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The Effect of a Domestic Violence Interclerkship on the Knowledge, Attitudes, and Skills of Third-year Medical Students

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ABSTRACT

Purpose. To determine whether participation in an intensive domestic violence interclerkship (DVI) improved the knowledge, attitudes, and skills of two successive cohorts of students at the University of Massachusetts Medical School.

Method. The authors measured the knowledge, attitudes, and skills pertaining to domestic violence of third-year students in the classes of 1997 and 1998 using a validated written examination administered before, immediately after, and six months after participation in a 3.5-day or two-day DVI, respectively; they compared the scores using paired *t*-tests. Nine months after the DVI, the students' domestic violence screening skills were measured by a performance-based assessment (OSCE); using unpaired *t*-tests, the authors compared the OSCE scores with those of a previous third-year class that had not participated in a DVI. Immediately after the OSCE, the students reported their levels of confidence in domestic violence screening and their satisfaction with the domestic violence curriculum; using chi-square analysis, those self-reports were compared with those of the class with no DVI.

Results. The students who participated in the DVIs immediately and significantly improved their knowledge, attitudes, and skills ($p < .001$), and fully or partially sustained those improvements six months later ($p < .001$). Nine months after the DVI, the students performed domestic violence screening more effectively ($p < .001$), expressed greater comfort with domestic violence screening ($p < .001$), and felt better-prepared by the curriculum to address domestic violence issues ($p < .001$) than did the students with no DVI.

Conclusion. Participation in a short, focused DVI curriculum produced sustainable improvements in knowledge, attitudes, and skills that were successfully applied by third-year medical students to effective domestic violence screening. Interclerkships are an effective way to fit into the clinical curriculum those subjects that transcend the traditional biomedical domain and intersect all areas of medical practice.

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Even as biomedical subjects increasingly crowd the curriculum, additional, nontraditional areas of medical educa-

tion also demand attention.^{1,2} These areas embrace many disciplines, including public health concerns. They

are often areas in which the physician must work with a range of providers and non-medical organizations. In the face of increasing and competing demands on curricular time, how can we best make students aware of these issues?

At the University of Massachusetts Medical School (UMMS), we designed a new curriculum format to introduce these interdisciplinary issues to our students. Because we find it especially appropriate to address these issues while our students are in their

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clinical training, we created "interclerkships"—short, intensely focused, multidisciplinary curriculum modules that take place between the required third-year clinical clerkships. These interclerkships, which usually take six to 12 months to develop and launch, are currently two-day mixtures of classroom, small-group, and interactive sessions, which may include lectures, panels, films, theatrical performances, role plays, workshops, interactions with standardized or real patients, and site visits. To teach future physicians that they will be responsible for identifying and addressing issues both inside and outside the biomedical domain, each interclerkship engages a large group of multidisciplinary clinical and non-clinical faculty from both the medical school and the community and integrates the basic science, clinical, psychosocial, and societal perspectives of the topic under discussion.

Our interclerkship offerings have grown steadily over the past several years. At present, we devote eight days of third-year curricular time to five interclerkships. Students must participate in interclerkships on domestic violence, managed care,³ and substance abuse. They must also take a fourth interclerkship, choosing between one on the environment and health⁴ and another on nutrition and hunger.⁵

The present study documents the impact of the interclerkship on family and domestic violence on two successive cohorts of third-year medical students. We demonstrate that a short, intensive interclerkship module on domestic violence produces sustainable changes in the students' knowledge, attitudes, and skills. We believe that this interclerkship model can be readily adapted by other medical schools that are seeking innovative and effective curricula to educate their students about domestic violence and other areas that sometimes fall through the cracks.

