Promoting the Career Development of Women in Academic Medicine

IT HAS BEEN KNOWN FOR AT LEAST A DECADE THAT female medical school faculty members are less likely to achieve academic promotion than are male faculty members with similar durations of faculty appointment.[1] According to cohort studies, there is reason to believe that sex-based disparities in promotion continue.[2] The percentage of female faculty who hold the rank of full professor has risen slowly, despite dramatic increases in the numbers and percentages of female physicians. For example, the percentage of female medical school faculty members holding full professor rank was 7% in 1978, 9% in 1990, and 15% in 2005. About 30% of male faculty held the rank of full professor consistently over this time.[1,3] The extremely slow rise of women up the academic ladder likely accounts, at least in part, for the fact that only 11% of department chair positions were held by women in 2005.[3]

The reasons for sex disparities in promotion have not been well studied. However, the information available suggests that female faculty have, on average, less academic productivity than men, as measured predominantly by numbers of publications and by numbers and sizes of grants held.[1,4] Male faculty spend more effort on research, write more papers, and are more likely to hold external grant funding. Although differential academic productivity does not fully account for sex disparity in promotions,[1] it is instructive to consider possible reasons for the apparent disparity in academic productivity.

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A number of factors have been proposed as contributors to account for this disparity. Among those more commonly mentioned are differences in preparation for an academic career, fewer resources at the beginning of the career, poorer mentoring, a less supportive academic environment (with respect to leadership, input into organizational decisions, equity of salary and responsibilities, and sexual discrimination), and child-rearing responsibilities. Data are not available to definitively address each of these areas; however, some information is available. Female and male faculty seem to have similar preparation for academic careers in terms of performance as medical students, residents, and fellows and with respect to research experience on entering an academic career.[5] Therefore, preparation for an academic career is likely not a major cause of differences in productivity. But the available data suggest that the academic productivity of junior female faculty members is adversely and differentially affected by poorer initial recruitment packages, including items such as laboratory space, secretarial support, and start-up funds.[1,6] In addition, child-rearing responsibilities seem to affect the academic productivity of women more so than men,[6] and female faculty with children overwhelmingly believe that their career progress has been slowed by having had children.[7] With respect to the areas of mentorship and a supportive environment, many authors believe these are relevant issues despite a paucity of direct evidence. These constructs are more difficult to measure, which may account for the scant evidence.

Despite the information that does exist on barriers to promotion, published reports of interventions designed to improve the known disparities have been infrequent. In this context, the report by Jagsi et al[8] in this issue of the ARCHIVES is a helpful contribution to the literature. This article describes a competitive awards program that provided modest amounts of flexible research funding ($30 000 per year for 2 years) for junior faculty at the Massachusetts General Hospital, Boston, who were also responsible for the care of children. The report has the obvious limitations of being derived from a single research-intensive institution and having no truly equivalent control group. However, with these caveats in mind, the authors found that over 90% of the award recipients had been retained at the institution, a percentage that compares favorably with the 68% of award nonrecipients who were retained after about 5 years on average. One might also compare this retention rate to the 50% of unselected US junior faculty that remain in academic medicine after about a decade.[1] The results in terms of publications and grant support were impressive, with 32 award recipients from 1997 to 2004 already having been principal investigators on grants totaling over $51 million by early 2005.

One might question why this program, with its relatively modest funding for the individual awardee (although certainly substantial in aggregate), would have been so successful. I suspect the program was successful in part because the funding was quite flexible and could be used in the way most needed by the recipient. Based on the qualitative responses of the recipients, it also seems that the receipt of this funding changed the perceptions of the junior female faculty with respect to the supportiveness of their environment. The receipt of the award likely increased their confidence and perhaps also their Chair's confidence that they would be successful. As mentioned, this area of the perceived supportiveness of the

local climate is difficult to measure but is likely quite important to a successful faculty career. Importantly, the design of the program was appropriate to the local culture of this research-intensive institution. Finally, if there were any sex disparities in the start-up packages of these junior faculty, the award program may have ameliorated these.

The factors contributing to the development of a successful career in academic medicine remain understudied, particularly with respect to female faculty. This is interesting, given the large investment of money, time, and other resources that is made with respect to the start-up of a medical school faculty member. It would not be difficult to outline a research agenda to further explore sex issues with respect to the several areas already identified as problematic. For example, it would be very helpful to know the effect of part-time work arrangements on a faculty career, such as whether these arrangements provide a transition time or whether they tend to derail the individual from eventually achieving academic promotion and leadership roles. I believe that such research would be useful. But I also think that it is time to move to the development of more interventions to address the barriers that have already been identified. A small number of these have been published.[9,10] I suspect that a fair number of institutions have actually developed such programs but that results have been shared little outside the institutions, precluding others from learning from them. After all, the key elements are those that underlie most new program development: a thoughtful review of the literature, a needs analysis to develop an intervention appropriate to the local environment, a clear intervention structure and goals, sponsorship at a sufficiently senior administrative level, a systematic assessment of the outcomes, and subsequent thoughtful modification of the program based on these. The specific design of the intervention may even be less important than a clear demonstration of tangible support by senior leaders.

In summary, it is time for more institutions to design and implement interventions aimed at reducing the sex disparities in the productivity and promotion of academic faculty. Those uncertain as to how to proceed might be advised at a minimum to carefully examine parity in recruitment packages, perceptions regarding the supportiveness of the local environment, and interventions designed to assist women in a tangible way with managing the need to start and sustain a career while raising children. Thoughtfully constructed interventions may well improve the climate for junior male faculty as well as junior female faculty, and the benefits to the institution are likely to outweigh their costs.

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REFERENCES

1. Tesch BJ, Wood HM, Helwig AL, Nattinger AB. Promotion of women physicians in academic medicine: glass ceiling or sticky floor? *JAMA*. 1995;273:1022-1025.
2. Nonnemaker L. Women physicians in academic medicine: new insights from cohort studies. *N Engl J Med*. 2000;342:399-405.
3. Hamel MB, Ingelfinger JR, Phimister E, Solomon CG. Women in academic medicine: progress and challenges. *N Engl J Med*. 2006;355:310-312.
4. Jagsi R, Guancial EA, Worobey CC, et al. The "gender gap" in authorship of academic medical literature: a 35-year perspective. *N Engl J Med*. 2006;355:281-287.
5. Tesch BJ, Nattinger AB. Career advancement and gender in academic medicine. *J Ir Coll Physicians Surg*. 1997;26:172-176.
6. Carr PL, Ash AS, Friedman RH, et al. Relation of family responsibilities and gender to the productivity and career satisfaction of medical faculty. *Ann Intern Med*. 1998;129:532-538.
7. Levinson W, Tolle SW, Lewis C. Women in academic medicine: combining career and family. *N Engl J Med*. 1989;321:1511-1517.
8. Jagsi R, Butterton JR, Starr R, Tarbell NJ. A targeted intervention for the career development of women in academic medicine. *Arch Intern Med*. 2007;167:343-345.
9. Fried LP, Francomano CA, MacDonald SM, et al. Career development for women in academic medicine: multiple interventions in a department of medicine. *JAMA*. 1996;276:898-905.
10. Bussey-Jones J, Bernstein L, Higgins S, et al. Repaving the road to academic success: the IMeRGE approach to peer mentoring. *Acad Med*. 2006;81:674-679.