

# Bringing Interdisciplinary and Multicultural Team Building to Health Care Education: The Downstate Team-Building Initiative

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## Abstract

### Purpose

To evaluate the impact of the Downstate Team-Building Initiative (DTBI), a model multicultural and interdisciplinary health care team-building program for health professions students.

### Method

A total of 65 students representing seven health disciplines participated in DTBI's first three years (one cohort per year since implementation). During the 18-session curriculum, students self-evaluated their group's progress through Tuckman's four team-development stages (FORMING, STORMING, NORMING, PERFORMING) on an 11-point scale. Students completed matched pre- and postintervention program evaluations assessing five variables: interdisciplinary understanding, interdisciplinary attitudes,

teamwork skills, multicultural skills, and team atmosphere. After participation, students completed narrative follow-up questionnaires investigating impact one and two years after program completion.

### Results

Each year's team development curve followed a similar logarithmic trajectory. Cohort 1 remained in team development stage 3 (NORMING) while Cohorts 2 and 3 advanced into the final stage—PERFORMING. A total of 34 matched pre- and postintervention evaluations showed significant change in all major variables: Team atmosphere and group teamwork skills improved most (48% and 44%, respectively). Interdisciplinary understanding improved 42%. Individual multicultural skills (defined by ability to address racism, homophobia, and sexism)

started at the highest baseline and improved the least (13%). Group multicultural skills improved 36%. Of 23 responses to the follow-up surveys, 22 (96%) stated DTBI was a meaningful educational experience applicable to their current clinical surroundings.

### Conclusions

DTBI successfully united students across health discipline, ethnicity, socioeconomic class, gender, and sexual orientation into functioning teams. The model represents an effective approach to teaching health care team building and demonstrates benefits in both preclinical and clinical years of training.

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**T**he Downstate Team-Building Initiative (DTBI) is a year-long, extracurricular team-building program instituted at the State University of New York, Downstate Medical Center (SUNY Downstate) in 2000. DTBI unites students from the schools of medicine, nursing, physician assistants, physical therapy, occupational therapy, midwifery, and diagnostic medical imaging to learn about the challenges of building cohesive and effective health care teams. The students begin by undergoing training in methods of group decision making, conflict mediation, and alliance building across professional position and cultural identity. Subsequently, each cohort identifies and implements a health-related community action project and, in essence, functions as a team by accomplishing a team goal. Currently in its fifth year, the vision underlying DTBI is the creation of a model, student-level program to improve the abilities of future health care providers to work together in the delivery of quality care once they enter their respective professional realms.

Interdisciplinary friction in health arenas is well documented in medical literature, as is the need for more effective collaboration between health workers.<sup>1–3</sup> The idea that teamwork among the health disciplines is crucial to patient care, team morale, and administrative efficiency is supported in numerous medicine, nursing, and public health journals.<sup>4–7</sup> The 1998 Pew Health Commission report recommended instituting interdisciplinary competency requirements for all health professionals.<sup>8</sup> More than half of the doctors surveyed in the report felt undergraduate medical education was an ideal time to institute interdisciplinary training.<sup>4</sup> Although an increasing number of health professional education programs are incorporating the Pew Health Commission's recommendations, few documented attempts to formally teach interdisciplinary teamwork skills during undergraduate health education exist.<sup>9–15</sup> DTBI is such as effort.

DTBI is unique in approach. Teams are built from an interdisciplinary as well as a

multicultural perspective, acknowledging the intersection between the two. The student population at SUNY Downstate is remarkably diverse. The College of Medicine is 53% white, 30% Asian, 12% black, and 4% Latino; the College of Nursing is 70% black, 18% white, 7% Asian, and 4% Latino; and the College of Health Related Professions (CHRP, including physician assistants, physical therapy, occupational therapy, midwifery, and diagnostic medical imaging) is 58% white, 26% black, 9% Latino, and 6% Asian.<sup>16</sup> Imbedded in this level of multiculturalism—wonderful though it is—are inherent mistrust and intergroup tensions born, in part, from the historical precedent of racial inequality in the United States and exacerbated by the continued disproportional representation of people of color in the uninsured and economically deprived classes. Despite the growing concern over cultural competency in health education programs, in 2000 only 8% of U.S. and Canadian medical schools had courses specifically aimed at addressing cultural issues.<sup>17</sup> DTBI broaches intercultural relations directly with constructive outcomes.

