GENDER OF INTERNAL MEDICINE RESIDENT IMPACTS CANCER PREVENTION CARE FOR WOMEN

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Abstract: Mammography and cervical screening are effective methods for early cancer detection in women. Recent reports showed that 69% of women ≥45 years had a mammogram in the past 2 years and 16-55% of women had a Pap smear regularly. Internal medicine (IM) physicians are crucial players in women’s health management and literature has identified that a physician’s gender impacts patient management in many areas of healthcare. We investigated mammogram and Pap smear recommendations by IM residents and examined differences in approaching women’s health issues between female and male residents. With IRB approval, one-hundred charts of new female patients were reviewed, which included female patients ≥45 years seen by IM residents for their first visit. All patients completed a questionnaire concerning previous medical conditions and care as part of clinic routine. Patient chart information, recommendations for mammogram and cervical cancer screening by the resident were recorded, along with the gender of the resident and supervising attending. The mean age of the patients was 61±9.3 years. Female residents were more likely to recommend a mammogram compared to male residents (36.7% and 16.4%, respectively). No significant differences in Pap smear recommendations were observed between female and male residents (9.3% and 10.1%, respectively). Attending physician’s gender did not influence screening recommendations. The recommendation rate for female patients to obtain important screening mammograms and Pap smears was low. These results are consistent with previous literature and indicate an urgent need for improved women’s health education in residency, with special attention to male residents.

Keywords: Cancer prevention, Breast cancer, Cervical Cancer, Primary Care, Gender Disparity

INTRODUCTION Women’s health is a public health priority and historically has been insufficiently emphasized in medical education and in the medical literature [1-3]. Many believe medical education in women’s health is not adequate, and several national organizations have called for increased training⁵⁻⁶. IM physicians play a significant role in the management of women’s health issues in the United States. Several studies have investigated IM residents’ preparedness to care for women and have found that they’re less prepared than family medicine and obstetrics-gynecology residents [6-2].

Schieber et al found differences in the management of patients based on the physician’s gender in areas linked to women’s preventive health [13]. Similarly, other studies have shown that a physician’s gender can affect the rates of referral for proper women’s cancer screening, including mammography and Pap smears [14-16]. This study was designed to determine a) the rate at which IM residents at a single university-based primary care clinic recommended preventive cancer screening tests to new female patients; b) if there was any difference in the approach to women’s health issues by female and male residents and c) if there was any difference in approach based on the gender of the attending physician supervising the care of each patient.
MATERIAL AND METHODS

**Design** A retrospective chart review of 100 consecutive, new female patients age 45 or above seen for their first annual health care visit between 2012 and 2015. The patients were seen by IM residents in the university resident clinic. Institutional Board Review approval for this study was obtained prior to beginning the chart review. The gender of the IM resident who had seen the patient, the patients’ demographic characteristics, smoking habits, alcohol consumption, last Pap smear, last mammogram, whether they received annual check-ups, and recommendations for a mammogram and cervical cancer screening by the resident physician at their first visit were all extracted from the medical records and recorded. The gender of the attending physician supervising the resident was also noted.

However, although no differences were found in rate of mammogram questionnaires completed, patients seen by a female resident were more likely to be recommended to get a mammogram (female IM resident: 36.7% vs. male IM resident: 16.4%, p=0.038). Additionally, among the patients recommended to get a mammogram, action was taken more often when a female IM resident had made the recommendation (6/11 [54%] vs. 3/10 [30%]).

Pap smear questionnaires completed, recommendations, and actions taken did not show differences between patient groups based on IM residents’ gender (Table 1).

Male attending physicians acted as preceptors for the large majority of these first-time visits (80) compared with female preceptors (20). As shown in Table 2, no statistically significant differences were found when comparing the same parameters.

**Statistical analysis** Age was assessed using mean and standard deviation and other categorical variables were summarized using frequency and percentage. The statistical analyses assessed the differences based both on IM resident’s gender and attending’s gender. After checking distributional assumptions, differences between groups in continuous variables were tested using Student’s t-test for independent means. Categorical variables were compared using chi-squared ($\chi^2$) when cell frequencies were larger than 5 or Fisher’s exact test otherwise. Significance level was set at 0.05.

**RESULTS** The mean age of our patients was 61-years. Of the 100 patients, 68 were seen by male residents and 32 by female residents. When broken down by IM residents’ gender, patient groups did not show differences in age.

![Table 1: Difference in Recommendations by IM Residents](image)

**DISCUSSION** The results of this study reflect a concerning low rate of attention to cancer screening in new female patients by this group of IM residents. Sadly, our findings are consistent with other studies that addressed IM resident’s overall preparedness to provide women’s health [5-6]. Multiple professional societies, including the American Board of Internal Medicine [3.9], the American College of Physicians, and the Federated Council for Internal Medicine, have all called for the inclusion of women’s health topics more systematically in the IM resident training curriculum [10-11]. Despite these national recommendations, consistent implementation of women’s health education into the curriculum remains a
work in progress for most IM residency programs. Previous cross-sectional surveys of primary care program directors demonstrated some limited growth of women’s health education opportunities in recent decades, with 52% of programs offering an elective ambulatory gynecology rotation in 1994 and 95% of programs offering a similar rotation in 2004. Resident utilization of these opportunities as a percentage remained constant with 68% participating in 1994 and 67% participating in 2004 [5,6].

Compared to previous studies which showed that the gender of the IM resident could affect how women’s health care is addressed, our findings were mixed. Female residents indeed recommended mammograms more frequently than their male counterparts and the patients were more likely to follow the female resident’s advice. No such difference was seen with regard to the recommendation of Pap smears; however, the overall rate of appropriate Pap smear counseling was extremely low (10% range).

Limitations to this study include the relatively small sample size, the male predominance in both the resident and faculty preceptor groups, and the fact that this was a single institution study. It should also be noted that data was collected from only the first patient visit and not the subsequent visits. New patient visits to an IM physician, especially when the average age of the patients is 60 years, is often a fairly complex and lengthy endeavor due to the number of chronic medical conditions that must be addressed. It may be that some of these residents planned to address the preventive medicine issues at a subsequent visit due to time constraints. Studies which have compared Family Medicine and OB-GYN preventive measures have generally resulted in better performance.

CONCLUSION This study further confirms the reports and recommendations of others demonstrating the urgent need for more emphasis on women’s health issues during IM residency training. Program directors of residency training programs are urged to heed the call by the important national groups including the American Board of Internal Medicine, the American College of Physicians and the Federated Council for Internal Medicine to implement a more extensive and consistent women’s health curriculum for IM residency programs across the nation [9-11].

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| Age at visit (years), mean (SD) | Female Attending (n=20) | Male Attending (n=80) | p-value |
|-------------------------------|-------------------------|-----------------------|---------|
| Mammogram                     |                         |                       |         |
| Questionnaire, n (%)          | 7 (35)                  | 21 (26.2)             | 0.436   |
| Recommended, n (%)            | 6 (31.6)                | 15 (20.8)             | 0.323   |
| Action taken, n (%)           | 3 (15)                  | 6 (7.5)               | 0.378   |
| Pap smear                     |                         |                       |         |
| Questionnaire, n (%)          | 9 (45)                  | 31 (38.8)             | 0.610   |
| Recommended, n (%)            | 2 (10)                  | 8 (10)                | 1.000   |
| Action taken, n (%)           | 6 (30)                  | 22 (27.5)             | 0.824   |

Table 2. Differences in Recommendations by Attending Physicians Supervising IM Residents
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