



Women in academic medicine: New manifestations of gender imbalances.

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Abstract:

The purpose of this article is to analyze the status of women in academic medicine, and to identify the institutional factors that may influence women's academic advancement in medicine. Many of these factors are viewed in a broad perspective, revealing the general challenges that women face in the academic world. This article is divided into three sections. The first is a review of the current status of women in academic medicine and it focuses on enrollment, selected specialties, rates of academic promotion and disparities in salaries between women and men. The second section addresses obstacles to the advancement of women in academic medicine and looks at mentorship, rigidity in career structures, sex discrimination, and the impact of family and domestic responsibilities. The third section proposes solutions for women pursuing careers in academic medicine. The content and foci of this paper are gathered from a variety of disciplines including sociology, psychology, gender studies and medicine. The suggestions for change included in this paper may be implemented across all of academia, not just in medicine, as they address common issues for all women.

Introduction:

Despite the influx of women into the field of medicine that began in the 1970s, women remain under-represented in higher academic positions and within certain medical specialties. This paper investigates these trends and shows how these two factors represent new manifestations of gender imbalances in academic medicine and academia in general. While several reasons for these discrepancies have been proposed (Reed and Buddeberg-Fischer, 2001), solutions for balancing out these gender inequities are difficult to implement.

When women do reach leadership positions in medicine, they often replicate the dominant culture of academic medicine and continue to represent the dominant culture's interest and values. There is then the need for representation from more diverse groups of women that would aid in diffusing the prevalence of the dominant culture of academic medicine. In addition to this, while there are some women who take on leadership positions in academic medicine, there is at the same time a profound lack of representation of women of color and immigrant women in academic medicine (Caplan, 1993). As a new Canadian who underwent the registration process in order to practice medicine in Canada, I have personally experienced several obstacles in the process of re-certification. In addition, after successful completion of the residency program, I have been practicing medicine in Canada since 1997 and can therefore relate to the many challenges that women physicians face in the academic world. Initially, I developed a greater interest in this subject while pursuing my Masters degree at the Ontario Institute for Studies in Education where I was introduced to the literature of equity studies. As an immigrant women physician, who personally experienced some forms of marginalization, I feel competent to offer an analysis of gender issues in academic medicine, particularly in terms of problems of under-representation of immigrant women and women of colour at the systemic level.

The purpose of this article is to analyze the current status of women in academic medicine, and to identify factors and barriers that may influence women's academic advancement in medicine. Many of these factors are investigated in a broad context, revealing the general challenges that women face in the academic world. In addition, future possibilities for women in academic medicine, along with suggestions for women in academia, will be presented from data and information obtained from the scholarly literature relating to gender and the professoriate in which the many psycho-social problems women face in their careers are discussed. The aim, ultimately, of this article is primarily to present institutional problems that specifically influence women's leadership in medicine, because of the possibilities for hospitals and universities to implement new policies and initiatives to address the imbalances presented. These problems are associated with the support mechanisms within academic that are in place which t

The current status of women in academic medicine: Medical Enrolment and Selected Specialty:

Evidence of greater equality of access to medical schools between relating to gender has been illustrated in studies conducted in recent years. Not only is there a large proportion of women applying to medical schools, but importantly, many are attending these medical programs (Caplan, 1993). Indeed, reports from OECD countries exhibit an increase in the percentage of women entering medical school, and in some

countries women students outnumber male students (Colborn, Kent and Leon, 1995; Notzer & Brown, 1995; Notzer & Brown, 1995). In fact, today, the majority (59%) of medical students in Canada are women (Association of Canadian Medical Colleges, 2002). Data from the year 1999, the most current data available from the Association of American Medical Colleges (AAMC), reveals that the proportion of female entrants to U.S. medical schools has leveled off to 44% in the 1998-99 academic year (Association of Canadian Medical Colleges).

