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Increasing Women's Leadership in Academic Medicine: Report of the AAMC Project Implementation Committee

*Janet Bickel, MA, Diane Wara, MD, Barbara F. Atkinson, MD,
Lawrence S. Cohen, MD, Michael Dunn, MD, Sharon Hostler, MD,
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ABSTRACT

The AAMC's Increasing Women's Leadership Project Implementation Committee examined four years of data on the advancement of women in academic medicine. With women comprising only 14% of tenured faculty and 12% of full professors, the committee concludes that the progress achieved is inadequate.

Because academic medicine needs all the leaders it can develop to address accelerating institutional and societal needs, the waste of most women's potential is of growing importance. Only institutions able to recruit and retain women will be likely to maintain the best housestaff and faculty. The long-term success of academic health centers is thus inextricably linked to the development of women leaders.

The committee therefore recommends that medical schools, teaching hospitals, and academic societies (1) emphasize faculty diversity in departmental reviews, eval-

uating department chairs on their development of women faculty; (2) target women's professional development needs within the context of helping all faculty maximize their faculty appointments, including helping men become more effective mentors of women; (3) assess which institutional practices tend to favor men's over women's professional development, such as defining "academic success" as largely an independent act and rewarding unrestricted availability to work (i.e., neglect of personal life); (4) enhance the effectiveness of search committees to attract women candidates, including assessment of group process and of how candidates' qualifications are defined and evaluated; and (5) financially support institutional Women in Medicine programs and the AAMC Women Liaison Officer and regularly monitor the representation of women at senior ranks.

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In 1996, the AAMC approved the report of its Increasing Women's Leadership in Academic Medicine Project

Committee.¹ President Jordan J. Cohen charged the Increasing Women's Leadership Project Implementation Committee with prioritizing the 15 recommendations (Appendix A) and working to advance them.

At the outset this committee recognized that (1) The number of women entering medical school has led to the premature conclusion that gender equity has been achieved; (2) drawing a circle around difficulties specific to women's advancement is impossible because men and women's professional development goals and needs are more

alike than different; (3) few medical schools treat faculty as human resources to be retained and developed, thus a framework is often lacking for improving faculty professional development in general; and (4) the paucity of research on leadership development and executive selection in academic medicine means that a framework is also lacking for understanding how best to improve women's leadership development.

But these complexities need not deter medical schools, teaching hospitals, and academic societies from further work to increase the number of women

The authors are the members, staff, or resource persons of the AAMC's Increasing Women's Leadership in Academic Medicine Project Implementation Committee. More information about the authors may be found at the end of this article, before the reference list.

Correspondence should be addressed to Janet Bickel, Associate Vice President for Medical School Affairs, AAMC, 2450 N Street, NW, Washington, DC 20037; e-mail: (jbickel@aamc.org).

A Commentary on this report follows the report.

leaders. The 1996 report presented the rationale as (1) principles (the right thing to do); (2) pragmatic (the smart thing to do); and (3) prevention (of litigation and the loss of women's talents). The project implementation committee finds the second of these to be the most persuasive: an effective business strategy includes the development of women leaders as central to the long-term financial success of the medical center.

METHOD

While the implementation committee found value in virtually all of the original recommendations (Appendix A), its data-gathering efforts centered primarily around two.

First, for the last four years the implementation committee collected from dean's offices (via an AAMC President's Memo) data on the representation of women; on average 95% of schools responded. Annual publication of results from this "benchmarking survey"² has encouraged schools to monitor these data themselves and to compare their statistics with national averages.

Second, since the goal of increasing women's leadership is hindered by a lack of understanding of the role of the department chair, the committee recommended a qualitative study of chairs' leadership challenges. Funding was obtained from The Robert Wood Johnson Foundation to support an experienced investigator's inductive analysis of open-ended, in-depth interviews with a sample of 34 chairs and two division chiefs. While the stated focus of the study was chairs' leadership challenges, the sample was drawn to also facilitate study of chairs' views of how to increase women's leadership and of differences between women and men chairs' leadership challenges. Accordingly, chairs of three specialties were chosen to include an adequate number of women chairs (i.e., family medicine, pathology, obstetrics-gynecology), as well as chairs of two specialties with high-profile roles in

academic medicine (i.e., medicine and surgery). (In order to increase the number of female surgeons in the sample, two division chiefs were interviewed along with the chairs.) Within each specialty, individuals were also chosen to achieve balance with regard to geographic locale, longevity in the position, and public/private sponsorship of the institution.

Other information-gathering methods utilized by the committee included: examination of medical schools' Women in Medicine (WIM) initiatives and faculty mentoring programs; review of new research on women's advancement in academic medicine and other sectors and professions; and consultations with experts on gender vis-à-vis organizational change, leadership development programs, and the executive search process.

RESULTS

The results of this information-gathering are organized as follows: (1) data from AAMC sources and benchmarking surveys; (2) results from department chair interviews; (3) results of recent research on women's careers; and (4) medical school Women in Medicine (WIM) programs and initiatives.

Data from AAMC Sources and Benchmarking Surveys

Table 1 compares women faculty data from 2001 with the 1995 data from the previous AAMC report.¹ The proportion of full-time medical school women faculty increased from 25% to 28%. The proportion of full professors who are women grew from 10% to 12%. However, although women now comprise close to half of medical students (45%) and instructors (46%), on average there are still only 21 women full professors per medical school (i.e., about one per department, including both non-tenured and basic sciences

faculty), compared with 161 men at this rank.

Dramatic differences among departments also remain, with internal medicine, surgery, and the surgical subspecialties particularly lagging at the professor rank. In emergency medicine, otolaryngology, and orthopedic surgery, the proportions of professors who were women actually declined—from 11% to 6%, 8% to 7%, and 2% to 1%, respectively.

Not shown in the table is the percentage of tenured faculty (all ranks) who were women; it was 14%—a decline from 15% in 1995. Between 1995 and 2001, the percentage of women who were tenured dropped from 14% to 12%, about the same proportional decline as the percentage of men tenured (32% to 28%).³ Faculty Roster System data also reveal that, while the faculty attrition rate has been declining slightly since 1980, the average annual rate of women faculty attrition (9.1%) still exceeds that of men (7.7%).⁴

With regard to the distributions of men and women across faculty ranks, these proportions have remained quite stable at all ranks over at least the last 20 years. In 2001, 10.9% of women and 30.9% of men were full professors; 19% and 24%, associate professors; 50% and 36%, assistant professors; 19% and 8%, instructors (data on remaining positions missing).⁵ In 1985, 9.9% of women and 31.5% of men were full professors; thus it has taken over 15 years for the proportion of women faculty who are professors to increase a whole percentage.

Such snapshots are not as telling as are cohort analyses. A study of all women and a sample of men physician faculty appointed in 1980 at U.S. medical schools found that 11 years later, 83% of men compared with 59% of women had achieved associate or full professor rank; 23% of men and only 5% of women had achieved full professor rank.⁶ These men and women reported the same degree of preparation for an academic career in terms of board

Table 1

Proportions of Women Faculty in 1995 and 2001, by Department and Number of Women Department Chairs							
	% Faculty		% Associate Professors		% Full Professors		No. Women Department Chairs* 2001
	1995	2001	1995	2001	1995	2001	
Basic sciences							
Anatomy	23%	26%	22%	24%	16%	20%	8
Biochemistry	21%	23%	25%	26%	11%	13%	13
Microbiology	23%	26%	24%	25%	15%	17%	22
Pathology (basic and clinical)	26%	30%	25%	30%	13%	16%	12
Pharmacology	19%	21%	21%	22%	11%	13%	7
Physiology	18%	21%	19%	24%	9%	12%	6
Other basic sciences	24%	27%	25%	31%	13%	15%	23
Clinical sciences							
Anesthesiology	26%	28%	23%	22%	8%	11%	12
Dermatology	30%	33%	26%	38%	12%	13%	6
Emergency medicine	20%	26%	7%	21%	11%	6%	6
Family medicine	32%	38%	20%	25%	14%	18%	11
Internal medicine	22%	26%	18%	20%	7%	9%	5
Neurology	22%	25%	17%	22%	8%	10%	4
Obstetrics and gynecology	35%	39%	22%	28%	9%	12%	12
Ophthalmology	20%	24%	17%	22%	6%	9%	2
Orthopedic surgery	10%	10%	8%	8%	2%	1%	0
Otolaryngology	19%	20%	14%	16%	8%	7%	0
Pediatrics	39%	42%	32%	34%	17%	19%	16
Physical medicine/rehabilitation	38%	40%	29%	38%	17%	17%	9
Psychiatry	32%	36%	24%	29%	11%	14%	10
Public health/prev. med.	36%	40%	33%	34%	19%	23%	1
Radiology	21%	23%	18%	21%	9%	11%	6
Surgery	11%	13%	8%	10%	3%	4%	2
Other clinical sciences	28%	30%	22%	21%	14%	15%	21
TOTAL	25%	28%	21%	24%	10%	12%	214*

* Includes interim/acting chairs.
 Data sources: Faculty data from Faculty Roster system; Chair data from schools via surveys and AAMC *Directory of Academic Medical Education, 2000–2001*.

certification, advanced degrees, and research during fellowship training. But women were less likely to have office or laboratory space, to have protected time for research, or to have begun their faculty careers with grant support. These women worked about 10% fewer hours per week and had fewer publications than did their male counterparts; however, even after adjustment for these factors, they remained substantially less likely to be promoted.

