, skills, and attitudes of professional development, demonstrated an increased ability to articulate career goals and align activities with those goals, and reported increased time pursuing such activities. Notably, the changes were more significant for female faculty. In conclusion, the authors suggest that the facilitated peer mentoring program was successful in improving knowledge, skills, and attitudes that promote early career advancement, especially for women.

National Hiring Experiments Reveal 2:1 Faculty Preference for Women on STEM Tenure Track

Williams WM, Ceci SJ. *PNAS*. Apr 28, 2015; 112(17): 5360–5365.
http://www.ncbi.nlm.nih.gov/pubmed/25870272

Following their recent report on the status of women in science, Williams and Ceci present a series of experiments focused on academic hiring, with a sample of 873 tenure-track faculty across two math-intensive fields (economics and

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engineering) and two non-math-intensive fields (biology and psychology). The authors find a general preference for hiring women over men. In the main study, 363 faculty members evaluated hypothetical narratives from stellar male and female candidates and a “foil” male candidate who was slightly weaker. With the exception of economics departments, faculty members selected the female candidate in a 2-to-1 ratio. The experiments were replicated by using various validation methods, such as using full curricula vitae and single applicant ratings. Women were consistently favored over men, with the exception of women discriminating against women who took a year’s leave for child care. The authors suggest that the results show that this is a favorable time for women to be launching careers in science.

This publication prompted national conversation, as the following selected responses indicate:

Women Best Men in STEM Faculty Hiring Study

Posted by Rachel Bernstein on Apr 12, 2015, for Science

http://news.sciencemag.org/education/2015/04/women-best-men-stem-faculty-hiring-study

Williams and Ceci suggest that a combination of successful training programs about gender and hiring, a growing belief that gender balance among STEM faculty is important, and the retirement of older faculty may have led to the results they saw. However, there is some concern that their experiments may have been oversimplified and not representative of actual hiring situations. H. Kristl Davidson, a business school management professor, is concerned that the findings are not generalizable and will not translate to the real world; Virginia Valian, a psychologist at Hunter College in New York City who studies gender equity, notes that the analysis occurs late in the career trajectory and may not account for subtleties at each career stage; and Jennifer Glass, a sociologist at the University of Texas, asks about reconciling the results with the nature of increased attrition rates among women in STEM careers. Despite the apparent good news, some commentators note that it is possible that the findings are premature.

Leading Scientists Favour Women in Tenure-Track Hiring Test

Deng B. Nature. Apr 16, 2015; 520: 275–576.

http://www.ncbi.nlm.nih.gov/pubmed/25877184

Williams and Ceci suggest that although women are still underrepresented on the faculties of many STEM departments, some progress may have been made toward gender parity in the sciences. However, some researchers fear that the news is not as positive as Williams and Ceci’s findings suggest. Nancy Hopkins, a biologist at the Massachusetts Institute of Technology, points out that women face bias before applying to tenure track positions; recent work indicates that elite laboratories are more likely to be led by men and that those men are less likely to hire female postdoctoral fellows. Virginia Valian is concerned that news of progress will be overinterpreted.

Current News and Reports

Women in STEM Research: Federal Agencies Differ in the Data They Collect on Grant Applicants

Report on Residents

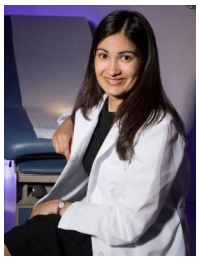
To Work or Not Shouldn’t Be a Question

Women at the Top: The Risks of Leading From a Glass Cliff

RAISEProject: Recognizing the Achievements of Women in Science, Technology, Engineering, Mathematics, and Medicine

Scientist Spotlight

Reshma Jagsi, M.D., D.Phil.



Reshma Jagsi, M.D., D.Phil., is Associate Professor and Deputy Chair for Faculty and Financial Operations, Department of Radiation Oncology at the University of Michigan Health System and Research Investigator at the Center for Bioethics and Social Sciences in Medicine. Dr. Jagsi is board certified in radiation oncology by the American Board of Radiology. Additionally, she currently serves as the chair of the Research Committee of the Radiation Oncology Institute, the chair of the American Society of Clinical Oncology's Ethics Committee, and a member of the Steering Committee of the Association of American Medical Colleges Group on Women in Medicine and Science.

Dr. Jagsi earned her M.D. from Harvard Medical School and concurrently earned a doctorate in social policy from Oxford University as a Marshall Scholar. She worked as a medical intern at the University of Hawaii for a year before returning to Harvard to complete her radiation oncology residency, earning the title of Chief Resident. She also served as a fellow in the Center for Ethics at Harvard University before joining the faculty at the University of Michigan in 2006.

