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Medical Student Education

The Effect of a Global Multiculturalism Track on Cultural Competence of Preclinical Medical Students

Michael A. Godkin, PhD; Judith A. Savageau, MPH

Background: *We evaluated the effect of an elective (the Global Multiculturalism Track), including international and domestic immersion experiences, on the cultural competence of preclinical medical students.* Methods: *A self-assessment instrument was used to measure cultural competence, and it was administered to Track participants and nonparticipating class cohorts at the beginning and the end of the preclinical years.* Results: *Track participants (n=26) had a higher level of cultural competence both at the beginning and at the end of the program. At the end of their second year, students participating in the Track had, for the first time, greater knowledge of certain aspects of local cultures, more tolerance of people of other cultures not speaking English, and more comfort with patients of these cultures, compared with non-Track participants.* Conclusions: *The results are based on a small sample size, but the suggestion that a multiculturalism track could provide a model for development of cultural competence warrants further research.*

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Cultural diversity training in medical education has become the focus of a major debate in the United States, which has a burgeoning minority population that is anticipated to become a majority of 60% of the total population by 2010.[1] These changes are, in large part, fueled by a large influx of newcomer populations of immigrants, refugees, and undocumented people.[2] Our own state of Massachusetts is the seventh leading state for newcomers, with a significant influx from Southeast Asia, the former Soviet Union, China, Central America, the Dominican Republic, and Portuguese-speaking countries.[3] Forty percent of Massachusetts' residents are recent newcomers or the children of immigrants or refugees.[4]

A review of published articles on cultural diversity training in medical education noted the following teaching strategies: (1) the use of ethnic minorities as simulated patients, members of discussion groups, or commentators on video vignettes, (2) review of case histories or transcripts in small-group discussion, role play, or panels, and (3) the development of language skills.[5]

It has been noted, however, that existing curricula on multiculturalism in US medical schools are nearly always minor components of larger courses[6] and that valid evaluation is needed to determine their effectiveness.[5] In addition, none of the reported strategies involve international immersion experiences, even though such international experiences have been associated with the development of skills, including cultural sensitivity, that are particularly important to serving multicultural and underserved populations.[7]

We present preliminary results of an evaluation of a Global Multiculturalism Track, an educational program in the preclinical years of medical school that integrates both domestic and international immersion experiences with multicultural populations. We hypothesized that, in comparison to non-Track students, those participating in the Track would have a higher level of cultural competence at both the beginning and the end of the program but that such competence would increase more for Track students.

Methods

Program Description: The Global Multiculturalism Track

The development and implementation of a Global Multiculturalism Track resulted from a partnership between the University of Massachusetts (UMass) Medical School and the Commonwealth of Massachusetts' Division of Medical Assistance (DMA), the state agency that covers medical services for persons eligible for

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Medicaid. From 1996 to 2000, the DMA provided grant support for the Track because DMA had a goal of wanting future providers for its diverse Medicaid patient population to have appropriate linguistic and cultural competence.

Track Goals and Objectives. The main goals of the Track are to develop the linguistic and cultural competence of preclinical medical students. Cultural competence in this context can be defined "as a process that requires individuals and systems to develop and expand their ability to know about, be sensitive to, and have respect for cultural diversity."[8]

Specific goals for student learning are to (1) Develop abilities to speak the language of a prevalent newcomer population (ie, immigrant, refugee, and undocumented) in Massachusetts. (2) Develop sensitivity, through first-hand experiences, to the difficulties people experience when living in a new country. (3) Develop understanding of the culture and the health beliefs of a newcomer group and the problems they face in obtaining health care and other services in the United States. (4) Promote a career preference to serve underserved and multicultural populations.