Domestic Violence

Each year, two to four million women are physically or sexually abused by current or former intimate partners.⁶ The physical and emotional injuries inflicted by the perpetrators of domestic violence have pervasive medical and public health consequences, not only to the women who are battered but also to children who witness the abuse or who may themselves be abused. Physicians can play a pivotal role in improving the health and well-being of their patients by routinely screening for domestic abuse as a means of prevention, detection, and intervention. In recognition of this role, numerous medical organizations have exhorted physicians to make domestic abuse screening a standard of care.⁷⁻⁹

Providing effective care to their patients who have been abused demands that physicians embrace the knowledge, attitudes, and skills needed to provide sensitive and appropriate diagnosis and treatment. Nonetheless, until recently, this topic has been largely overlooked in medical education. Urgent appeals have been made to add domestic violence education to medical school curricula¹⁰⁻¹⁴ and recent reports have described several such programs.¹⁵⁻¹⁸

Since the autumn of 1995, UMMS has provided an intensive curriculum on family and domestic violence to all third-year medical students. This Domestic Violence Interclerkship (DVI) has three educational goals: (1) to present knowledge about domestic violence, including definitions, prevention, detection, and management, (2) to promote nonjudgmental attitudes about domestic violence, and (3) to develop and enhance effective communication skills used to screen for domestic abuse. This article documents the impact of this domestic violence curriculum on two consecutive cohorts of third-year medical students at UMMS. Preliminary reports of this work have been published as "In Progress" reports.^{19,20}

METHOD

Domestic Violence Interclerkship Curriculum

In the autumn of 1995, third-year students from the class of 1997 returned to a centralized location after their twelfth clerkship week to participate in a three-and-a-half-day interclerkship on domestic violence (DVI). In the autumn of 1996, third-year students from the class of 1998 participated in a two-day DVI. For each DVI, over 40 expert multidisciplinary faculty, drawn from both the medical school and the community, collaborated to present medical, clinical, epidemiologic, basic science, forensic, behavioral, psychosocial, ethical, legal, judicial, and societal perspectives on domestic abuse. The students' participation in the DVI was mandatory.

The DVI curriculum provided an overview of the medical, epidemiologic, and psychosocial consequences of domestic violence through a series of classroom presentations, panels, films, standardized patient interviews, role plays, and student-selected small-group breakout sessions. Child abuse, abuse in special populations, batterers' intervention programs, shelters, and legal concerns were also discussed. In addition, the students interacted directly with survivors of domestic abuse, who shared their personal stories. Throughout the DVI the students received information and materials that identified local and national resources for patients who had been abused or who were at risk for abuse.

A central objective of this DVI curriculum was to teach students how to screen patients for domestic abuse. The students first learned a screening algorithm that provided guidelines on how to ask patients about abuse, assess past and current risk factors, advise about safety concerns, and provide appropriate assistance to those at risk. The students then developed and practiced

their abuse-screening skills with standardized patients in a small-group workshop format. During this two-hour session, at 20-minute intervals, five to six standardized patients rotated sequentially through each faculty-facilitated group of five to six students. This "round-robin" format gave each student an opportunity to practice abuse-screening skills with a different "patient." Each encounter began with a short discussion between facilitator and students about the questions the interviewing student would ask, followed by a ten-minute interview with the standardized patient. The encounter concluded with the student receiving feedback about the interview from the standardized patient, fellow students, and the facilitator.

Each standardized patient portrayed one of two roles. Women of childbearing years depicted patients who were 12 weeks pregnant, returning to the physician's office for a routine prenatal visit. Older women represented patients returning to discuss mammography results and to refill hormone-replacement prescriptions. While the majority of the standardized patients represented women who had no significant history of or risk factors for domestic violence, at least one woman per group played an individual with identifiable risk factors. For example, one of the "pregnant" standardized patients had been previously married to an abusive man, and her current husband was experiencing increased financial pressures. One of the "menopausal" standardized patients was married to a man who faced an unanticipated early retirement and occasionally verbally abused her.

Evaluation Methods

We assessed the impact of the DVI curriculum using several quantitative and qualitative measures.