However, once out of medical school, the specialties that men and women enter follow a distinct pattern. Research shows that women are more likely than men to be working in general or primary care fields, and far less likely to be found in surgical and hospital medical specialties (Collins, Schoen & Khoranizadeh, 1997; Davidson, Lambert & Goldacre, 1998; Colletti, Mulholland & Sonnad, 2000). Furthermore, it appears that these trends are set to continue. It is in this way that gender imbalances and inequities are manifested in today's medical schools and medical profession. Women made up 36% of residency programs in the United States in 1998, with higher proportions in pediatric and obstetrics/gynecology (64%) and the lowest proportion in surgical subspecialties. This form of 'horizontal gender division' results in medical disciplines wherein a high proportion of women rank lower than men in terms of prestige and earnings (Crompton, 1987; Riska & Wegar, 1993). In her book *Why So Slow*, psychologist Virginia Valian uses concepts and data from psychology, sociology, economics, and biology to explain the disparities between the professional advancement of men and women. Valian suggests that this breakdown of the sexes by medical specialty is congruent with gender schemas. As she explains: "since gender schemas represent women as more nurturing and expressive and less technically skillful than men, their relative advantage in general practice and relative disadvantage in emergency medicine is not surprising. Women look and act right for general practice, and men look and act right for surgery" (Valian, 1999). The question is whether these gender schemas must continue, or whether they are socially constructed and thus perpetuated, and as such, how they may be dissolved or challenged. Ultimately, while it is true that progress has been made in terms of equality of access to medical between genders, new gender imbalances around schemas have emerged.

General Academic Appointments and Salaries:

Other and possibly more visible distinctions between men and women in academic medicine include the under-representation of women in leadership positions within the university and more generally their rates of promotion within hospitals. The Wechsler study, for example, indicates that in the United States women now constitute more than 52% of all college students, but they constitute, at the same time, less than one-third of the faculty (Wechsler, 1995). Furthermore, only 10% of full professorships - the highest academic rank - are held by women. It must be noted as well that among these African-American women hold less than 1%. A survey conducted in 1984 found that only 10% of college presidents were women, 1.3% were African-American women, and percentages for other ethnic minority groups were negligible. The few female deans were clustered in nursing, education, continuing education, and home economics, and were rare in business, engineering, law and medicine. A greater proportion of women, approximately one-third, were found among other administrative positions, such as registrars, librarians, and student affairs personnel. Notably, these areas

do not have the same upward career tracks as academic administrative posts (Whiting & Bickel, 1992).

Similarly, in 1998, women comprised only 27% of full-time faculty at medical schools in the U.S. Of all professors and associate professors, 11% and 23% were women, respectively. A recent study by Nonnemaker et al, investigated the rate of advancement to the ranks of assistant, associate, and full professor in all U.S. medical school faculties from 1979 through 1997. It was found that women were significantly more likely to pursue an academic career than men. The number of women in all ranks of academic medical settings, according to her study, was increasing corresponding to the increasing number of women medical school graduates. However, women were significantly less likely to have advanced to higher ranks compared to their male counterparts (Nonnemaker, 2000).

A further study from the AAMC from 1995 showed that only 10.5% of all women medical faculty were full professors, compared to 30.7% of men. In addition, 19.3% of the female faculty, as compared to 24.3% of the male faculty, were associate professors (Bickel & Buddeberg-Fischer, 2001; Wechsler, 1995). Moreover, the proportion of men to women at each academic professorial level has remained the same for over 15 years (Nonnemaker, 2000). The Nonnemaker et al. study also shows that the distribution of women among the ranks of professor has remained unchanged for 20 years (Nonnemaker, 2000). Literature in the general field of higher education, including medical schools, indicates that given the amount of time spent on teaching as opposed to research, women are more likely to be teachers and men more likely to be scholars. When teaching, however, men are more likely to spend time teaching specialized, upper-level or graduate courses (Tinsley, Secor & Kaplan). With the above noted, it is important to make clear that time dedicated to teaching rather than research activity often impedes academic promotion (Bernard, 1983).

The under-representation of women in leadership positions also applies to medical faculty members and professors. A Norwegian study found that with a few exceptions women were less likely to be defined as "medical leaders". Even with government equality policies, such as elimination of sex discrimination and improved social benefits, women remained under-represented in leading medical positions. However, they were more likely to hold leadership positions in specialties with high proportions of women (Kvaerner, Aasland & Botten, 1999). With all of these factors considered it is apparent that while equality of access to the field of medicine and medical school has been addressed in terms of gender, there are gender imbalances within how the field operates along with how it is structured.