Curriculum. The curriculum for the Track integrates the following domestic and international learning experiences during the preclinical years:

(1) Family curriculum. In the fall of their first year of medical school, each student in the Track is assigned to work with a local family of a culture whose language the student is interested in learning. The curriculum requires that students visit with the family on at least six occasions, four times before the end of the first year of medical school and twice after a summer language-immersion experience. The learning objectives of the family curriculum focus on students' learning about the following issues: the family's culture and health beliefs, their problems adjusting to the United States, their experiences with health care in the country of origin and in the United States, and linguistic and cultural barriers to services in the United States. Students are required to submit a written report about their experiences. Each family is paid $400 for their participation in the program.

(2) Language immersion abroad. Track participants complete a 6-week language and cultural immersion experience in the summer after their first year of medical school. Students are instructed to visit a country in the developing world that is linguistically and ethnically reflective of populations in Massachusetts. During the 6-week experience, most students attend formal language schools in which they study a language 5 half days per week. In addition, the schools assign students to live with a local family. Finally, using contacts known to us and to the language school in which the students are enrolled, students visit local health care facilities in the country they are visiting.

In addition to developing their language skills, this component of the curriculum has two other objectives aimed at developing cultural competency: to appreciate, first-hand, what it is like to live in a new country and to learn about the culture, health beliefs, and health care system of the country visited.

If students are fairly proficient in a second language, they may opt not to attend the language school but rather immerse themselves in a clinical setting or a public health project. For example, students with good Spanish language skills have conducted HIV education training in Honduras, volunteered in an orphanage in Honduras, or participated on medical teams visiting small villages in rural Ecuador.

On return to the United States, students are required to submit a written narrative about their personal experiences adjusting to a new country, as well as a report on what they have learned about the country's culture, health beliefs, and the health care system. Countries that students have visited include Honduras, Guatemala, Nicaragua, Costa Rica, Ecuador, Chile, Brazil, Mexico, Cuba, Puerto Rico, China, Vietnam, and Thailand. Each student receives a $2,000 travel stipend.

(3) Domestic community service project. In the fall of their second year of medical school, students are required to begin a community service project in Massachusetts that serves a group whose native culture/language is being studied by the student. As well as instilling a service ethic with the underserved, this component of the project is designed to further increase the students' language proficiency. Students are required to donate 2 half days to the project every month throughout their second year by serving in or organizing programs such as school-based HIV education, free clinics, flu shot programs, mentoring programs, and soup kitchens. Students have, in the past, also served as family support workers in a local mental health facility and advocates for abused children.

(4) Seminar series. Participants attend program-specific seminars every other month that focus on topics such as cultural issues in the doctor-patient relationship, spirituality in the doctor-patient relationship, and the art of reflective practice in personal growth.

Program Evaluation

Selection of Students

Students are invited to apply to the Track during a June orientation for incoming first-year students, at which time one of us describes the program to the students. Interested students are invited to complete a written application process. Applicants are evaluated on the basis of the following items: interest in working with underserved and multicultural populations, prior service with these populations, public service experiences

in general, experiences with international education, rationale for participation, language interests and proficiencies, and ideas for a required community service project.

Thirty-seven students applied to the program, of whom 26 were accepted and participated in the first 2 years of the program (academic years 1997 and 1998). These students accepted into the program are the focus of this report. While it would have been ideal to include the 11 students not accepted into the program as a control group, that number of students was too small for meaningful statistical comparison.

Instrument

A modification of a validated instrument titled "Cultural Competence Self-assessment Questionnaire"[9] was used to assess students' perceptions about their cultural competence. This instrument, which was developed to assess the cultural competence of providers of services to children and youth, contains five subscales that measure knowledge of communities, personal involvement, resources and linkages, staffing, and organizational policies and procedures.

The psychometric properties of these scales have been tested for internal consistency, reliability, and content validity. The two subscales that were used in this study had an internal consistency alpha of .85; these subscales measured individual provider competency—personal involvement with populations of color and knowledge about these populations.

An assessment of personal involvement was based on the degree of interaction with other cultures (eg, socially, recreationally, in their community forums, and in places of business) and the degree to which students perceived the interactions to threaten their physical safety. Knowledge of other cultures in the local community was assessed in reference to the level of awareness with items such as the various ethnic groups living in the community, languages spoken, appropriate behavior when greeting someone of the culture, health needs, obstacles to care, and cultural beliefs.

