Top 10 Things Women Anesthesiologists Must Do for Academic Promotion

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As gender equality and equity continue to progress, shining a spotlight on academic promotion for women in anesthesiology may help to ensure equal academic advancement for future anesthesiologists, regardless of their gender. Academic promotion can be simply explained as the stepwise process of advancing in rank from instructor to assistant professor, associate professor, and then professor. Yet, even without considering gender, the process of academic promotion is complex, with significant variability between academic institutions. Data have shown disparities in the experiences of men and women seeking academic promotion. This chapter aims to bring awareness of this gender gap in anesthesiology and includes a list of the top 10 things women anesthesiologists must do when navigating academic promotion.

Women in Academic Anesthesiology

Women have come a long way in the history of anesthesiology since the first modern woman physician, Elizabeth Blackwell, received her medical degree in 1849.[1] Isabella Herb became the first woman physician known to specialize in anesthesia when she began her career in 1897. She was also the first woman to publish a manuscript on anesthesia, in 1898.[1] Mary Ross is considered the first woman anesthesiologist formally trained by a residency program—she received a Certificate of Residency Training in Anesthesia in 1923.[1] In 1961, America's best-known anesthesiologist, Virginia Apgar, was the first woman to receive the American Society of Anesthesiologists (ASA) Distinguished Service Award.[2]

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Table 1. *Percentage of Women in Different Academic Settings in the United States, 2015*

Category	Total (N)	Women [n (%)]
Medical students		
Enrollment	86,712	40,615 (47)
Graduates	18,847	8724 (46)
Residents in anesthesiology	6126	2254 (37)
Full-time faculty in anesthesiology		
Instructor	1133	603 (53)
Assistant professor	4516	1637 (36)
Associate professor	1477	426 (29)
Full professor	1129	206 (18)
Total (all ranks)*	8484	3001 (35)
Anesthesiology Department Chair	106	11 (10)

Information derived from Association of American Medical Colleges.[6–9]
*Faculty with unspecified other ranks.

However, this progress has not moved at a speedy pace. It was not until recently that the ASA, in its >100 years of history, had its first woman president, Betty Stephenson, in 1991. The second woman president, Jane Fitch, served in 2014,[3] and the 2017 president-elect is Linda Mason.[4] Women continue to be underrepresented in the ASA,[5] although since 2003 >45% of the graduating medical students in the United States are women.[6] The percentage of women anesthesiology residents has increased from 31% in 2005 to only ~37% in 2015.[7] The percentage of women entering the anesthesiology specialty is similar to the percentage of full-time women faculty members overall. However, the academic rank for most women anesthesiologists peaks at the level of instructor or assistant professor, with only 7% of all women faculty members, compared with 17% for men, ever reaching full professor.[8] Women accounted for 18% of all professors in anesthesiology as of 2015 (Table 1),[8] and only 12% of academic anesthesiology chairs in 2014.[9]

The status of women in academic anesthesiology has shown no apparent change since the 1980s.[10] One possible contributing factor may be that there simply were fewer women who fulfilled the requirements for promotion to professors and department chairs. It is also possible that the nature of the specialty deterred women—who historically have been expected to handle family responsibilities—from anesthesiology. Anesthesiology is ranked among the busiest specialties in the United States, with typically >60 hours per week devoted to professional activities.[11] The work hours may be even longer for physicians in the early stages of their career; higher patient loads, less-desirable cases, later hours, more call shifts, more holiday work, and other burdens with regard to work assignments tend to be placed on junior staff members.[12]

In one study, women and men in academic medicine had similar levels of engagement and leadership aspirations.[13] Both genders showed equal ambition, willingness to put in long hours, and desire for

leadership. Yet, the career advancement of women faculty in academic health care centers is much slower than that of their male colleagues.[13] Traditional beliefs hold that interest in academic medicine is developed early in an individual's career, but one study found men to have higher early career research productivity, whereas women had mid-career research productivity rates equivalent to or greater than those of men.[11] Perhaps because of family responsibilities or other lifestyle factors toward the beginning of their career, women in anesthesiology had a later increase in publication rate but eventually "caught up" and often exceeded that of men by about the 10th year of their academic career.[11] However, publication volume was found to have no significant effect on rank for women assistant professors; male assistant professors, who published the same number of articles (the same h-index number), had increased chances of achieving the rank of associate professor. Women staff members must produce far more than men to achieve promotion.[14]

