

## The Effect of Medical Students' International Experiences on Attitudes Toward Serving Underserved Multicultural Populations

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**Background:** We evaluated the effect of international electives on the attitudes of preclinical and clinical-year medical students with respect to serving underserved multicultural populations. **Methods:** A self-assessment instrument was used to measure attitudes of 146 students before and after participating in international electives. The same attitudinal items were also analyzed at two time intervals for 18 students who completed international electives as preclinical students and 76 class cohorts who did not. **Results:** Analyses show that the effect of international experiences is different for preclinical students and clinical students. For both groups, however, these experiences can develop and support perceptions and values conducive to serving underserved multicultural populations. These include reported increases in cultural competence and important personal attributes like idealism and enthusiasm. In addition, these experiences can heighten clarity about career roles, including those involving underserved multicultural patients. **Conclusions:** This study provides support for the hypothesis that international electives develop attributes that could benefit underserved multicultural populations.

(Fam Med 2003;35(3):273-8.)

An increase in the global interdependence of health<sup>1,2</sup> and the record influx of immigrants and refugees into the United States during the last 10 years<sup>3</sup> have led to a three-fold increase in US medical students' interest in international electives.<sup>4,5</sup> It is thought that such electives develop skills that are necessary in serving newcomer and underserved groups in the United States. University of Massachusetts Medical School (UMMS) students have provided evaluation and feedback reinforcing the value of international electives, and studies have explored some of the associations between these electives and factors such as career choice and cultural sensitivity.<sup>6-8</sup>

Before we can expect medical schools to allocate substantial resources for international medical education, however, it will be necessary to provide valid evaluations of international experiences. This study describes relationships between international experiences and students' attitudes toward caring for underserved multicultural populations. The study also compares

medical student participants and nonparticipants in international electives.

### Methods

#### *Subjects*

Subjects consisted of UMMS medical students in the classes of 1997 to 2003 who completed international electives (travelers) and a class cohort (from the class of 2002) that did not study abroad and served as a comparison group (nontravelers). The international electives were at least 6 weeks in duration for preclinical students and 4 to 8 weeks for more than 95% of clinical students. In addition, an average of three clinical students each year spent several months abroad as part of a special extended international program. Typically, the goal of international electives for preclinical students was to improve language skills in a formal language program during the summer after their first year, while the focus for the vast majority of clinical students was participation in a clinical elective. However, cultural immersion was an important component of all experiences, and nearly all students had some clinical exposure. For interested readers, the UMMS Office of International Medical Education has developed a Web-based data bank of international opportunities for

language, research, public health, and clinical training ([www.umassmed.edu/intmeded](http://www.umassmed.edu/intmeded)).

Students seeking approval for international electives are required to submit a written application and essay to Dr Godkin, who serves as the director of International Medical Education in the School of Medicine's Office of Medical Education (OME). All interested students are permitted to participate in electives if they are in good academic standing and agree to a site considered appropriate by the director. As a consequence of this policy of accepting nearly all applications, the study did not permit the inclusion of a true "control" group of nonaccepted students.

### Instruments

Self-administered pre- and post-travel questionnaires, developed by the authors, were used in this study. The questionnaire included four domains and 20 items related to attributes of physicians caring for underserved multicultural populations.

These domains and specific items were based on input from faculty and the existing literature (Table 1). For example, it has been reported that service to an increasingly diverse patient population requires students to develop cultural competence and a focus on communities as units of care, as well as humanistic values such as idealism.<sup>9</sup> As a result, items selected for the questionnaire related to four domains of cultural competence (eg, knowledge of cultural differences and speaking a second language), community or population context of medicine (eg, being an advocate for a whole community, knowledge of the economics and politics of health care), humanistic self-awareness (eg, being idealistic and enthusiastic about medicine), and specific career interests that might relate to serving underserved multicultural populations (eg, interest in primary care and public health).

While the instruments were not comprehensively validated, factor analysis of the 20 items revealed very strong support for these four domains, defined a priori. Further, there was high internal consistency among the 20 items. Cronbach's alpha among students completing the pre-travel instrument was .89 and .90 for the post-travel instrument.

Immediately before and after travel, the instrument asked students to rate on a 5-point Likert scale (1=decreased a lot, 5=increased a lot) the extent to which the UMMS curriculum to date (before travel) or the international experience (after travel) had decreased or increased their assessment of each item. In addition, in a separate survey of traveling and nontraveling class cohorts in the class of 2002, students were asked about their disposition "at this point in time" toward each item noted above (1=very low, 5=very high), in early September of their first year and again at the end of March of their third year (ie, before any potential travel as a

clinical student). Students in the class of 2002 who traveled also completed the pre- and post-travel surveys.