“Culture,” in the context of DTBI, is used in an expansive sense to mean not only aspects of ethnicity or race but also the norms, customs, and values associated with sexual orientation, gender, class, and professional identity. Although racism in health care delivery is occasionally addressed in formal medical curricula, the intersection of homophobia and health care is often completely ignored.<sup>18</sup> Yet, the problem is real. Prejudice is difficult to talk about. People often shy away from directly addressing discrimination issues for fear constructive outcomes will not be reached. DTBI participants, however, learn to address areas of difference within their group as well as to build on commonalities. By struggling through difficult issues together, the students establish strong relationships that are the foundation of a strong team.

One of the authors (JM) designed the DTBI curriculum to draw from the enormous body of work in the fields of education, intercultural relations, and ethnic studies on pedagogical approaches to “diversity training” and multicultural alliance building.<sup>19</sup> This report describes the DTBI program and evaluates its impact on participants after three years of implementation. DTBI was evaluated

three ways: (1) an 11-point team development scale administered at each group meeting recorded students’ assessments of team-building progress; (2) a matched pre- and postintervention evaluation tool assessed the short-term impact of DTBI on participants; and (3) a narrative clinical follow-up survey investigated the impact of participation one and two years later.

### Program Overview

The DTBI curriculum spans the course of one academic year divided into two basic components: Team Building and Team Action. The curriculum overview is shown in the Appendix. Team Building is broken into 11 three-hour sessions during which participants learn about team building by engaging in a team-building process. Once a student team is established, they spend the remaining seven sessions collectively identifying and implementing a health-related community action project—in essence functioning as a team by accomplishing a team goal.

The Team Building sessions follow similar three-hour formats starting with a “check-in,” when participants briefly share recent events in their lives, followed by an “ice-breaker” activity that loosens up the group. The core content follows, usually involving interactive and experiential components accompanied by a theoretical framework. A DTBI training manual details the curriculum, including minute-by-minute session agendas, workshop handouts, and explanation of how to facilitate each exercise.

Students are recruited in their preclinical years for this extracurricular program. The target size of each DTBI group is 20–30 students—intentionally small due to the intimate nature of the curriculum. Recruitment strategies vary by program. Informational meetings, e-mails, and enthusiastic announcements have been enough to interest a quota of medical students. Recruitment from the School of Nursing and the CHRP has been accomplished similarly with the addition of active faculty and dean’s office involvement.

A trained student director oversees the program, supervising an interdisciplinary team of three student co-leaders representing medicine, nursing, and CHRP. These co-leaders are recruited from the

previous year’s cohort. During a summer retreat they revise, discuss, and are trained in the curriculum, which they then implement the following fall. Selecting and training a new team of co-leaders each year regenerates the program by engaging students who were particularly inspired by their participation in DTBI to move on to greater levels of leadership and growth. While the student director oversees the program during the year, the three co-leaders provide most of the facilitation. Guest speakers, trainers, and health care professionals with specific expertise present select sessions, and three faculty advisors (one from each school) offer ongoing support and supervision.

The DTBI curriculum is based on a popular education model of experiential learning developed by Brazilian educator Paulo Freire.<sup>20</sup> Freire’s educational methodology, first applied to teaching adult literacy, draws upon the lived experiences of group members to bring to life the subject at hand. The DTBI group members learn to build effective teams by engaging in the process of building a team with each other. The participants, early in their professional training though they may be, already possess a rich set of experiences related to teamwork, health care delivery, prejudice, conflict, decision making, and action. The student leaders must help bring these experiences forth and use them in the learning activities throughout the year. Thus, student leaders need not be credentialed experts in subjects discussed. However, they do need training from a professional with both expertise in DTBI’s educational methodology and also the capacity to support their leadership throughout the year.

Using Freire’s approach means that each DTBI cohort is unique—the curriculum builds on group members’ experiences that vary from year to year. Group’s differences most clearly manifest during the Team Action phase when the teams collectively select and implement their action projects. During this phase, each group puts to use the team-building strategies they have learned in the previous months. The only restriction given each group is that their project be health related and interdisciplinary in nature. During DTBI’s first three years the action projects have included:

- a multimedia interdisciplinary education campaign (Cohort 1) targeting the Downstate community that addressed issues of prejudice in health care delivery and debunked myths and misperceptions about health specialties,
- a youth health and wellness conference for 70 public high school students that covered a wide range of health issues and offered hands-on experience with common medical instruments, and
- a community mural and health fair on the theme of “Bridges to a Healthy Future.” Downstate students, sixth graders from a local middle school, and an adult literacy group created the three-panel mural.

The amorphous nature of the action projects is critical to DTBI’s pedagogical foundation and the urge to micromanage group process should be resisted. This openness enables endogenous leadership to emerge and understanding of team dynamics to catapult to a new level of sophistication, whether or not a group as a whole reaches perfect cohesion.