A more recent analysis limited to

Faculty Roster System data for all U.S. medical school faculty from 1979 and 1993 found that 36% of “eligible” men on tenure tracks (that is, assistant professors for at least two years) were promoted to associate professor, compared with 24% of women.⁷ On non-tenure tracks, 18% of eligible men and 10% of women were promoted to associate professor. Disparities from associate to full professor were not as great, suggesting that promotion from assistant to associate professor is the critical career

event for women. Another important finding was that women medical school graduates were no longer more likely than men to become full-time faculty.

With regard to academic administrative roles, in 2001 women chaired approximately 214 departments (91 basic science and 123 clinical departments)—(including interim/acting chairs)—which is about 8% of all medical school chairs. Departments with the largest number of women chairs included microbiology, pathology, anesthesiology,

family medicine, obstetrics–gynecology, and pediatrics (Table 1). In 1995 only 115 women chaired departments. However, 214 makes an average of just 1.7 per medical school, and at least 20 of 125 medical schools had no women chairs in 2001 (most of these had never had one).

The number of women assistant, associate, and senior associate deans in 2001 totaled approximately 422 (an average of three per school); three schools had no woman in a decanal position. As of July 2002, women held deanships at eight of the 125 U.S. medical schools (two were interim).

Results from Department Chair Interviews

Chairs universally acknowledged the existence of barriers to the advancement of women and proposed a spectrum of approaches to address them, requiring individual as well as institutional action.⁸ The chairs' explanations for the continuing scarcity of women leaders centered around constraints of traditional gender roles, manifestations of sexism in the medical environment, and lack of effective mentors. Their suggested strategies ranged from one-on-one interventions (e.g., confronting instances of bias, advising women on selecting mentors) to institutional changes such as extending probationary periods, instituting mechanisms for responding to unprofessional behavior, and establishing mentoring networks across the university.

The other gender-related findings from the interviews are that, once on the job, women chairs face challenges that men do not, particularly a lack of recognition, inappropriate attention paid to them, resistance reporting to them, and constraints on their leadership and decision-making styles. The following quotes (all from women chairs) illustrate these challenges:

A woman has a harder time getting the

floor. And when she starts talking, the degree to which people are listening versus preparing their rebuttal or signing their charts, goes way out of whack. There's still condescension.

Women are never taken as seriously . . . [I] present ideas, and nobody says anything. But six months later a male colleague presents the exact same thing and, wow, it's the greatest idea.

For a man, having a female boss is threatening . . . or just [fosters] a feeling of failure. . . . "If my boss is a woman, what does this say about me?"

When you become dictatorial then you really are on the outs. If you raise your voice as a woman you're a bitch. You do that as a man and it's kind of like he's having a bad day.

Women are often perceived as not being tough enough for these jobs. And so I think you have to show that you can be tough. But I also am very conscious that I have much more of a kind of interactive and negotiated approach to solving problems, and some of that is, I think, more characteristic of women in leadership positions.

This last observation was echoed in a positive vein by many men chairs describing women's leadership, for instance, as "a more collaborative decision-making process," "managing the interpersonal dimension of a problem in a meaningful way," and "better at bringing a group to consensus."

Recent Research on Women's Careers

Since the last comprehensive status report on women in academic medicine was published,⁹ numerous new studies have elucidated gender differences in advancement (Appendix B summarizes many of these). Here are the key points:

- Women face many more challenges than men in obtaining career-advancing mentoring, such that they frequently lack "social capital" and

hence essential information; this isolation further reduces their capacity for risk taking, often translating into a reluctance to pursue professional goals or a protective response such as niche work or perfectionism (the obverse strategy of identifying a hot topic).¹⁰

- Many men have difficulty effectively mentoring women (for example, as whites do ethnic minorities); a contemporary approach to mentoring builds on the recognition that styles and advice that worked for the mentors may not work for their protégées.¹¹
- Without being conscious of their "mental models" of gender, both men and women still tend to devalue women's work and to allow women a narrower band of assertive behavior.¹² These cumulative disadvantages combine with women's "surplus visibility" such that women who make mistakes are less likely than men in similar circumstances to be given a second chance.¹³
- Women physicians face more difficulties than men in garnering help from nurses¹⁴ and in controlling their work lives (e.g., patient load, office scheduling) and are more likely to burn out.¹⁵ They continue to earn significantly less for the same work.¹⁶

It is also now clear that strategies aimed primarily at "fixing women" can achieve only partial results. Strategies to promote women must also target features of the work culture that may be "simply the norm" but that disadvantage women.¹⁷ The National Science Foundation, convinced that only institutional transformations will remove barriers to women scientists' advancement, has initiated a new grant program to encourage such institutional-level policy change, e.g., reconfiguring the tenure track.¹⁸ The most prestigious law schools have studied why only 16% of partners are women and concluded that firms need to measure the cost of turn-

over; track the numbers of men and women promoted; conduct confidential postdeparture interviews with each lawyer the firm regrets losing; survey clients on their priorities and definitions of quality; and support the choice to work reduced hours and create career-path flexibility.¹⁹ The corporate world has been faster than academia and the professions to move along these lines. For instance, Bestfoods, a major multinational, is engaged in an organizational change process, led by the CEO, to develop women leadership.²⁰ The urgency of the problem of high turnover of women led Deloitte & Touche's CEO in 1991 to create its Initiative for the Retention and Advancement of Women, which has tripled the percentage of women partners. The CEO states that "the changes are by no means complete . . . but we have opened our eyes to differences in style that go beyond gender to include culture. . . . Although this Initiative has made managing more complicated, the benefits are substantial: greater creativity, and greater performance for our clients."²¹

Medical Schools' WIM Programs and Initiatives

How are medical schools facilitating the development of women faculty? Only 13% of medical schools have a formal women faculty organization; an additional 31% have an informal one (both types vary greatly in scope and characteristics). Thus, at over half of U.S. medical schools, no locus exists for activities supporting women's professional development.

For the last 25 years, almost all medical schools have appointed one or two AAMC Women Liaison Officers (WLOs). (About 241 of the 377 Council of Teaching Hospitals and Health Systems—COTH—members and 28 of the 95 Council of Academic Societies—CAS—members have appointed a WLO.) However, support for this position and related activity is often lack-

ing. As of 2001, at only 36% of schools did someone's job description include staffing or overseeing the WIM function. Since most schools have been experiencing secretarial and other staff cuts and since measures to increase clinical productivity amount to disincentives for volunteering time, this lack of designated responsibility almost ensures lack of coordination and of continuity of WIM programs. At 69% of schools, the dean's office allocated some annual funding for WIM initiatives (for example, to fund an event to bring women students and faculty together or to support selected women to attend an AAMC women's faculty professional development seminar). Thus, at about a third of schools, there was no financial support from the dean's office.²²

The AAMC's benchmarking survey also found that at least 40% of schools had conducted a salary equity study in the preceding five years. A number of schools reported that their studies had revealed no disparity, but a greater number found unexplainable gender-related differences. Schools correcting the inequities found that relatively small amounts of money could "buy" disproportionate increases in the morale of the women faculty.²³

The most comprehensive analysis to date of initiatives to develop women faculty examined the seven medical schools identified by the Department of Health and Human Services as Centers of Excellence (COE) in Women's Health.²⁴ Commonalties among these schools included conducting an assessment to identify issues of greatest concern to women faculty and targeting programs at those needs and ensuring the representation of women on institutional committees. These schools also focused on improvements not specific to women: heightening department chairs' focus on faculty development needs, preparing educational materials on promotion and tenure procedures, improving parental leave policies, allowing temporary stops on the tenure proba-

tionary clock and a less-than-full-time interval without permanent penalty, and conducting exit interviews with departing faculty. Beyond faculty utilization of these programs and options, these schools regularly evaluated their initiatives by comparing recruitment, retention, and promotion of women and men faculty and by conducting faculty satisfaction and salary equity studies. Surveying faculty about their career development experiences and their perceptions of the environment, comparing the responses of men and women, and presenting the results to faculty and administrators have proved particularly useful. As other schools have found as well, this process establishes a baseline, builds institutional support, and guides initiatives.²⁵⁻²⁷ In all this work the support of the top leadership has been instrumental.

Only the Department of Medicine at Johns Hopkins has comprehensively evaluated its interventions to increase the number of women succeeding in the department.²⁸ A follow-up three years after the interventions began revealed a 66% increase in the proportion of women expecting to remain in academic medicine and an unexpected 57% increase in the proportion of men expecting to. Moreover, the number of women at the associate professor level had increased from four to 26, with no change in promotion criteria. But as Dr. Emma Stokes (the department's organizational development specialist) explains: "Improvements do not last unless you address the culture." Under the aegis of the departmental mission to "foster a collegial work environment that promotes the success and well-being of faculty, staff, students, and patients," efforts at Hopkins continue, guided by "insights about the links between gender bias and expensive turnover and poor productivity."²⁹

KEY FINDINGS

On the one hand, the numbers of women faculty, department chairs, and

deans have never been higher. However, this growth has not substantially reduced gender differences in advancement or sufficiently strengthened the pool of women candidates for administrative positions. Thus, the progress achieved over the last 25 years is incomplete and inadequate. Few schools, hospitals, or professional societies have a "critical mass" of women leaders. And the pool from which to recruit women academic leaders remains shallow. Moreover, for the first time in recent history, young women physicians are *not* more likely than men to become full-time faculty⁵; women's interest in an academic career is diminishing more than men's during residency training,³⁰ and the attrition rate of women faculty exceeds that of men. DeAngelis has speculated that the reasons for the diminution of women's interest in an academic appointment include disheartenment over the paucity of women in positions of power.³¹ Many women physicians and scientists in their 40s and older, especially those in academics, are losing faith that equity beyond graduate education will ever be achieved. Even when they achieve leadership roles, women still experience more resistance by subordinates to reporting to them and more constraints on their decision-making and leadership styles.^{6,32}

Ironically, at the same time, most male physicians and medical students are concluding that equal opportunity is now or soon will be a reality. And many young women, surrounded by women peers and unaware of their predecessors' struggles, are assuming that women may be freely choosing to reap fewer rewards than men for their work but that they themselves won't have to settle for less.³³ Thus, impetus for change is lacking, as the women who are leaving academic medicine—or simply not gaining promotion—tend to be invisible.

