

Impact of a Veterans Affairs Continuity Clinic on Resident Competencies in Women's Health

Kym E. Orsetti, MD, John G. Frohna, MD, MPH, Larry D. Gruppen, PhD, John Del Valle, MD

BACKGROUND: Education in women's health is now considered a core curricular component during residency training in Internal Medicine. There is potential for insufficient training in women's health for residents with a continuity clinic based at a Veterans Affairs (VA) hospital.

OBJECTIVE: To determine the impact of a 3-year continuity clinic based at a VA hospital on residents' self-reported competencies in women's health.

DESIGN: Cross sectional survey using an internal website.

SETTING: University-based residency program in Ann Arbor, Michigan.

MEASUREMENTS AND MAIN RESULTS: Comparison of residents with a VA clinic with residents with non-VA clinics (university and community) in self-reported competencies in knowledge base, counseling, and physical exam skills in the area of women's health. Responses were obtained from 66% (n = 72) of eligible residents. When compared to residents with either a university hospital- or community-based clinic site, VA-based residents reported less confidence in the majority of competencies surveyed. Clinic site had the strongest impact in the knowledge base domain, accounting for between 17% and 33% of the variance in each specific competency. For estimated number of Pap smears and breast exams done in the prior year, VA-based residents reported doing, on average, less than 5 of each per year while non-VA residents reported doing between 11 and 20 of each exam.

CONCLUSIONS: Our data suggest that despite other clinical opportunities in women's health during ambulatory rotations, regular clinical experiences in women's health in the continuity clinic setting are necessary to improve education in this area.

KEY WORDS: women's health; residency training; medical education.

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A call for improved education in the area of women's health during Internal Medicine residency training has come from several organizations during the past decade.^{1,2} In 1997, the American Board of Internal Medicine (ABIM) published recommendations for core competencies in women's health, along with suggestions on how residency programs might implement and evaluate such training.³ Currently, the Accreditation Council for

Graduate Medical Education (ACGME) requirements for Internal Medicine mandate instruction in both women's and men's health.⁴ Newer requirements from the ACGME will specify that Internal Medicine residents see a minimum of 25% women in a continuity clinic setting. For training programs with continuity clinics based at a Veterans Affairs (VA) hospital, this new specification will create the need for significant change within residency programs to ensure that appropriate education in women's health occurs.

In institutions such as the University of Michigan, with 1 quarter of residents participating in VA-based continuity clinics with approximately 5% female patient panels, one question that arises is whether clinic site negatively impacts education in women's health, despite the presence of other ambulatory opportunities for clinical education in this arena. Thus, prior to the institution of changes in our program that allow for residents with VA-based continuity clinics to care for 25% women, we conducted a survey to assess: 1) Internal Medicine residents' self-reported abilities in the competencies of medical knowledge, counseling skills, and physical exam skills in women's health as recommended by the ABIM; and 2) whether these abilities vary according to the location of the residents' continuity clinic training site.

METHODS

Participants

All 109 residents in the University of Michigan categorical Internal Medicine Residency program were eligible to participate. Thirty percent of the 109 residents were female. Medicine-Pediatrics residents and preliminary year interns were excluded. The Internal Medicine residency program does not have a separate primary care track.

Residents have the same continuity clinic site for all 3 years of training. Clinics are located at 1 of 3 sites: 1) university hospital-based clinic (50% of residents); 2) VA-based clinic (25%); or 3) university-affiliated community clinic (25%).

Assignment of residents to clinic sites is based on their stated preferences prior to beginning training. Approximately two thirds of residents receive their first choice of clinic site. All clinics, including community sites, operate with the model of university-appointed faculty precepting residents who are seeing their own patients.

In addition to the continuity clinic experience, residents participate in 5 to 6 one-month ambulatory rotations during their 3 years of training. Education in women's health during ambulatory blocks takes place in both general medicine community practices as well as in dedicated half-day clinics (e.g., gynecology, breast care

Received from the Departments of Internal Medicine (KEO, JGF, JDV), Pediatrics (JGF), and Medical Education (LDG), University of Michigan, Ann Arbor, Mich.

Address correspondence and requests for reprints to Dr. Orsetti: Department of Internal Medicine, P.O. Box 32861, Charlotte, NC 28232 (e-mail: Kym.Orsetti@carolinashhealthcare.org).

clinic). Fifty percent of the blocks have one of these women's health clinics. Assignment to these rotations is done by program leadership in a systematic manner to ensure similar experiences by all residents.