**Method**

**Demographic data**

In its first three years, 65 students participated in DTBI (25 in Cohort 1, 20 in Cohort 2, and 20 in Cohort 3). Their demographics are shown in Table 1. Participants were from a broad range of ethnic, cultural, and socioeconomic backgrounds. They were predominantly female (84%), and openly identified gay, lesbian, and bisexual students (LGB) comprised 24% of the participants. Of the 65 students who began the program, 90% completed the first 11 Team Building sessions, and 80% completed the entire program, including the Team Action sessions.

**Team development data**

The DTBI sessions were designed to propel the group through four stages of team development: FORMING—getting to know one another; STORMING—confronting potentially divisive issues; NORMING—establishing an effective group process; and PERFORMING—

planning and implementing a community health action project (see Figure 1).<sup>21</sup>

This framework, developed by organizational psychologist Bruce Tuckman in 1965, has been used extensively, both nationally and internationally, to assess the progress of work teams.<sup>22</sup> Originally limited by its linearity, Tuckman’s framework was modified to a wheel format by a group of team effectiveness consultants in Colorado.<sup>23</sup> Based on this adaptation, a team can cycle through the wheel at different points in time or even be at two points simultaneously. For example, a group may be outwardly performing well while inwardly STORMING.

The team development wheel was used to chart the progress of each DTBI cohort. After every Team Building session, participants scored their group by circling one or more points on the wheel or highlighting the relevant subcategories. A group mean was determined at the end of every session. If a student circled more than one score per session, the mean of

**Table 1**  
**Demographics of 65 Participants in the Downstate Team-Building Initiative by Cohort and in Total, State University of New York, Downstate Medical Center, 2000–2003**

Cohort year	Program (%)*	National origin (%)	Ethnicity (%)	Socioeconomic background (%)	Gender (%)	Sexual orientation (%)
Cohort 1 2000–2001 n = 25	Medicine (44)	Canada (4)	Asian (17)	Wealthy (0)	Female (87)	Heterosexual (67)
	Nursing (4)	France (4)	Black (35)	Upper middle class (26)	Male (13)	Homosexual (12)
	Midwifery (17)	Hong Kong (4)	Latino (4)	Middle class (35)		Bisexual (21)
	PA (13)	Haiti (4)	White (40)	Working class (5)		Transgender (0)
	PT (9)	UK (4)	Unknown (4)	Poor (4)	Transgender (0)	
	OT (9)	UK (4)				
	DMI (4)	USA (80)				
Cohort 2 2001–2002 n = 20	Medicine (23)	Barbados (5)	Asian (13)	Wealthy (0)	Female (81)	Heterosexual (71)
	Nursing (19)	Dominican Republic (5)	Black (44)	Upper middle class (12)	Male (19)	Homosexual (10)
	Nurse anesthesia (6)	India (5)	Latino (6)	Middle class (38)		Bisexual (19)
	Midwifery (13)	Jamaica (5)	Mixed heritage (6)	Working class (38)		Transgender (0)
	PA (25)	USA (80)	White (31)	Poor (12)		
	OT (13)					
Cohort 3 2002–2003 n = 20	Medicine (63)	Guyana (5)	Asian (18)	Wealthy (0)	Female (83)	Heterosexual (90)
	Midwifery (5)	Haiti (5)	Black (24)	Upper middle class (18)	Male (17)	Homosexual (5)
	PA (22)	India (5)	Latino (6)	Middle class (18)		Bisexual (5)
	PT (5)	Russia (5)	Mixed heritage (6)	Working class (53)		Transgender (0)
	OT (5)	Sri Lanka (5)	White (46)	Poor (0)		
		USA (75)		Unknown (11)		
Total cohorts†	Medicine (44, <b>61</b> )		Asian (18, <b>24</b> )		Female (84, <b>85</b> )	Heterosexual (76, <b>78</b> )
	PA (19, <b>17</b> )		Black (34, <b>24</b> )		Male (16, <b>15</b> )	Homosexual (9, <b>4</b> )
	Midwifery (12, <b>7</b> )		Latino (5, <b>3</b> )			Bisexual (9, <b>18</b> )
	OT (9, <b>7</b> )		Mixed heritage (5, <b>3</b> )			Transgender (0, <b>0</b> )
	PT (5, <b>3</b> )		White (38, <b>46</b> )			
	Nursing (2, <b>2</b> )					
	DMI (2, <b>3</b> )					

\* Physician’s assistant = PA, occupational therapy = OT, physical therapy = PT, diagnostic medical imaging = DMI.