Medicine and science have not realized and are not currently realizing the full value of their investment in women. Scientific and medical careers

involve considerable personal and public resources, but the leadership potential of most women continues to be wasted.³⁴ This is a collective loss—all the more unaffordable given the leadership challenges facing medicine.³⁵

There are both short- and long-term payoffs for academic health centers that capitalize on women's intellectual capital.³⁶ For instance, women leaders are essential to the effective marketing of a women's health initiative. And beyond women's health per se, patients are seeking women surgeons and subspecialists, just as students are seeking women role models in these fields.³⁷ As women constitute an increasing proportion of students, only those institutions able to recruit and retain women in all departments will have the best house-staff, faculty, and administrators.³⁸ And strong women will attract other strong women; the absence of women in key positions is a negative signal to women candidates.

In natural systems, as diversity increases, so do stability and resilience.³⁹ The corporate world has been quicker than academia to recognize such benefits. Moreover, evidence is accumulating that diverse teams outperform homogeneous ones.^{40,41} Exposure to diverse colleagues helps managers make better decisions and cultivate new ideas by drawing on a larger pool of information and experiences; diversified staff also help increase market share by facilitating marketing to an increasingly diversified customer base.⁴² Companies with reputations for good management of diversity are more successful in attracting and retaining top-quality employees (some of these link managers' compensation to their success in recruiting and advancing women and minorities).⁴³ Thus, diversity is good business. Companies with high ratings on equal employment opportunities outperform those with poor ratings on hiring and advancing women and minorities.⁴⁴ Fortune 500 companies with the highest percentages of women executives de-

liver earnings far in excess of the median compared with the large firms with the fewest women.⁴⁵ Even among IPOs (Initial Public Offerings), when companies without women in senior management were compared with those with women in senior management, the latter received higher valuations (measured in terms of market price to book value per share) and performed better over the long haul.⁴⁶

RECOMMENDATIONS

Following are the committee's recommendations about the most salient opportunities in the work that remains:

Emphasize faculty diversity in departmental reviews, evaluating department chairs on their development of women faculty.

With regard to access to academic rewards, disadvantage is created and reinforced largely at the department level. Thus the department is the seat of change, with the department head the key.⁸ Chairs play many pivotal roles in faculty development, including integrating women and minorities into the department.⁴⁷ But, as the Massachusetts Institute of Technology's investigation of senior faculty revealed, non-democratic practices and cronyism in many departments translate into women's having fewer academic resources than men do.⁴⁸

Suggested actions include questioning candidates for the position of chair on how they have handled and plan to handle gender equity and faculty development responsibilities (Appendix C includes examples of such questions). Dean's executive meetings with chairs can regularly focus on women faculty development, perhaps built around a case study and facilitated by the faculty affairs administrator or by an organizational development expert. Finally, departmental reviews afford a critical opportunity to emphasize diversity issues: How effectively is the chair recruiting

and developing women and minority faculty, serving as a role model for the role models, and planning for his or her succession? Two reinforcements would optimize this strategy: (a) award chairs who achieve diversity goals a bonus or some important form of recognition; (b) offer chairs who are having difficulties developing a diverse workforce a safe place to acknowledge their developmental needs and to build skills. An organizational development expert (a change facilitator) and an ombudsperson (a neutral complaint handler)⁴⁹ can both be very useful in this work.

Target the professional development needs of women within the context of helping all faculty make the most of their faculty appointments, including guidance for men to become more effective mentors of women.

Compared with men, women face more challenges obtaining career advising, mentoring, and time for scholarly activities⁵⁰ and are at greater risk of burnout.¹⁵ Of all faculty subgroups, junior women clinicians appear most at risk for not realizing their professional potentials; and within this subgroup, *minority* women face additional challenges.⁵¹

These needs are best addressed within the context of general faculty development. A human resource and “talent management” approach would facilitate faculty members’ achieving both their own and their institution’s goals.⁵² But at too many schools this context is lacking; no medical school currently has what might be considered a comprehensive faculty development system.⁵³ Since the costs of turnover and recruitment in most cases greatly exceed the costs of faculty development (see Appendix D), institutional resources are being wasted.

A healthy empowered faculty is necessary for sustained productivity—unlikely unless the medical school invests in its workforce. The development of human capital translates into financial

capital; an American Management Association study found a remarkably strong correlation between training budgets and profits.⁵⁴ A number of schools now do offer advising and mentoring programs, including handbooks and agreements, designed to assist chairs and senior faculty in meeting career-advising responsibilities (Appendix E). One way to reinforce the importance of mentoring junior faculty is to evaluate senior faculty on this dimension. Handbooks and discussion sessions can assist men lacking experience or success in mentoring women to improve their skills.⁵⁵

Assess which institutional practices tend to favor men’s over women’s professional development, such as defining “academic success” as largely an independent act and rewarding unrestricted availability to work (i.e., neglect of personal life).

Reality is socially constructed in every culture such that the group with the most control over the resources finds its own view most accurately reflected in the institutions it creates.⁵⁶ Thus, while many organizational practices may appear to be “simply the norm,” they do not reflect the experiences of most women, so most women will not “measure up” as easily as men do. For instance, medicine tends to over-value heroic individualism compared with the largely invisible work of preventing crises and maintaining relationships. Since women faculty tend to be doing the less visible, collaborative, relational work, their contributions remain under-recognized.⁵⁷ Also, medical organizations tend to construct power hierarchically, as if it were a limited quantity at the top rather than an energy that expands when shared, which is as women are more likely to construct it.⁵⁸

The need to develop women faculty is not the only indicator that academic medicine should take a fresh look at certain practices. For example, though

research is now team-based and multidisciplinary and an increasing percentage of clinical work depends on physicians’ partnerships with other health professionals, faculty promotion criteria still define “success” as largely an independent act that must attain national recognition via publication.^{59,60} These criteria actually divert emphasis from contributions to local missions and to collaborations. New models of mutuality are needed to recognize and reward contributions of all team members.⁶¹ Such methods would encourage collaborations among basic, population and clinical researchers and others by defining the contributions of the team and then dissecting out the individual contribution of each member.⁶²

Another practice inviting re-examination is the devaluation of the scholarship of application, teaching, and integration compared with “discovery” scholarship—even though excellent examples of expanding the traditional definition are now available.^{63,64} Many societal needs cannot be met by “discovery” scholarship alone. For instance, with regard to the current diabetes epidemic, while discovery research on the molecular biology of diabetes is important, so is research on prevention, epidemiology, psychosocial dimensions, and family systems—research areas to which women are more often drawn than men. However, many investigations in these latter areas require qualitative or outcomes research (“soft science”) rather than randomized controlled trials (“hard science”). Unfortunately, researchers using qualitative and outcomes methods find fewer grant sources and fewer places to publish.

Another norm deserving of reconsideration is unrestricted availability to work taken as evidence of commitment to the profession, in essence rewarding neglect of family and personal life.^{65–68} Many schools’ tenure and promotion systems force unnecessary “either work or family” choices during the most critical child-rearing years. Moreover, evi-

dence is accumulating that work-home interference strongly contributes to the burnout of both women and men physicians (i.e., “a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment”).⁶⁹ As the upcoming generation is less willing than previous ones to sacrifice quality of life, academic medicine will lose both women and men if greater work-life balance is not achievable.⁷⁰ Idiosyncratic “under the table” arrangements provide temporary fixes but leave each family to find its own solutions; creating widely available options is more efficient and innovative.⁷¹ Unfortunately, little progress has been occurring in expanding on-site child care. Some medical schools have, however, been adding temporal flexibility to faculty tracks and creating promotion tracks for less-than-full-time faculty.^{72,73}

Practices for academic societies and teaching hospitals, as well as medical schools, to assess for gender-related effects also include how committee assignments are distributed (women tend to be under-appointed to the most powerful committees), how candidates for leadership positions get nominated, and how visiting professors are selected. Even apparently small changes can have important long-term effects.⁷⁴ For instance, increasing the number of women visiting professors can improve their visibility and recruitability. But such efforts cannot be one-time events. No organization would say “we did accounting last year, we don’t need to do it again.” Yet this is often how investment in learning new ways of working together are viewed, as one-time events rather than as ongoing processes.⁷⁵

Enhance the effectiveness of search committees to attract women candidates, including assessment of group process and of how candidates’ qualifications are defined and evaluated.

The comparatively low number of women faculty being “groomed” for

leadership by powerful mentors is a major contributor to the present difficulties institutions face in recruiting women leaders. But the frequently anachronistic nature of the search process itself also contributes—e.g., inappropriate preoccupation with candidates’ research credentials⁷⁶ and lack of attention to group-process issues. Improvement of the search process in general⁷⁷ and educating search committees on pitfalls and opportunities in targeting women candidates can improve an institution’s recruitment of women. Below are some suggested approaches.