Changes between pre-travel attitudes and post-travel attitudes were analyzed separately for the entire group of students who traveled in their preclinical years and the entire group of students who traveled in their clinical years. In addition, comparisons were made at two different points in time of student travelers and nontravelers in the class of 2002 (Figure 1). The attitudes of students who traveled during their preclinical years were compared to a class cohort of nontravelers at the beginning of medical school and again toward the end of their third year of training.

### Data Analysis

The SPSS/PC<sup>®</sup> statistical software package (SPSS Statistical Application, V10.0, SPSS, Inc, Chicago, 1999) was used for all analyses. Paired sample *t* tests were used for pre- and post-travel analyses, and independent sample *t* tests were used for separate group comparisons (eg, travelers versus nontravelers in the class of 2002). Finally, mean differences were compared between travelers and nontravelers for the class of 2002 medical student cohort as first-year students and separately as third-year students. A *P* value of <.05 was used to determine statistical significance.

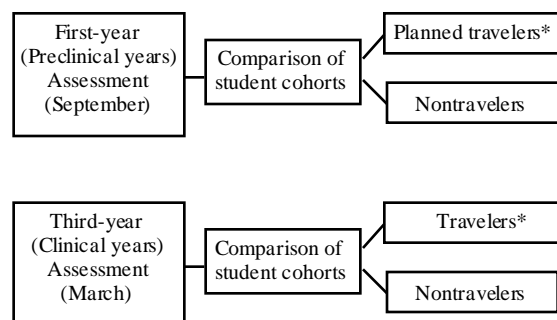
Table 1

### Domains and Items Related to the Attributes of Physicians Who Care for Underserved Multicultural Populations

1. Cultural competence
  - Need to understand cultural differences
  - Need to know another language
  - Interest in international component to career
  - Interest in urban underserved
2. Community context of medicine
  - Need to be advocate for whole community or population
  - Need to understand the politics of health care
  - Need to know about a patient's financial constraints
  - Need to know about the living and working situation of patients
  - Awareness of obstacles to changing health risks
  - Need to work collaboratively with other health professionals
3. Humanistic self-awareness
  - Awareness of future role as a physician
  - Need to examine own biases about people and health care
  - Awareness about humanism in medical care
  - Awareness of human values important to me as a physician
  - Sense of idealism about my role as a physician
  - Enthusiasm about being a physician
4. Specific career interest in:
  - Primary care
  - Rural medicine
  - Public health
  - Epidemiology

Figure 1

Schematic of Analyses Comparing a Cohort  
of Travelers and Nontravelers at Two  
Points in Time (Class of 2002)



\* For planned travelers (preclinical) and travelers (clinical), the travel experience occurred during the summer immediately after the first year.

ern Europe, and 7% to Africa. Thirty-four percent of students described their experience as solely rural, 50% as solely urban, and 16% listed both rural and urban.

Pre- and post-travel surveys were completed by 146 (83%) of these students. This included 78 of 90 (87%) preclinical students who traveled during the summer between their first and second year (ie, between MS1 and MS2), and 68 of 71 (96%) clinical students who completed international electives as fourth-year students (MS4). The cohort of travelers in the class of 2002 consisted of 18 students, of whom 17 (94%) completed the two surveys. The comparison group of nontravelers consisted of 81 students in the class of 2002, of whom 76 (94%) completed at least one survey and 62 (76%) completed both surveys.

Sixty percent of all students who traveled abroad listed primary care as their career preference, both before and after the international experience (including 32% indicating family practice). Eighty-six percent of clinical students participated in clinical electives, and 65% of preclinical students participated in language training.

Because of some differences in sample sizes between the various comparison groups, as well as some skewness in the Likert-scaled data, nonparametric equivalent statistics were also computed (eg, Mann-Whitney U tests for independent samples and Wilcoxon matched-pair, signed-rank tests, as appropriate). Given that these results were nearly identical to the initial computations, the results below present the more-traditional statistical analyses (ie, *t* tests and mean differences) for ease of reporting and interpretation.

## Results

Out of a total of 700 students in the classes of 1997–2003, 175 (25%) completed international electives as part of their medical school training and visited 47 countries. Fifty-five percent of all students traveled to Latin America, 15% to Asia, 15% to West-

Table 2

Pre- and Post-experience Comparison of Preclinical and Clinical Medical Students in Their Ratings of an International Medical Education Experience

Variable Assessed	Mean Scores			
	Before Experience	After Experience	Paired <i>t</i> Statistic	P Value
PRECLINICAL STUDENTS (n=78)				
Specific career interests				
Interest in international component in career	4.06	4.37	3.42	<.001
Interest in public health component in career	3.67	3.97	3.17	<.01
Cultural competence				
Need to understand cultural differences	4.16	4.43	2.98	<.01
Need to know another language	4.15	4.51	3.53	<.001
Context of medicine				
Need to be advocate for whole community	3.91	4.14	2.17	.03
CLINICAL STUDENTS (n=68)				
Variable Assessed				
Cultural competence				
Need to understand cultural differences	4.23	4.51	3.21	<.001
Context of medicine				
Need to work collaboratively with other professionals	4.19	3.93	-2.32	.02
Self-awareness				
Awareness of future role as a physician	4.35	4.14	-2.02	.04
Enthusiasm about being a physician	3.86	4.17	2.17	.03
Sense of idealism in role of physician	3.16	3.65	3.73	<.001