† Percentages for 34 respondents to completed pre- and postintervention questionnaire data are given in bold.

those scores was used. By doing so, we chose not to illuminate the subtleties of group process in order to provide a more lucid macro view of group progress. At the culmination of the Team Action phase, participants awarded their group a final team development score. The goal of the program's design was to move the groups through FORMING, STORMING, and NORMING by the end of Team Building (a score of 9), and through PERFORMING by the end of the Team Action (a score of 11). As an evaluation tool, Tuckman's model provided a helpful blend of the academic (a means of assessing overall team progress) and the pragmatic (as an in situ training aid for group leaders to assess how individual group members were feeling about the group process).

#### Program evaluation data

We assessed the overall effect of DTBI on participants through matched pre- and postintervention evaluations. Students completed the preintervention evaluation at the start of the first DTBI meeting and the postintervention evaluation after completing the action project. Absent members received the postintervention evaluation in the mail. Using a seven-point Likert-type scale, this evaluation tool assessed changes in five variables:

**1. Team atmosphere.** Eight variables described team atmosphere: community, safety, appreciation, trust, friendship, respect, hope, and alliance. Students rated the level of each element of team atmosphere they felt before and after the program.

**2. Teamwork skills.** The teamwork skills assessed were ability to resolve conflict, make team decisions, implement decisions, and respect individual members. Participants rated their confidence in the group's capacity and their own ability to accomplish each of these team functions.

**3. Multicultural skills.** Participants rated their confidence in themselves as individuals and in their group as a whole to address instances of racism, sexism, and homophobia. These variables were selected on the basis of the curriculum covered during the year. Using the capacity to address racism, sexism, and homophobia as a measure of multicultural skill reflects DTBI's attempt to move beyond surface-level interactions into the more

difficult challenges of multicultural alliance building.

**4. Interdisciplinary understanding.** To measure the evolution of students' knowledge about other health disciplines. Participants rated their understanding of the professional function served by seven health professionals (nurses, physician assistants, midwives, doctors, physical therapists, occupational therapists, and diagnostic medical imaging technicians) on a seven-point scale from "not-a-clue" to "very knowledgeable." Students also assessed their understanding of the training involved to become each of these seven health professionals.

**5. Interdisciplinary attitudes.** Interdisciplinary attitudes were assessed by asking students to rank seven health professions using 13 opposing adjective pairs (important/insignificant, independent/subordinate, old/new, humble/proud, routine/emergency, old/new, negligent/responsible, cooperative/competitive, antagonistic/friendly, aggressive/passive, complicated/systematic, selfish/partial, and idealistic/realistic).<sup>4</sup>

We analyzed the above data using descriptive statistics, difference of means testing, analysis of variance (ANOVA), multivariate regression analysis, and factor analysis with orthogonal rotation. Although the data evaluated was not a probability sample, we used inferential statistics and significance testing to help clarify the strength and meaning of findings.

#### Clinical follow-up data

The longer-term impact of DTBI was assessed via a narrative follow-up survey of graduates of DTBI now working in clinical settings either as students or recent graduates. The questionnaire asked five questions: Was DTBI a meaningful part of their educational experience?; How has DTBI impacted the way they relate to people from other health professions?; Have they been able to use skills acquired in DTBI in the year(s) following their participation?; Did DTBI heighten their awareness of social equity issues in health care?; and Have there been any other personal or professional impacts of DTBI? Twenty-three surveys were returned: 15 from Cohort 1 and eight from Cohort 2. Cohort 3 had not yet entered their clinical years.

## Results

### Team development results

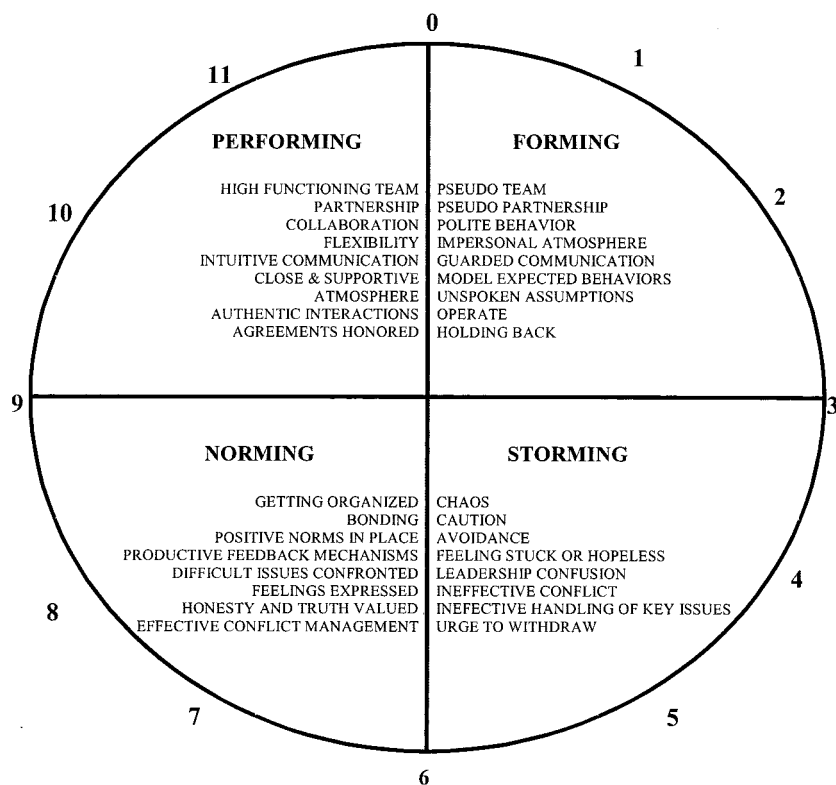
The results of the overall team development scores are shown in Figure 2.