Studies have found gender differences in promotion, tenure, leadership, salary, recommendation letters, evaluation ratings, and other opportunities in academic medicine.[13] One study showed that, when the instructors' gender identity is disguised online, students rated the male identity instructors significantly higher than the female identity, regardless of the instructors' actual genders.[15] Women experience gender bias in professional advancement more often than men.[16,17] Understandably, some women feel marginalized and invisible, with lower self-efficacy about their career advancement than similarly successful men.[13] If data show that gender bias in academic promotion exists, the probable causes of the gender disparity in academic anesthesiology must be investigated. Is it caused by the paucity of strong female role models and mentoring programs for women, the burden of family demands, gender discrimination in the workplace, or other factors? With cultural changes in modern society, gender bias may not occur blatantly but exists in a subtler way. In traditional models, academic success may depend on an uninterrupted commitment to career, which may be difficult for some women, because the most intensive years for career building are likely to coincide with childbearing years.[18] Allocation of early career recourses may be unequal, thus causing long-lasting effects for women faculty members.[19] In some institutions, "academic medicine is presented as an all-or-nothing proposition."[18] The most visibly successful individuals in academic medicine seem to have few outside obligations, commitments, and passions, even if they state that they value their family, personal lives, and community.[18]

■ Top 10 Things Women Anesthesiologists Need to Do for Academic Promotion

The causes of gender disparity are complex and multifactorial, complicated by various cultural norms in different institutions.[20] As we

Box 1: *Top 10 Things Women Anesthesiologists Need to Do for Academic Promotion*
1. Know the impact of scholarly activities
2. Seek the right mentor(s)
3. Find the necessary support outside of academic medicine
4. Advertise parenthood as a woman's strength, not weakness
5. Negotiate well
6. Advocate for yourself
7. Prepare to travel (and relocate)
8. Be the change
9. Voice your concerns
10. Pay it forward

gain knowledge and information on gender disparities in academic promotion, we must find ways to cope with and combat the issue. The following are the top 10 things a woman anesthesiologist in academic medicine should do when seeking promotion in the current academic environment (Box 1). The list represents a comprehensive approach because success in academic promotion rarely can be achieved if each suggestion is implemented individually.

Know the Impact of Scholarly Activities

There has been a perceived "mystery" and secrecy with regard to the process of academic promotion, because of the complexity and variability in promotion criteria between institutions. Faculty members are largely unaware of the exact process.[21] Different institutions have different "formulas," placing different weight on various scholarly activities. They may offer various promotion tracks, such as patient care, research, education, and administration, or a combination of these focuses. The lack of knowledge of each institution's priorities may cause wasted effort on scholarly activities with minimal or no impact. Contrary to common perceptions, success and academic advancement are not guaranteed for publishing a certain number of manuscripts or receiving research grants.[22] Table 2 lists different scholarly activities that may be considered for academic promotion. However, clarifying the expectations of each institution is crucial. By having a solid understanding of institutional policy and goals, a physician can concentrate on high-impact scholarly activities that are required for a successful academic career.

Seek the Right Mentor(s)

For some women physicians it may be important to have a female mentor, but women in anesthesiology should not seek mentorship and education exclusively from women.[24] As already mentioned, few women faculty ever reach full professorship; thus, choosing a woman anesthesiologist as a

Table 2. *Impact of Scholarly Activities for Consideration of Academic Promotion*

	Low Impact	Medium Impact	High Impact
Research	—	Industry grant Other grant	Principal investigator R01 grant or equivalent
Bibliography	CD ROMS Audio/video tapes Non–peer-reviewed articles Abstracts and letters Web-based publications	Citations Book chapters Editorials Social media (academic blogs, podcasts, posts, articles, interviews, chief content manager of a social media network)	Full-length peer-reviewed article First/second or last author Impact factor of journal Published books
Presentations	Regional presentations	National/ International presentations Webinars	Visiting professorships
Educational activities	—	Program evaluation/ assessment Teaching courses and lectures Curriculum/course development Education grant/ contract Professional education organization presentations	Distinguished Educator Mentorship Dean/Assistant Dean/Associate Dean Program Director
Administration	Member of Departmental Committee Member of Institution Committee	Chair of Department Committee Chair of Institution Committee	Department Chair Division Chair
Practice	—	15 y of service Awards for clinical practice Local guidelines/ protocols	Distinguished clinician or equivalent National guidelines/ protocols New practice innovation
Quality (process improvement, patient safety, and patient experience)	Silver certification or external equivalent	Gold certification or external equivalent	Diamond award

Table 2. (*continued*)