Written examinations. The students completed a written instrument that

measured their knowledge, attitudes, and skills pertaining to domestic violence issues at the beginning and end of the DVI, and then again six months later. This instrument was created by five experts in the area of domestic violence; its test-retest reliability and concurrent reliability have been previously validated.^{21,22} Knowledge was measured with ten multiple-choice and true-false items that centered on safety, disclosure, batterer and victim profiles, and appropriate actions. The next 26 items, which used a six-point Likert scale, measured the students' attitudes about victims, batterers, relationships in which violence occurs, and personal and professional responsibilities to victims of abuse. Finally, skills were measured by ten multiple-choice and true-false items that focused on initial interactions with victims, appropriate referral strategies, and safety issues. The maximum scores for the knowledge, attitudes, and skills sections were 10, 156, and 10, respectively. We used paired *t* tests to compare the students' scores from the beginning of the DVI, the end of the DVI, and six months after the DVI.

Programmatic assessment. At the conclusion of the DVI, the students completed a 19-item programmatic assessment addressing the course format, the course content, and the effectiveness with which the DVI met specific objectives with respect to knowledge, attitudes, and skills. Students used a six-point Likert scale to rate each item. We used chi-square analysis to compare the responses of the two cohorts (whose DVIs had varied in length), pooling their responses into two categories: "excellent and very good and good" and "fair and OK and poor" or "strongly agree and agree and somewhat agree" and "somewhat disagree and disagree and strongly disagree."

Students' clinical experiences. Six months after completing the DVI, in conjunction with the six-month post-DVI written measurement, both co-

horts of students completed a written questionnaire on their clinical experiences with domestic violence concerns since the DVI. The students responded to the three questions: (1) Have you used the abuse-screening algorithm in your encounters with patients?, (2) Have you encountered or uncovered any instances of domestic abuse in patients you have seen during your clerkships?, and (3) Have you raised or discussed domestic violence issues with faculty, residents, nurses, or other staff?

OSCE assessments. At the end of their third year, nine months after taking the DVI, all students were required to participate in a series of objective structured clinical examinations (OSCEs). One of the six OSCE stations was a domestic violence case: students interviewed a standardized patient portraying a 35-year-old woman experiencing recurrent shoulder pain, but with no visible sign of physical injury. Each student first reviewed a "medical record," which documented numerous emergency room visits for a variety of musculoskeletal complaints, then conducted a focused, 20-minute interview with the standardized patient. Using a content-specific 12-item checklist that specifically addressed domestic abuse, the standardized patient graded each student's interview. Checklist items incorporated key elements of the domestic violence screening algorithm, including various forms of abuse (physical, sexual, emotional), risk factors (alcohol/drugs, firearms, children at home), patterns of abuse (frequency, duration, escalation), and social/family support systems. Each student received an aggregate score for performance on the 12 items pertaining to domestic abuse. Using unpaired *t* tests, we compared the scores of the two DVI cohorts with each other, and also with that of a previous third-year class of medical students (class of 1996), which had completed the same OSCE stations but had not participated in a DVI.

Students' reports on the curriculum's effects. Immediately after completing the end-of-third-year OSCE, the students, using a five-point Likert scale, described the extent to which their clinical curriculum had prepared them for domestic violence screening and rated their comfort level with domestic abuse screening during the OSCE interview. The students' responses to each of two statements—"The clinical curriculum has been successful in preparing me to address this patient (DV) problem" and "I felt comfortable with conducting this domestic violence interview"—were pooled according to their levels of agreement (*strongly agree* and *agree*) or non-agreement (*neutral* and *disagree* and *strongly disagree*) with each statement. Using chi-square analysis, we compared the responses from each of the two cohorts of students participating in DVI courses with each other and with responses from the previous third-year class, which had received no formal domestic violence curriculum.