Each cohort followed a roughly logarithmic trajectory, with the steepest increase in team development occurring between sessions one and two, a slower progression from sessions two to five, and a plateau between five and 11 (the start of Team Action). All three cohorts moved through the phases of FORMING and STORMING on the team development wheel by the end of session four. They spent the remainder of the sessions progressing through NORMING, honing their group dynamics. Each cohort finished Team Building with similar team development scores—8.5 (Cohort 1), 8.4 (Cohort 2), and 8.3 (Cohort 3)—thus approaching the target score of 9. Of note is the fact that the session order differed from year to year. For example, for Cohort 1 the power shuffle, racism, and homophobia workshops were sessions three to five but Cohorts 2 and 3, these workshops were dispersed between sessions four and seven. Despite these modifications, the final score and general trajectory of the Team Building phase remained consistent.

During the Team Action Phase, Cohort 1's multimedia education campaign was outwardly successful; however, participants felt an internal lack of cohesion and awarded themselves a final score of 9 for team development. Cohort 2's health and wellness conference was more successful, achieving a final team development score of 10.5. Cohort 2's project was also successful by an external measure. The 70 high school students completed questionnaires evaluating their experience, and the results overwhelmingly demonstrated that the cohort implemented a logistically smooth and substantive event in which the high-school attendees had a wonderful time and learned a great deal. Cohort 3's final team development score was 10.0. Two-thirds of Cohort 3 awarded their group a final score of 11 while the remaining third scored it lower.

### Program evaluation results

A total of 34 students (52%) returned matched pre- and postintervention evaluations were collected. Nine students completed pre- but not postintervention evaluations, 11 completed post- but not preintervention evaluations, and eight



**Figure 1** Team Development Wheel used to chart the progress of team development by participants in Downstate Team Building Initiative groups, State University of New York, Downstate Medical Center, 2000–2003. For example, after each session, participants circled one or more values on the wheel.

students quit DTBI for academic and/or personal reasons. The evaluations from student co-leaders were excluded because their exposure to the curriculum was twice the duration of the other participants. Despite the small number of respondents, the completed evaluation sets were remarkably proportional to the participant population as a whole (see Table 1).

The ANOVA showed no significant difference in data on the basis of DTBI cohort. Therefore the 34 data sets were treated as one group. Regression analysis produced a highly significant positive constant term indicating a very robust difference between the post- and preintervention perceptions ( $p < .001$ ). We tested the preintervention variables student program, DTBI cohort, gender, race, and sexual orientation, as potential predictors of the postintervention variables, but none were found to be significant. Although the results presented in this section are not based on a probability sample, the data suggest important differences between pre- and postintervention means on all major variables (Figure 3).

In fact, the effects documented are so strong that the preintervention values are not good predictors of the postintervention values in most cases.

**1. Team atmosphere.** Factor analysis of the eight variables revealed only one significant dimension explaining over 60% of the variance. Consequently, the variables community, safety, appreciation, trust, friendship, respect, hope, and alliance were pooled as an evaluation of “team atmosphere” yielding the following results: 31/34 participants felt team atmosphere improved, with a mean improvement of 2.0 points on the Likert scale, or 48% ( $p < .001$ ).

