

# Using the Tool for Assessing Cultural Competence Training (TACCT) to Measure Faculty and Medical Student Perceptions of Cultural Competence Instruction in the First Three Years of the Curriculum

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## Abstract

### Purpose

To compare faculty and student perceptions of cultural competence instruction as measured by the AAMC's Tool for Assessing Cultural Competence Training (TACCT) as part of a comprehensive curricular needs assessment.

### Method

In 2005, 25 basic science and clinical course directors and 92 third-year medical students at the University of California, Irvine, School of Medicine were asked to indicate which of 67 separate items listed on the TACCT describing knowledge, skill, and attitude about cultural competence were covered during the first three years of the

curriculum. The mean percentage of "yes" responses to each item was computed and compared for both faculty and students.

### Results

Response rates were 100% (25/25) for course directors and 75% (69/92) for students. Students systematically perceived that cultural competence instruction occurred more often in the curriculum (range of 28% to 93% "yes" responses) compared to the faculty (range of 8% to 64%). However, faculty and students demonstrated a high level of concordance (intraclass correlation coefficient = 0.89 across all items) in their perceptions about instruction, as measured by their relative rank orderings

of the 67 TACCT items. Students and faculty identified clusters of TACCT items pertaining to health disparities, community partnerships, and bias/stereotyping as least likely to be presented.

### Conclusions

Faculty and third-year students at one medical school responded congruently about the relative degree to which cultural competence instruction occurred. The TACCT can be used to identify significant gaps in cultural competence training and inform curricular revision. Further studies involving other schools are warranted.

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*Editor's Note: A Commentary on this Research Report appears on page 499.*

**T**he inclusion of cultural competency instruction in medical education has been the thrust of several recent reports in the United States.<sup>1–3</sup> There is growing evidence that improving the cross-cultural communication skills of

healthcare providers is associated with better patient outcomes and, in some disease conditions, may reduce health disparities, including outcomes of care and access to care.<sup>4,5</sup> Definitions of cultural competence in relation to health disparities vary.<sup>6</sup> A recent systematic review examining the rigor of studies evaluating cultural competence training of health professions<sup>7</sup> concluded that lack of methodological rigor in those studies limited the evidence supporting the effectiveness of specific educational interventions, and that attention should be paid to the proper design, evaluation, and reporting of such training programs or courses.

Published recommendations for cultural competence training are available<sup>1,8–10</sup> to guide curriculum design aimed at addressing and improving health care professionals' cultural competence. For example, Tervalon<sup>11</sup> recommends a *cultural humility* approach as opposed to a *categorical* approach to diversity training because a categorical approach

focusing on specific cultural groups may promote stereotyping. Materials to support teaching are also widely available.<sup>12–14</sup> The American Medical Student Association (AMSA)<sup>3</sup> provides learning objectives for knowledge, skills, and attitudes across a four-year medical school curriculum.

However, it is unclear how these recommendations should be applied either to individual medical schools, which have different curricular orientations with respect to addressing the needs of their local community, or to their respective students, who have diverse geographic, cultural, and ethnic backgrounds themselves. It is also unclear how content should be developed and what competencies should be attained by students at different levels of training, especially with respect to students who are in the preclinical years of training. Student attitudes have been examined using, for example, the Cultural Diversity Attitude Scale<sup>15</sup> or the Health Beliefs Attitude Survey,<sup>16</sup> but these instruments

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attend to the constructs of communication skills and attitude to diversity rather than the appropriateness and content of curriculum and instruction. Information from both medical students and faculty about if and how cultural diversity is being addressed is an integral part of designing effective educational experiences and a keystone of the needs assessment process.