Dr. Jagsi's medical research focuses on improving the quality of care received by breast cancer patients, both by improving the ways in which breast cancer is treated with radiation and by advancing the understanding of patient decision making, cost, and access to appropriate care. For example, she is interested in distinguishing aggressive from lower risk disease to appropriately individualize management. This includes avoiding radiotherapy in patients identified as having a low risk of recurrence and intensifying treatment for patients with more aggressive disease through radiosensitization. Additionally, Dr. Jagsi works to ensure translation of advances identified through clinical research into practice.

Dr. Jagsi also conducts social science research focused on the medical profession. She is a past recipient of an R01 grant for Research on Causal Factors and Interventions that Promote and Support the Careers of Women in Biomedical and Behavioral Science and Engineering (RFA-GM-09-012). She studies the experiences of women in academic medicine, barriers to their advancement, and interventions to improve their representation in senior positions. She also intertwines oncology and social science by investigating the impact of cancer treatment on long-term survivors' finances and employment. Dr. Jagsi has been extremely successful in both of her research fields; since 2004, she has published more than 100 peer-reviewed journal articles, including articles in high-impact journals such as the *New England Journal of Medicine* and *JAMA*, in addition to authoring numerous book chapters and commentaries.

Dr. Jagsi's impressive work has garnered her numerous honors and awards, including the Robert Wood Johnson Physician Faculty Scholars Award, which supports junior medical school faculty who are dedicated to improving health and health care. She has been invited to deliver dozens of lectures at institutions across the United States and abroad and was named the U.S. delegate to a special United Nations panel on radiotherapy use and access in the developing world. She is currently the primary investigator on several grants, including two funded by the NIH: "The Challenges of Individualizing the Treatment of Patients with Breast Cancer" and "Examining How Gender Differences in Outcomes Develop Among Physician Researchers."

Dr. Jagsi has a longstanding dedication to teaching and public service. She is active in organized medicine and politics, having interned at the White House, Congress, and British Parliament when she was younger. She is also active in her community; she volunteers as a Girl Scout Brownie Troop Co-Leader and was awarded the Girl Scout Woman of Distinction Award for serving as a role model and inspiring girls in her community. "I have been very fortunate to have been able to pursue my passion for science and service to others through the profession of academic medicine, and I want to make sure that such opportunities are made available to all of the promising young people in our community," she notes.

Institutional Spotlight

In this new occasional series, ADVANCES & INSIGHTS will highlight targeted institutional programming that supports the hiring and retention of female and underrepresented minority (URM) scientists. In this piece, we spotlight Louisiana State University (LSU) for its multipronged and successful strategies promoting diversity in STEM disciplines.

Louisiana State University

LSU is tackling the question of how to promote diversity at all levels of STEM training with innovative and systemic approaches. One notable approach is LSU's partnership with schools that historically serve URM populations (historically black colleges and universities, or HBCUs) in the surrounding region, such as Xavier University of Louisiana and Southern University. LSU leverages these partnerships by encouraging HBCU students to apply to LSU's Undergraduate Summer Research Program and graduate school. According to Dr. Dereck Rovaris Sr., the Vice Provost for Diversity and Associate Vice Chancellor for Academic and Multicultural Affairs, LSU hopes that recruiting undergrads from these and other HBCUs for summer research positions will inspire these students to consider applying to LSU for graduate school in the future.

For some STEM fields, these and other approaches to boost diversity at the graduate level seem to be paying off. A study in the *Journal of Chemical Education* ranked LSU first among 50 schools comparing the percentage of female PhD recipients in chemistry; 49 percent of all chemistry doctoral degrees were earned by women at LSU from 2005 to 2009, whereas the national average is approximately 27 percent. LSU is also a leader in graduating African American students with PhDs in chemistry, according to a piece written by Dr. Isiah Warner, a professor of chemistry at LSU, in the *Journal for Blacks in Higher Education*. A 2014 article in the *Journal of Chemical Education* indicates that African Americans earned 19 percent of all PhDs awarded in chemistry at LSU from 2005 to 2009. Nationwide, African Americans account for only 2 percent of all chemistry PhD recipients.

When it comes to hiring faculty in STEM fields, LSU is using short- and long-term approaches to improve URM and female representation. In the short term, every chair of faculty search and recruitment committees in the College of Science participates in a workshop led by the Office of Diversity to introduce them to positive principles for supporting diversity during the hiring process. In addition, the search chair or dean of the department designates a member of each search committee to serve in a role as the committee's diversity advocate. This person is tasked with monitoring the committee's process and promoting a search that will yield a diverse applicant pool. Some techniques used to encourage a diverse pool include advertising the position in "journals and publications where diverse [potential] faculty members are likely to look for them, like *Diverse Issues [in Higher Education]* and *INSIGHT into Diversity*," and reaching out to diverse candidates to apply, according to Dr. Rovaris. He notes that instituting these workshops to train faculty search committees is a relatively low-cost way to promote increased diversity at many institutions.