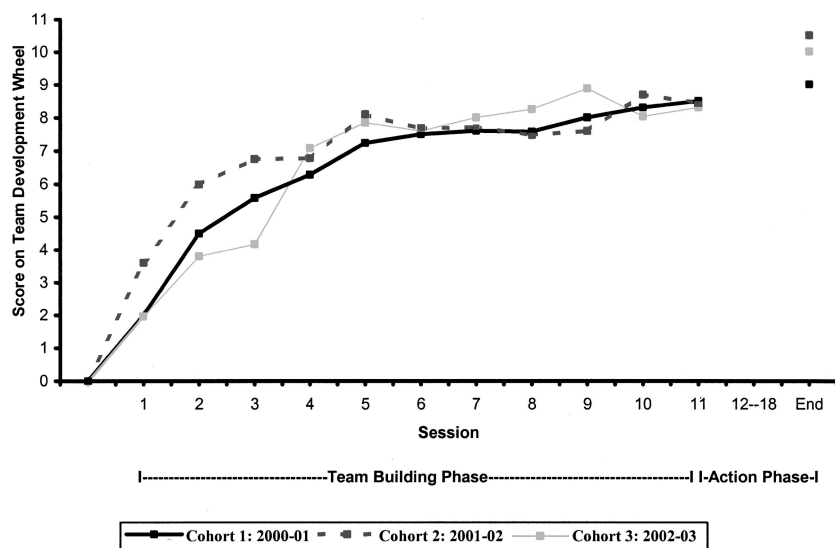
**2. Teamwork skills.** Factor analysis of conflict resolution, collective decision making, action implementation, and respect for individual members also revealed one dimension. When these variables were pooled, every participant believed the groups’ teamwork skills improved. The mean improvement was 1.9 Likert points, or 44% ( $p < .001$ ). Participants assessed their individual improve-

ment to be slightly less but still substantial at 35%.

**3. Multicultural skills.** Confidence in the group to address discrimination issues (racism, sexism, and homophobia) improved by 36% ( $p < .001$ ), while confidence in one’s self started at a higher baseline and improved less, increasing 13% ( $p < .002$ ). Interestingly, this change in individual confidence was entirely accounted for by the participants of color. While the white participants felt the group as a whole had improved in its ability to address racism, sexism, and homophobia, they showed no significant improvement in their own confidence to address these issues. The composite preintervention score for individual multicultural skills exceeded that of any other variable.

**4. Interdisciplinary understanding.** Understanding of the professional function served by the seven health disciplines improved across the board, with a mean improvement of 36% ( $p < .001$ ; see Figure 3). The understanding of professional training of each of the various health professions yielded an even more impressive result: 33/34 participants felt their understanding improved, with a mean increase of 52% ( $p < .001$ )—the greatest change of any category tested. When broken down by health discipline, some subtle results emerge (see Table 2.) Students across disciplines came to DBTI knowing what doctors do (preintervention evaluation mean = 5.8) and the mean change was the lowest (12% improvement). The lowest baseline understanding was of professional function of diagnostic medical imaging technicians (3.1), occupational therapists (3.5), and midwives (3.7). The greatest change occurred in understanding of occupational therapy (65%) and midwifery (49%). Due to limitations of sample size and selection, general conclusions distinguishing responses by health disciplines could not be drawn. Within this sample however, physician’s assistant students showed the greatest increase in understanding of professional function (47%) followed by medical students (39%).

**5. Interdisciplinary attitudes.** Analysis of the opposing adjective data produced very few significant results. Although this tool has been used previously to test interdisciplinary perceptions between two groups, the matrix created by testing atti-



**Figure 2** Progression of mean team development scores for three cohorts participating in the Downstate Team Building Initiative, State University of New York, Downstate Medical Center, 2000–2003. Note: At the end of the Team Action phase, participants awarded a final team development score to their groups, represented by the box marks on the right side of the graph.

tudes towards seven health disciplines was formidable, and respondents had difficulty completing the required judgments.<sup>4</sup> Consequently, students' responses depended more on the adjective pair than on the profession in question. In other words, for a given question, students assigned very similar scores to all seven health professions. One interesting trend that did emerge, however, pertained to the adjective pair "important vs. insignificant." Medical student perceptions of the importance of nurses, PAs, and midwives improved by an average of 15% ( $p < .05$ ).

#### Additional findings

The data was also analyzed to find effects of health discipline, gender, race, and sexual orientation on the five variables described above. ANOVA showed no significant differences.

Gender did seem to impact changes in interdisciplinary understanding. Male participants improved more than the female participants in understanding of professional function (men 54%, women 33%) and professional training (men 89%, women 48%).

Of descriptive interest, too, is the fact that the participants of color demonstrated a slightly greater change in individual confidence to address racism than did white participants (people of color: 9%, white: 4%). A factor analysis was conducted by combining all variables for team atmo-

sphere, teamwork skills, and multicultural skills. This analysis suggested that individual confidence to address racism, sexism, and homophobia was associated with feelings of safety (a team atmosphere variable).

