Evaluating and Enhancing a Women's Health Curriculum in an Internal Medicine Residency Program

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OBJECTIVE: Resident education in women's health is required but is often underemphasized. Our aim was to identify women's health topics with the most relevance to our graduates' practices and to determine how well they were prepared to address women's health issues.

DESIGN: Postgraduate survey.

SETTING: University-affiliated internal medicine residency program.

PARTICIPANTS: Program graduates in general internal medicine practice.

METHODS: A survey was drafted listing the 65 topics described in a published residency curriculum in women's health. Respondents indicated the extent to which each item was relevant to their practice and the adequacy of instruction received on a Likert-type scale of 1 (not relevant/inadequate) to 5 (highly relevant/adequate).

RESULTS: The response rate was 86%. Many of the items were highly relevant to our graduates' practices. Learning needs were found in all areas as none of the topics were rated as "adequately" taught during residency. Many areas in the curriculum had low relevance scores. Few differences were seen in the perceived relevance of women's health problems or the adequacy of instruction received based on gender, practice type and setting, or amount of ambulatory training during residency.

CONCLUSIONS: Use of this survey has allowed us to tailor and prioritize learning issues in women's health to meet the needs of our graduates. Increased time in ambulatory rotations alone may not be sufficient to prepare residents to provide comprehensive care in this field. Further study of the effectiveness of a dedicated curriculum in women's health is needed.

KEY WORDS: women's health; resident education; graduate survey.

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Women's health is an important component of residency training in internal medicine, yet the adequacy of education provided to residents in this area is thought to be lacking.¹ Internists provide much of the health care to women in the United States and are expected to screen for, diagnose, and manage conditions that occur

in their female patients from young adulthood to old age.^{2,3} Despite this, various studies suggest voids in this area are present in the traditional curricula of internal medicine residency programs.^{4,5} A 1997 survey of primary care residency program directors revealed that 44% of the respondents were expanding their curriculum in women's health and that learning was frequently incomplete in areas such as domestic violence, breast and pelvic examination, and menopause.⁶ Recently, a small survey of internal medicine residency program graduates in Oregon showed that only 52% were satisfied with their training in women's health.⁷ More specifically, Wiest and colleagues found that graduating internal medicine and family practice residents from multiple programs self-reported limited preparation to diagnose and treat selected inpatient and outpatient conditions related to women's health.⁸

Multidisciplinary clinical experiences, continuing medical education courses, and faculty development programs have been reported as instructional methods used to teach women's health for residents and practicing physicians. One report described the use of multidisciplinary cross-training (internal medicine and gynecology) to advance their women's health instruction and scope of clinical care.⁹ Another institution developed a lecture-based curriculum in preconception health for students, residents, and attending physicians through the collaboration of faculty members in internal medicine, pediatrics, obstetrics-gynecology, and family practice.¹⁰ Others have used mandatory continuing medical education for residents or faculty development programs to better focus their teaching in women's health.^{11,12}

Efforts to structure resident education in women's health were aided in 1997 when the Federated Council for Internal Medicine (FCIM) Task Force on the Internal Medicine Residency Curriculum published a document entitled "Graduate Education in Internal Medicine: A Resource Guide to Curriculum Development."¹³ This outlined various topics and skills to be used for curriculum planning by individual program directors and included a set of clinical presentations, procedural skills, and test interpretation in the area of women's health and office gynecology. The topics and skills were derived by consensus agreement from committees with broad representation from the internal medicine community. The text was edited by leaders of internal medicine societies such as the American College of Physicians—American Society of Internal Medicine, the Society of General Internal Medicine, the American Board of Internal Medicine, and the Association of Program Directors in Internal Medicine (APDIM). In May 2002, the second edition of the Resource Guide was disseminated electronically to the membership of APDIM, an organization

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that represents 95% of the accredited internal medicine residency programs in the United States, Puerto Rico, and Canada.¹⁴ Although there are no data to support the extent of adherence by individual programs to these guidelines, they are the only set developed, endorsed, and distributed to date by the organizations listed above.¹⁵