- Search committees should assess their processes and interview techniques for unintended gender bias. Committees tend to judge women candidates by different standards than they judge men. For instance, while sometimes veiling their intent, search committees may ask women candidates’ questions such as “Are you really sure this is right for your life?” and “Does your husband support your goals?” Interviewers are less likely to ask men such questions even though many have responsibilities and interests that might conflict with the position. Also, groups tend toward “homosocial reproduction”—that is, people tend to promote individuals who resemble them and with whom they feel comfortable. This “comfort factor” in selecting candidates for senior positions works against women; when a culture’s leadership is dominantly male, even highly qualified women may be viewed as “risky” simply because they do not look or sound like the traditional executive.⁷⁸ Since members of search committees may not be aware that their “mental models” influence their decision making, they need processes to facilitate self-examination with regard to their treatment of women and other minorities. An organizational development specialist or other skilled facilitator can assist committees in gaining objectivity, as

well as in recognizing gaps between what committee members say they seek in candidates and how they actually behave.

- Committees need more than one respected woman because “token” members tend not to be taken seriously. In “skewed” groups (20% or less of persons from another social type), tokens tend to lack clout and face loyalty tests, and any discrepant characteristics receive undue attention.⁷⁹ Because of the paucity of women professors and because most already have so many institutional responsibilities, it may be necessary to expand eligibility requirements to include women associate professors.
- Search consultants can help increase the diversity of the candidate pool.⁴¹
- The earlier partner/spouse relocation issues can be addressed, the better.⁸⁰
- Some institutions and departments are not ready for women leaders, i.e., there may be too much resistance or bias on the part of key players for the woman to succeed no matter what her qualifications. Savvy women look for environments where someone has already set a tone for women to become leaders.⁸¹ But recruiting a woman into an environment where she is almost bound to fail would harm both her career and the institution. Because so few women hold highly visible positions, their failures stand out more than men’s failures, with negative memories lingering for years. Rather than “blaming” the women, institutions where such failures have recently occurred and schools with low success at recruiting and retaining women in senior positions might better investigate what institutional characteristics may be contributing factors.
- A strategy to increase the likelihood of a new woman leader’s success (especially if the position has not been previously held by a woman) is to build into her recruitment package the services of a professional coach.

Table 2

Examples of Strategies to Improve Women's Advancement			
Opportunity	Interventions	Measurement/Outcome	Accountability/Monitoring
Emphasize faculty diversity in departmental reviews	<ul style="list-style-type: none"> Assess faculty development experience of candidates for chair jobs (Appendix C) Reward chairs for developing women faculty Devote portions of executive committee meetings and retreats to improving women faculty development AAMC continue obtaining and publishing annual statistics on faculty diversity 	<ul style="list-style-type: none"> Number of women recruited, promoted, and retained Number of women division chiefs Decline in EEO complaints 	<ul style="list-style-type: none"> Evaluate and reward department chairs on faculty diversity
Target career development needs of women faculty	<ul style="list-style-type: none"> Department chairs and dean's offices work together to improve human resources orientation toward faculty, including more information about promotion process Institute mentoring programs and awards AAMC continue to provide examples of good practices 	<ul style="list-style-type: none"> Compare costs of faculty development with costs of faculty turnover Number of valued faculty leaving Number of mentoring-program-matched pairs continuing Improvement in faculty satisfaction/morale as assessed by climate survey 	<ul style="list-style-type: none"> Department chairs and CEOs regularly assess effectiveness of interventions and "return on investment" faculty development/mentoring programs
Assess practices for gender-related effects	<ul style="list-style-type: none"> WIM or other committee examine practices/policies for unintended effects on women's advancement CEOs seek and mentor women for key committees and positions Expand definition of scholarship at schools and in scientific organizations Assisted by AAMC, copy successful programs from other schools and industry 	<ul style="list-style-type: none"> % women visiting professors % women on powerful committees Availability of flexible benefits, PT track, family leave, tenure clock stopping 	<p>Leaders' self-assessment, on such questions as "Do I . . .</p> <ul style="list-style-type: none"> develop accountability within the institution for gender equity, including rewards for successful attainment of goals? identify areas where gender equity is likely to be a problem? Explicitly identify women to mentor for leadership positions? nominate women for highly visible posts? listen to women's and men's suggestions equally and ensure equal participation of women and men in public settings? review proposed policies by women faculty to ensure that there will not be unintended gender-related consequences?"
Improve search committees and nominating process	<ul style="list-style-type: none"> Appoint diverse committees Educate search committees on pitfalls and opportunities re: recruiting women Academic societies create a database of qualified women to nominate for visiting professorships and other appointments AAMC publish "good practices manual" for chairs 	<ul style="list-style-type: none"> Number of committees with more than 25% women Number of committees assisted by organizational development or other skilled facilitator Number of searches identifying women among final candidates 	<ul style="list-style-type: none"> Dean/CEO mandate inclusion of women on "short-list" Committees conduct self-evaluation of process
Strengthen Women in Medicine (WIM) program	<ul style="list-style-type: none"> Financially support WIM/WLO Regularly benchmark representation of women against AAMC published means AAMC continues to publish annual report on status of women faculty 	<ul style="list-style-type: none"> Evaluate department chairs on faculty retention and diversity Conduct salary equity study and faculty morale survey 	<ul style="list-style-type: none"> Dean monitors national standing on numerous gender-related indicators

Leadership development programs such as the Hedwig van Amerigen Executive Leadership in Academic Medicine (ELAM) Program for Women⁸² should also be explored.

Finally, the AAMC's Faculty Roster System (FRS) Recruitment Assistance Service offers medical school search committees the option of requesting basic data (including mailing addresses) for specified categories of faculty (e.g., all women professors of surgery). The FRS can also generate mailing labels for women chairs in any specialty, many of whom may know of possible women candidates in their fields. The AAMC's WIM office maintains a listing of WIM specialty organizations that may serve as useful points of contact with potential women candidates in that field.^{83,84}

Financially support institutional Women in Medicine programs and the AAMC Women Liaison Officer and regularly monitor the representation of women at senior ranks.

Active WLOs and WIM programs add value to their institution. Long-standing WIM programs (whether the locus is a faculty organization, a dean's committee, an office, or an outgrowth of one department) contribute initiatives and energy far beyond the scope of "women's issues"—an inaccurate label in any case. For instance, at many schools, WIM programs have focused on improving professionalism, mentoring, promotion and tenure policies, and leadership skill development.²² But too many WIM programs depend solely upon volunteered time, meaning they are always in jeopardy. Financial support is a necessary but not sufficient ingredient of effective initiatives. Other ingredients are a respected leader's commitment, a strong women's faculty organization with multiple sources of energy, and the assistance of an organizational development expert or other change facilitator.²⁶

Schools lacking a WIM focus now have numerous examples of how to create and sustain one.^{85,86} Schools with established programs should be evaluating them and considering how to extend improvements.

What organizations measure, they tend to improve. The Liaison Committee on Medical Education (LCME) now requires schools undergoing a full accreditation survey to document the number of women faculty across academic ranks. Since 1997, the AAMC's collection and publication of school-identified data on the representation of women have been stimulating schools to monitor where they stand in relation to the national mean. The AAMC will continue this practice, as well as offering tailored Institutional Profile System institutional ranking reports on the representation of women.

Other tools include:

- Building a salary and promotion database that can be reviewed annually; such a database would greatly facilitate gender equity studies.⁸⁷
- Surveying faculty on their career development experiences and needs and on morale issues, comparing responses of men and women, and comparing departments (the AAMC has a number of examples of such instruments).
- In departments with enduring problems with recruitment, retention, or advancement of women faculty, conduct focus groups to probe difficulties and identify change strategies.

CONCLUSION

The implementation of all these recommendations depends on the leadership of the dean and other senior administrators of the institution. In Table 2 the committee offers a variety of tools for assessing and monitoring interventions under each of the above recommendations.

The long-term success of academic health centers is inextricable from the

development of women leaders. As Jordan Cohen recently stated:

Cultivating diversity in our faculty and in our leadership is an indispensable strategic instrument for meeting the challenges that academic medicine faces in the 21st century. Grooming women for leadership positions and eradicating the barriers currently impeding their success are essential components of this strategy. Those institutions that fail to seize the advantages offered by elevating talented women to positions of power are destined to be eclipsed by those that do.⁸⁸

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The authors were the members of or staff and resource persons of the AAMC's Increasing Women's Leadership Project Implementation Committee. Ms. Bickel is associate vice president and director of Women in Medicine, AAMC, Washington, DC; Dr. Wara, the chair of the committee, is chief, Division of Pediatric Immunology/Rheumatology, University of California, San Francisco School of Medicine, San Francisco, California; Dr. Atkinson is executive dean and vice chancellor, University of Kansas School of Medicine, Kansas City, Kansas; Dr. Cohen is special advisor to the dean and professor of medicine, Yale University School of Medicine, New Haven, Connecticut; Dr. Dunn is dean and executive vice president, Medical College of Wisconsin, Milwaukee, Wisconsin; Dr. Hostler is chief, developmental pediatrics, McLemore Birdsong Professor of Pediatrics, University of Virginia School of Medicine, Charlottesville, Virginia; Dr. Johnson is chair, Department of Obstetrics and Gynecology, University of Michigan Medical Center, Ann Arbor, Michigan; Dr. Morahan is Director, National Center for Leadership in Academic Medicine, Drexel University College of Medicine, Philadelphia, Pennsylvania; Dr. Rubenstein is dean and executive vice president, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania; Dr. Sheldon is professor and chair emeritus, Department of Surgery, University of North Carolina at Chapel Hill; and Dr. Stokes is organizational development specialist, Johns Hopkins University, Baltimore, Maryland.