Finally, a comparison of the openly identified lesbian, gay, and bisexual participants (there were no self-identified transgender participants) to their heterosexual counterparts revealed an interesting trend. These students changed more than heterosexual students on every major variable tested. For example, LGB students felt that team atmosphere improved by 54%, compared with heterosexual students who felt team atmosphere improved only 33%. Two-thirds of this difference came from a lower preintervention evaluation score for team atmosphere assigned by LGB students. One explanation for these findings is that LGB students were more guarded when beginning the program.

#### Clinical follow-up

Results from the clinical follow-up were overwhelmingly positive (see Table 3). Difficulties with changing addresses and busy clinical schedules presumably limited the number of responses. It is also possible that positively inclined participants were more likely to respond. However, when their program evaluations were compared, no systematic pattern of difference emerged along the critical pa-

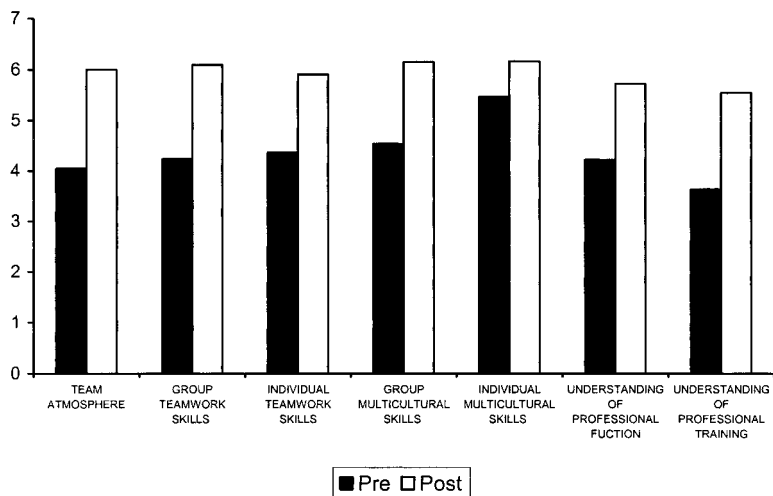
rameters between responders and nonresponders.

#### Discussion

DBTI has successfully established three cohorts of interdisciplinary and multicultural student teams. The Team Building phase of the DTBI curriculum reached its goal each year by propelling the student teams through the first three stages of team development: FORMING, STORMING, and NORMING. The slopes of the team development curves were remarkably similar for three consecutive years, despite the fact that the order of sessions varied somewhat. This finding suggests that the rate of team progression may be more a function of the quality of time spent together rather than specific session topics, and it supports the adaptability of the DTBI curriculum to other health schools and settings. Session topics can be modified to reflect issues pertinent to a given arena as long as the quality of interaction is not compromised. For example, although the DTBI curriculum addresses racism and homophobia as STORMING issues; another group might use the same workshop structure to approach gender dynamics or immigration status so long as the chosen topics intersect with the life experiences of the group members.

During the Team Action phase, variation in team development emerged among the cohorts. Cohort 1 remained in NORMING while Cohorts 2 and 3 advanced to the final stage—PERFORMING. Several explanations could account for why Cohorts 2 and 3 ultimately established a stronger internal sense of team. Cohorts 2 and 3 selected more unified and focused action projects than did Cohort 1, which divided into multiple subgroups each with a distinct goal. This choice may have led to a greater feeling of cohesion in the planning and sense of group accomplishment in the implementation of the action projects for Cohorts 2 and 3. In addition, receiving a very warm response from the outside community may have augmented Cohorts 2 and 3's sense of accomplishment. Cohort 1, on the other hand, focused on the internal Downstate community and may have missed some benefits of expanding beyond their immediate academic environment.

Data from the evaluation and follow-up survey strongly suggest that the approach



**Figure 3** Summary of improvement in seven team-building skills reported by participants in the Downstate Team Building Initiative, State University of New York Downstate Medical Center, 2000–2003. Students used a seven-point Likert-type scale (1 = none to 7 = very strong) to rate their groups’ skills. Team atmosphere improved 48% ( $p < .001$ ). Group teamwork skills improved 44% ( $p < .001$ ). Individual teamwork skills improved 35% ( $p < .001$ ). Group multicultural skills improved 36% ( $p < .001$ ). Individual multicultural skills improved 13% ( $p < .002$ ). Understanding of professional function improved 36% ( $p < .001$ ). Understanding of professional training improved 52% ( $p < .001$ ).

to team building modeled by DTBI effectively teaches students both teamwork and multicultural skills applicable to pre-clinical and clinical settings. This conclusion is supported by both the statistical findings, which revealed significant changes in every major variable tested, and the narrative data as typified by the following quote from a fourth-year medical student two years after participating in Cohort 1:

DTBI allowed me to have valuable interactions with other members of the health care team—to better understand their perspectives. Prior to my experience in DTBI, I would have too easily accepted

the stereotypes people have about particular health care team members. Now when such stereotypes pop up in my head, I can think about all the people I met in DTBI and know how inaccurate those stereotypes are.