Survey Design

A 20-item questionnaire was developed to address the following: 1) resident demographics (5 items); 2) knowledge-base domain, assessing self-reported knowledge in 6 core competencies of women's health as recommended by the ABIM (cancer screening, specifically breast and cervical cancer screening; reproductive health, specifically prescription of oral contraceptives; menopause management, specifically risks and benefits of hormone replacement therapy; common gynecologic disorders, specifically vaginitis management; and diagnosis/management of urinary incontinence); 3) counseling skills domain, assessing the level of confidence in counseling in the areas of domestic violence, pre-conception planning, and cardiovascular risk factor modification; 4) physical examination skills domain, assessing confidence in performing a breast exam, Pap smear, pelvic exam, and wet mount evaluation; and 5) estimated number of breast exams and Pap smears performed in the preceding year. The 3 domains of knowledge base, counseling, and examination skills were evaluated using a 5-point Likert scale. Sample question: "Rate your knowledge base for management of common types of vaginitis, such as candidal vaginitis and bacterial vaginosis," with anchors ranging from "1 - very little knowledge" to "5 - very knowledgeable."

Data Collection

The survey was made available to all residents at the conclusion of the 2000–2001 academic year. The survey was posted on an internal website so that submission of the survey could be done electronically in an anonymous fashion. An e-mail was sent to residents requesting their completion of the survey. Anonymity was assured. Two additional e-mail reminders were sent 2 and 4 weeks after the initial e-mail. No incentive was provided for completion of the survey.

Statistical Analysis

Two-way analysis of variance (ANOVA) was used to evaluate the impact of clinic site and gender on each of the self-reported competencies. Eta-squared (η^2) values were computed on each dependent variable for both gender and site. Eta-square is an effect size measure for ANOVA procedures and describes proportion of the total variance in a dependent variable that is attributable to differences in the level of an independent variable. For example, if the η^2 for the effect of clinic site on knowledge of breast cancer screening is 0.23, it means that differences in clinic site account for 23% of the total variation in scores of knowledge. Statistical significance (α) was set at 0.05.

RESULTS

Of the 109 eligible residents, 72 (66%) submitted surveys. The representation of gender and year of training is reflective of the distribution of these variables within the program (Table 1). Response rate varied by site and gender, with females having a lower response rate at both the university and VA sites. Preceptor gender, not reported in the table, did not differ significantly across clinic sites, with 33% of residents having both male and female preceptors, 22% having only female preceptors, and 44% with only male preceptors.

The 2-way ANOVAs did not reveal any interactions among gender and clinic site in their effect on any of the resident self-reported competencies. Therefore, each main effect will be described separately.

Impact of Clinic Site

In the knowledge base domain, clinic site accounted for between 17% and 33% of the variance in each specific competency (Table 2). The predominant basis for this impact was the contrast between the VA site and either of the other 2 sites: residents with a VA clinic reported less knowledge in all domains. There were no significant differences reported in any of the knowledge base items between university- and community-based residents.

The impact of clinic on the items in the counseling domain was less consistent. Clinic site accounted for only 4% of the total variance in self-reported confidence in counseling victims of domestic violence among clinic sites, with all house officers reporting fairly low abilities (2.54 ± 1.01 on a 5-point scale.) Clinic site accounted for 30% of the variance in pre-conception counseling, again, with VA residents giving themselves lower ratings than residents at the other sites. Site accounted for 15% of the variance in counseling for cardiovascular risk factor modification in women, with the primary difference being between VA (lower ratings) and community residents

Table 1. Participant Characteristics

House Officer Characteristic	n (%)
Male	49 (68)
Female	23 (32)
Training year	
PGY-1	24 (33)
PGY-2	23 (32)
PGY-3	25 (35)
University clinic	26 (36)
Male	19 (73)
Female	7 (27)
VA clinic	17 (24)
Male	14 (82)
Female	3 (17)
Community clinic	29 (40)
Male	16 (55)
Female	13 (45)