In 2000 the Liaison Committee on Medical Education (LCME), which oversees the accreditation of U.S. and Canadian medical schools, set standards that called for the following: "The faculty and students *must* demonstrate an understanding of the manner in which people of diverse cultures and belief systems perceive health and illness and respond to various symptoms, diseases, and treatments" (emphasis added). Furthermore, the LCME specified that "Medical students should learn to recognize and appropriately address gender and cultural biases in health care delivery, while considering first the health of the patient."<sup>17</sup> The Association of American Medical Colleges (AAMC) began a project in 2001 to support and further the achievement of these standards. Project activities included commissioning three papers<sup>8,18,19</sup> to establish the basis for deliberations on the domains of cultural competence and convening an expert panel to identify the major domains of cultural competence training and to develop the Tool for Assessing Cultural Competence Training (TACCT) (available online at (<http://www.aamc.org/meded/tacct/tacct.xls>)) for the undergraduate medical school curriculum. The design of the TACCT mirrored another curricular assessment tool previously used by the AAMC to address palliative care curricula.<sup>20</sup> The tool was designed by a panel of ten experts from diverse backgrounds, medical schools, and health care organizations using an iterative process. It encompasses content items representing students' knowledge, attitudes, and skills for five domains: cultural competence rationale, context, and definition; key aspects of cultural competence; the impact of stereotyping on medical decision-making; health disparities and factors influencing health; and cross-cultural clinical skills.

As part of a baseline needs assessment to enhance an existing integrated

longitudinal curriculum to promote effective cultural competency training, we conducted a cross-sectional survey of third-year medical students and of preclinical and clinical course directors at a public medical school, the University of California, Irvine, School of Medicine. Our purpose was to determine student and faculty perceptions of what content described in the separate TACCT items was taught in the first three years of medical school. Our aim was to compare course directors' and students' responses to the TACCT content items to determine the relative congruence or incongruence of their perceptions. A second aim was to assess the feasibility of using the TACCT in tracking the implementation of an enhanced cultural competence curriculum. The research project received exempt status approval from the University of California, Irvine, institutional review board.

## Background

When we conducted this study, the required, formal cultural competence curriculum for first- and second-year medical students consisted of panel discussions and small-group exercises (e.g., self-reflection and observed interviewing of standardized patients) in the first year; community clinical experiences in underserved healthcare settings with largely monolingual Latino and Vietnamese patients in the second year; and traditional basic science didactics (e.g., Pharmacology, Genetics, and Epidemiology) addressing the role of genetics and culture in health outcomes in both years. The cultural competence curriculum in the first two years consisted of approximately 10 total hours, as estimated from our review of course syllabi. In students' third year, their exposure to cultural diversity instruction mainly occurred through the "informal curriculum" during the process of inpatient and outpatient preceptorships. This included role modeling by residents and attending faculty as students observed clinical settings with direct patient care or teaching on patient encounters, and didactic noon lectures that were part of their clerkship experiences. No formal faculty development programs were in place to enhance teaching cultural diversity at the time of this study. Evaluation of students' skills and knowledge with respect to cultural

competency was nonspecific; skills and knowledge were only indirectly assessed either on the routine examinations given in courses and clerkships or by clerkship faculty and resident observations of students. No separate grade was given for students' cultural competence in any instructional setting, nor was there a formal remediation program in place for students identified as having shortcomings on this competency.

## Method

### Study sample and setting

We conducted this study in 2005 at the University of California, Irvine, School of Medicine. The study sample consisted of all course directors ( $n = 25$ ) and a single class of third-year medical students ( $n = 92$ ). The course directors were responsible for the required basic science and clinical clerkships and longitudinal content themes in the first three years of the curriculum. The third-year students had completed all course requirements for the first two years and most of their required third-year clerkships, including the primary care (Family Medicine, Internal Medicine, and Pediatrics) and other (Obstetrics and Gynecology, Emergency Medicine, Neurology, and Surgery) rotations.