Students' assessments of their domestic violence education. Finally, drawing data from the 1996, 1997, and 1998 AAMC Medical School Graduation Questionnaires, we used chi-square analysis to compare the percentages of UMMS graduates from those three classes who rated the amount of the time devoted to instruction in family/domestic violence as inadequate. For comparison, we also examined the responses of physicians graduating from all U.S. medical schools in 1996, 1997, and 1998.

RESULTS

Written examinations. Sixty-seven students from the three-and-a-half-day 1995 DVI (68% of 98 participants) and 77 students from the two-day 1996 DVI (72% of 107 participants) completed the pre-DVI, immediate post-DVI, and six-month post-DVI written measure-

ments of knowledge, attitudes, and skills. Figure 1 summarizes the students' performances on these written measures. Prior to participation in the DVI programs, the scores for knowledge (up-

per panel), attitudes (middle panel), and skills (lower panel) of the two cohorts were comparable. The students significantly improved in all three measures immediately after participation in

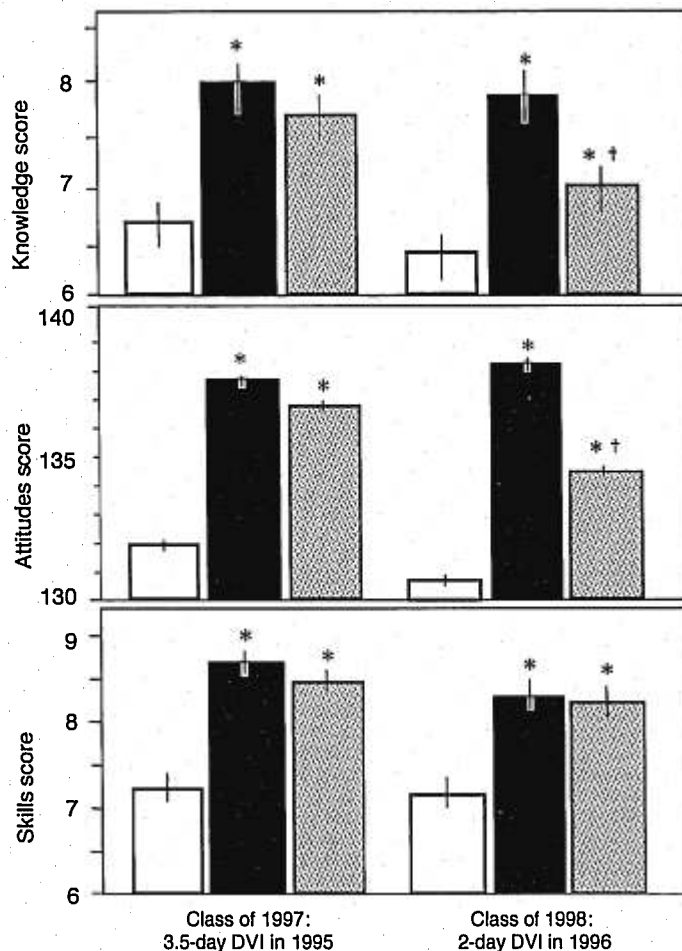


Figure 1. Students' performances at the University of Massachusetts Medical School on written measures of knowledge (*top panel*), attitudes (*middle panel*), and skills (*bottom panel*) before and after participating in a domestic violence interclerkship (DVI). Students completed these written examinations immediately before the DVI (*white bars*), immediately after completing the DVI (*black bars*) and six months after completing the DVI (*stippled bars*). Performances of the 67 third-year students in the class of 1997 (who participated in a three-and-a-half-day DVI in 1995 and completed all three examinations) are plotted on the left; performances of the 77 students in the class of 1998 (who participated in a two-day DVI in 1996 and completed all three examinations) are plotted on the right. Each bar depicts the mean plus the standard error of the mean for scores on the written examination for knowledge, attitudes, or skills (maximum scores: 10, 156, and 10, respectively). Data were compared using paired *t* tests. **p* < .001 versus pre-DVI performance; †*p* < .01 versus immediate post-DVI performance.

both DVI courses ($p < .001$). The students who had taken the longer DVI fully maintained their improved knowledge, attitudes, and skills six months later ($p < .001$). The participants in the two-day DVI, in contrast, maintained their improved skills only ($p < .001$); although their scores for attitudes and knowledge remained significantly higher than their pre-DVI scores ($p < .001$), those scores had declined when compared with the immediate post-DVI scores ($p < .01$).

