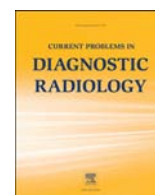




Current Problems in Diagnostic Radiology

journal homepage: www.cpdjournal.com



Do Interventions Intended to Increase Female Medical Student Interest in Radiology Work? Preliminary Findings

Elizabeth D. Yuan^a, Joseph Makris, MD^{a,b},Carolynn M. DeBenedectis, MD^{a,b,*}

^a University of Massachusetts Medical School, Worcester, MA

^b Department of Radiology, University of Massachusetts Medical School, Worcester, MA

Purpose: The purpose of this study is to share the preliminary findings after initiation of interventions at the medical school level, which have been suggested by the literature to increase female medical student interest in radiology at one institution. Additionally, the paper provides discussion of how to better future interventions for increasing female medical student interest.

Methods: Interventions to increase medical student exposure to radiology were implemented at the University of Massachusetts Medical School in 2012. Radiology was incorporated into the preclinical curriculum; flexible clinical experiences stressing patient contact were created for early exposure to radiology during third-year clerkships; and a 'Women in Radiology' panel was held to promote visibility of female radiologists. In addition, female radiology faculty became more involved in medical school activities and events.

Results: Our results suggest that early exposure in the preclinical curriculum and patient-centered electives increase overall student interest in radiology but only minimally increase female interest. Simply offering the patient-centered electives is not enough as it resulted in more male student enrollment than female (60% vs. 40%, respectively). Just one event promoting visibility of female radiologists changed female medical student perception of patient contact within radiology by a statistically significant amount. Examination of current UMass faculty radiologists by gender demonstrates that full-time, junior female radiologists—the demographic suggested to have the biggest impact on female medical students—only accounted for 4% of faculty.

Conclusion: This article may be informative for radiology departments looking to increase female medical student interest. Required visibility of female radiologists and active publicity of female radiologists from the first preclinical year are likely to have the biggest impact in increasing female medical student interest.

© 2017 Elsevier Inc. All rights reserved.

Introduction

Since the 1970s, there has been a dramatic increase in the percentage of female medical school matriculates (11%–47% in 2015).^{1,2} This change led to a subsequent increase in female physicians in previously male-dominated fields of medicine. Yet, the percentage of women in diagnostic radiology has remained stagnant. In 1990, 25.5% of U.S. radiology residents were women compared to 26.9% in 2013.³ These unchanging numbers have prompted research to determine why this discrepancy persists.

Many studies have been conducted to examine medical student interest in radiology and many interventions have been proposed. First, it has been suggested that earlier exposure to the field of radiology will lead to greater interest in the specialty.⁴ The literature regarding how to get more female medical students interested in radiology also suggests that early exposure is key to recruiting women to the specialty.^{5,6} Radiology is traditionally a

field that gets introduced to medical students in their third or fourth year of medical school. By that time, many students have developed and begun pursuing interests in other fields of medicine. These established interests create biases that make students less likely to explore radiology electives or consider a career in radiology. Early exposure to radiology and visibility to faculty radiologists help prevent such biases from forming. While one study has demonstrated an increase in interest after introduction of radiology into the preclinical curriculum, no study to date has demonstrated how this has affected match rates.⁴ Of note, this proposed hypothesis may explain overall lower interest in radiology in comparison to other subspecialties; however, there is no evidence to suggest that lack of early exposure should preferentially affect female medical students. That being said, if female medical students are not exposed to radiology early, like male counterparts, they will not have interest in the specialty, so early exposure is important for recruitment.

Second, studies that look at medical students' reasons for not considering radiology indicate that there are many misconceptions of the field of radiology. In one study, 95% of female students, who had chosen a specialty other than radiology, stated lack of direct patient contact as a reason they did not choose radiology.⁷ In fact, this perception was the biggest deterrent for female medical

* Reprint requests: Carolynn M. DeBenedectis, MD, Department of Radiology, University of Massachusetts Medical School, 55 Lake Ave North, Worcester, MA 01655.

E-mail address: Carolynn.debenedectis2@umassmemorial.org (C.M. DeBenedectis).

students. For the minority of radiology subspecialties, lack of patient contact is a reality; however, most of the subspecialties within radiology have ample patient contact. The literature suggests that early exposure to the varied experiences within these "patient contact" subspecialties (most notably pediatric radiology, breast imaging, and interventional radiology) has been proposed as a way to generate more female medical student interest.^{5,6}

Finally, female radiologist involvement in mentorship has been identified as integral to fostering female medical student interest in radiology.^{7,8} In one study, nearly 21.7% of men choosing a career in radiology did so at the suggestion of a mentor or colleague, suggesting that mentorship has a large role in shaping the careers of male medical students.⁷ Female medical students are also likely largely influenced by female mentors; however, female radiology faculty are outnumbered 2:1 by males and are 3 times less likely to obtain senior faculty positions.^{5,9,10} This means that there may be few female radiology faculty at any given institution available for teaching and mentorship, and, even when present, they may not be readily visible to the student body. The publicity of female radiologists and their subsequent involvement in mentorship are integral components to fostering female medical student interest in radiology.