The purpose of our study was 2-fold. First, to determine how relevant the topics and skills associated with women's health listed in the FCIM Resource Guide were to our graduates' practices. Second, to address the adequacy of our curriculum in meeting our graduates' learning needs. Specifically, our study was designed to address the following questions:

1. To what extent are the FCIM Resource Guide Women's Health and Office Gynecology guidelines relevant to recent internal medicine graduates' current practices?
2. How well prepared were they through patient experiences and instruction to address women's health issues?
3. Is there a difference in the perceived relevance of women's health problems based on gender, practice type, and setting?

METHODS

The McGaw Medical Center of Northwestern University's internal medicine residency program in this study is based at the Chicago campus of Northwestern University. It is affiliated with the VA Chicago Health Care System and Northwestern Memorial Hospital, a 720-bed tertiary care center. The program has 40 categorical residents in each year of training. Each first-year resident has a weekly continuity clinic at one site and each second- and third-year resident has a weekly continuity clinic at both sites. Over the 3-year residency, approximately 35% of a resident's time is spent in the ambulatory setting. Until 2001, a separate primary care track was available for 6 trainees in each year of training. This gave residents additional continuity clinic and ambulatory medicine experiences over the 3-year residency for a total ambulatory training time of approximately 50%.

In our former curriculum, residents encountered patients with women's health problems at the Northwestern site in continuity clinic, in subspecialty clinics during consult rotations, in the emergency department, and in the ambulatory block rotation. Approximately 40% of residents participated in this 2-month block and attended clinics in gynecology, dermatology, orthopedics, and other specialties. Prior to 2002, didactic teaching of women's health consisted of approximately 5 lectures per year and occasional topics in resident morning report. Weekly conferences in the ambulatory block rotation were also held and may have covered topics in this area. Prior to this study, there was no cohesive or uniform curriculum in women's health provided to residents.

As we wished to survey recent graduates who had been in practice from 3 to 5 years, graduates ($N = 126$) from the program from 1997 to 1999 were identified. Of these, 58 are in general internal medicine practice. This latter group

served as the subjects in our study. A survey was drafted by the authors listing the 65 clinical presentations, procedure skills, and tests described in the Women's Health and Office Gynecology section of the second edition of the FCIM Resource Guide.¹⁵ Two scales corresponded to each item. The first scale asked respondents to indicate (on a Likert-type scale of 1 = not and 5 = highly) the extent to which the content, skill, procedure, or test described was relevant to their practice. The second scale asked for perceptions of the adequacy of experience or instruction provided (1 = inadequate, 5 = adequate) during residency. Demographic and practice information was requested including year of graduation, gender, predominant practice setting (full-time faculty, private practice with part-time faculty appointment, private practice without faculty appointment), and number of physicians in the respondents' practice.

The instrument was similar in format to ones used in previously published surveys of residency program graduates.^{5,16-18} The survey instrument was tested for clarity and feasibility by a separate group of 7 graduates from the residency program who commented on content and format. Reliability was assessed by asking this group to complete the survey a second time 3 months after they had done so previously. The relationships between survey responses completed the first and second time was studied by calculating the percent agreement. Content validity of the items was accomplished by using items published in the FCIM Resource Guide.

The cover letter, signed by the residency program director, described the purpose of the study and the confidentiality of responses. Contact numbers and self-addressed stamped envelopes were provided. After 1 month, nonrespondents were sent a second copy of the survey and cover letter.

The study was approved by the Institutional Review Board of Northwestern University, Feinberg School of Medicine.

Descriptive statistics were used to summarize the data. For each rating of relevance, Kruskal-Wallis analysis of variance tests were used to test for differences by practice setting. Similarly, Mann-Whitney U tests were used to check for differences on the relevance items based on gender, practice type, and whether the respondent was in the primary care track while in residency. Follow-up pairwise comparisons were done when a statistically significant result was found. Results were considered statistically significant at $P < .01$. Reliability of the instrument was accomplished using percent agreement.