Salary Inequities:

Salary inequities exist for women in many occupational settings, including medicine. For example, in the 1994-1995 academic year, the mean wage of full-time male instructional faculty on a nine-month contract was \$51,228, whereas female wages averaged \$41,369 (U.S. Department of Education, 1996; Collins, Chrisler & Quina, 1998). Until the 1980s, income differences between male and female physicians were still evident (Ohsfeldt & Culler, 1986). There has, however, been some recent dispute concerning pay inequities between men and women. For instance, Baker has examined 1990 earnings compiled from the Survey of Young Physicians to ascertain if the gender gap has become more narrow (Baker, 1996). Although 1990 earnings showed young

males earning 41% more than young female physicians, once adjustments were made for differences in specialty, practice setting and other characteristics, earnings were equal. Unfortunately, the authors of the article do not examine the possibility that women may be steered to certain specialties, where salaries are comparatively smaller such as family medicine, dermatology and obstetrics, than those of male dominated specialties such as surgery. Gender discrepancies in earnings still exist between certain specialties (Baker, 1996). Baker found that the majority of the differences in hourly earnings were due to anomalies in specialty and practice settings (1996). However, other investigators have continued to argue that female physicians earn less than their male counterparts, even when age, practice characteristics and rank are taken into account (Dresler et al., 1996).

Salary inequities between male and female physicians may be obscured by part-time job arrangements. It has been shown that in some countries, women physicians are more likely to work part-time. A British survey found that nearly half of women physicians who qualified in 1977 were working part-time, 18 years after graduating from medical schools (Davdison, Lambert & Goldacre, 1998). Their workloads were related to their family situation. However, there is conflicting data on gender differences in working hours. The study by Dresler et al. (1996) examined thoracic surgeons and found no differences in the number of hours worked by men and women, while in another study Limacher found that women cardiologists were significantly more likely to work part-time, not to be practicing any longer, or to have interrupted their careers (Limacher et al., 1998). Generally and on the surface women tend to earn less than men in medicine. The reasons why, however are not as clear-cut as being directly related to gender. But it is clear that gender and social constructs relating to (i.e. gender schemas) do play a major role in this issue.

Obstacles to the advancement of women:

The term "glass ceiling" is often invoked to describe the circumstances of women in business and academia. It implies that recognition and rank, commensurate with one's success, may be visible yet unattainable for many women (Hymowitz & Schellhardt, 1986). Despite the gains made by women over the past decades, the "glass ceiling" is still present for the majority of professional women. Women are perceived as having less leadership ability (Valian, 1999; Heilman et al., 1989) and less competence (Porter & Geis, 1981; Fidell, 1975; Greenhaus & Parasuraman, 1993) even though the discourse of equality within the professions might say otherwise. Furthermore, when women exercise assertiveness or try to assume leadership they often must work harder to gain attention, and may receive negative reactions (Butler & Geis, 1990). This makes it difficult for women to gain advantages as readily as men. In addition, several other factors, such as a lack of mentorship, rigidity in career structures, sex discrimination and domestic responsibilities contribute to the "glass ceiling". A study of graduates of McMaster University Medical School reported that women encountered more barriers to career development than men, and appeared to lack the support system needed to readily combine careers with family. The same study reported that other factors such as a lack of confidence in their own abilities and few female role models impeded career development. Specific gender-related disadvantages reported by women included being taken less seriously than men, sexism, lack of spousal support, and the difficulty of combining family and career (Cohen, Woodward and Ferrier, 1988). Furthermore, Tesch et al. reported that women in academic medicine were at a disadvantage compared with

their male colleagues in terms of available resources, such as office or laboratory space, grant support and time allocated for research (Tesch et al., 1995; Tierney & Bensimon, 1996). A study among male and female surgeons in one academic medical centre showed that women residents are frequently encouraged by their senior colleagues to enter specialties that are gender congruent (Colletti, Mulholland & Sonnad, 2000). There is additional evidence that demonstrates that female surgical residents and female surgeons face more obstacles in career development compared to their male colleagues. Feelings of social isolation, exclusion from informal and formal peer networks, lack of professional opportunities, biased academic promotions and sexual discrimination in different forms were evident obstacles, faced by female surgeons (Colletti, Mulholland and Sonnad, 2000). The obstacles to the advancement of women may be generally grouped into four categories: lack of mentors, the rigidity of career structure, sex discrimination, and familial responsibilities. What follows is are descriptions of these four categories.