REFERENCES

1. Association of American Medical Colleges. Increasing Women's Leadership in Academic Medicine. *Acad Med.* 1996;71:800-11.
2. Bickel J, Clark V, Lawson RM. Women in U.S. Academic Medicine Statistics, 2000-2001, Washington, DC: Association of American Medical Colleges, 2001.
3. AAMC Faculty Roster System [unpublished 2001 data].
4. Yamagata H. Data shot: medical school faculty attrition. *AAMC Reporter.* May 2002; 11:1.
5. Bickel J. Women in medicine: the work that remains. *J Women's Imaging.* 2001;3:1-2.
6. Tesch B, Nattinger. Promotion of women physicians in academic medicine: glass ceiling or sticky floor? *JAMA.* 1995;273:1022-5.
7. Nonnemaker L. Women physicians in academic medicine: new insights from cohort studies. *N Engl J Med.* 2000;342:399-405.
8. Yedidia M, Bickel J. Why aren't there more women leaders in academic medicine? The views of clinical chairs. *Acad Med.* 2001;76: 453-65.
9. Bickel J. Women in medical education: a status report. *N Engl J Med.* 1988;319: 1579-84.
10. Etzkowitz H, Kemelgor C, Uzzi B. *Athena Unbound: The Advancement of Women in Science and Technology.* Cambridge, U.K.: Cambridge University Press, 2000.
11. Thomas DA. The truth about mentoring minorities: race matters. *Harvard Business Review.* 2001;79:99-107.
12. Valian V. *Why So Slow: The Advancement of Women.* Cambridge, MA: MIT Press, 1999.
13. Rhode D. *Speaking of Sex: The Denial of Gender Inequality.* Cambridge, MA: Harvard University Press, 1997.
14. Gjerberg E, Kjolsrod L. The doctor-nurse relationship: how easy is it to be a female doctor cooperating with a female nurse? *Soc Sci Med.* 2001;52:189-202.
15. McMurray JE, Linzer M, Konrad TR, Douglas J, Shugerman R, Nelson K. The work lives of women physicians: results from the Physician Worklife Study. *J Gen Intern Med.* 2000;15:372-80.
16. Ness R, Ukoll F, Hunt S, et al. Salary equity among male and female internists in Pennsylvania. *Ann Intern Med.* 2000;133:104-10.
17. Ely RJ, Meyerson, DE. Theories of gender in organizations: a new approach to organizational analysis and change. In: Stew B, Sutton R (eds). *Research in Organizational Behavior.* Greenwich, CT: JAI, 2000.
18. Mervis J. NSF program targets institutional change. *Science.* 2001;291:2063-4.
19. *Women in Law: Making the Case.* New York: Catalyst, 2001.
20. Adler NJ, Brody LW, Osland J. The women's global leadership forum: enhancing one company's global leadership capability. *Human Resource Management.* 2000;39:209-25.
21. McCracken DM. Winning the talent war for women: sometimes it takes a revolution. *Harvard Business Review.* 2000;78:159-66.
22. Bickel J, Clark V, Lawson RM. Women in U.S. Academic Medicine Statistics, 1998-1999. Washington, DC: Association of American Medical Colleges, 1999. (members/wim/statistics/stats99/start.ntm), accessed 7/19/02.
23. Bickel J, Croft K, Marshall R. Women in U.S. Academic Medicine Statistics, 1998. Washington, DC: Association of American Medical Colleges, 1998.
24. Morahan P, Voytko ML, Abbuhl S, et al. Ensuring successful women faculty to meet the needs of academic medical centers. *Acad Med.* 2001;76:19-31.
25. Hostler SL, Gressard RP. Perceptions of the gender fairness of the medical education environment. *J Am Med Assoc.* 1993; 48:51-4.
26. Buckley LM, Sanders K, Shih M, Kallar S, Hampton, C. Obstacles to promotion? Values of women faculty about career success and recognition. *Acad Med.* 2000;75:283-8.
27. Foster SW, McMurray JE, Linzer M, Leavitt JW, Rosenberg M, Carnes M. Results of a gender climate survey from a Midwest health center. *Acad Med.* 2000;75:653-60.
28. 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.
29. Gabriel B. Below the surface: academic medical centers identify and address gender inequity. *AAMC Reporter.* 2001(May);10: 8-9.
30. Cain JM, Schulkin J, Parisi V, Power ML, Holzman G, Williams S. Effects of perceptions and mentorship on pursuing a career in academic medicine in obstetrics and gynecology. *Acad Med.* 2001;76:628-34.
31. DeAngelis CD. Women in academic medicine: new insights, same sad news. *N Engl J Med.* 2001;342:426-7.
32. Estrich S. *Sex and Power.* New York: Riverhead Books, 2000.
33. McCorduck P, Ramsey J. *The Futures of Women: Scenarios for the 21st Century.* New York: Warner Books, 1996.
34. Keeping women in hospital and academic medicine. *Lancet.* 2001;358:83.
35. Thrall TH. Leadership survey. *Hospital and Health Network.* 2001;75:33-9.
36. Morahan P, Bickel J. Capitalizing on women's intellectual capital. *Acad Med.* 2002;77:110-2.
37. Bickel J. Gender equity in undergraduate medical education: a status report. *J Women's Health and Gender-Based Med.* 2001;10:261-70.
38. Stobo J, Fried LP, Stokes EJ. Understanding and eradicating bias against women in medicine. *Acad Med.* 1993;68:249-51.
39. Capra F. *The Web of Life.* New York: Random House, 1996.
40. Lippman H. Variety is the spice of a great workforce. *Business and Health.* 2000;18: 24-9.
41. Sessa V, Taylor, J. *Executive Selection: Strategies for Success.* Greensboro, NC: Center for Creative Leadership, 2000.
42. Allen RS, Montgomery KA. Applying an organizational development approach to creating diversity. *Org Dynamics.* 2001; 30(2):149-61.
43. Cox TH. *Cultural Diversity in Organizations: Theory, Research and Practice.* San Francisco, CA: Berrett-Koehler, 1993.
44. Ferraro G, Martin L. Reaping the bottom line benefits of diversity. *Executive Update.* July 2000:34-7.
45. Adler R. Women and profits. *Harvard Business Review.* 2001;79:30.
46. Church E. Market favours firms with women at top. *The Globe and Mail,* 2/15/01:B13.
47. Hecht IW, Higginson ML, Gmelch WH, Tucker A. *The Department Chair as Academic Leader.* Phoenix, AZ: Oryx, 1999.
48. Study on the status of women faculty at MIT. *The MIT Faculty Newsletter,* March 1999; XI (4) (<http://web.mit.edu/fnl/women/women.html>). Accessed 7/19/02.
49. Waxman M. Constructive responses to sexual harassment in the workplace. *The Employee Responsibilities and Rights Journal.* 1994;7:243-6.
50. Limacher M, Zaher CA, Walsh MN, et al. The ACC professional life survey: career decisions of women and men in cardiology. *J Am Coll Cardiol.* 1998;32:827-35.
51. Wong E, Bigby J, Kleinpeter M, et al. Promoting the advancement of minority women faculty in academic medicine: the national centers of excellence in women's health. *J Women's Health and Gender-Based Med.* 2001;10:541-50.
52. Bland CJ. Beyond corporate-style downsizing: a better way for medical schools to succeed in a changing world. *Acad Med.* 1997; 72:489-95.
53. Morahan PS, Gold JS, Bickel J. Status of faculty affairs and faculty development offices in U.S. medical schools. *Acad Med.* 2002;77:398-401.
54. American Management Association. 1995 AMA Survey: Corporate Downsizing, Job Elimination, and Job Creation. New York: AMA, 1995.