### The TACCT

The TACCT consists of 67 items populating five different cultural competence content domains (see Table 1). Each item purportedly measures a separate facet of students' knowledge (K), skill (S), or attitude (A) regarding cultural competence. Domain I, cultural competence, rationale, context, and definition, contains 10 items (4 K, 3 S, and 3 A) and addresses definitions of race, ethnicity and culture, the use of physician assessment tools, identification of students' own cultural background, and evaluation of the importance of diversity in healthcare. Domain II, key aspects of cultural competence, contains 14 items (5 K, 5 S, and 4 A) and addresses historical models of health beliefs, knowledge of community and epidemiology, skills for eliciting family and community contexts during medical interviewing, and communication skills. Domain III, the impact of stereotyping on medical decision-making, contains 17 items (6 K, 6 S, and 5 A), including physicians' own biases, community

Table 1

**Individual Item Responses and Comparison Statistics for Faculty and Medical Students Who Completed the Tool for Assessing Cultural Competence Training (TACCT), University of California, Irvine, School of Medicine, 2005\***

TACCT domain items <sup>†</sup>	Mean % (SD) responding "yes"		Mann-Whitney U test p value <sup>‡</sup>
	Faculty	Student	
<b>I. Cultural Competence Rationale, Context, and Definition</b>			
K1. Define race, ethnicity, and culture	24 (44)	77 (43)	<.0005
K2. Identify how race and culture relate to health	52 (51)	88 (32)	<.0005
K3. Identify patterns of national data on disparities	24 (44)	58 (50)	.005
K4. Describe national health data	28 (46)	58 (50)	.010
S1. Discuss race and culture in the medical interview	40 (50)	78 (42)	.001
S2. Use physician assessment tools	16 (38)	55 (50)	.001
S3. Concretize epidemiology of disparities	12 (33)	54 (50)	<.0005
A1. Describe own cultural background and biases	32 (48)	81 (39)	<.0005
A2. Value link between communication and care	56 (51)	87 (34)	.002
A3. Value importance of diversity in healthcare	44 (51)	83 (38)	<.0005
<b>II. Key Aspects of Cultural Competence</b>			
K1. Describe historical models of health beliefs	20 (41)	48 (50)	.018
K2. Recognize patients' healing traditions and beliefs	48 (51)	88 (32)	<.0005
K3. Describe challenges in cross-cultural community	28 (46)	80 (41)	<.0005
K4. Demonstrate knowledge of epidemiology	40 (50)	77 (43)	.002
K5. Understand population health variability	36 (50)	67 (48)	.010
S1. Understand framework to assess communities	20 (41)	54 (50)	.003
S2. Ask questions to elicit patient preferences	48 (51)	78 (42)	.006
S3. Elicit information in family-centered context	48 (51)	74 (44)	.026
S4. Collaborate with communities to address needs	24 (44)	59 (50)	.005
S5. Recognize institutional cultural issues	28 (46)	57 (50)	.019
A1. Exhibit comfort when discussing cultural issues	44 (51)	74 (44)	.013
A2. Nonjudgmental listening to health beliefs	52 (51)	84 (37)	.003
A3. Value and address social health determinants	40 (50)	72 (45)	.007
A4. Value curiosity, empathy, and respect	64 (49)	93 (26)	.001
<b>III. Impact of Stereotyping on Medical Decision-Making</b>			
K1. Describe social cognitive factors	28 (46)	59 (50)	.010
K2. Identify physician bias and stereotyping	40 (50)	78 (42)	.001
K3. Recognize physician own potential for biases	60 (50)	81 (40)	.056
K4. Describe the physician-patient power imbalance	36 (50)	74 (44)	.001
K5. Describe patterns of health care disparities	40 (50)	65 (48)	.035
K6. Describe community partnering strategies	28 (46)	58 (50)	.019
S1. Demonstrate strategies to address/reduce bias	28 (46)	62 (49)	.005
S2. Describe strategies to reduce physician biases	28 (46)	67 (48)	.001
S3. Show strategies to address bias in others	28 (46)	54 (50)	.036
S4. Engage in reflection about own beliefs	56 (51)	77 (43)	.070
S5. Use reflective practices when in patient care	32 (48)	59 (50)	.021
S6. Gather and use local data as in HP2010 <sup>§</sup>	16 (37)	28 (45)	.291
A1. Identify physician biases that affect clinical care	36 (49)	68 (47)	.008
A2. Recognize how physician biases affect care	44 (51)	77 (43)	.004
A3. Describe potential ways to address bias	32 (48)	67 (48)	.004
A4. Value the importance of bias on decision-making	40 (50)	71 (46)	.008
A5. Value the need to address personal bias	52 (51)	78 (42)	.020