Other core attributes of cultural competence in medical care have been identified to include sensitivity to cultural issues for patients, an understanding of the concept of culture and its role as a factor in health care and health, an awareness of self and one's value system, and an understanding and ability to use specific methods to deal effectively with cultural issues in interacting with patients.[1] Based on these attributes, supplemental questions were developed that included two additional measures: attitudes and abilities regarding cultural issues in the doctor-patient relationship and beliefs about issues with health and social implications for the health and health care of newcomers to the United States.

The new questionnaire items were created for this research project because no validated instrument for these measures exists. With respect to the two new measures, responses were weighted to reflect higher levels of cultural competence if they were considered to embody the traits of integration and empathy that have been described as reflective of higher levels of cultural sensitivity.[10] Content and face validity for the new items were assessed by two students and two faculty members with expertise in multicultural education. The two new measures and examples of statements about which students could agree or disagree (1=strongly disagree, 5=strongly agree) are shown in Table 1. In addition to the items in Table 1, statements assessed students' beliefs about the following topics that

Table 1

Cultural Competence in Medicine: Measures and Example Statements*

1. Cultural issues in doctor-patient relationship (16 items)
   - A patient who continually arrives late for appointments without calling ahead is showing disrespect for the physician.
   - Patients' cultural traditions impact strongly on their health needs.
   - As a physician, I would not feel obliged to learn another language if I knew that an interpreter would always be available.
   - I feel frustrated when I have difficulty understanding a foreigner's English pronunciation.
   - If a patient cannot speak English, it is his or her responsibility to ensure that an interpreter is available during the medical visit.
   - I tend to feel uncomfortable with people whose cultural backgrounds are different than my own.
   - All patients, even drug abusers and those seeking unwarranted disability, require their doctor's respect.

2. Health and social policy issues affecting health and health care for newcomers (10 items)
   - Access to health care is not a privilege but a right, regardless of one's social or political status.
   - It is reasonable that nonemergency medical services be denied to illegal residents.
   - When it comes to alleviating poverty in this country, personal responsibility is more important and effective than governmental assistance programs.
   - Job training should be provided to anyone on welfare.
   - Bilingual education programs, which use English as well as pupils' maternal language to teach daily coursework, should be offered in US public schools.

* Students were asked about their level of agreement (from 1=strongly disagree to 5=strongly agree)

would influence their relationship with patients of other cultures: influence of culture on health needs, the seriousness about health of patients who are late for medical appointments, acceptance of indigenous medical practices, willingness to learn the language of a prevalent practice population, desire to serve the underserved, awareness of one's own culture's effect on others, compassion toward parents who neglect their children, and ability to assess patients' cultural background.

Additional items in the questionnaire addressed beliefs about the following topics with health and social policy implications: limitation of health care for illegal immigrants, prohibition of some traditional foreign medical practices, the need for government action to correct racial inequities, expectations about immigrants learning English, and the ability of anyone to succeed through hard work, irrespective of race and gender.

Procedures

The instrument was subsequently pilot tested on a group of medical students before use in the evaluation of the Track. The final questionnaire was then administered to all UMass medical students, both those who participated in and who did not participate in the Track. The question was administered first at the time of their entry into medical school (pre-experience) and again at the end of their second year (post-experience).

Pre-surveys and post-surveys were analyzed for all 26 students (100% response rate) who participated in the Global Multiculturalism Track (Track students). Their results were compared to those of 104 classmates (68% response rate) who were not participants in the program (non-Track students).

Data Analysis

Independent sample *t* tests were computed to test for differences in means between the two groups using SPSS/PC® statistical software (SPSS Statistical Application, V10.0, SPSS, Inc, Chicago, 1999). Mean differences were calculated both for the baseline data and the data collected during the students' second year.