	Low Impact	Medium Impact	High Impact
Professional memberships	—	Examiner for national boards Membership or chair of professional society committee	Awards from national societies Leadership roles
Invention and commercialization	Invention disclosure Know how agreement	Patent filed Patent issued Technology licensed	Technology commercialization Company formation
Other	—	Other honors/ awards	Distinguished investigator or equivalent International/ National reputation Editorial Boards

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mentor may not always be possible.[20] Choosing the right mentor, who has gone through the academic promotion process in the same institution, may provide real-life expertise. The right mentor may not need to be the same gender, be personable, or even be in the same anesthesiology specialty, but she or he must dedicate time, energy, and intellect to the mentee.[24] One-on-one mentorship may provide strategic, individualized advice that cannot be obtained in large groups.[24] Multiple one-on-one mentorships for different tasks within academic promotion may provide different guidance for various areas of academic medicine. For example, one mentor may be more proficient in grant writing, whereas another may be experienced in international presentations. Different mentors can serve as personal, clinical, administrative, or research advisors.[12] Navigating through the academic promotions maze needs more than research ideas and manuscripts; experience in the specific political, financial, and personnel environments at each institution is invaluable for success in promotion.[20] Women must proactively seek out mentors to advocate for their own academic promotion.

Find the Necessary Support Outside of Academic Medicine

Unfortunately, even in 2017, society still largely places the responsibilities of raising a family and elder care on women.[20] It is possible that women may be advised against entering high-intensity specialties such as anesthesiology, which would explain why the

percentage of women residents in anesthesiology has never exceeded 40%.[6] Finding support for or hiring out childcare, household chores, lawn work, and other basic needs may allow time for academic activities. Similar to focusing on the high-impact scholarly activities for academic promotion, contracting out errands deemed unimportant to be performed personally could save time for invaluable and quality family time. Margaret Wood, the first woman physician to chair the Department of Anesthesiology at Columbia University, shared what she had learned over her career journey. She warned that "the current fashion to complain about 'life balance' can be self-destructive; however, pacing oneself is critical."[24] An academic physician's life is split into 3 aspects: social, family, and career. Wood said, "To be successful, you should have no more than 2 of these at the same time."[24]

Advertise Parenthood as a Woman's Strength, Not Weakness

It might be disheartening to read what Virginia Apgar wrote in the early 1960s: "Married women anesthesiologists with children are not, in general, popular as members of a group practice. They are, of necessity, less dependable than men."[1] Even the pioneer among women in anesthesiology held a stereotype against women, engrained by the society she lived in. Anybody who can adequately manage clinical workload, research projects, educational activities, childcare, family obligations, community involvements, and other aspects outside of work possesses the crucial skills of time management and task delegation. Instead of passively allowing traditional academic culture and society to view parenthood for women as a weakness and an excuse to assume lower academic promotability, advertising those unique multitasking skills is essential and critical. "Hiring committees who review applications tend to view women who are parents as less serious scholars," because of "perceptions that mothers are less competent than fathers with identical qualifications."[14] One study showed that women whose lifestyles did not fit the traditional model of the academic setting often opted for lower pay or flexible work time. With either option, the number of work hours may be identical to those worked by colleagues who did not have significant responsibilities outside of work.[18] With some women's own preconceived "weakness," they simply accept less pay or lack of academic promotion to avoid unwarranted criticism.[18] Surprisingly, some articles have advised women faculty members to hide their talents outside of their academic careers, from baking to parenthood, so as not to overshadow their ability to be successful in academic environments.[25] Ellinas et al[26] showed the opposite of this negative perception with regard to parenthood. That study found having children to be a predictor of leadership seeking in women. If the well-known polymath Leonardo da Vinci could be a

scientist, anatomist, mathematician, engineer, inventor, painter, sculptor, musician, architect, botanist, and writer,[27] why should any talented modern physician force self-limitations on a single aspect of her life? Academic institutions must cultivate a culture that does not fault faculty members for investing in family life.[21] Raising children is a joint responsibility of both parents, and all parents, regardless of gender, need to manage their work and family responsibilities to ensure well-being in their personal and professional lives. The ability to manage the complexities and demands associated with simultaneous work and family involvement early in one's career can only been viewed as a strength.