(Table continues)

Table 1

(Continued)

TACCT domain items <sup>†</sup>	Mean % (SD) responding "yes"		Mann-Whitney U test <i>p</i> value <sup>‡</sup>
	Faculty	Student	
<b>IV. Health Disparities and Factors Influencing Health</b>			
K1. Describe factors that affect health	60 (50)	78 (42)	.111
K2. Understand social determinants of health	32 (48)	80 (41)	<b>&lt;.0005</b>
K3. Describe systemic and medical encounter issues	40 (50)	62 (49)	.063
K4. Identify and discuss key areas of disparities	28 (46)	55 (50)	.034
K5. Describe community-based elements	24 (44)	49 (50)	.035
K6. Discuss barriers to eliminating health disparities	36 (49)	58 (50)	.067
S1. Critically appraise literature on disparities	16 (37)	42 (50)	.027
S2. Describe methods to identify community leaders	08 (28)	46 (50)	.001
S3. Propose a community-based health intervention	28 (46)	43 (50)	.234
S4. Strategize ways to counteract bias	32 (48)	52 (50)	.104
A1. Recognize disparities amenable to intervention	16 (37)	58 (50)	<b>&lt;.0005</b>
A2. Value the historical impact of racism	20 (41)	55 (50)	.004
A3. Value eliminating disparities	20 (41)	55 (50)	.004
<b>V. Cross-Cultural Clinical Skills</b>			
K1. Identify community beliefs and health practices	44 (51)	74 (44)	.013
K2. Describe cross-cultural communication models	32 (48)	64 (48)	.009
K3. Understand physician-patient negotiation	48 (51)	75 (43)	.015
K4. Describe the functions of an interpreter	36 (49)	78 (42)	<b>&lt;.0005</b>
K5. List effective ways of working with interpreter	32 (48)	77 (43)	<b>&lt;.0005</b>
K6. List ways to enhance patient adherence	44 (51)	68 (47)	.054
S1. Elicit a cultural, social, and medical history	48 (51)	78 (42)	.006
S2. Use negotiating and problem-solving skills	40 (50)	74 (44)	.003
S3. Identify and collaborate with interpreter	36 (50)	72 (45)	.002
S4. Assess and enhance patient adherence	40 (50)	71 (46)	.008
S5. Recognize and manage the impact of bias	36 (49)	57 (50)	.103
A1. Respect patient's cultural beliefs	52 (51)	83 (39)	.004
A2. Acknowledge the impact of physician biases	44 (51)	72 (45)	.015

\* Respondents were 25 basic science and clinical course directors and 69 third-year medical students.

<sup>†</sup> K = knowledge; S = skills; A = attitudes.

<sup>‡</sup> Statistical significance was < .0005 and derived from the Bonferroni correction for multiple comparisons to the two-tailed nominal alpha = .05. Significant *p*-values are shown in bold typeface.

<sup>§</sup> Healthy People 2010, a national health promotion and disease prevention initiative.

partnering, strategies to reduce bias in self and others, and recognition of the impact of bias on healthcare. Domain IV, health disparities and factors influencing health, contains 13 items (6 K, 4 S, and 3 A) addressing topics such as community-based health interventions to reduce disparities, elimination of health disparities, and critical appraisal of literature on health disparities. Lastly, Domain V, cross-cultural clinical skills, containing 13 items (6 K, 5 S, and 2 A), focuses on the functions of an interpreter, methods to enhance patient adherence, and recognition and management of biases. For each item, respondents checked whether or not it

had been addressed in the medical school's curriculum.