Table 2. Self-reported Competencies Based on Clinic Site*

Domain	VA	University	Community	η^2
Knowledge base				
Breast cancer screen	2.88 ± 0.99	3.85 ± 0.78 [†]	3.97 ± 0.73 [†]	0.23
Abnormal Pap	2.12 ± 0.93	3.24 ± 0.97 [†]	3.03 ± 0.82 [†]	0.20
Oral contraceptives	1.65 ± 0.93	2.88 ± 0.86 [†]	3.24 ± 0.95 [†]	0.33
Hormone replacement	2.82 ± 0.81	3.62 ± 0.90 [†]	3.86 ± 0.74 [†]	0.21
Vaginitis	2.41 ± 1.18	3.38 ± 0.94 [†]	3.52 ± 0.99 [†]	0.17
Incontinence	1.76 ± 0.75	2.85 ± 0.83 [†]	2.72 ± 0.75 [†]	0.24
Counseling				
Domestic violence	2.24 ± 0.83	2.54 ± 1.03	2.72 ± 1.07	0.04
Pre-conception	1.53 ± 0.87	3.08 ± 1.09 [†]	3.28 ± 1.07 [†]	0.33
Cardiovascular	3.65 ± 1.00	4.00 ± 0.80	4.45 ± 0.57 [†]	0.15
Physical exam skills				
Breast exam	3.59 ± 1.06	4.08 ± 0.93	4.24 ± 0.83	0.07
Pap smear	3.00 ± 1.12	4.12 ± 0.91 [†]	4.17 ± 0.89 [†]	0.21
Pelvic exam	3.00 ± 1.22	3.88 ± 1.03 [†]	3.83 ± 1.04 [†]	0.11
Wet mount	2.24 ± 1.30	3.31 ± 1.05 [†]	3.48 ± 1.30 [†]	0.15

* Likert scale, mean ± standard deviation; 1 = very little knowledge/confidence, 5 = very knowledgeable/confident.

[†] Statistically significant contrast with VA site.

(higher ratings). University-based residents rated themselves between the other 2 groups.

In the physical exam domain, clinic site accounted for 7% of the variance in level of comfort performing breast examinations, 11% of the variance in performing pelvic exams, 21% of the variance in performing Pap smears, and 15% of the variance in doing wet preparations. Again, VA residents rated themselves lower than residents at the other 2 sites.

Finally, the numbers of Pap smears and breast exams done in the prior year varied considerably across sites, accounting for 24% and 35% of the variance, respectively. VA residents reported doing, on average, fewer than 5 of each exam in the preceding year, while both university- and community-based residents reported performing, on average, between 11 and 20 of each exam in the past year.

Impact of Resident Gender

The effect of resident gender on these outcome variables was less consistent and weaker than that of clinic site. Resident gender accounts for >5% of the variance in the difference in 10 of 15 items across all 3 domains, with women self-reporting higher levels of knowledge/confidence (Table 3). In comparing the η^2 values between Tables 2 and 3, however, it is apparent that, overall, clinic site accounts for much more variance in these outcomes than does resident gender.

DISCUSSION

The last decade has seen tremendous growth in the incorporation of women's health topics into Internal Medicine residency training curricula. With the ACGME calling for instruction in gender-specific health care of both men and women in Internal Medicine training programs, the institution of clinical experiences and education in women's

health has occurred in categorical, as well as primary care residency programs. In 1997, 52% of Internal Medicine primary care residency programs offered elective gynecology experiences, with 35% having required experiences.⁵

At our own institution, clinical experiences in women's health have been provided during ambulatory rotations for the past 4 years. These experiences take place in a variety of settings, including general gynecology clinics and specialty clinics, such as breast care and osteoporosis clinics. In addition, topics in women's health are routinely covered in our ambulatory morning report and noon conference series. Despite these other educational opportunities, the results of our survey suggest a substantial difference in self-reported competence in women's health in

Table 3. Self-reported Competencies Based on Resident Gender*

Domain	Women	Men	η^2
Knowledge base			
Breast cancer screen	4.13 ± 0.76	3.45 ± 0.91 [†]	0.12
Abnormal Pap	3.52 ± 0.85	2.58 ± 0.92 [†]	0.20
Oral contraceptives	3.52 ± 0.85	2.37 ± 1.01 [†]	0.24
Hormone replacement	3.78 ± 0.74	3.41 ± 0.96	0.04
Vaginitis	3.57 ± 0.99	3.04 ± 1.12	0.05
Incontinence	2.87 ± 0.87	2.39 ± 0.86 [†]	0.07
Counseling			
Domestic violence	2.78 ± 0.95	2.43 ± 1.02	0.03
Pre-conception	3.30 ± 1.33	2.55 ± 1.14 [†]	0.08
Cardiovascular	4.22 ± 0.67	4.04 ± 0.89	0.01
Physical exam skills			
Breast exam	4.52 ± 0.59	3.80 ± 1.00 [†]	0.13
Pap smear	4.65 ± 0.57	3.51 ± 1.04 [†]	0.26
Pelvic exam	4.35 ± 0.88	3.33 ± 1.09 [†]	0.18
Wet mount	3.70 ± 1.22	2.86 ± 1.26 [†]	0.09

* Likert scale, mean ± standard deviation; 1 = very little knowledge/confidence, 5 = very knowledgeable/confident.