Paired sample *t* tests were also calculated, comparing pre- and post-experience scores among the Track students. Because of the discrepancy in sample sizes among the Track and non-Track students, the small number of the Track students, and some skewness in the Likert-scaled data, nonparametric equivalent statistics were calculated (eg, Kruskall-Wallace one-way analysis of variance, Wilcoxon matched-pair signed-ranks test, and Mann-Whitney *U* tests for independent samples, as appropriate). The results of these tests were nearly identical to those initially computed. Thus, the results below indicate the more traditional statistical analyses.

Results

Of the students in the Track, 81% had prior international travel, and 92% had worked or volunteered with underserved populations in the United States. A total of 77% of this group indicated primary care as a career preference (42% family practice, 19% general pediatrics, 8% general internal medicine, and 8% internal medicine/pediatrics). Sixty-six percent of the Track students were women; 23 students were Caucasian (88%), and 3 were Asian.

Pre-experience Attitudes

Table 2 shows that students participating in the Global Multiculturalism Track were a distinct group with respect to cultural competence at the time they entered the program. The 20 items in this table cover the following constructs: attitudes and abilities regarding cultural issues in the doctor-patient relationship, beliefs about health and social policy issues affecting immigrants and refugees, knowledge about local cultures, and personal involvement with other cultures. The Track students differed from their classmates in 12 of the original queried 43 items, indicating statistically significant higher levels of cultural competence ($P<.05$). For example, Track students were more interested in serving underserved populations and learning a new language even when interpreters are available; they were also less favorable toward policies that would limit health care to illegal immigrants. In addition, on five other items, Track students had a somewhat higher level of cultural competence, though the difference was not statistically significant ($P<.1$).

In two additional items, the Track students reported being significantly less aware of how their own cultural background had affected their attitudes and beliefs about other cultures, and they thought they were less able to incorporate cultural issues into a treatment plan. In addition, Track students more often reported feeling unsafe in communities of color ($P=.06$).

Post-experience Attitudes

As indicated in Table 3, the Track students had statistically significant higher mean scores on 14 of the initially queried 43 items in the posttest. These 14 items, of the 17 items displayed in Table 3, represent a significantly higher level of cultural competence ($P<.05$). In the additional three items, Track students had a higher level of cultural competence that approached statistical significance ($P<.1$). In none of the 43 items did non-Track students report a higher level of cultural competence.

With respect to attitudes and abilities regarding the doctor-patient relationship, in six items in this category, the Track students had a significantly higher mean score for the following items: feeling more comfortable with patients of different cultural backgrounds, a desire to

Table 2

Comparison of Track Versus Non-track Students' Assessment of Baseline Cultural Data

Variable Assessed	*MEAN SCORES* *Track Students*	*Non-track Students*	t *Statistic* P *Value*
Doctor-patient relationship			
1. A patient who continually arrives late for appointments without calling ahead is showing disrespect for the physician.	2.73	3.27	.01
2. As a physician, I would not feel obliged to learn another language if I knew that an interpreter would always be available.	2.19	2.73	<.01
3. All patients, even drug abusers and those seeking unwarranted disability, require their doctor's respect.	4.5	4.08	.02
4. I want to work with underserved patient populations.	4.23	3.54	<.01
5. If a patient cannot speak English, it is his or her responsibility to ensure that an interpreter is available during the medical visit.	1.88	2.27	.04
6. It's not easy to treat all patients the same way.	3.00	3.60	.02
7. I would have difficulty being compassionate to a neglectful mother or "dead-beat dad."	2.81	3.33	<.01
8. How well can you incorporate culturally relevant information into a treatment plan for a patient?	.92	1.25	.02
9. How aware are you of how your own cultural background has affected your attitudes and beliefs about cultures other than your own?	1.64	1.97	.02
Health/social policy			
10. The principle of creating government policies that correct for inequalities among racial groups is no longer necessary.	1.88	2.33	.02
11. The only health care for which illegal immigrants should be eligible is immunizations, testing for communicable diseases, and emergency medicine.	1.69	2.39	<.01
12. It is reasonable that nonemergency medical services be denied to illegal residents.	1.88	2.24	.09
13. Bilingual education programs, which use English as well as pupils' maternal language to teach daily coursework, should be offered in US public schools.	3.58	3.13	.04
Knowledge of communities			
14. How familiar are you with the prevailing cultural beliefs of at least one of the major populations of color in Worcester?	1.32	1.03	.07
15. How well do you know the prevailing health beliefs and practices of at least one of the major populations of color in Worcester?	1.12	.81	.05
16. How aware are you of the obstacles faced by groups of color in seeking access to health care in Worcester?	1.46	1.14	.06
17. How well do you know the culturally specific perspectives of mental health/illness as viewed by any of the major groups of color in Worcester?	.92	.55	<.01
Involvement in communities			
18. How much do you interact socially on a group basis with people of color within your community?	1.73	1.39	.08
19. How often do you attend community forums or neighborhood meetings within communities of color?	.73	.41	.09
20. How often do you feel unsafe within communities of color?	1.69	1.42	.06