Negotiate Well

Effective negotiation is critical to successful academic promotion. Yet, women view negotiation as less important to an academic career than do their male colleagues.[22] Women tend to behave more cooperatively in negotiations, possessing lower expectations and self-confidence when pursuing academic promotion and showing less competitiveness than men.[22,28] Gender differences in negotiation skills may be one cause of slower academic promotion.[29] Negotiating the resources necessary to optimize conditions for successful academic promotion may lead to financial and other benefits. Funding for projects, personnel support for data collection, clinical workload, time for presentations and visiting professorships, administrative duties, and evaluation of performance are all affected by negotiation skills.[22] Individuals may also negotiate access to learning resources, to acquire skills to further increase his or her value to the institution. Men and women acquire negotiation skills differently,[30] and these may not come naturally. Preparation and practice have been shown to be particularly important for women to be comfortable with the degree of aggressiveness and assertiveness necessary for negotiation.[22] Women also have greater self-confidence after negotiations.[22] Gathering information on available resources and understanding the priority of the negotiated items are necessary for effective negotiation. It is important to understand that negotiation is an ongoing process that may take multiple sessions.[22] Summarization of each negotiation session via written communication can ensure that all parties have a mutual understanding of the result.[22]

Advocate for Yourself

Studies have shown that self-promotion in women invokes a more negative response from both genders than does self-promotion in men. Self-promotion from women is viewed to be a violation of gender label,[13,31] but how can a woman be promoted if she does not advocate for herself? Academic promotion does not always automatically appear when

a certain number of publications, presentations, or other scholarly activities is reached. An anesthesiologist does not automatically get invitations for visiting professorship, webinars, and presentations at the early stage of her career. Similarly, leadership positions in professional societies and academic institutions do not occur without a certain degree of self-advertisement with regard to the physician's reputation and previous work. Men are more likely than women to seek academic promotion and leadership positions. They are also more likely to have informal networks to garner sponsorship for promotion.[26] Regardless of gender, a well-practiced, self-promoting speech, and a readily available self-nomination letter may prepare anybody to keep others informed of his or her success whenever opportunities arise. To gain visibility and expand professional networks, some may even suggest the use of blogs, opinion editorials, or other forms of social media.[14,32] In addition to publications in indexed journals to make the manuscripts easily accessible, white paper submissions for conference lectures, membership in professional societies, self-nomination for committees in professional societies and institutions, volunteered time to be a manuscript or abstract reviewer, and involvement in networking events may provide future opportunities for necessary scholarly activities by expanding networks.

Prepare to Travel (and Relocate)

To gain a national and international reputation in anesthesiology, a physician must travel often for national and international conference presentations, visiting professorships, and national society leadership responsibilities. If the institution does not provide sufficient time away from clinical duties, negotiation for the time and funding to attend may be necessary. Regardless of gender, parents need to have reliable childcare to allow for travel time away from home. Many households heavily rely on the woman to run the daily routines and may face stress when the woman is away, which might be the cause of some women physicians' "lack of professional mobility."[24] Decisions to participate in these types of scholarly activities may be influenced by family responsibilities and, therefore, gender.[33] When relocation is required for women anesthesiologists' advancement in leadership roles or other professional growth, families with the traditional expectation of having male-dominant financial support may not be prepared and willing to relocate for the wife's career.[24] Search committee members may hold a similar societal view on women's lack of professional mobility, assuming that a woman candidate would not easily move for a higher position at a different institution, because of her spouse's job or her children's school location. The same assumption is rarely made for a man. If the stereotype continues—that women as physicians are unwilling to relocate and take on a higher leadership position—then institutions will miss out

on qualified and talented candidates, and unequal gender representation will continue in anesthesiology.[24]

Be the Change

Our society is still trying to tell women how they should and should not behave.[34] It still has different stereotypical expectations for different genders. Research has shown that women faculty members were more likely to be given praise from both genders for their appearance and to be criticized for their tone of voice than for their abilities at work.[14,21] Studies also reveal that both genders showed preference for male candidates when hiring staff and selecting leaders.[20,35] Instead of conscious discrimination, implicit gender bias can be so deeply rooted that most women are not aware of it toward themselves.[36] When in positions of power, assertive women were often viewed negatively and passive women were not taken seriously. A study by Trix and Psenka[37] in 2003 found that recommendation letters written by both men and women were characterized by "pervasive, systemic gender biases."[14] Letters recommending women tended to be shorter, with focus on the woman's personality traits, whereas letters recommending men typically featured "superlatives" about the men's aptitudes and abilities.[14] The letters reinforced gender labels that portrayed "women as teachers and students and men as researchers and professionals."[37] Physicians of both genders must change to ensure that their letters of recommendation are not biased to disadvantage women anesthesiologists. Online automated gender bias detectors exist that may help writers avoid gender-specific wording. When writing nomination letters for themselves or recommendation letters for other women, women anesthesiologists can use gender-neutral writing. Women have traditionally been expected to be naturally nurturing and empathetic. When assertive and confident, they may often be perceived as insensitive and may be penalized for not living up to the stereotype.[38] Women should not vilify their fellow women physicians when they do not fit conventional expectations. Women must be the change to recognize and overcome this unconscious bias.