The Lack of Mentors

Several studies have described the beneficial effects of mentoring on career success. In a sample of almost eighty percent of male senior faculty surveyed at one medical school, ninety percent reported that they had a mentor and that this had assisted them in their career development (Kirsling & Kochar, 1990). Faculty role models in medical school are important, but they serve both as positive and negative influences when it comes to gender. Findings show that the limited numbers of women in academic surgery affect the career choices of female medical students. Nearly all respondents in a survey conducted among the members of the American Association of Women Surgeons believed that female medical students need successful female surgeons as role models (Neumayer, et al., 1993).

Another dimension to the mentor relationship, in addition to specialty choice and career direction, relates to professional connections and networking. Women and ethnic minority faculty members are less likely to have had a mentor to help them to make important professional connections. As a consequence, ethnic minorities and women faculty members often lack insider information about tenure, the promotion process, and have less access to important professional networks. The competitive academic game is often played like a team sport where networks make up the teams, and women are often left at a disadvantage (Rausch et al., 1989). These factors are reflected in women's greater dissatisfaction in their relationship with the department chairs and support of their colleagues (Johnsrud and Des Jarlais, 1994; Blackwell, 1989).

Ultimately, male faculty may be less likely to develop mentoring relationships with female students or junior faculty members than with males. One motivation for senior faculty to develop mentoring relationships may be the sense of reproducing oneself. In selecting a protégé, faculty members may, without their own awareness, lean towards selecting persons who are of the same sex and race. This bias toward selecting a protégé who is similar to oneself, beyond of course, a similarity in the area of academic interest, works against women and minorities (Blackwell, 1989). In addition, many universities cluster women and men within relatively gender-role consistent departments such as surgery. This reduces the likelihood that the necessary contact with male mentors will occur. Mentors can provide various opportunities for women such as guidance about career development, counseling about job opportunities, collaboration on publications,

personal and emotional support and much needed access to professional network systems and organizations. Role models can also affect both male and female medical students' choices of residency and career (Wright, Wong and Newill, 1997; Lieu, Stirred and Altman, 1989; Shumway et al., 1988; Babbott et al., 1991). Since female mentors tend to influence female students, in a discipline like surgery where there are few female mentors, this is seemingly a never-ending cycle. Less support in the very important form of mentoring exists in surgery, and therefore support in this form may never exist unless there is the conscious effort for male mentors to attempt to make up for this lag.

Shuval and Adler have studied the interaction between medical students and their teachers (Shuval and Adler, 1980). The authors note that although some individual teachers and clinicians may be outstanding role models, students generally pick and choose traits from many models. As such, their internal values can be described as an amalgamation of a variety of sources. The authors note three basic patterns of the internalization of values: active identification which includes classic modeling in which one emulates the role model, active rejection, and inactive orientation which includes the reinforcement of the student's pre-existing values. Active identification was found to be the most common student-physician interaction. Although some medical schools attempt to foster these important relationships by assigning a mentor to students, Flach et al. found that female students often face difficulties finding a mentor in the first place (1982). Indeed, in the case of surgery, the lack of gender role models was often cited as impacting negatively on the career choice of female students (Levison, Tolle and Lewis, 1989; Weilepp, 1992; Neumayer et al., 1993; Walters, 1993). Few women are in senior positions in academic surgery. In 1992 only 10% of U.S. medical schools' surgical faculty and only 2% of full professors of surgery were women (Jolly, 1993). Although male mentors are capable of guiding female students into surgical residencies, they are often unable to provide guidance in managing career and family responsibilities which are both important issues when it comes to planning a career as a physician. Furthermore, if female students do not see women as members of surgical faculty, the barriers to successfully combining career and family may be perceived as insurmountable. There is widespread agreement amongst women surgeons that female medical students need female role models, even though these women pursued their surgical careers despite the presence of few or no role models (Neumayer et al., 1993).

Rigidity of Career Structures

The rigidity of career structures is often cited as one of the causes that leads to the under-representation of women in leading positions in medicine (Lowe, Boyd and Brunette, 1991). What this concept refers to is the idea that there is only one path by which a physician may attain career success in his or her career. In the field of medicine, career rigidity is pervasive. Given that men have been the dominant presence in the medical field, the organizational structures of medicine tend to favor single men, or men with partners that provide support at home. The factor of either bachelorhood or spousal support at home has created expectations in terms of time commitment and job structures that are insurmountable single parents and working mothers (Benz, Clayton and Costa, 1998; Dumelow & Griffith, 1995). Given that promotion practices and policies are generally geared to the faculty members who work 60 - 70 hours per week, structural inflexibilities frequently prevent women with personal responsibilities from

being promoted. Definitions of success, competence, and leadership are also based on traits typically attributed to men, who are considered tough, aggressive, and decisive (Savage, 1992; Meyerson and Fletcher, 2000). Similarly male-defined criteria are used in the selection of new recruits (Levison, Tolle and Lewis, 1989).