Programmatic assessments. Sixty students from the longer DVI (61%) and 106 students from the two-day DVI (99%) provided qualitative feedback on the DVI course format, content, and objectives. The students' enthusiasm for both DVI programs concurred with their improved knowledge, attitudes and skills. As shown in Table 1, the two cohorts essentially agreed in their DVI programmatic evaluations, although it is noteworthy that the students in the shorter DVI rated the teaching formats and course duration more favorably ($p < .01$).

Students' clinical experiences. Eighty-five (87%) of the students participating in the longer DVI and 74 (70%) of the students participating in the two-day DVI completed written self-reports six months after the inter-clerkships describing their clinical experiences with domestic violence issues in patient care. Seventy-one percent of the respondents from the first cohort and 61% of those from the second reported that they had used the domestic violence screening algorithm in their care of patients. Of those who had screened patients for domestic abuse, 44% from the first cohort and 29% from the second reported that they had uncovered at least one instance of domestic violence. Seventy-nine percent from the first cohort and 58% from the second reported that they had discussed domestic abuse matters with faculty or clinical staff.

Table 1

Programmatic Evaluations of a Domestic Violence Interclerkship (DVI) by the Classes of 1997 and 1998 at the University of Massachusetts Medical School*		
	Class of 1997† %	Class of 1998‡ %
Students who "strongly agreed," "agreed," or "somewhat agreed" with the following statements		
The DVI curriculum:		
Provided an interdisciplinary view	97	99
Integrated clinical, basic, and psychosocial sciences	95	93
Provided new knowledge and skills	97	99
Focused on an essential topic	97	100
Was the right length of time	31	78§
Reinforced other curriculum	78	93
Used appropriate teaching formats	73	99§
Students who rated the effectiveness with which the DVI met the following objectives as "excellent," "very good," or "good"		
Knowledge		
Forms of abuse	85	94
Signs and symptoms	88	92
Risk factors	90	93
Resources	68	76
Attitudes		
Extent of abuse	93	95
Sensitivity to victims	93	97
Teamwork	88	91
Physician's role	97	95
Skills		
Screening	93	97
Intervention	76	89
Patient education	85	88
Overall evaluation of DVI	97	94
* Based on answers to a 19-item programmatic assessment that used six-point Likert scales ("strongly disagree" to "agree"; "poor" to "excellent").		
† The class of 1997 participated in a three-and-a-half-day DVI in 1995; 60 (61%) of the 98 members of that class completed the assessment.		
‡ The class of 1998 participated in a two-day DVI in 1996; 106 (99%) of the 107 members of that class completed the assessment.		
§ $p < .01$ versus class of 1997; chi-square analysis.		

OSCE assessments. We compared the performances on the end-of-third-year domestic violence OSCE station of the 93 students of the class of 1996 (who had no DVI in 1994) with those of the subsequent two cohorts (the 98 students who had taken the longer DVI and the 107 who had taken the two-day DVI). As shown in Figure 2A, the two

cohorts of students who had participated in the DVIs performed comparably, and both cohorts performed significantly better than did the students who had no DVI ($p < .001$). The performances of these three classes were not significantly different with respect to the other OSCE stations (data not shown).