55. Bickel J. Women in academic medicine. *J Am Med Assoc.* 2000;283:10–2.
56. Johnson A. *Gender Knot: Unraveling Our Patriarchal Legacy.* Philadelphia, PA: Temple University Press, 1997.
57. Fletcher J. *Disappearing Acts: Gender, Power and Relational Practices at Work.* Boston, MA: MIT Press, 2000.
58. Lipman-Blumen J. *The Connective Edge: Leading in an Interdependent World.* San Francisco, CA: Jossey-Bass, 1996.
59. Levinson W, Rubenstein A. Mission critical: integrating clinician-educators into academic medical centers. *N Engl J Med.* 1999; 341:840–3.
60. University of California-San Francisco Task Force on the Future of Clinician Scientists (Office of the Academic Senate), 2000 [unpublished report].
61. McMurray JE, Jordan J. *Work in Progress (#89): Relational Dilemmas of Women Physicians.* Wellesley, MA: Stone Center, 2000.
62. Nathan DG. On clinical research and the future of medicine. *Daedalus.* 2002;131: 147–50.
63. Beattie DS. Expanding the view of scholarship. *Acad Med.* 2000;75:871–6.
64. Huber MT. Balancing acts: designing careers around the scholarship of teaching. *Change.* 2001;July/Aug:21–9.
65. Buchanan C. *Choosing to Lead: Women and the Crisis of American Values.* Boston, MA: Beacon, 1996.
66. Kaltreider N (ed). *Dilemmas of a Double Life: Women Balancing Careers and Relationships.* Northvale, NJ: Jason Aronson, 1997.
67. Dumelow C, Littlejohns P, Griffiths S. Relation between a career and family life for English hospital consultant: qualitative, semistructured interview. *BMJ.* 2000;320: 1437–40.
68. Heiligers PJM, Hingstman L. Career preferences and the work-family balance in medicine: gender differences among medical specialists. *Soc Sci Med.* 2000;50:1235–46.
69. Linzer M, Mechteld RM, Oort FJ, et al. Predicting and preventing physician burnout: results from the US and The Netherlands. *Am J Med.* 2001;111:170–4.
70. Williams J. *Unbending Gender: Why Family and Work Conflict and What to Do About It.* New York: Oxford University Press, 2000.
71. Rousseau DM. The idiosyncratic deal: flexibility versus fairness? *Organizational Dynamics.* 2001;29:260–73.
72. Froom J, Bickel J. Medical school policies for part-time faculty committed to full professional effort. *Acad Med.* 1996;71:91–6.
73. Socolar RS, Kelman LS, Lannon CM, Lohr JA. Institutional policies of U.S. medical schools regarding tenure, promotion, and benefits for part-time faculty. *Acad Med.* 2000;75:846–9.
74. Meyerson D, Fletcher J. A modest manifesto for shattering the glass ceiling. *Harvard Business Review.* 2000;78:127–36.
75. Stuart R. Organizational approaches to building gender equity. In: Amartunga C (ed). *Made to Measure: Women, Gender and Equity.* Maritime Center of Excellence for Women's Health, 2000.
76. Yedidia MJ. Challenges to effective medical school leadership: perspectives of 22 current and former deans. *Acad Med.* 1998;73:631–9.
77. Biebuyck J, Mallon W. *The Successful Medical School Department Chair, Module 1: Selection, Appointment, Transition.* Washington, DC: Association of American Medical Colleges, 2002.
78. Eagly A, Makhijani M, Klonsky B. Gender and the effectiveness of leaders: a meta-analysis. *Psychol Bull.* 1995;117:125–45.
79. Kanter RM. *Men and Women of the Corporation.* New York: Basic Books, 1977.
80. Caruana CM. Couples in academic medicine: when candidates come in packages. *Academic Physician and Scientist.* 2001; July/August:1, 4–5.
81. Ligos M. Escape route from sexist attitudes on Wall St. *New York Times.* 5/30/01, C10.
82. Richman RC, Morahan PS, Cohen DW, McDade SA. Advancing women and closing the leadership gap: the Executive Leadership in Academic Medicine (ELAM) program experience. *J Women's Health and Gender-based Med.* 2001;271–7.
83. Andrew L, Bickel J. Gender issues in physician career development. *Career Planning and Adult Development J.* 1998;14:105–22.
84. Association of American Medical Colleges, WIM specialty organizations. (<http://www.aamc.org/members/wim/wimspecialty.pdf>). Accessed 7/19/02.
85. Bickel J, Quinnie R. *Building a Stronger Women's Program: Enhancing the Educational and Professional Environment.* Washington, DC: Association of American Medical Colleges, 1993.
86. Bickel J, Croft K, Marshall R. *Enhancing the Environment for Women in Academic Medicine: Resources and Pathways.* Washington, DC: Association of American Medical Colleges, 1996.
87. Euben D. Show me the money: salary equity in the academy. *Academe.* 2001;87:30–6.
88. Cohen JJ. Women in medicine, much progress, much work to do. *AAMC Reporter,* November 2001:2.
89. Carr PL, Friedman RH, Moskowitz MA, Kazis LE. Comparing the status of women and men in academic medicine. *Ann Intern Med.* 1993;119:908–13.
90. Capek L, Edward DE, Mackinnon SE. Plastic surgeons: a gender comparison. *Plast Reconstr Surg.* 1997;99:289–99.
91. Dresler CM, Padgett DL, Mackinnon SE, Patterson AG. Experiences of women in cardiothoracic surgery: a gender comparison. *Arch Surg.* 1996;131:1128–33.
92. Kaplan SH, Sullivan LM, Dukes KA, Phillips CF, Kelch RP, Schaller JG. Sex differences in academic advancement: results of a national study of pediatricians. *N Engl J Med.* 1996;355:1282–9.
93. Colletti LM, Mulholland MW, Sonnad SS. Perceived obstacles to career success for women in academic surgery. *Arch Surg.* 2000;135:972–7.
94. Lawler A. College heads pledge to remove barriers. *Science.* 2001;291:806.
95. Tosi LL, Mankin JH. Ensuring the success of women in academic orthopaedics. *Orthopaedics.* 1998;356:255–63.
96. Hitchcock M, Bland CJ, Hekelman FP, Blumenthal MG. Professional networks: the influence of colleagues on the academic success of faculty. *Acad Med.* 1995;70:1108–16.
97. Ragins B, Cotton J. Gender and willingness to mentor in organizations. *Journal of Management.* 1993;19:97–111.
98. Bickel J. *Women in Medicine: Getting in, Growing, and Advancing.* Thousand Oaks, CA: Sage, 2000.
99. Austin L. *What's Holding You Back? 8 Critical Choices for Women's Success.* New York: Basic Books, 2000.
100. Wenneras C, Wold A. Nepotism and sexism in peer-review. *Science.* 1997;387:341–3.
101. Sandler BR, Silverberg LA, Hall RM. *The Chilly Classroom Climate: A Guide to Improve the Education of Women.* Washington, DC: National Association for Women in Education, 1995.
102. Fiske ST. Controlling other people: the impact of power on stereotyping. *Am Psychologist.* 1993;48:621–8.
103. Geiger HJ. Racial stereotyping and medicine: the need for cultural competence. *Can Med Assoc J.* 2001;164:1699–700.
104. Bickel J. Gender stereotypes and misconceptions: unresolved issues in physicians' professional development. *JAMA.* 1997;277: 1405, 1407.
105. Kimmel M. *The Gendered Society.* Oxford, U.K.: Oxford University Press, 2000.
106. Reardon K. *The Secret Handshake: Mastering the Politics of the Business Inner Circle.* New York: Doubleday, 2001.
107. Bower DJ, Diehr S, Morzinski JA, Simpson DE. Support-Challenge-Vision: A Model for Faculty Mentoring. *Med Teach.* 1998;20: 595–7.
108. Grady-Weliky T, Kettle C, Hundert E. New light on needs in the mentor-mentee relationship. In: Wear D, Bickel J (eds). *Educating for Professionalism: Creating a Culture of Humanism in Medical Education.* Iowa City, IA: University of Iowa Press, 2000.

APPENDIX A

Recommendations of Original Increasing Women's Leadership in Academic Medicine Project Committee¹

Note: Italicized recommendations are those selected by the implementation committee for greatest emphasis. Each task listed in this Appendix was designed by the original project committee to implement one of the following three objectives, labeled here as 1, 2, and 3. The number in parentheses placed after each task corresponds to the number of the task's objective.

1. Develop and monitor women faculty, administrators, residents, and students
2. Improve pathways to leadership and leadership development
3. Foster readiness to change

Tasks for Academic Medical Leaders/ Institutions

- *Create mentoring and professional development programs, open to all with special focus on needs/concerns of women faculty.* (1)
- Add temporal flexibility to resident and fellow training opportunities and faculty promotion policies. (1)
- Improve resources that support family roles, e.g., child care centers. (1)
- Offer assistance to job candidate partners. (1)
- Support the work of the AAMC Women Liaison Officers and women faculty organizations/committees. (1)
- *Monitor representation of women at senior ranks and on major committees (to include summary report to governance, showing the hiring/promotion of men and women faculty by track).* (1)
- Model highest standards of professionalism and assure that meeting these standards is explicit part of evaluation process of all members of academic community (perhaps with values articulated in mission statement). (1)
- Evaluate faculty and administrators on abuse of power. (1)
- *Encourage search committees to make extra efforts to identify women candidates.* (2)
- Provide guidance to search committees regarding evaluation of women and minority candidates. (2)
- Encourage important committees to undertake training in conflict management, to engage in discussion of leadership styles, and to examine gender stereotypes, in particular, how the same words may be viewed differently depending on the sex of the actor. (2)
- *When recruiting department heads, place more emphasis on management/nurturance of faculty/residents and on team-building skills.* (2)
- Provide training in management/nurturance of faculty/residents and in team-building skills for current department heads/administrators. (2)
- *Hold chairs accountable for accomplishment of goals (such as career guidance to junior faculty/residents and in proportion of women faculty promoted).* (2)
- Incorporate these issues/recommendations into strategic planning efforts (with the goals of assuring professionalism and excellence and of meeting social contracts) and in self-assessments (with a focus on achieving stated missions and evaluating staff/students perceptions of the learning and organizational climate). (3)