Variables 1–7 and 10–13 are scored from 1 (strongly disagree) to 5 (strongly agree).
Variables 8, 9, and 14–20 are scored from 0 (not at all well/never) to 3 (very well/often).

serve underserved populations, and having higher levels of compassion (toward neglectful parents) and respect for all patients.

The Track students had a significantly higher mean score on 3 of 10 items in the area of cultural competence in terms of beliefs with implications for health and social policy. Concerning knowledge items about multiculturalism in our community, Track students reported significantly greater knowledge about cultural beliefs, health beliefs, awareness of obstacles to access, different languages used, and common health needs. With respect to cultural competence in terms of personal involvement with other cultures, there were no statistically significant differences between the Track and non-Track students by the end of the program.

As shown in Table 4, in 7 of 14 of the items noted previously where there were statistically significant differences in cultural competence in the posttest (being higher among the Track students), these differences also existed in the pretest. With respect to the remaining seven items, the Track students for the first time, at posttest, reflected a significantly higher level of cultural competence. Specifically, Track students more strongly disagreed with the statements that patients who

are late for appointments are not serious about their health and that immigrants should learn English; the Track students expressed feeling more comfortable with patients of different backgrounds and cultures, and they felt significantly more knowledgeable about the health needs, cultural health beliefs, and obstacles to care of a population of color, as well as languages that are used in Worcester.

Posttests also showed that there were no longer significant differences between the two groups that had existed in the pretest on issues in which the Track students had shown higher cultural competence in the pretest: limiting care for illegal immigrants, patients' responsibility for scheduling interpreters, desire to learn a new language even if interpreters are available, ability to treat all patients the same way, and knowledge about the cultural beliefs of the mentally ill. Track students became more in favor of limits to care for illegal immigrants, whereas non-Track students became less in favor of these limits. In addition, there were no longer significant differences in the posttest on two variables for which non-Track students had reported higher cultural competence in the pretests, ie, awareness of how one's own background affects attitudes and beliefs toward other cultures and being able to incorporate cultural information into the treatment plan.

Knowledge Measures

As shown in Table 5, an analysis of pre-surveys and post-surveys for only the student cohort in the Global Multiculturalism Track indicated that participants had a statistically significant increase in eight of nine mea-

Table 3

Comparison of Track Versus Non-track Students' Assessment of Year-2 Cultural Data