#### Data sources

The TACCT was administered to third-year students during a required Clinical Practice Examination (CPX) taken at the end of that year of study. Students anonymously and voluntarily responded to the TACCT, which we presented as a two-page written questionnaire during an inter-station exercise between simulated patient encounters in the CPX. Students had up to 20 minutes to complete the TACCT and were aware that their participation did not affect their performance score on the CPX or in any

course. We asked students to reflect on their total instructional experiences in the first three years of the curriculum as the context for responding. The written instructions emphasized that there were no correct or incorrect responses. We collected student responses over the two-week administration of the required CPX, and all 92 students in the class cohort were invited to participate.

We also surveyed the 25 course directors from required preclinical and clinical courses during the same time period. They all received the TACCT via an e-mail sent to the course directors' listserv. The context for faculty responses was for them to reflect on the respective

individual courses they directed. Faculty responded either by return e-mail or by mailing a hard copy of the completed TACCT. A follow up email was sent to those faculty who did not respond within two weeks. Also, two weeks after the last e-mail request, we asked course directors in attendance at a standing curriculum committee meeting to complete a written questionnaire if they had not yet responded. Faculty falling into this latter category completed and returned the TACCT in person prior to adjourning.

We did not provide definitions of any terms included in the TACCT domains and items. The TACCT was completed within 10 to 15 minutes by most respondents. Respondents checked off which of the 67 separate items were addressed in the medical school's curriculum. We considered items checked off to be a "yes" response and scored them with a value of 1. Unchecked items were considered a "no" response and scored with a value of 0. All student and faculty responses were analyzed anonymously. Course directors only identified the curriculum year in which their respective courses occurred.

### Statistical analyses

We tabulated the frequency of "yes" responses to each TACCT item, and computed a mean score (sum of "yes" responses divided by total number of possible responses) for both the faculty and third-year student groups. We computed domain scores by summing and averaging across the constituent items constituting each of the five TACCT domains. Likewise, we computed scores for the individual knowledge, skill, and attitude components that defined each domain by summing and averaging across the appropriate items. We also examined the distributions of faculty and student TACCT item scores to identify content areas identified as "not adequately addressed" in the curriculum.

Because of our concerns about faculty and student responses being skewed in opposite directions, we used nonparametric Mann-Whitney U tests to compare faculty and student responses on the following: each TACCT item, the separate five content domains collapsing across all their constituent items, and the subsets of items collectively constituting knowledge, skill, and attitude components that defined the content

domains. We used the nominal, two-sided alpha  $< 0.05$  in testing between-group differences. Because we computed multiple comparisons, the Bonferroni correction (i.e., nominal two-sided alpha level divided by number of tests) was applied. Thus, for the family of faculty versus third-year student comparisons on separate TACCT items, we considered mean differences with obtained  $p$  values  $< 0.0005$  statistically significant. The corresponding significance criterion for the family of between-group comparisons on both the five domains and the knowledge, skill, and attitude components for each of the domains was  $p < 0.001$ . The intraclass correlation coefficient was calculated to evaluate the degree of agreement among faculty and student responses to the separate 67 TACCT items. All analyses were performed using SPSS statistical software, version 13.0 for Windows (SPSS Inc., Chicago, Illinois).

### Results

Response rates were 100% (25/25) for course directors and 75% (69/92) for third-year students. The student cohort was evenly divided on gender, and the mean age was 24.9 years (range 22–37). The majority (86%; 79/92) of students majored in the sciences rather than humanities prior to entering medical school. Because responses were anonymous, we were unable to compare the demographic characteristics of students who did or did not complete the TACCT.

Table 1 shows the responses to all 67 TACCT items obtained from faculty and students. The mean percentage of course directors' "yes" responses, indicating content was addressed in their respective courses, ranged from a low of 8% on "describe methods to identify community leaders" (Domain IV, item S2) to a high of 64% on "value curiosity, empathy, and respect" (Domain II, item A4). Concomitantly, the mean percentage of "yes" responses from students consistently was higher, ranging from a low of 28% on "gather and use data as in HP2010" (Healthy People 2010, a national health promotion and disease prevention initiative) (Domain III, item S6), to a high of 93% on "value curiosity, empathy, and respect" (Domain II, item A4).