Tasks for the AAMC

- Continue professional development seminars. (1) (The 15th Early Career and the eighth Senior/Mid-Career Women Faculty Professional Development Seminars were held in 2001.)
- Publish a resource guide. (1) (Such as *Enhancing the Environment for Women in Academic Medicine: Resources and Pathways*, <http://www.aamc.org/about/progemph/wommed/wimguide/start.htm>).
- Develop a speaker's bureau. (1) (This is ongoing.)
- Offer assistance and consultation to institutions in developing strategies/seminars. (1) (This is ongoing.)
- *Interview women department chairs regarding factors critical to their success and advice they would give younger colleagues aspiring to major administrative posts.* (2) (See the Method section of this report.)
- Interview major search firm heads to garner perspectives on finding/placing women candidates. (2) (This was discovered to be unfeasible except for meeting with one managing partner.)
- Create a leadership development seminar, targeted at senior faculty and administrators, for building an institutional focus on faculty development (focus on overcoming gender-related communication barriers, managing change, and building teams). (2) (A session included in an executive development seminar.)
- Provide assistance to institutions in developing local and regional leadership development workshops targeted at administrators and department heads. (2) (This assistance would be provided when requested.)
- Create a National Leadership Honor Society (NLHS) to encourage/award students who distinguish themselves as values-based, service-oriented leaders. (2) (The implementation committee was opposed to this idea of creating a special society.)
- Continue efforts to increase the number of women at the AAMC's executive and management staff levels, on its committees, and within its governance. (3) (This goal has been accomplished.)
- Integrate the project committee's recommendations into ongoing programs and strategic planning. (3) (Insufficient progress has been made.)
- Consider and create opportunities for interdisciplinary discussion among AAMC administrative boards and among other AAMC constituent groups. (3) (Insufficient progress has been made.)
- Via the LCME, examine gender breakdowns of faculty data by promotion and hiring rates and by rank and tenure and of membership on major committees and encourage institutions to conduct salary equity studies and self-assessments of gender climate and faculty development needs. (3) (As of 2001 LCME asks site-visited schools for faculty gender data by academic rank.)
- Make available to institutions tools for the types of assessments mentioned in the previous task. (3) (This process is ongoing.)

APPENDIX B

Results of Recent Research on Women's Careers

Academic Advancement

- Cross-sectional studies have largely corroborated findings of cohort analyses showing that women reap fewer rewards than men in terms of academic rank and compensation, even after adjustments for specialty, hours worked, and other variables.⁸⁹ Studies of plastic surgeons⁹⁰ and cardiothoracic surgeons⁹¹ found no gender differences in background, hours worked, or professional activities, but women made lower salaries and women in academics held lower ranks and were less likely to be tenured. A survey of academic pediatricians found that compared with men, women spent more time in teaching and patient care and less in research, had less institutional support for research and less adequate mentorship, and were less academically productive; adjustment for all independent variables did not eliminate gender differences in salary.⁹² A study of surgeons in one large department found that the women faculty were far less likely than the men to believe that clerical support, technical support, and non-research start-up funds were adequate. Even though these women were more likely than the men to have extramural funding, they published less.⁹³
- The Massachusetts Institute of Technology (MIT) investigated differences in resources allotted to men and women professors. Findings included:

Marginalization increases as women progress, accompanied by differences in salary, space, awards, and offers from outside . . . Even though each new generation began by believing that gender discrimination was solved in the previous generation, the pattern repeats itself . . . Problems especially flourish in departments with non-democratic practices, i.e., administrative procedures whose basis is known only to a few lead inevitably to cronyism and unequal access to resources . . . While the reasons are complex, a critical part of the explanation [for the few women at the professor rank] is our collective ignorance of what discrimination looks like. It turns out to take many forms, including a pattern of difference in how male and female colleagues are treated

and of powerful but unrecognized assumptions that work systematically against women even in the light of obvious good will.⁴⁸

Subsequently, the leaders of MIT, Yale, Stanford, Princeton, Harvard, the University of Pennsylvania, the University of Michigan, the University of California, and the California Institute of Technology have begun to work together toward equity and the full participation of their women faculty members. They are sharing annual gender analyses of salaries and resources and hiring and working to implement more family-friendly policies.⁹⁴

- Based on over 450 in-depth interviews and on a quantitative survey, a new longitudinal analysis of women in science allows numerous conclusions:

1. Increasing the number of women doesn't automatically produce positive effects. As the numbers of women in a department increase, they divide into distinct subgroups, sometimes at odds with each other, e.g., age and race/nationality.

2. Women still experience isolation within an activity that for men is highly social and socializing. When a woman seeks affiliation through women's groups, this is labeled a "special need." This paradox is compounded when similarly isolated women are appointed as tokens to committees and pointed to as "role models" (i.e., expected to be "solutions" to a "problem").

3. Gender differences in advancement are rooted in the ways work is organized. For instance, the tenure system is a forced march in the early years, allowing a slower pace later on. Most women would prefer the opposite timing.

4. The majority of departments studied were severely competitive and individualistic. The departments that showed the most improvement in recruitment of women had a more collegial, cooperative atmosphere. Since much of the process by which disadvantage is created and reinforced occurs at the department level (e.g., recruitment, access to benefits), this is the seat of change, with the department head the key. Thus de-

partmental reviews should include emphasis on diversity issues.¹⁰

Mentoring

- Many studies have found that women gain less benefit from the mentor relationship. One internal medicine department found that mentors more actively encouraged men than women protégées to participate in professional activities outside the institution and that women were three times more likely than men to report their mentors' taking credit for their work.²⁸ Among cardiologists, women found their mentors to be less helpful with career planning than men did and more commonly noted that their mentors were actually negative role models (19% of women vs. 8% of men). They were also less likely than men to negotiate for salary, benefits, travel, space, support staff, and administrative duties—reflecting a combination of naivete and under-use of their professional network.⁵⁰ The American Orthopaedic Society asked women academics to rate obstacles to academic advancement; the three most frequently identified were lack of protected time for research, inadequate mentoring, and need to see more patients to support the department.⁹⁵ Women's informal networks are less extensive and less likely to include superordinates or colleagues from previous institutions.⁹⁶ Women tend to be more modest than men about their achievements and less apt to see themselves as qualified for top positions even when their credentials are equivalent or superior.⁹⁷ Consequently, women actually have a greater need for mentoring than men do.^{98,99}
- A study of the career progress of minorities at U.S. corporations reveals similar results: that is, minorities face extra challenges obtaining mentoring. Insights from this research apply directly to women.¹¹ Conclusions include:

1. Of the minority professionals who became executives (vs. those who plateaued), even though they had not been on an obvious fast track during stage 1 of their careers, influential mentors had been investing

in them as if they were. These relationships opened the door to challenging assignments and protected the protégées from unfair criticism.

2. Managers who plateaued had received mentoring that was basically instructional, whereas those who became executives had enjoyed fuller developmental relationships with mentors, particularly early in the career when confidence-building is crucial. These mentors gave both coaching (i.e., technical advice) and counseling (i.e., experiential cues and emotional support).

3. Cross-race and cross-gender relationships may encounter numerous extra difficulties forming and maturing: (a) A mentor who holds negative racial or gender stereotypes is unlikely to give protégées the benefit of the doubt (whereas fast-track whites are likely to be evaluated based on their *perceived potential*), with the consequence that the minority individual is less likely to take risks. (b) When the mentor has trouble identifying with the protégée, seeing beyond the protégée's weaknesses is harder; also a "protective hesitation" interferes with communication about race and other thorny issues. (c) A protégée's adopting the behavior of the mentor might produce different results (e.g., an aggressive style successful for white men may get women and minorities labeled "angry"). (d) Because cross-race relationships are rare, people focus on them, adding to their fragility and discouraging people from participating in them.

4. A key task of the mentor is helping the protégée build a network, which needs to be heterogeneous along three dimensions: functionally (from sponsors to peers); position and location; and demographically.

5. The work of mentoring minorities does not end with one-on-one relationships but requires broader initiatives such as executive development workshops addressing these issues, helping colleagues manage their discomfort with race, and offering a range of

career paths so that people can move at their own speed.

Mental Models of Gender

Gender stereotypes are perceptual shortcuts acquired early in life but are far from innocuous because they interfere with evaluations of competence. Both men and women who were asked to rate works of art, articles, and curricula vitae gave lower ratings when they believed they were rating the work of a woman.¹² An analysis of peer-review scores for postdoctoral fellowship applications revealed that women applicants had to be 2.5 times more productive than the average man to receive the same competence score.¹⁰⁰ Moreover, students judge women faculty who are not nurturing much more harshly than they do men professors who are not nurturing.¹⁰¹

Negative mental models of women persist in part because individuals, especially dominant personalities, tend to ignore information discrepant to their stereotypes.¹⁰² Features common to clinical medicine, i.e., time pressures, stress, and cognitive complexity, also stimulate stereotyping and "application error" (i.e., inappropriate application of epidemiologic data to all group members).¹⁰³ Even so, most scientists and physicians appear to believe that they work in a meritocracy and that they are not influenced by stereotypes.¹⁰⁴ Some even conclude that women are advantaged compared with men. But as Michael Kimmel¹⁰⁵ has observed, "While individual men do not feel powerful, power is so deeply woven into their lives that it is most invisible to those who are most empowered." In fact, a pervasive barrier to achieving organizational diversity is that "people tend to be attracted to others who are like themselves . . . [thus] unless the people in charge recognize their own biases . . . [women and minorities] will

have difficulty achieving the secret handshake."¹⁰⁶

Other Disadvantages

- The first such study of physicians' work lives found that compared with men, women physicians have more patients with complex psychosocial problems. Women physicians also reported substantially less work control than men, i.e., volume of patient load, selecting physicians for referrals, and office scheduling. Women were 1.6 times more likely to report burnout than men, with the odds of burnout by women increasing by at least 12% for each additional five hours worked per week over 40 hours. This study also found a \$22,000 gap in income between men and women, after controlling for age, specialty, practice type, time in current practice, uninsured status of patients, region, hours worked, and other variables.¹⁵
- A 1998 survey of board-certified internists in Pennsylvania found that women earned 14% less per hour than did their male counterparts, even after adjustment for demographic, training, practice, and family characteristics, suggesting that institutional factors may contribute to salary inequities.¹⁶
- Women physicians also face extra difficulties in the doctor-nurse relationship. A survey of over 3,500 Norwegian physicians found that compared with men physicians, women are met with less respect and confidence and receive less help. By refusing to do things for women physicians, either by neglecting orders or by telling them to do things themselves, nurses "cut women physicians down to size." Women must therefore "calculate and negotiate behavior to avoid conflicts . . . [whereas] men do not have to involve themselves in such negotiations in order to get respect and the service work done."¹⁴