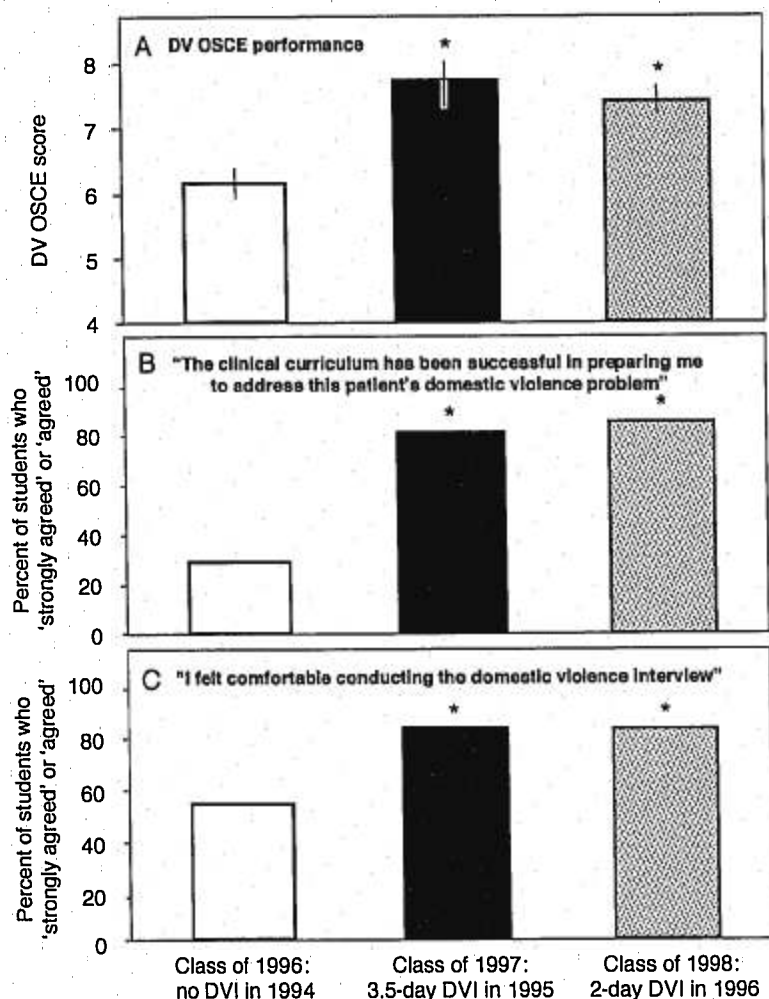


Figure 2. Quantitative and qualitative assessments of the domestic violence curriculum at the University of Massachusetts Medical School, measured at the end of the third year. Data were collected from the classes of 1996 (white bars; this class did not participate in a domestic violence interclerkship [DVI]), 1997 (black bars; this class participated in a three-and-a-half-day DVI in 1995), and 1998 (stippled bars; this class participated in a two-day DVI in 1996). * $p < .001$.

A. Students' performances on the domestic violence (DV) OSCE. Standardized patients documented students' performances using a 12-item checklist. Each bar indicates the mean plus standard error of the mean score on the OSCE checklist, with a maximum score of 12. Unpaired t tests revealed that the 98 members of the class of 1997 and the 107 members of the class of 1998 scored significantly higher than did the 93 members of the class of 1996 who completed the OSCE.

B. Students' self-reported levels of preparation for the OSCE. Each bar pools the percentages of students in the three classes who "agreed" or "strongly agreed" that the clinical curriculum had successfully prepared them to address the domestic violence problem presented in the OSCE. Chi-square analysis showed that the percentages of students who reported that the clinical curriculum had successfully prepared them for the OSCE were significantly higher in the classes of 1997 (83% of 96 responding students) and 1998 (86% of 84 responding students) than in the class of 1996 (31% of 85 responding students).