Statistically, using a conservative criterion ( $p < .0005$ ), mean student perceptions about cultural competence instruction significantly differed from those of faculty on 16% (11/67) of the separate TACCT items. Significant differences with students producing higher item scores occurred on 50% (5/10) of items within content Domain I (cultural competence rationale, context, and definition). Students' scores also significantly exceeded faculty scores on 14% (2/14) of items in Domain II (key aspects of cultural competence), on 15% (2/13) of items in Domain IV (health disparities and factors influencing health), and on 15% (2/13) of items encompassed by Domain V (cross-cultural clinical skills). No significant differences emerged on items within Domain III (impact of stereotyping on medical decision-making).

The mean percentage of "yes" responses made by faculty and students both to the five separate TACCT content domains and to the knowledge, skill, and attitude components within each domain is shown in Table 2. Students, on average, more often responded "yes" to the total of TACCT items in all five domains, and the differences between students and faculty were significant ( $p < 0.001$ ) in all except Domain V. A similar pattern resulted from comparing faculty to students with respect to each knowledge, skill, and attitude component per domain. Across the five content domains, students significantly ( $p < 0.001$ ) exceeded faculty on the mean percentage of "yes" responses to 30% (7/27) of knowledge items, 8% (1/23) of skill items, and 18% (3/17) of attitude items, respectively.

Comparison of the responses to TACCT items comprising separate knowledge, skill, and attitude components showed that students consistently produced a higher rate of "yes" responses than did the faculty across the content domains. The mean percentage of students' "yes" responses was significantly greater ( $p < 0.001$ ) on items for cultural competence knowledge in content Domains I, II, and III. Also, students' mean percentage of "yes" responses to items about cultural competence skill was significantly greater than faculty's for content Domains I and II. Finally, students checked TACCT items about cultural competence attitude

Table 2

**Domain Scores and Comparison Statistics for Faculty and Medical Students Who Completed the Tool for Assessing Cultural Competence Training (TACCT), University of California, Irvine, School of Medicine, 2005\***

TACCT domain scores <sup>†</sup>	Mean % (SD) responding "yes"		Mann-Whitney U test <i>p</i> value <sup>‡</sup>
	Faculty	Student	
<b>I. Cultural competence rationale, context, and definition</b>			
Knowledge	32.0 (34.3)	70.3 (29.8)	<b>&lt;.0005</b>
Skills	22.7 (28.4)	62.2 (31.3)	<b>&lt;.0005</b>
Attitudes	44.0 (43.8)	83.6 (28.4)	<b>&lt;.0005</b>
Total	32.8 (31.7)	71.9 (24.5)	<b>&lt;.0005</b>
<b>II. Key aspects of cultural competence</b>			
Knowledge	34.4 (37.7)	71.9 (29.8)	<b>&lt;.0005</b>
Skills	33.6 (36.4)	64.4 (32.9)	<b>&lt;.0005</b>
Attitudes	50.0 (43.9)	80.8 (29.4)	.002
Total	38.6 (35.9)	71.7 (27.1)	<b>&lt;.0005</b>
<b>III. Impact of stereotyping on medical decision-making</b>			
Knowledge	38.7 (39.0)	69.3 (31.7)	<b>&lt;.0005</b>
Skills	31.3 (33.8)	57.7 (35.5)	.002
Attitudes	40.8 (43.4)	72.2 (37.9)	.002
Total	29.7 (29.8)	53.5 (25.9)	<b>&lt;.0005</b>
<b>IV: Health disparities and factors influencing health</b>			
Knowledge	36.7 (38.2)	63.8 (36.4)	.003
Skills	21.0 (30.4)	46.0 (43.2)	.020
Attitudes	18.7 (33.4)	56.0 (44.5)	<b>&lt;.0005</b>
Total	27.7 (32.3)	56.5 (36.1)	<b>&lt;.0005</b>
<b>V. Cross-cultural clinical skills</b>			
Knowledge	39.3 (43.8)	72.7 (37.3)	.002
Skills	40.0 (43.2)	70.3 (37.7)	.003
Attitudes	48.0 (48.9)	77.5 (37.9)	.006
Total	40.9 (42.8)	72.6 (35.5)	.002
<b>Overall TACCT total scores</b>			
<b>Knowledge</b>	36.6 (36.3)	69.5 (27.5)	<b>&lt;.0005</b>
<b>Skills</b>	30.8 (32.3)	60.5 (30.5)	<b>&lt;.0005</b>
<b>Attitude</b>	40.5 (37.8)	74.0 (29.2)	<b>&lt;.0005</b>