A longer-term approach of LSU to potentiate diverse faculty is maintaining relationships with former STEM undergraduates who have completed or nearly completed PhD programs. For example, select students were recently invited to return to LSU for a reunion to promote networking and a chance to present their research to their former classmates. As undergraduates, they were part of a scholarship program called LA-STEM (currently on hiatus while further funding is sought) that sought to support STEM majors who are first-generation college students and/or those from low-income backgrounds. He hopes that strengthening the ties with this and other STEM groups will keep LSU in mind when searching for faculty positions in the near future.

Did you know?

The NIH has many family-friendly initiatives, including a requirement for NIH Conference Grant applicants to describe plans for child care and other types of family care on site. This allows individuals with family career responsibilities to attend conferences. To learn more, visit http://grants.nih.gov/grants/guide/pa-files/PA-10-071.html.

Current News and Reports

Women in STEM Research: Federal Agencies Differ in the Data They Collect on Grant Applicants

Written by Melissa Emrey-Arras on Mar 17, 2015, for the U.S. Government Accountability Office

Three U.S. Representatives — Eddie Bernice Johnson (Texas, 30th District), Rosa DeLauro (Connecticut, 3rd District), and Louise M. Slaughter (New York, 25th District) — requested data regarding Federal grant making to women and men for research in STEM. Three of the six agencies reviewed — the National Institutes of Health, the National Science Foundation, and the Department of Agriculture National Institute of Food and Agriculture — routinely collected information about applicant gender, and this information can be used to analyze gender differences in funding. The other agencies reviewed — the U.S. Department of Defense, the U.S. Department of Energy, and the National Aeronautics and Space Administration — do not routinely collect such information. The agencies indicated that they do not collect data for various reasons, including lack of a legal requirement and confusion about the legalities of collecting such information.

Report on Residents

Posted by the Association of American Medical Colleges in Jan 2015

The Association of American Medical Colleges released its 2015 report on residents and an online collection of data tables that include current and historical data related to graduate medical education. Tables of note include Table B2: Number of Residents by Type of Medical School Graduation, GME Specialty, and Gender and Table C5: Physician Retention in State of Residency Training by Last Completed GME Specialty and Gender.

To Work or Not Shouldn't Be a Question

Posted by Marion Ronit Munk and Rene Ruckert on Apr 24, 2015, for *Science*

This article, written by a two-scientist couple, highlights the difficulties faced by women in countries that have extended parental leave. In Austria and Germany, the authors' countries of origin, women are entitled to take 2 and 3 years, respectively, for child care. When women take this time, they often find that they have been left behind in the lab. Additionally, the authors state that women are often discriminated against during hiring, as the assumption is that they will be likely to take extended leave for child care, and employers are not permitted to hire permanent replacements during the period of leave. Additionally, it can be difficult to find adequate full-day child care arrangements. The authors recommend that fathers also take extended leave following the birth of a child to minimize discrimination and that policies such as high-quality subsidized child care be established to allow women to return to work sooner.

Women at the Top: The Risks of Leading From a Glass Cliff

Written by Anna Katz and Molly Carnes in Jan/Feb 2015 for the American Society for Cell Biology

This article discusses a phenomenon that has recently been called the "glass cliff": Women (and URM individuals) are more likely to be appointed to top positions when there is a high probability of failure. Coupled with other challenges that women face in moving up the career ladder, the glass cliff may further limit women's representation in senior leadership positions. The authors recommend that institutions conduct interventions to prepare women for leadership and to combat gender bias in appointing and sustaining women in top positions.

RAISEProject: Recognizing the Achievements of Women in Science, Technology, Engineering, Mathematics, and Medicine

In 2005, at a casual dinner following the announcement of the National Medal of Science Awards, diners noted that no woman had ever received the award. The Society of Women's Health Research decided to develop the RAISEProject, a database of scientific awards and the gender of the awardees. The project homepage indicates that only 13.9 percent of National Medal of Science awardees, 11.5 percent of Nobel Prize in Medicine awardees, 6.1 percent of ACE Priestly Medal awardees, and 3.1 percent of Fields Medal awardees were women. The site also offers tips for nominating women for prestigious awards and advice for institutions working to advance and recognize women.