[†] Statistically significant contrast.

the domains of knowledge base, counseling skills, and physical exam skills for residents with a VA clinic when compared to residents with university- or community-based clinics. In addition, self-reported estimates of the numbers of breast and pelvic exams performed were significantly lower among residents with a VA clinic.

Clinic site accounted for more variance within the knowledge base domain than in the domains of counseling and physical exam. This may in part be due to the particular nature of the counseling and exam questions. House staff at all 3 sites expressed low levels of confidence for domestic violence counseling, suggesting a definite need for curricular improvement in this area. While still not as high as their non-VA colleagues, VA residents expressed higher levels of confidence when counseling women on cardiovascular risk factors. Because they frequently address these issues in their male patient population, many may feel they can comfortably extrapolate to women. However, on the issue of pre-conception counseling, there remained a large gap between the VA clinic and the other 2 sites. With regard to physical exam skills, non-VA residents reported higher confidence in performance of Pap smears than VA residents, but there was no difference between sites for performance of pelvic exams, with lower overall scores. Potential reasons for this may include the increased level of difficulty in mastering the diagnostic skills of pelvic examination as well as the decreased emphasis on the bimanual exam as a screening tool among internists, so that very few residents report high confidence regardless of clinic site.

There are several limitations to this study. First, the survey was done at a single institution, and the results may not be generalizable to other programs. In addition, resident competencies were self-assessed rather than objectively measured. Although anonymity was emphasized to encourage accurate self-reporting, there is potential for bias in these results.

Over 3 years, all residents have similar exposure to women's health clinics, although the precise number of experiences can differ slightly based on assignment of ambulatory rotations. The survey did not ask residents to estimate number of women's health clinic experiences. While at any point during the first 1 to 2 years of training a given resident may have had greater exposure to women's health clinics than a colleague, we were not able to adjust the analyses to account for these variances. We also did not assess faculty competence in women's health. Although the faculty mix at the VA and university clinics is quite similar, those teaching only at the VA may face the same limitations with regard to exposure to women's health.

At the time of this study, the number of female residents with a VA clinic was small (6) and only 3 of those responded, providing small numbers for the assessment of interaction between gender and clinic site. Self-selection bias is possible in that those interested in women's health may choose a non-VA clinic. However, fewer than 10% of the incoming intern class requests the VA clinic as their

first choice, so the majority of residents with a VA clinic had preferred an alternate site. Thus, while it is possible that residents with a non-VA clinic enter the program with an interest in women's health, we cannot necessarily conclude that residents assigned to the VA are less interested in women's health. Career plans for primary versus subspecialty care also were not different between residents at the 3 clinics (data not shown.)

Despite these limitations, the results strongly suggest that the movement toward incorporating regular clinical experiences in women's health into the continuity clinic setting for residents with VA-based clinics is necessary if we are to achieve adequate education in women's health for this subset of residents. The addition of occasional elective experiences does not seem to be enough. Our study suggests that ongoing clinical experiences with a female patient population are needed.

Achieving this goal remains a challenge. Residency programs have begun to utilize a number of mechanisms, including second continuity clinics at another facility for those with primary VA clinics, alternating between VA and non-VA continuity clinic sites, as well as creation of multidisciplinary women's health clinics within VA medical centers. In addition, VA Internal Medicine clinics need to have the facilities and resources to provide routine gynecologic care so that female veterans are not automatically referred to gynecology. Finally, residency programs need to ensure that issues of women's health are included in the didactic curriculum through noon conferences, clinic conferences, computer-based modules, etc.

Our institution has chosen to have VA-based residents participate in a women's clinic on a monthly basis in place of their VA clinic during that week. Once this system has been in place for a full 3-year cycle of residents, a follow-up study will be needed to assess whether this intervention is improving VA-based residents' competencies in women's health. Future work in this area would benefit from the development of an objective and validated tool for assessing competency in women's health, with the goal of improving the ability to accurately assess learners in our program and others.

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