Variable Assessed	*MEAN SCORES* *Track Students*	*Non-track Students*	t *Statistic* P *Value*
Doctor-patient relationship			
1. A patient who continually arrives late for appointments without calling ahead is showing disrespect for the physician.	2.63	3.22	<.01
2. As a physician, I would not feel obliged to learn another language if I knew that an interpreter would always be available.	2.42	2.82	.09
3. All patients, even drug abusers and those seeking unwarranted disability, require their doctor's respect.	4.63	4.23	.04
4. I want to work with underserved patient populations.	4.38	3.59	<.01
5. Patients who arrive late for appointments are probably not taking their health seriously.	1.71	1.99	.04
6. It's not easy to treat all patients the same way.	3.17	3.59	.06
7. I tend to feel uncomfortable with people whose cultural backgrounds differ from my own.	1.79	2.37	<.01
8. I would have difficulty being compassionate to a neglectful mother or "dead-beat dad."	2.58	3.20	<.01
Health/social policy			
9. Despite differences by birth or economics, race, or gender, anyone can succeed in the US if they try hard enough.	2.63	3.05	.08
10. The principle of creating government policies that correct for inequalities among racial groups is no longer necessary.	1.75	2.37	<.01
11. When people immigrate to the US, it is reasonable to expect that they learn enough English to manage basic daily transactions on their own.	2.96	3.61	<.01
12. Bilingual education programs, which use English as well as pupils' maternal language to teach daily coursework, should be offered in US public schools.	3.79	3.34	.05
Knowledge of communities			
13. How familiar are you with the prevailing cultural beliefs of at least one of the major populations of color in Worcester?	1.79	1.30	<.01
14. How well do you know the prevailing health beliefs and practices of at least one of the major populations of color in Worcester?	1.67	1.22	<.01
15. How aware are you of the obstacles faced by groups of color in seeking access to health care in Worcester?	1.88	1.51	.04
16. How well do you know what languages are used by populations in Worcester?	2.00	1.59	.01
17. How well are you able to describe the common health needs of people of at least one of the populations of color in Worcester?	1.75	1.34	<.01

Variables 1–12 are scored from 1 (strongly disagree) to 5 (strongly agree).
Variables 13–17 are scored from 0 (not at all well/never) to 3 (very well/often).

Table 4

Changes in Student Baseline Cultural Assessment Scores (Between Student Groups), Compared With Year-2 Cultural Assessment Scores

Variable Assessed		*MEAN SCORES* *Track Students*	*Non-track Students*	t *Statistic* P *Value*	*Year 2 Significance Compared to Baseline*
Doctor-patient relationship					
1. A patient who continually arrives late for appointments without calling ahead is showing disrespect for the physician.	Baseline	2.73	3.27	.01	
	Year 2	2.63	3.22	<.01	still significant
2. All patients, even drug abusers and those seeking unwarranted disability, require their doctor's respect.	Baseline	4.50	4.08	.02	
	Year 2	4.63	4.23	.04	still significant
3. I want to work with underserved patients populations.	Baseline	4.23	3.54	<.01	
	Year 2	4.38	3.59	<.01	still significant
4. Patients who arrive late for appointments are probably not taking their health seriously.	Baseline	1.84	2.03	NS	
	Year 2	1.71	1.99	.04	newly significant
5. I tend to feel uncomfortable with people whose cultural backgrounds differ from my own.	Baseline	2.08	2.28	NS	
	Year 2	1.79	2.37	<.01	newly significant
6. I would have difficulty being compassionate to a neglectful mother or "dead-beat dad."	Baseline	2.81	3.33	<.01	
	Year 2	2.58	3.20	<.01	still significant
Health/social policy					
7. The principle of creating government policies that correct for inequalities among racial groups is no longer necessary.	Baseline	1.88	2.33	.02	
	Year 2	1.75	2.37	<.01	still significant
8. When people immigrate to the United States, it is reasonable to expect that they learn enough English to manage basic daily transactions on their own.	Baseline	3.08	3.37	NS	
	Year 2	2.96	3.61	<.01	newly significant
9. Bilingual education programs, which use English as well as pupils' maternal language to teach daily coursework, should be offered in US public schools.	Baseline	3.58	3.13	.04	
	Year 2	3.79	3.34	.05	still significant
Knowledge of communities					
10. How familiar are you with the prevailing cultural beliefs of at least one of the major populations of color in Worcester?	Baseline	1.32	1.03	.07	
	Year 2	1.79	1.30	<.01	newly significant
11. How well do you know the prevailing health beliefs and practices of at least one of the major populations of color in Worcester?	Baseline	1.12	.81	.05	
	Year 2	1.67	1.22	<.01	still significant
12. How aware are you of the obstacles faced by groups of color in seeking access to health care in Worcester?	Baseline	1.46	1.14	.06	
	Year 2	1.88	1.51	.04	newly significant
13. How well do you know what languages are used by populations in Worcester?	Baseline	1.42	1.33	NS	
	Year 2	2.00	1.59	.01	newly significant
14. How well are you able to describe the common health needs of people of at least one of the populations of color in Worcester?	Baseline	1.16	1.00	NS	
	Year 2	1.75	1.34	<.01	newly significant