To date, no study has been conducted to determine the impact of these suggested interventions once implemented. Interventions implemented at UMass aimed at increasing medical student exposure to radiology coincidentally align with those interventions that have also been suggested to increase recruitment of female medical students to radiology, thus our data provides valuable information regarding female medical student response to these interventions. These preliminary findings may be helpful to institutions looking to increase female medical student interest in radiology.

Materials and Methods

Radiology Interventions

The interventions took place between 2012 and 2016 at the University of Massachusetts (UMass) Medical School in Worcester, Massachusetts. Starting in 2012, a faculty radiologist became co-director of the anatomy course and added 15–20 imaging-driven lectures to the preclinical curriculum. That same year, 6 of the 27 cadavers were imaged by computer tomography to provide radiology-pathology correlations for the anatomy dissections. Approximately 10–12 radiology residents were present in the anatomy lab for several sessions to review CT imaging with gross cadaver findings with students. In the subsequent years, 2013–2016, approximately 81 cadavers were scanned so each anatomy group could do imaging correlation with their cadaver.

In 2012, UMass Medical School began offering flexible clinical experiences (FCEs) during the third year of medical school. The FCEs are weeklong electives that complemented the core clinical curriculum while allowing for career exploration outside of the standard core clinical rotations. The radiology department offered FCEs in pediatric and interventional radiology in 2012. In the fall of 2015, the department also implemented a breast imaging FCE. FCEs in these subspecialties were specifically chosen as they highlight opportunities for patient interaction within radiology. In addition, we also offer a general radiology elective in the fourth year where medical students are exposed to all subspecialties in radiology over 1 month.

A 'Women in Radiology' panel was hosted by the Radiology Interest Group to promote visibility of female radiologists during the fall semester of 2016. Three female-attending radiologists and two female residents served as panelists. All female medical

students across first through third years medical school classes were invited to attend. Medical students were encouraged to ask questions, and the bulk of the discussion was generated from topics they were interested in learning more about, including amount of patient contact within radiology and work-life balance. After the panel, female medical students voluntarily participated in an anonymous online survey about their perceptions of radiology before and after the panel. The Institutional Review Board (IRB) determined the study to be exempt by Category 2 (ie, educational survey). In addition to the panel, young female radiology faculty began to become more involved in the medical school as well. These female faculty began to serve at subspecialty mentors for medical students, hosted "dinner with doctors" through the local chapter of the American Medical Women's Association (AMWA) (medical students have dinner at a female faculty members house to learn more about their specialty), and participated in a panel at the medical school featuring specialties in medicine where women are underrepresented. All of these additional interventions occurred in the year before the Women in Radiology panel. Additionally, a female radiology become Radiology Residents Program Director, the Radiology Interest Group Advisor, and became more active in mentoring medical students in late 2016.

Data Collection/Analysis

Match results from 2000–2016 were reviewed with attention directed at the total number of medical students who matched in radiology as well as the female to male ratio of those students. A database was created of the number of students who took part in radiology FCEs (ie, breast imaging, pediatric radiology, and interventional radiology). The FCE participants were stratified by both year in which they enrolled in the elective and gender. Of note, the data from the graduating class in 2018 reflects tentative enrollment of current third-year medical students. As students are able to add and drop FCEs, rates of actual enrollment may change. Data on student perspectives before and after the 'Women in Radiology' panel was analyzed by paired Student's *t*-test, with $p < 0.05$ considered a significant difference.

Results

Although the number of fourth-year medical student matching into radiology fluctuated between 2000 and 2008, match rates between 2009 and 2012 became consistently lower than in prior years. After the educational intervention was initiated in 2012, there was a relative recovery in number of matched students. Classes with more years of intervention had a higher number of students match into radiology, suggesting that earlier intervention is more beneficial (Fig 1A). Analysis of this trend by gender demonstrates that a greater number of male medical students matched after the intervention (Fig 1B). The absolute number of female medical students was similar to in previous years.

There has been growth in the enrollment of medical students in FCEs since the initiation of the intervention (Fig 2A). Students were more likely to enroll in electives if they were exposed to educational intervention in their first preclinical year (Fig 2A). A comparison of total number of male vs. female medical students enrolled in FCEs from graduating classes 2014–2018 shows that women were less likely to participate in a clinical radiology elective (60% vs. 40%, respectively) (Fig 2B).

Following the 'Women in Radiology' panel, 7 of 15 female medical students completed a 7-question survey on their perceptions of radiology. The students rated their perception of patient

Download English Version:

<https://daneshyari.com/en/article/10222504>

Download Persian Version:

<https://daneshyari.com/article/10222504>

[Daneshyari.com](https://daneshyari.com)