APPENDIX C

Questions to Assess the Faculty Development and Diversity Orientations of Candidates for Chair and Dean Positions*

- What do you think motivates most faculty to work hard and achieve?
- In a large department, how would you assess the needs of the most significant sub-groups of faculty?
- What would faculty that you have mentored say is your approach to career development? What motivated you to work with and mentor these faculty in the way you did? Describe some of your successes and your less successful experiences and outcomes? If you wanted to validate your assumptions about how your advisees experienced your approach, how would you do it?
- At your current institution, is there a women's faculty organization or committee on women? What has been their approach to defining and addressing women faculty career development?
- How have you demonstrated your commitment to the development of women professionals in your various positions and roles?
- In your current position, have you ever seen a woman or ethnic minority faculty member treated unfairly? How would/did you handle it?
- Have you observed differences in the mentoring needs of men and women mentees? Of young physicians and scientists today compared to ten or 20 years ago?

*Developed by Emma Stokes, PhD, senior university Department of Medicine organizational development specialist, Johns Hopkins.

APPENDIX D

Two Approaches to Assessing Faculty Turnover Costs

ONE: Evaluate Return on Investment of Faculty Development by Comparing Costs of Recruitment with Costs of Mentoring and Development

Average Cost of Recruitment		Average Cost of Mentoring/Development	
Item	Cost	Item	Cost
Loss of productivity in previous faculty member's last three months		Administrative staff for faculty development/mentoring program	
Advertising the position		Non-salary program costs (e.g., workshops, food, supplies, Web site, publications)	
Search firm and/or administrative costs		Time of junior and senior faculty spent in development/mentoring	
Interview travel expenses (air fare, hotel, meals, etc.)		Mentoring award	
Search committee and other faculty and staff time spent interviewing		Time of boss in developmental planning and performance appraisal feedback sessions	
Work put on hold + lost opportunity costs in not being able to pursue other initiatives until replacement is on board		Education of chairs, division chiefs, and senior faculty in developmental planning, mentoring skills, and performance appraisal	
Overload on other faculty and staff (overtime, etc.) to get work done during selection and training of replacement			
Orientation and training time for replacement to become fully productive			
Lost patients, referrals, and grants of faculty member, cancelled clinics, delays before out-of-state physicians become licensed and can bill)			

Appendix D continues

APPENDIX D (Continued)

Average Cost of Recruitment		Average Cost of Mentoring/Development	
Item	Cost	Item	Cost
Lowered morale and productivity, time spent talking about it			
Recruitment package requirements—e.g., signing bonus, release time for scholarship, reconfiguration of lab space, other perks			
Moving allowance			
Loss of other faculty and staff			

TWO: Turnover Costing Exercise*: _____
(Job Title)

- A. Typical annual pay for the job _____
- B. Percentage of pay for benefits times annual pay _____
- C. Total annual cost (add A and B) _____
- D. How many employees voluntarily quit in this job in the past 12 months? _____
- E. How long does it take for one employee to become fully productive (in months) _____
- F. Multiply E $\times \frac{C \times 50\%}{12}$ _____
- G. Annual turnover cost for this job (multiply F \times D) _____

DIRECT HIRING COSTS

- 1. Costs for recruiting/advertising _____
- 2. Staff time for identifying, preparing, placing ad _____
- 3. Agency and search fees _____
- 4. Internal referral bonuses _____
- 5. Relocation expenses _____
- 6. HR/recruiting staff expenses (salaries, benefits, budget costs) _____
- 7. Total annual hiring costs (add 1 through 6) _____
- 8. Cost per hire (divide 7 by number hired) _____

INDIRECT HIRING COSTS

- 1. Management/supervisor time per hire in hours _____
- 2. Management orientation and training time per hire _____
- 3. Average annual manager/supervisor salary and benefits costs divided by 2,080 _____
- 4. Average annual management costs for hiring $\{(1) + (2)\} \times (3)$ _____

*Developed by Robert Mathis, PhD, College of Business Administration, University of Nebraska–Omaha, and Frederick A McCurdy, MD, PhD, University of Nebraska Medical Center.

APPENDIX E

Examples of Medical School Faculty Career Advising and Mentoring Programs

To assist faculty in making optimal use of their academic appointments and to strengthen the institution, many schools have created programs and resources to improve faculty mentoring. These range from assigning every new assistant professor an advisor to offering an extensive guidebook of tools, scenarios, and other supports, as at the Medical College of Wisconsin, which has even published an evaluation of its mentoring program.¹⁰⁷ Other examples appear below. Among the goals of all such efforts is building a supportive ecology in which faculty career and skill development more naturally occur.

Contemporary mentoring presents challenges not faced by academic medicine's current leaders, most of whom were "groomed" by someone who was also a white male. The homogeneity of senior faculty contrasts sharply with the heterogeneity of students and young faculty, many of whom present orientations unfamiliar to their potential mentors.¹⁰⁸ Moreover, given the rapidly changing complexities of medicine and career building, advice applicable even five years ago may no longer be helpful. Thus, many chairs and senior faculty could use assistance in becoming effective "contemporary" mentors. One such resource is Johns Hopkins Department of Medicine's *Career Development Guide*, which offers advice on techniques of active listening, avoiding assumptions, and how to reflect back.

Evaluating chairs and faculty on how well they meet their mentoring responsibilities can help assure that these responsibilities are taken seriously. A start would be to add items on mentoring to annual faculty evaluations, and to ask senior faculty to name their protégés and junior faculty to name their mentors.

- Stanford University School of Medicine *Faculty Mentoring Program*: (<http://www-med.stanford.edu/school/facultymentoring>)
 - Initiated in 1994 out of Dean's Council on Diversity to address the sense of isolation of junior faculty and the sense that patient care pressures put academic careers in jeopardy
- Co-directed by two emeritus professors
- Mentees (assistant professors) choose mentors (associate and full professors) from roster and contact them directly (also now most department chairs assign each incoming assistant professor a temporary mentor)
- Program also includes social occasions for discussion of common problems and group mentoring opportunities with lunch provided
- University of Arkansas College of Medicine *Women's Faculty Development Caucus (WFDC) Mentoring Project*: (<http://www.uams.edu/cmefd/mentoringpage.htm>)
 - Pilot project begun in 1997 through Office of Faculty Development
 - WFDC Mentoring Committee paired mentor/mentees based on responses to a survey
 - Mentors given CVs of assigned mentees, resource book, mentor guide
- University of Wisconsin–Madison Medical School *Faculty Mentoring Program* (Molly Carnes, MD): (mlcarnes@facstaff.wisc.edu), (608) 233-0687)
 - Faculty policies state that senior faculty responsible for mentoring junior faculty
 - Opportunity to find mentors outside department
 - Each fall the faculty steering committee contacts junior faculty to participate
 - Interested mentors/mentees fill out questionnaire
 - Training session for mentor/mentee pairs to facilitate process
 - Women in internal medicine meet monthly and take turns critiquing each others' CVs
- Mayo Medical School *Mentoring Initiative*
 - New staff orientation stresses importance of intra-departmental and extramural mentors and how to select them and establish a workable relationship
 - Faculty affairs dean presents process to department chairs: (1) Some responsible leader in the department meets annually with staff to discuss scholarly goals, (2) the chairs assure that all new
- faculty have an appropriate academic appointment, and (3) the staff understand the criteria to gain them eventual promotion to the next higher rank and when that might be realistic. This program is part of an annual operating planning process that holds chairs accountable.
- Boston University *Mentoring Program* (Leslie Wright, (lmwright@bu.edu))
 - Recruited top senior faculty for a one-hour commitment; junior faculty invited to submit CV and a work in progress to be worked on with the mentor
 - 30 pairs matched
 - High satisfaction levels; more than half of pairs have continued
- University of Ottawa Academic Women's Association *Mentoring Program* (Rose Goldstein, MD, associate dean for professional affairs, faculty of medicine, (rgoldstein@ottawahospital.on.ca); (613) 737-8175)
 - Begun in 1992 to provide junior women faculty members with a support system when first entering the university
 - To extend networking, matches are made across departments
 - "Guide to Faculty Mentoring" and a resident mentoring handbook published
- Drexel University College of Medicine: (www.mcphu.edu/COL)
 - Preceptoring for first-year faculty (one year, primarily informational)
 - Mentoring for junior faculty (multi-year, preparing for promotion)
- East Carolina University, The Brody School of Medicine
 - Two-year program for senior faculty to develop effective mentoring skills
 - Two-year program pairing junior faculty with a senior faculty member
 - Year-long group mentoring program for junior faculty incorporating career planning and skill development for professional advancement