COMMENTARY

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Why Are Women Underrepresented in Cardiology?

When I was an intern many years ago at the Peter Bent Brigham Hospital in Boston, the only women working there were nurses, secretaries, technicians, and a small cadre of nursing school administrators. All the doctors and all the physician trainees were men. Less than 10% of the students in my Harvard Medical School class were women. The system has evolved dramatically since then; currently, 49.9% of US medical students are women.[1] In fact, at the two campuses of the University of Arizona College of Medicine, 54% of medical students are women.[1] It is also of interest that the last three presidents of the American Medical Association have been women.[2] In the opinion of the author, this dramatic change in gender demographics has influenced medical education and the delivery of healthcare in the United States.

In an earlier era of post-graduate medical education, I experienced a system of clinical education that resembled Marine Corps basic training: work to exhaustion in order to acquire the skills needed to be a physician. I commonly refer to the every other night and every other weekend on-call schedule as an example of "cruel and unusual punishment" that existed despite being forbidden by the US Constitution! Trainees were expected to finish their arduous training and then join their professional colleagues usually in full-time community practice. As more and more women joined the physician workforce, this pattern changed.

Many women choose to practice part-time in order to manage the tripartite occupations of medicine, marriage, and parenthood. Women more often migrate into the primary care specialties of internal medicine, family medicine, pediatrics, and obstetrics and gynecology. Indeed, 54% of trainees in family medicine are women, 72% of pediatric residents are women, and 83% of obstetrics and gynecology trainees are women.[1] I believe that the increased presence of women in post-graduate medical training programs was one factor that led to restrictions in hospital work hours and a generally more benign training atmosphere.

The increasing trend toward subspecialty training following completion of internal medicine residency affects women and men trainees alike. However, in 2019, there are distinct differences between the two genders with respect to the subspecialty selected for further training. Thus, 74% of allergy and immunology trainees are women, as are 72% of endocrinology, diabetes, and metabolism fellows. Fifty-nine percent of hematology trainees are women, as are 62% of rheumatology fellows.[1] An opposite trend is seen in cardiology where only 25% of trainees are women with only 13% of women choosing additional training in interventional cardiology and only 11% selecting clinical cardiac electrophysiology.

At the recent 2019 European Society of Cardiology Scientific Sessions, a small group of senior women and men academic cardiologists discussed the disparity in gender participation in post-graduate cardiovascular disease training. A number of possible causes were discussed and discarded, including the desire to avoid ionizing radiation. This hypothesis was rejected because newer imaging systems have markedly reduced scattered radiation, and, as pointed out by one of the discussants, there are many cardiology pathways that do not involve x-ray (e.g., non-invasive imaging, heart failure, and general cardiology). In this regard, it is of interest that only 19% of trainees in interventional radiology are women. Unfortunately, heart failure and transplantation, which involves minimal exposure to ionizing radiation, only had 28% of women as trainees. Another suggested possible reason for so few women in cardiology is that this specialty involves a considerable amount of night call which might be challenging if one simultaneously had responsibility for young children. A strong argument against this possible cause of low enrollment of women in cardiology is that 35% of gastroenterology trainees are women, and this specialty involves substantial night call as well.

In the end, our small discussion group wondered if the atmosphere in cardiology training programs might be unfriendly toward women. In other words, is it possible that cardiology programs are still male-oriented and less welcoming to women? Such a propensity would be hard to measure but could certainly be one reason why today's young American women avoid post-graduate training in cardiovascular disease.

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Regardless of the underlying cause, everyone participating in our small study section felt that cardiovascular disease organizations such as the American Heart Association, American College of Cardiology Foundation, and European Society of Cardiology should develop new and innovative approaches to increase the enrollment of women in cardiovascular disease training. Each of these organizations have women in cardiology committees. Perhaps, these committees should be the place to initiate more aggressive recruitment programs aimed toward women. One simple approach would be to insert advertisements in widely read medical journals such as the *New England Journal of Medicine*, the *Journal of the American Medical Association*, the *Annals of Internal Medicine*, and ***The American Journal of Medicine*** encouraging young women who are currently training in internal medicine to consider applying for a cardiovascular disease fellowship. Such advertisements might contain pictures of successful women cardiologists with quotes from these women endorsing careers in cardiology. In addition, cardiology program directors and chiefs of cardiology should be encouraged to foster a more women-friendly environment in their cardiology divisions.

I welcome letters of opinion concerning this commentary at jalpert@shc.arizona.edu or at the AJM blog at amjmed.org. All communications will receive a response.

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