\* Respondents were 25 basic science and clinical course directors and 69 third-year medical students.

† Checked ("Yes") responses to TACCT were scored = 1, and unchecked = 0. Scores for knowledge, skill, and attitude components within each domain were computed by summing and averaging across appropriate items. Domain scores were computed by collapsing across all items comprising each domain.

‡ Statistical significance was < .0005 and derived from the Bonferroni correction for multiple comparisons to the two-tailed nominal alpha = .05. Significant *p*-values are shown in bold typeface.

in Domains I and IV significantly more often than did faculty.

There was a high degree of agreement between faculty and students in responding to the TACCT items, as

measured by an intraclass correlation coefficient = 0.89 (95% confidence interval = 0.82, 0.93). Although students systematically responded "yes" at a higher rate to all TACCT items, they generally agreed with the faculty course directors

about what specific elements of cultural competence instruction were or were not included in the first three years of the curriculum. That is, students and faculty rank ordered in similar fashion the relative occurrence (or non-occurrence) of the cultural competence content represented in the 67 separate TACCT items.

Because the groups consistently differed in how they responded, we set criteria to identify specific content areas defined as "inadequately covered" based on TACCT item data from faculty and students. For students, we identified the bottom quartile of items (*n* = 17) least often checked. Four items came from Domain I, three from Domain II, two from Domain III and eight from Domain IV. For faculty, however, we identified 22 items as being inadequately covered because the last seven items had identical response rates of 28%. Domain I produced five such items. Three items emerged from Domain II, six from Domain III and eight from Domain IV. Fourteen of these items overlapped with those identified by students listed above (see Table 3).

The individual TACCT items identified by both course directors and medical students as being inadequately addressed during the first three years of the medical school curriculum using the criteria we developed fell into three broad areas or themes: health disparities, community partnerships, and bias/stereotyping/race (Table 3). No item from Domain V (cross-cultural clinical skills) fell into the category of being inadequately addressed.

**Discussion**

We conducted a cross-sectional survey of both third-year medical students and their course directors to assess their perceptions of which content areas represented by the TACCT were taught during the first three years of medical school. A surprising finding of this study was that students were more likely than their faculty course directors to respond positively. One reason may be that students responded according to their instructional exposure across three years of the curriculum, whereas faculty course directors responded in the more limited context of instruction provided only within their own formal courses. Another possible reason for this discrepancy is

Table 3

**Categories Identified by both Faculty and Students as Being Inadequately Addressed, Based on the Lowest Quartile of Responses to Tool for Assessing Cultural Competence Training (TACCT) Items, University of California, Irvine, School of Medicine, 2005\***

Category identified	Knowledge	Skill	Attitudes
Community partnerships	<i>Domain IV, K5</i> Describe community-based elements	<i>Domain II, S1</i> Understand framework to assess communities  <i>Domain III, S6</i> Gather and use local data as in HP2010 <sup>†</sup>  <i>Domain IV, S3</i> Propose a community-based health intervention	
Health disparities	<i>Domain I, K4</i> Describe national health data  <i>Domain IV, K4</i> Identify and discuss key areas of disparities	<i>Domain I, S3</i> Concretize epidemiology of disparities  <i>Domain IV, S1</i> Critically appraise literature on disparities	<i>Domain IV, A3</i> Value eliminating disparities
Bias/stereotyping/race	<i>Domain II, K1</i> Describe historical models of health beliefs	<i>Domain I, S2</i> Use physician assessment tool  <i>Domain III, S2</i> Describe strategies to reduce physician bias  <i>Domain III, S3</i> Show strategies to address bias in others	<i>Domain IV, A2</i> Value the historical impact of racism

\* Respondents were 25 basic science and clinical course directors faculty and 69 third-year medical students. Lowest quartile item number was 22 for faculty and 17 for students.