C. Students' self-reported comfort levels during the OSCE. Each bar pools the percentages of students who "agreed" or "strongly agreed" that they were comfortable conducting the domestic violence OSCE screening interview. Chi-square analysis revealed that significantly more students from the classes of 1997 (83% of 96 respondents) and 1998 (82% of 92 respondents) than students from the class of 1996 (53% of 89 respondents) expressed comfort in conducting the interview.

Students' reports on the curriculum's effects. After completing the domestic violence OSCE, 89 members of the class of 1996 (96%), 94 members of the class of 1997 (96%), and 84 members of the class of 1998 (79%) completed self-reports in which they described the extent to which they felt prepared by their clinical curriculum to address the domestic violence issues of the OSCE case. As shown in Figure 2B, only 31% of the responding third-year students who had not experienced the DVI curriculum agreed or strongly agreed that the clinical curriculum had prepared them to address domestic violence issues. In marked contrast, 83% of the responding three-and-a-half-day DVI participants and 86% of the responding two-day DVI participants agreed or strongly agreed that they had been prepared by the clinical curriculum to address these concerns, a significant improvement relative to the third-year class with no DVI ($p < .001$).

A summary of the students' self-reports describing their comfort with screening for domestic abuse is presented in Figure 2C. Fifty-three percent of the respondents from the class of 1996 agreed or strongly agreed that they felt comfortable screening for domestic abuse during the OSCE interview. In sharp contrast, 83% of the three-and-a-half-day DVI participants and 82% of the two-day DVI participants agreed or strongly agreed that they were comfortable conducting the domestic abuse screening interview, a significant increase over the students with no DVI ($p < .001$).

Students' assessments of their domestic violence education. Data from the annual AAMC graduation questionnaire were used to assess how physicians newly graduating from UMMS classified their medical school instruction in areas of domestic and family violence. In 1996, 29.9% of UMMS graduates (who had had no DVI) and 36.3% of all graduates from U.S. medical schools believed

that inadequate time had been devoted to instruction in domestic and family violence. In distinct contrast, only 3.2% of the UMMS physicians graduating in 1997 (participants in the longer DVI) and 0.9% of UMMS physicians graduating in 1998 (participants in the two-day DVI) felt that inadequate time had been devoted to instruction in domestic and family violence. These responses were significantly different from the response given by 1996 UMMS graduates ($p < .001$). They also differed dramatically from the 33.4% and 35.2% of all U.S. medical school graduates in 1997 and 1998, respectively, who classified their instruction in family and domestic violence as inadequate.

DISCUSSION

We have shown in this study that participation in a short, intensely focused interclerkship curricular module on domestic violence enhanced students' ability to screen patients for abuse. We examined data from two classes of third-year students, one of which participated in a three-and-a-half-day interclerkship; the other, in a two-day interclerkship. By comparing pre-interclerkship test scores with post-interclerkship scores, we saw both immediate and sustained increases in students' knowledge, attitudes, and skills. We also demonstrated that students who participated in domestic violence interclerkships performed significantly better on a domestic violence OSCE, had greater self-reported comfort with screening for domestic violence, and rated their medical school domestic violence education more favorably than did students who did not have this specific domestic violence education module.

Numerous issues relevant to the practice of medicine do not fall under the purview of traditional medical specialties, but intersect all areas of medical practice. It is a challenge to address

these often-neglected issues in a medical school curriculum already crowded by traditional biomedical sciences. We have met this challenge by developing and implementing short, centralized, intense interdisciplinary interclerkship programs that focus on these issues. Moreover, we have demonstrated that these programs effectively deliver this information to our students. Here at UMMS, we use this interclerkship format to cover not only domestic violence, but also substance abuse, managed care, nutrition, and environmental health. It is our experience that these topics are best addressed in the clinical years, when students are actively acquiring clinical skills, gaining confidence in patient care, and learning about physicians' roles in a changing health care system. We find students not only immediately practice the skills they acquire in their interclerkships, but use these skills over a maintained period. We highly recommend this interclerkship model as an effective means to address topics that transcend specific medical specialties.

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