RESULTS

Percent agreement between the first and second completion of the instrument by 7 residency graduates was 96%, demonstrating the survey's stability.

Two graduates could not be located. Therefore, we distributed 56 graduate surveys. We received responses from 48 of the 56 residency graduates for a response rate of 86%. One response was not usable.

Table 1. Rank List of Topics by Relevance and Corresponding Adequacy Ratings*

Area—Topic/Skill	Relevance to Practice		Adequacy of Instruction	
	Mean	SD	Mean	SD
Obtain Pap smear	4.85	0.66	4.21	1.00
Urinary tract infection	4.79	0.46	4.45	0.69
Obtain chlamydia culture	4.76	0.74	4.28	0.90
Vaginitis	4.70	0.66	4.19	1.01
Urine pregnancy test	4.68	0.75	4.38	0.90
Osteoporosis	4.55	0.77	3.21	1.25
Bone densitometry	4.55	0.75	2.94	1.29
Menopausal symptoms	4.43	0.80	2.96	1.10
Mammography	4.36	0.99	3.32	1.25
Contraception management	4.34	0.84	3.04	1.02
Administration of hormone replacement therapy	4.26	0.97	3.04	1.22
Abnormal Pap smear	4.21	1.00	3.15	1.16
Pelvic ultrasound	4.15	1.08	3.26	1.24
CT scan of abdomen and pelvis	4.02	1.28	3.57	1.35
Psychosocial counseling	3.96	0.93	2.35	0.99
Cervicitis/PID	3.91	0.95	3.43	1.04
Genital warts and herpes	3.91	1.06	3.04	1.02
Unexplained vaginal bleeding	3.91	0.95	2.78	1.25
Pregnancy (uncomplicated)	2.70	1.28	2.45	1.21
Aspiration of breast mass	2.66	1.48	1.87	1.15
Removal of foreign body from vagina	2.57	1.41	1.98	1.36
Pregnancy (with medical complications)	2.57	1.29	2.04	1.08
Threatened/spontaneous abortion	2.47	1.14	1.96	1.17
Sexual preference and identity	2.36	1.11	1.59	0.91
Counseling about cosmetic or reconstructive surgery	2.34	1.01	1.70	0.92
Breast reduction, augmentation, or reconstruction	2.23	1.04	1.66	0.92
Administration of contraceptive injections/devices	2.28	1.29	1.70	0.86
Rape protocol	2.23	1.37	1.47	0.65
Urodynamic testing	2.11	1.20	1.77	0.98
Fertility studies	2.02	1.13	1.72	0.78
Fitting of diaphragm	1.96	1.14	1.35	0.71
Incision and drainage of breast abscess	1.72	1.08	1.38	0.72
Dilatation and curettage	1.64	0.97	1.39	0.65
Colposcopy with biopsy	1.60	0.92	1.36	0.83
Insertion and removal of IUD	1.51	0.93	1.22	0.64
Endometrial biopsy	1.43	0.80	1.20	0.63

Likert-type scale: 1 = none; 5 = high.

* Range selected: 5.00 to 3.90 for most relevant items and 1.43 to 2.70 for least relevant items.

PID, pelvic inflammatory disease; IUD, intrauterine device; SD, standard deviation.

Sixteen of the respondents were from the class of 1997, 17 from the class of 1998, and 14 from the class of 1999. Thirty-six percent of the respondents ($n = 17$) were women. The gender mix across residency classes was similar. Twenty-one percent of the respondents hold full-time faculty appointments, 51% are in private practice, and 28% are in private practice with a part-time faculty appointment. Fifty-five percent practice in an urban setting, 43% in a suburban setting, and 2% in a rural setting. The majority of respondents (68%) work in group practices of 7 or more physicians. The others work in smaller group practices (2 to 6 physicians), while 1 respondent works in solo practice. Twelve respondents (26%) experienced the primary care track during residency while 35 (74%) were in the traditional categorical internal medicine program.

In reference to our first research question regarding the relevance of the 65 FCIM items to our graduates' practices, approximately two thirds were considered relevant.