As the proportion of women in medicine is increasing, changes to career structures and working practices need to occur in order to make the structure of medicine as a profession or a career more equitable and inviting to women. A specifically 'female' gender identity frequently acts as a central psychological barrier for women in realizing their career objectives. Rigidity in career structures, as well as the working structures and personal dealings imposed upon women physicians by the hospital as an organization, are factors of concern. In a cross-sectional study of first and sixth-year medical students investigating 'the psychological barriers in the career development of women', the "fear of failure" did not present a psychological barrier, nor did the potential role conflict between motherhood and career. More crucial for career orientation was the perception of real external barriers such as the lack of childcare provisions and partners' unwillingness to modify their own roles (Reed and Butteberg-Fischer, 2001). The traditional model of academic success does not work for some women because the most intensive years for career building and child bearing occur simultaneously. The current structure of medical careers does not make room for the type of flexibility that would help women to fulfill academic obligations and childbearing. Women may wish to plan their careers differently and they may never fully adapt to the "male career" model (Reed and Buddeberg-Fischer, 2001). From the policy perspective then, it is important to recognize the inflexibility of the structure of a successful medical career if re-balancing for gender equality is a goal.

Sexual Discrimination

A strong impediment within women's academic and medical careers is sexual discrimination. Several American and European authors have described different forms of gender discrimination, from the almost invisible, professional diminution or intellectual intimidation, to obvious and blatant discrimination (Yedidia & Bickel, 2001). For instance, subtle forms of discrimination may be at work within informal selection mechanisms. As with mentoring, as mentioned above, those who make decisions about hiring tend to select candidates who are similar to them. In studying selection criteria used by residency directors and physicians' employers, Villanova et al. found, that both groups were looking for applicants who were "people like us" and who "fit in" with the organization's philosophy. Unfortunately, gender continues to be one of the criteria in the candidates' selection (Lift & Webb, 1988; Sieverding, 1990; Villanueva et al., 1995).

One qualitative study involving 34 department chairs in academic medicine in Canada found that common barriers to women's advancement included these various manifestations of sexism within their professional environment (Yedidia & Bickel, 2001). In addition, a recent report examining the distribution of Canada Research Chairs, which describes academia in general, found that only 21% of the Tier II Chairs (5-year appointments worth Cdn. \$500,000) went to women despite the fact that women comprise 33% of the assistant and associate professors eligible for the award (Neuman, 2003). This upheld the findings of previous studies that reported women were excluded from some male-dominated specialties.

Dealing effectively with the various forms of sexual discrimination requires courage, as well as mental and moral energy. A national survey conducted in the United States found that 77% of the women's faculty experienced gender-based discrimination and harassment during their professional careers (Dresler et al., 1996). These included behaviors, actions and policies that adversely affected their work, resulting in disparate treatment according to gender or towards creating an intimidating professional environment. As described by Till, sexual harassment includes a spectrum of actions ranging from general sexist remarks and behavior to threats to engage in sexual activities and coercive advances (Carr et al., 2000). Such experiences have been most notable in surgical specialties (Lowe, Boyd and Brunette, 1991; Dresler et al., 1996; Carr et al., 2000).

Familial Responsibilities

Familial responsibilities have traditionally been described as a major obstacle to women's academic career pursuits. Female physicians in a number of countries have been found to be more likely to remain unmarried than their male counterparts. (Savage, 1992; Levinson, Tolle and Lewis, 1989). Male physicians with children most frequently identified their spouses as the major caretakers in the household, while female physicians reported more family responsibilities and problems related to childcare and work (Dresler et al., 1996). This being said, as compared to men, parenthood has a greater impact on women's medical careers. Carr et al. showed that women with children, as compared to women without children, faced more career obstacles (1998). Among faculty with children, women reported significantly greater obstacles to academic careers and less institutional support (e.g. research funding, secretarial support). Moreover, female medical faculty with children, compared to men with children, had significantly fewer publications, slower self-perceived career progress and lower career satisfaction (Carr et al., 1998).