All variables were rated/scored from 1 (decreased a lot) to 5 (increased a lot)

### *Effect of International Experiences on Preclinical and Clinical Travelers*

Fifty-seven percent of all students described the educational value of their experience as "excellent," and 30% reported it to be "above average." Table 2 shows (separately for preclinical and clinical-year medical students) that students' perceptions changed as a result of their international experience. With respect to preclinical students, there were statistically significant ( $P<.05$ ) increases in their interest in including both international and public health components in their careers. There were also statistically significant increases in the perceived need to understand cultural differences and to know a second language. In addition, there was a significant increase in the perceived need to be advocates for whole communities.

For clinical students, of the five items for which there were statistically significant changes reported after international elective experiences, only one was the same as for preclinical students (ie, increased need to understand cultural differences). With regard to the remaining items, clinical-year students reported that the experience increased their enthusiasm about becoming a physician and their sense of idealism in that role, while it lowered their overall awareness of their future roles as physicians and decreased their need to work collaboratively with other professionals.

### *Comparison of Preclinical Years Travelers and Nontravelers (Class of 2002)*

Table 3 displays a comparison, at the aforementioned times in their training, between 18 students in the class

Table 3  
Changes Between Travelers and Nontravelers as First- and Third-year Students

Variable Assessed		Mean Scores		t Statistic	P Value	Year 3 Significance Compared to Year 1
		Travelers (n=18)	Non-travelers (n=76)			
Interest in working with underserved	MS1	4.06	3.08	4.141	<.001	
	MS3	4.06	3.24	3.429	.001	Still significant
Interest in international component in career	MS1	4.67	3.16	7.682	<.001	
	MS3	4.53	3.29	5.453	<.001	Still significant
Need to know another language	MS1	4.72	3.63	6.100	<.001	
	MS3	4.71	3.56	6.807	<.001	Still significant
Need to know patient's financial constraints	MS1	4.22	3.78	1.974	.051	
	MS3	4.53	3.90	3.038	.003	Still significant
Interest in rural medicine	MS1	3.61	3.00	2.022	.046	
	MS3	3.24	2.85	1.215	.228	No longer significant
Interest in public health component in career	MS1	4.17	3.41	3.298	.001	
	MS3	3.82	3.65	.927	.360	No longer significant
Need to work collaboratively with other professionals	MS1	4.61	4.24	2.221	.029	
	MS3	4.59	4.26	1.673	.098	No longer significant
Enthusiasm about being a physician	MS1	4.78	4.68	.738	.462	
	MS3	4.47	4.03	1.945	.050	Newly significant
Sense of idealism about role as physician	MS1	4.17	3.92	1.090	.279	
	MS3	4.24	3.50	3.880	<.001	Newly significant
Need to know living/working situations of patients	MS1	4.39	4.24	.880	.381	
	MS3	4.53	4.18	2.017	.047	Newly significant
Interest in primary care	MS1	3.94	3.70	.969	.335	
	MS3	3.65	3.13	2.090	.043	Newly significant

MS1—first-year medical student

MS3—third-year medical student

All variables were rated/scored from 1 (very low) to 5 (very high)

of 2002 who went abroad as preclinical students and class cohorts ( $n=76$ ) who did not study abroad during their preclinical years. For four items in which there were statistically significant differences reported between the two groups in the first year of medical school, differences remained at the end of the third year. Stated differently, between travelers and nontravelers in their first year, differences remained “still significant” (Table 3) at the end of their third year. Class of 2002 students still expressed a statistically higher level of wanting to work with the underserved, having an international career component, needing to learn another language, and needing to know about patients’ financial constraints. In addition, traveling third-year students maintained a higher level of needing to understand cultural differences (4.7 versus 4.1,  $P=.067$ ), though this difference was not statistically significant.

On three items where there were statistically significant differences among first-year travelers versus nontravelers, these no longer existed at the end of the third year (ie, “no longer significant” in Table 3), including the levels of interest in rural medicine and public health and the need to work collaboratively with other providers.