Table 1 presents the means and standard deviations for the 18 items ranked most relevant to respondents' practices with their corresponding ratings for adequacy of instruction. The means and standard deviations of the 18 items ranked least relevant are also presented. Our second research question regards the adequacy of preparation of graduates through patient experiences and instruction to address women's health issues. Overall, as seen in Table 1, they were not well prepared. The majority of items were considered inadequately taught as the mean adequacy of instruction scores were below 3.0 on the 5-point scale. Of the items that respondents felt were most inadequately taught, only three (counseling about sexuality over the lifecycle, cystocele/rectocele/uterine prolapse, and preconception/postconception counseling) were considered relevant to respondents' practices.

Males and females differed significantly on ratings of relevance to their practice of galactorrhea/nipple discharge

($P = .003$), hirsutism ($P = .002$), pelvic mass ($P = .005$), varicose veins/venous distention ($P = .006$), psychosocial counseling ($P = .003$), and administration of hormone replacement therapy ($P = .004$). In each case, females rated these items as more relevant than did males.

The three practice settings (full-time faculty, private practice with part-time faculty appointment, private practice without faculty appointment) differed on only one item, rape protocol ($P = .001$). Follow-up comparisons showed that full-time faculty rated this item as significantly more relevant than those in private practice with or without a part-time faculty appointment.

Respondents in different size practice groups differed significantly on three of the items/skills: ectopic pregnancy ($P = .001$), sexual preference and identity ($P = .008$), and counseling about sexuality over the lifecycle ($P = .009$). For each of these items, those from a larger group practice (7 or more physicians) rated the items as significantly more relevant than those from a smaller group practice (between 2 and 6 physicians).

There were no significant differences between ratings of relevance between those who completed the primary care track compared to those who completed the traditional track. On adequacy of instruction, only two of the ratings reached statistical significance: pregnancy (uncomplicated; $P = .008$) and dilatation and curettage ($P = .009$). For both of these, those in the primary care track rated their adequacy of training higher.

DISCUSSION

Many items in the FCIM Resource Guide section on women's health are highly relevant to our graduates' practices. The survey was useful in highlighting these areas and also in identifying less relevant health issues to our program graduates. This information allows us to prioritize topics such as vaginitis, osteoporosis, administration of hormone replacement therapy, and mammography and spend less curricular time on those topics less associated with our graduates' practices such as endometrial biopsy, colposcopy, and urodynamic testing.

Comparisons between the relevance to our graduates' practices and adequacy of instruction during residency are also helpful in curriculum planning. Areas with high relevance and low adequacy ratings should trigger a review of current instructional strategies and the amount of time allocated. The results similarly inform us on what not to overemphasize. In our results, the highest adequacy of instruction was in obtaining a Pap smear and chlamydia culture, managing urinary tract infection and vaginitis, and ordering a urine pregnancy test. Notably, these were the only topics and skills that received an average of 4.0 or higher on the adequacy of instruction scales. These were also the five items rated highest by our respondents for relevance to their practices. The list of least relevant topics and skills was similar to the list of topics and skills with the least adequacy of instruction during training.

These findings suggest that we are effectively teaching our residents a few of the most relevant topics in women's health and not spending excessive time and resources on topics with low relevance to their future practice. However, as seen in Table 1, topics and skills described in the FCIM guide with ratings of 4.0 to 4.5 on the relevance scale only received scores between 2.96 and 3.57 on the adequacy of instruction scale. This demonstrates that teaching and learning efforts in areas such as abnormal Pap smear, radiologic imaging of the pelvis, menopausal symptoms, and contraceptive management are needed to best prepare our graduates for practice.

As noted in the Results section, comparisons of gender revealed that female respondents felt six of the items were more relevant to their practice than did their male counterparts. This may reflect the preference of female patients for female providers and the higher confidence levels of physicians when providing care to same-sex patients documented in prior reports.¹⁹⁻²¹

Results from the various practice settings showed that the relevance scores of our institution's graduated physicians in private practice were similar to those in full-time academic practice. For these reasons, we do not plan any adjustment in the women's health curriculum based on the type of practice pursued by our graduates.