Variables 1–9 are scored from 1 (strongly disagree) to 5 (strongly agree).
Variables 10–14 are scored from 0 (not at all well/never) to 3 (very well/often).
NS—not significant

sures of knowledge about other cultures, including their cultural beliefs, health beliefs and practices, and health needs. This result demonstrates that, within the Track cohort, cultural competence improved only on the knowledge measure and not in relationship to student attitudes toward social policy, attitudes toward cultural issues in the doctor-patient relationship, and personal involvement with other cultures.

Discussion

As a self-selected group with a higher level of interest in serving underserved and multicultural populations, it is not surprising that students enter into the Global Multiculturalism Track with higher traits of cultural competence than non-Track students. Nonetheless, the Track appears at the very least to reinforce these traits of cultural competence. Most important, however, are the higher levels of respect and compassion toward patients that were maintained by Track students. These traits are key ingredients to cultural competence because they involve an appreciation of, and caring for, a patient's circumstances and context.

Beyond maintaining baseline higher levels of cultural competency in Track students, the Track students also developed, by the end of the program, higher levels of cultural competence in two important areas: comfort with patients of other cultures and more knowledge about them. Non-Track students increasingly expected patients to learn English, whereas Track students achieved a higher level of ability to communicate in a second language. While not formally evaluated in our study, a survey of the students from the Class of 2001 revealed that all 15 students who participated in international language immersion the summer after their first year used Spanish significantly more often in seven areas of the doctor-patient relationship (ie, greetings, introductions, partial history, complete history, counseling, treatment instructions, and serving as an interpreter), compared with 42 students (49% response rate) who did not participate in an international language immersion experience. There were no significant differences between the two groups, with respect to Spanish classes taken before matriculating at UMass.

The absence in the posttests of significant differences in several traits of cultural competence, which were higher in Track students initially, are harder to understand. Perhaps Track students no longer felt more disposed than non-Track students toward learning another language if interpreters were available, because of changes in their attitudes. Potentially, it is the recognition that learning yet another language is unrealistic, as well as having had positive exposure to the role of interpreters during their medical school training. With respect to those items about whether patients should schedule interpreters, and knowledge about the cultural beliefs of the mentally ill, the posttest outcomes were a result of increased competence in the non-Track student group and are likely attributable to exposure that all students receive to the procedures of accessing medical interpreters at UMass-Memorial Health Care and specific curricula on cultural issues in mental health.

Although the decline in the ability of Track students to treat all patients in the same way may be considered a drop in cultural competence, the opposite could be argued because of the differences between various cultures and their levels of assimilation to Western medicine. It is hard to understand, however, why Track students became more in favor of limiting health care to illegal immigrants. The finding, within the Track students, that cultural competence improved only on the knowledge dimension likely reflects that, when coming to our medical school, students are unfamiliar with the local city and its people, whereas they have a higher baseline of cultural competence related to attitudes about health and social policy and their role as a physician.