On four items where there were no initial differences during the first year of medical school, class of 2002 travelers reported higher scores than nontravelers at the end of their third year (“fewly significant” in Table 3). In their third year, travelers reported significantly higher levels of idealism about the role of being a physician than nontravelers, attributable mainly to a significant decrease in the level of idealism by nontravelers. Travelers also reported higher levels of enthusiasm, a greater need to know about the living and working situation of patients, and a higher level of interest in primary care. With respect to primary care interest, more travelers than nontravelers had such an interest, explained by a decrease in interest in primary care in nontravelers (3.7 to 3.1,  $P=.001$ ). A relationship between international experiences and interest in primary care, however, was supported by data indicating that 80% of all graduating students in the classes of 1997–2001 who did international electives entered the primary care specialties of family practice, pediatrics, and internal medicine, compared with 66% of all graduating UMMS students during the same time frame.

## Discussion

This study supports existing literature that indicated that international electives are associated with medical students’ development or maintenance of cultural sensitivity, humanistic value and idealism, appreciation of a community orientation to health care, and an interest in primary care careers.

## Cultural Sensitivity

Our finding of an increase in medical students’ need to understand cultural differences between patients, reported after international experiences, is consistent with previous research on senior medical students.<sup>6</sup> In our study, this increase was found in both preclinical and clinical-year students, despite differences in types of experiences. A shared increase in cultural sensitivity in both groups is likely attributable to the fact that all international electives are, at their core, cultural experiences. The need to know about cultural differences and speak a second language increased after travel for all preclinical travelers and remained higher in the third year of school for a class cohort of preclinical travelers when compared to nontraveling classmates. These attributes of cultural competence may well be sustained and reinforced by international electives.

## Humanistic Values and Idealism

Our finding of an association between international electives and idealism supports a previous report.<sup>9</sup> However, only in the clinical-years group of travelers did we see a reported increase in idealism and enthusiasm immediately after the international experience. Interestingly though, a class cohort of preclinical years travelers reported a higher level of idealism and enthusiasm than nontraveling classmates at the end of the third year of school that did not exist at the beginning of the first year. Because the idealism of nontravelers declined by the end of the third year, international electives may provide an antidote to a loss of idealism that has been reported to decline during medical student clerkships.<sup>10</sup> A maintenance of enthusiasm and idealism about medicine is particularly important because of their embodiment of values of empathy and professional happiness<sup>10</sup> and an orientation toward selfless service.<sup>9</sup>

Although clinical-years travelers reported increased enthusiasm and idealism about their role as a physician, they expressed a decreased awareness about what that role might be. It may be that international electives encourage students to consider career roles additional to those about which they had been thinking.

## Community Orientation to Health Care

This study suggests that international electives extend students’ perspectives from the traditional doctor’s role of caring only for the biomedical problems of individual patients to one involving caring for communities and populations.<sup>6</sup> Specifically, we found an increase in reported interest in community advocacy, public health, and international health after international electives but only in preclinical travelers. The importance of doctors’ consideration of the global context of individual patient care is reinforced by the increasing interdependence among the world’s people.<sup>6</sup> The absence of a similar relationship in clinical travelers may be

attributable to their higher pre-travel appreciation of a community or population orientation to care as a result of caring for patients in clinical clerkships.

### *Interest in Primary Care*

Our results provide limited support for a previous study that found an association between international electives and interest in primary care.<sup>7</sup> We found a higher percentage of student travelers entering residencies in primary care in comparison to nontraveling classmates. However, there was no reported increase in interest in primary care in both preclinical and clinical travelers immediately after an international elective, perhaps in part because of high pre-travel interest. In addition, the new level of interest in primary care toward the end of their third year of a class cohort of preclinical travelers was related to a greater decline in interest by nontraveling classmates. It is possible that international electives at least provide a buffer to declining interest in primary care, but our data do not permit assessment of this possibility.

### *Limitations*

Potential bias exists in this study because of its observational design, the use of a self-administered instrument, and issues of self-selection in the various groups studied. With respect to self-selection, the nature of the study does not allow for randomization, and the focus of the study is students who have opted to participate in elective international travel—increasing the likelihood that the results may be biased. Data for the class of 2002, for example, revealed that students who traveled in the preclinical years entered medical school with a greater predisposition toward serving underserved multicultural populations than a nontraveling class cohort. A preferable comparison group would have involved students rejected from possible international electives, but such a comparison group was not available.

Our survey instruments were not validated, further threatening the validity of our results. However, the instrument demonstrated a high internal consistency among the 20 items. The factor analyses also demonstrated support for the domain groupings used.

Finally, the use of a self-report tool for data collection means there are no observed behaviors to support students' reported dispositions. Students' reported attitudes and intentions may not reflect their actual or future behaviors.

### *Conclusions*

Despite limitations in study design, the consistency of our findings with existing literature support the possibility that international electives at least sustain attitudes that are conducive to medical students' abilities and desire to serve multicultural underserved populations. Perhaps the most convincing finding is evidence that international electives, especially in the developing world, develop students' cultural competence and idealism about their role as a future physician. Even if international electives do nothing more than preserve idealistic values, they have served a useful purpose.

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