<sup>†</sup> Healthy People 2010, a national health promotion and disease prevention initiative.

that students included consideration of the informal curriculum in their responses. That is, although course objectives did not explicitly include cultural competence objectives addressed by the TACCT, students still learned either by observation, through direct patient care, or by teaching in clinical settings. Another possible—although less likely explanation—is that course directors were unaware of cultural competence teaching by faculty in their courses. A final possibility is that students overrated their acquisition of cultural competence knowledge, attitudes, and skills in relation to faculty perceptions of what actually was taught.

However, despite the overall propensity of students to give a higher estimate of what was addressed in the cultural competency curriculum, it is encouraging to find that faculty and students were congruent about what cultural competence content was covered in the first three years of medical school, as measured by a high intraclass correlation coefficient (inter-rater agreement) for individual TACCT items. Our results also suggest a high degree of concordance between learner and teacher about what was inadequately addressed in the

curriculum. The areas identified as inadequately addressed at this school included health disparities, community partnerships, and bias/stereotyping/race. The possible reasons for these areas being under-addressed in the curriculum may be anxiety among faculty about teaching related to issues of bias and stereotyping, lack of recognition that these topics affect healthcare outcomes, and lack of sufficient coordination to coordinate undergraduate medical education with community agencies.

The strengths of this study include a high response rate from both groups, administration and data collection within a short timeframe, and a standardized administration of the TACCT to all respondents. The two groups we surveyed had a similar context for responding to the TACCT in that the students had recently experienced the curriculum that the course directors had provided. Weaknesses of the study include that it was conducted at only one medical school with only one student cohort. Also, we lack data about the educational experiences of respondent students prior to entering medical school and how those experiences may have affected their responses. In addition, we did not

measure their attitudes toward cultural competence training, a potentially significant factor in their responses. We are planning a future study with inclusion of other medical schools, and we have begun developing a measure of attitudes toward cultural competence training that could be used in combination with the TACCT in future studies.

The TACCT was designed to provide an overview of cultural competence curricula across U.S. medical schools, and as such was not intended to examine the cultural competence curriculum with a high level of specificity or to ask about teaching strategies used to achieve the learning objectives within the domains. It was also not designed to address the informal curriculum, which may have a powerful but indeterminate influence on students' learning or on how learners are evaluated. We found the TACCT to be a useful tool for obtaining a snapshot of the cultural competence curriculum as it was taught at the University of California, Irvine, School of Medicine to guide the process of identifying gaps in teaching and learning. It is possible that use of a multi-point response (such as a Likert scale) rather than a binary response to the

TACCT may have reduced the finding of a large disparity between students' and course directors' perceptions of cultural competence teaching. Finding a significant disparity between third-year students and course directors in their perceptions of whether or not cultural competence was taught, although unexpected, has initiated our efforts to examine the informal curriculum in greater depth. At our school TACCT responses are being complemented by focus group interviews of students and key informant interviews of course faculty.

In summary, third-year students who had experienced the first three years of medical school curriculum and course directors who provided the curriculum, respectively, agreed about which content areas represented by the TACCT items were more or less addressed. This is a preliminary study done at one school that can be easily replicated at other schools. In-depth analysis of how and where curricular interventions are best placed might be more appropriately addressed by the complementary use of focus groups, key informant interviews, direct observation of teaching, and student assessment addressing specific knowledge, skills, and attitudes.

One objective of the study was to establish the feasibility of using the TACCT for curriculum planning. We thus conclude that the TACCT is an easily administered instrument that broadly assesses many facets of cultural competence instruction. It has the potential to be used for tracking the introduction of new curricular content and can be easily administered to faculty and students to provide a concrete guide to cultural competence curriculum revision and enhancement.

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