Limitations

The study has several limitations. A possibility exists for a response bias in the non-Track students. However, the nonresponses were clearly attributable to the

Table 5

Track Students' Knowledge of the Community: Cultural Assessment Scores of Baseline Versus Year 2

Variable Assessed	*MEAN SCORES* *Baseline Scores*	*Year-2 Scores*	t *Statistic* P *Value*
1. How well can you describe the populations of color in Worcester?	1.25	1.75	<.01
2. How familiar are you with the prevailing cultural beliefs of at least one of the major populations of color in Worcester?	1.3	1.83	<.01
3. How well do you know the prevailing health beliefs and practices of at least one of the major populations of color in Worcester?	1.08	1.67	<.01
4. How aware are you of the obstacles faced by groups of color in seeking access to health care in Worcester?	1.46	1.88	.02
5. How well do you know the greeting protocols within the major communities of color in Worcester?	.71	1.00	.05
6. How well do you understand the conceptual distinction between the terms *immigrant* and *refugee*?	1.92	2.25	.03
7. How well do you know what languages are used by populations in Worcester?	1.46	2.00	<.01
8. How well are you able to describe the common health needs of people of at least one of the populations of color in Worcester?	1.18	1.88	<.01

All variables are scored from 0 (not at all well/never) to 3 (very well/often)

actions of faculty rather than students, insofar as some faculty did not follow instructions to have students complete the survey during class time. Since the non-Track students who did not respond appeared no different, demographically, than respondents, the possible nonresponse bias is expected to be low.

The study sample is biased, however, by the selection criteria for participation in the Track. Selection criteria favor participation by students with demonstrated interest in domestic and international service and language training. As a result, many students in the program felt positive about increasing their multicultural competence, whereas nonparticipating students may not have held such views. Thus, differences in students before and after the Track are not necessarily attributable to the program itself but may also have been due to pre-Track characteristics of the students. In addition, the relatively small number of Track students likely reduced the power of the statistical analysis to detect significance in the differences between the two groups.

This study also relied on self-report measures of cultural competence that have limited validity in comparison to observation of behaviors in the patient encounter. Finally, the generalizability of reported findings is limited by a focus on students from only one medical school.

Despite the limitations of the study, this curriculum offers promise as an effective vehicle for maintaining and enhancing cultural and linguistic competence, especially in light of recent findings that educational programs that include international electives increase cultural sensitivity.[11] The study reported here strengthens this earlier finding by Haq et al by using a study design that includes a comparison group.

Future research on curriculum such as ours should include an analysis with a larger sample size, a true control group, a qualitative analysis of student diaries, tracking of career placements, and the inclusion of a behavioral assessment in the form of an Observable Structured Clinical Examination. Also, final future considerations may include the development of a rating scale on new measures of cultural competence.

Lessons Learned

With respect to the Global Multiculturalism Track, the domestic curricular components (ie, those undertaken in Massachusetts rather than abroad) were effective in developing knowledge about the culture, health beliefs, and health needs of local ethnic groups. The overall program was effective in making Track students more comfortable than their classmates with patients of other cultures. The language immersion in a foreign country and the associated communication hardships that students face are the likely keys to why Track students have a greater sensitivity to language issues and policies than their classmates, as well as a greater ability to speak Spanish in clinical rotations.

One obstacle to starting a program like this one could be the costs involved in staff time and stipend support. Total cost of running the 2-year program for 20 students, including faculty and staff time, classroom materials, student travel, and payments to families are estimated to total about $100,000 or $5,000 per student in year 1. The costs were $20,000 total and $1,000 per student in year 2. This is a large sum, given that the grant from the state agency only provided payments of $400 to each family member in Massachusetts, $2,000 for each student's participation in the international experiences, and partial salary support to faculty. This year, the program has survived elimination of its state funding because its costs are now covered by institutional funding. The program's success in developing linguistic and cultural competence, presentations made by students to the dean of medical education, and data from the Class of 2004 indicating that the Track is a strong, positive influence in their decision to come to UMass have persuaded the school's administration to fund the program internally. Those responsible for starting programs at other institutions may wish to consider submitting the budget for such a program as part of a Bureau of Health Professions' Family Medicine Predoctoral Training Grant, at least for support for staff. It may be necessary to start with a small cadre of students and families because of the high stipend costs. Creative funding streams need to be identified. The keys to obtaining financial support from the medical school's budget are strong student advocates and evaluation data.

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