Graduates of the primary care track and categorical track did not differ in perceived relevance of any items. Those in the primary care track rated only two items higher for adequacy of training, but these items were two of the least relevant items. This differs from prior research in which graduates of a primary care residency and traditional residency from 1983 to 1986 were compared.²² In this report, Kiel and colleagues demonstrated improved adequacy of preparation in graduates of the primary care curriculum in areas such as gynecology and human sexuality as compared to graduates of the traditional internal medicine residency. This shift may be explained by the overall changes in internal medicine training since 1986. At the current time, ambulatory medicine must represent at least 33% of total training time for all internal medicine residents.²³ It is possible, therefore, that incremental increases in the number of ambulatory rotations might help the preparation of internal medicine residents in certain areas but this effect may be limited. A recent report from nine internal medicine programs concerning confidence to perform ambulatory procedures found that overall confidence of graduating residents was low and that traditional outpatient settings such as ambulatory block rotations and continuity clinic were not considered helpful venues for learning.²⁴ Together with our results, these findings imply that simply adding ambulatory training time may not be enough for internal medicine residents to obtain adequate experience and confidence to provide comprehensive outpatient care. More specific rotations in women's health and other areas may be required.

Based upon the results of this survey, a new curriculum in women's health has been instituted in our program.

Residents participate in the women's health ambulatory block during the postgraduate 1 year. This is a 4-week rotation in which trainees attend outpatient clinics in general gynecology, urogynecology, psychiatry, breast clinic, and osteoporosis. To augment this experience, a written curriculum with objectives and reading lists that address the 18 items with the highest relevance to our graduates' practices has been developed. A women's health journal club is held with participation of residents and faculty members with expertise in this area. Recent topics have included management of abnormal Pap smears, screening and treatment of osteoporosis, and administration of estrogen replacement therapy. Each of the 18 items has also been incorporated into the resident seminar series. Trainees planning careers in general internal medicine are encouraged to participate in multiple block rotations as well as month-long gynecology rotations in order to provide more exposure and instruction to conditions in women's health.

Residents who plan careers as subspecialty physicians or hospitalists may have less need for this level of training as the relevance of specific ambulatory medicine and women's health topics may be lower to the future practices of these physicians.^{5,17} To accommodate the variety of career paths of our graduates, we offer a flexible schedule during the last 2 years of residency. This allows residents to select a track within the categorical residency program that affords increased ambulatory, subspecialty, or medical consultation training to meet their career goals.

There are several limitations to this study. The graduates surveyed are all from one institution and it is not known whether these results can be applied to other programs. However, a consistent pattern of inadequacy has been found in prior surveys of internal medicine physicians in areas within women's health. For example, a 1998 national survey of graduating residents found that only 14% of internal medicine residents rated themselves as "very prepared" in the area of domestic violence and only 43% were "very prepared" to diagnose and treat vaginitis.²⁵ Recently, a report from the University of Michigan demonstrated that residents self-reported low levels of knowledge and confidence in areas within women's health and that these deficits were greater among residents attending a VA continuity clinic.²⁶

The validity of self-assessment to measure adequacy of residency training is controversial.²⁷ However, the use of self-assessment to measure resident preparation has been used in multiple prior studies.^{5,8,22,24,26,28} Large-scale research is needed to better understand the relationships between perceived self-assessment of training and actual quality. Sample bias is also a possibility. Our response rate was 86% and we are unable to determine whether the responses from nonrespondents would be similar to those we received.

Today, graduate medical education programs in the United States must continue to adapt to rapid diagnostic and therapeutic advances while meeting the challenge of work hours limitations and a shift to a general competency

model for accreditation and certification.^{29,30} In our program, use of a graduate survey addressing women's health has identified learning needs and provided opportunities for outcomes assessment. Future research will involve assessment of the effectiveness of the women's health curriculum in meeting these needs through summative and formative program evaluation.

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