Voice Your Concerns

Our modern society has not progressed as far as most US citizens would like to believe. One 2011 survey of academic anesthesiology chairpersons in the United States reported that they had to address issues with regard to sexual harassment and violence in the workplace within their departments.[39] Women faculty members in academic medicine are more likely than men faculty members to perceive gender-based discrimination and to experience some form of sexual harassment in the academic environment.[16] After experiencing discrimination in both personal and professional arenas, many

women physicians perceive negative effects on their "professional self-confidence" and "self-esteem," with a higher sense of "professional isolation."[21,40] Women in academic medicine need to be aware of the history of the problem and understand that their experience of gender discrimination does not correlate with their skills.[21] The so-called "victim blaming" culture has been debated, with much public scrutiny. In 2017, strengthened by the #MeToo movement,[41] the number of allegations of sexual misconduct increased sharply, with both men and women as victims. As culturally ingrained and institutionalized as it may have been, gender discrimination and sexual harassment should not be tolerated, and the victims should not be silenced. It is every woman's duty to confront people about their prejudiced behavior or comments. Proactively dealing with small incidents may provide a chance to prevent escalation to severe levels.[21]

Pay It Forward

Gender should not be a deciding factor in fair and successful academic promotion for qualified personnel. Although the current academic environment has few woman leaders in the highest positions in anesthesiology, women anesthesiologists must start to envision themselves as possible future leaders and take the role of pioneers in academic promotion. Once a woman anesthesiologist has achieved success in her academic career, she must pay it forward by helping other women with this mysterious process of academic promotion. At minimum, one can share her experiences that are unique to women, which should remove the sense of isolation for others.[42] There is strength to be gained from knowing that the juggling act of work and life, along with gender bias, is a common theme for most women in academic medicine.[24] From educating allies of both genders with regard to gender bias to anticipating issues important to women in anesthesiology, women in leadership positions must find ways to eliminate the gender gap. For example, if a gender-neutral, fair academic promotion evaluation by the internal committee is not possible, one may consider finding an external body to scrutinize the applications or the promotion process.[21] One may also proactively provide a list of women anesthesiologists as possible future mentors when hiring women anesthesiologists. To increase the number of women in anesthesiology, initiating programs and creating policies to promote gender equality and equity, with improvement in recruitment, retention, and advancement, may be the solution.[20,40,43] If women anesthesiologists help each other reach high ranks in academic promotion, they can all reach greater heights of achievement together.

■ Conclusions

Raising awareness of gender disparity in academic medicine is only the first step toward mitigating gender bias. To some members of our

society, equity may appear to unfairly allocate limited resources differently to different individuals, aiming for all individuals to succeed. However, in the interest of "fairness," treating all anesthesiologists as cookie-cutter individuals and providing each individual with exactly the same amount of support and assistance ignores the fact that different people have different needs. Aiming only toward equality may not help more people achieve academic success.

Women in anesthesiology may need to take different approaches, setting themselves apart from their male colleagues and diminishing the gender gap that currently exists in the specialty. Young women anesthesiologists need to know that the field and the society are making some progress. They are not alone in their struggles with academic promotion and life balance. This chapter does not suggest that women in anesthesiology be entitled to any special consideration in academic promotion. It simply attempts to heighten awareness of existing gender disparity and to suggest possible strategies to succeed in the current academic environment. The issues of gender equality and equity in anesthesiology are important for the entire specialty. Any woman anesthesiologist who chooses not to remain in academic medicine because of challenges in negotiating the often opaque and seemingly capricious elements in the academic promotion process represents a talent in research, administration, and education lost to the field of anesthesiology. The future of anesthesiology as a specialty depends on attracting and retaining the most talented physicians. The talent pool will be limited unless the specialty can eventually reach gender parity in terms of numbers and academic rank. Support from all available sources, the woman herself, her partner, other women in anesthesiology, the medical institution, and society is absolutely necessary to allow more women to succeed in academic medicine. Moreover, if more women succeed in academic medicine, then medicine, anesthesiology, and society itself are all the richer.

The author declares that there is nothing to disclose.

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