Given the major obstacles for academic women, it is apparent that many of them seem difficult to overcome. Some of them, such as family responsibilities and childbearing are so gender congruent that they may always be associated with women in their academic lives. Others such as sex discrimination, rigidity in career structures, systems of academic promotion, and lack of mentors may be gradually eradicated. However, these barriers require systematic recognition of the existing issues, and organized action toward gender equity in the overall academic world, specifically academic medicine.

Solutions for the improvement of gender inequity in academic medicine

As a result of the increasing numbers of women being admitted to medical schools since the 1970s, academic medicine is in the position to lead the way in terms of promoting qualified female physicians to senior administrative and leadership positions (Braslow & Heins, 1981). The full integration of women into academia will depend on the continuous support and encouragement from the medical establishment. This has already occurred to some extent within other not-for-profit and corporate environments. In fact, an andocentric business organization called Catalyst, founded in 1962, offers consulting services on women's advancement in business corporations (<http://www.catalystwomen.org>). Catalyst is the leading research and advisory organization working with businesses and the professions to build inclusive environments

and expand opportunities for women at work. As an independent, non-profit membership organization, Catalyst adopts a solutions-oriented approach that has earned the confidence of business leaders around the world. The organization conducts research on all aspects of women's career advancement and provides strategic and web-based consulting services on a global basis to help companies and firms advance women and build inclusive work environments. Catalyst is consistently ranked No. 1 among U.S. non-profits focused on women's issues by The American Institute of Philanthropy (Catalyst Inc., 1998). They have developed a comprehensive three-phase approach for implementing change. It is as follows:

1. Establish a strong foundation.
2. Build a fact base.
3. Develop, pilot, and implement action plans.

In the first step, the institution investigating the proposed initiative must defend the need for change and determine why it is good for the organization and who will lead it. The initiative must tie in with the strategic mission of the organization by showing the benefits for the organization and workforce, and it must not be isolated or ad-hoc. Furthermore, the organization must ensure leadership support for the initiative.

The objectives of the second phase is to define and identify the current barriers for women within the organization, and to establish a good base of knowledge regarding current demographics related to gender, such as hiring practices and promotion. In its third step, the Catalyst guide entitled *Advancing Women in Business* suggests that the implementation of the action plans and practical solutions be tailored to the organization's environment. Successful action plans often contain the following tactics:

1. Motivate and explain via a business rationale.
2. Engage committed senior managers in charge of the change.
3. Take a long-term perspective based on the recognition that systematic effort is usually required to make a real change for women.
4. Provide solid support to meet women's needs.
5. Build internal support and awareness through education and communication.
6. Establish clear accountability.
7. Create benchmarks to gauge results (Catalyst Inc., 1998).

The existence of organizations like Catalyst points to the many resources and sources of support that address gender imbalances in professional environments. The above action plans are strategic and concrete methodologies that medical institutions may call upon should they wish to redress the gender and racial inequities I have touched upon in this paper.

The Association of American Medical Colleges is a non-profit association of medical schools, teaching hospitals, and academic societies that are working towards achieving greater gender equity. The AAMC seeks to improve the nation's healthcare system by enhancing the effectiveness of academic medicine. Its mission is to assist medical institutions, organizations and individuals in three main areas: medical education, medical research and patients' care. The AAMC has echoed the elements of Catalyst's recommendations to build a strong foundation for gender equity initiatives by stating rationales in support of gender equity in medical organizations. Several rationales are provided by the AAMC for removing gender obstacles, including the need to reflect the diversity of the patient community and the need to recruit and retain the most

qualified physicians. Since the medical profession holds a high social position, in general, it can be argued that medical professionals are in the position to become champions of social justice. In addition, from the economic perspective, equitable practices often prevent costly sex discrimination lawsuits (Wong et al., 2001). Thus there is much evidence that indicates that there are tangible and solid benefits associated with working towards gender equity.

The AAMC has also developed its own recommendations. The first is to develop and mentor women. One of the most effective ways of addressing this is to enhance the accessibility of female junior faculty to appropriate mentors and role models. One option might be for female medical students to be paired with senior faculty members, preferably of their own gender when they enter medical schools with the expressed intent of promoting mentor relationships. This model can also be carried over to residency training programs, and to academic departments. In addition, establishing programs promoting women leadership in medicine should be a priority. For example, one such successful program is ELAM (Executive Leadership in Academic Medicine). ELAM was established in 1995 and offers an intensive, year long program of personal and professional development, with extensive networking and mentoring opportunities aimed at expanding the national pool of women candidates for leadership positions in academic medicine and dentistry (www.drexel.edu/elam/home.html).

The second recommendation is to improve pathways to leadership through the discovery of new ideas and improvement in faculty development skills. Women should be better represented on policy-making committees and boards. The traditional measures of women's academic recognition are outdated, and new, innovative measures for women's faculty promotions are now necessary. Research publications are still a major factor for academic promotion. This traditional model of faculty promotion minimizes the role of teaching and clinical activities; 'women's work' in medicine is thus undervalued and is largely un-recognized. The missions of medical schools include the provision of leadership in the areas of research, training and service. In order to value the three missions equally, creativity and innovations must be introduced into the traditional measures for faculty promotion, giving equal weight to all three missions along with full reward for excellence in each of these three academic areas (www.drexel.edu/elam/home.html). As such, the definition of the term "academician" should be broadened beyond scientist and researcher to include clinician and teacher. Excellence, in any of these areas, should be rewarded fairly through faculty promotion and academic recognition. The university and medical departments ought to seriously foster readiness to change and to encourage medical organizations to evaluate their own organizational gender and cultural practices. Many medical administrators are now recognizing the teaching responsibilities of their staff with the creation of the "teacher-educator" and "clinician-educator" streams. These innovative job descriptions in academic medicine create room for new ways for faculty members to be promoted. According to the AAMC report, 21% of American medical schools have a standing committee on gender and equity for women's advancement. A number of "institution-led initiatives to support women" in their careers has been outlined by Bickel et al (1999, p??). The suggested initiatives include educational programs that will raise awareness of gender issues, new policy statements, guides and task forces targeted at sexual

harassment. In addition, the development of formal mentoring programs will aid faculty in building their careers, as well as reaching professional goals. Another important initiative will be to develop salary equity reviews and studies.

There is evidence from the literature these new initiatives have been successful. The department of medicine at the Johns Hopkins University has set a positive and innovative example by demonstrating how institutional strategies can bring about far-reaching improvements for women's careers in academic medicine. They implemented a 5-year intervention plan, as part of an overall 15-year intervention targeted towards identifying and correcting gender-based career obstacles (Fried, 1996). Various improvements were reported, such as timeliness of promotions, reducing manifestations of gender bias and isolation, increasing access of information for faculty development salary equity and mentoring. Many of these obstacles can be addressed with little monetary cost to academic institutions, but doing this will require directed effort, such as scheduling departmental meetings during work hours, and making part-time tenure tracks available to faculty. The Six National Centers of Excellence in Women's Health has also used a variety of approaches in addressing their needs. Wong presents a number of recommendations for other academic institutions such as development of key diversity indicators with a national benchmark, and the creation of guidelines for mentoring and faculty development programs, as well as support for career development opportunities (Wong 2001). However, promoting the advancement of minority women faculty in academic medicine should be the priority of academic institutions, as they are the most significantly under-represented group of faculty. New initiatives should focus on and help to create a better understanding of barriers to this form of diversification. These initiatives should be transplanted to many universities to improve gender equity.

Conclusion:

The aim of this article is to describe the current status of women in academic medicine, and to identify the issues and factors influencing women's advancement in medicine and academia. It is evident from the literature that women in medical fields face several disadvantages on their career paths compared to their male peers. However, there are no quick resolutions to the gender inequalities in medicine. All aspects of gender inequities should be researched further. Long-term, well-founded actions aimed at changing the source of the problem are needed. Knowledge of the origin and consequences of gender schemas is the first step towards altering gender inequity. Disparities persist between the advancement of men and women in medical school faculties. On a more positive note, however, the number of women physicians in all levels of academic medicine is increasing. Women in academic medicine should form supportive coalitions as a means of overcoming newer forms of gender inequities. This would speak directly to these inequities which include mentoring and issues related to work life balance and childbearing. Importantly, the retention of women in medicine is likely to benefit not only women, but also patients and faculty members and medical institutions.

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