Analysis of the pre- and postintervention evaluations revealed several trends deserving of further comment. Although the DTBI cohorts were remarkably diverse along lines of discipline, ethnicity, socioeconomic class, and sexual orientation, men were consistently underrepresented, constituting only 16% of participants. This gender ratio can be partially explained by the large proportion of

women in the programs of nursing and the CHRP. However, if the gender ratios were standardized to reflect the gender composition of each Downstate program, 33% or twice as many of DTBI participants would have been men.

This gender discrepancy is entirely attributable to medical students. Female medical students have consistently shown more interest in DTBI, suggesting that aspects of the team-building experience are particularly attractive to women. Yet, the men who do participate appear to derive greater benefit than the women, especially with respect to interdisciplinary understanding. One could argue that more male medical students should be encouraged to participate in programs like DTBI because the process seems to work for them. One could also argue that DTBI attracts a highly selective group of men who are uniquely open to personal change. Therefore if a random sample of men participated, this trend might not continue.

Another notable finding was the absence of any major improvement in the individual confidence of white participants to address discrimination issues. This result can be explained in two ways: an overly confident preintervention evaluation score and/or a multiculturally savvy group of white participants. Many white students in DTBI lacked direct experience with addressing racism. Such students may not have realized how difficult multicultural alliance building can be and, thus, overestimated their preintervention competence. This explanation makes sense in the context of racial identity de-

**Table 2**  
**Pre- to Postintervention Changes in Students’ Understanding of Professional Function Having Participated in the Downstate Team Building Initiative, State University of New York, Downstate Medical Center, 2000–2003\***

School	Improvement in knowledge about professional function of.....							Overall change
	MD	N	MW	PA	PT	OT	DMI	
Medical (MD) students (No. = 21)	10%	32%	50%	52%	36%	73%	44%	<b>39%</b>
Nurse/midwifery (N, MW) students (No. = 3)	12%	18%	5%	64%	15%	40%	50%	<b>23%</b>
Physician’s assistant (PA) students (No. = 6)	18%	67%	82%	3%	47%	81%	150%	<b>47%</b>
Physical therapy (PT) students (No. = 1)	40%	20%	25%	50%	0%	50%	25%	<b>29%</b>
Occupational therapy (OT) students (No. = 2)	0%	-8%	140%	20%	-8%	8%	-11%	<b>10%</b>
Diagnostic medical imaging (DMI) students (No. = 1)	0%	0%	20%	20%	20%	200%	0%	<b>19%</b>
<b>Participants pooled together No. = 34</b>	<b>12%</b>	<b>30%</b>	<b>49%</b>	<b>37%</b>	<b>30%</b>	<b>65%</b>	<b>46%</b>	

\* For example, the medical student’s postintervention evaluation of their own of understanding of the professional function of nurses was 32% higher than their preintervention assessment. The “overall change” column represents the average change in understanding of professional function of the health disciplines pooled together.

Table 3

**Responses of Downstate Team Building Initiative (DTBI) Graduates Now Working in Clinical Settings about the Impact of Participation, State University of New York, Downstate Medical Center, 2000–2003**

Item	Response	% or No.	Examples
Clinical setting in which you have been working	Hospital	46%	
	Clinic	24%	
	Emergency department	10%	
	Community center	4%	
	Psychiatric ward	4%	
	Homeless shelter	4%	
	Nursing home	4%	
Was DTBI a meaningful part of your educational experience?	Yes	22	Improved understanding of group dynamics found in the medical profession. Allowed exposure to both occupational and cultural viewpoints on health care. Provided a forum to speak candidly about real life issues that often go undiscussed or are denied by society. Assisted in transition to the “real world.”
	Not sure	1	
	No	0	
Did DTBI heighten your awareness to social equity issues in your health care settings?	Yes	20	Heightened awareness of <ul style="list-style-type: none"> <li>• own privileged status;</li> <li>• racism and homophobia in health care settings and among health workers;</li> <li>• caregiver attitudes towards poor patients, immigrants, and patients with limited English.</li> </ul>
	No	3	I was already aware.
Have you been able to use skills acquired in DTBI in the years following your participation?	Yes	21	Former students reported <ul style="list-style-type: none"> <li>• being more open minded and less biased when interviewing patients;</li> <li>• resisting presuming the heterosexuality of their patients;</li> <li>• taking a more active role in building multicultural alliances;</li> <li>• generally being more likely to strive for equality.</li> </ul>
	No	2	

velopment theory, which suggests that white people generally lag behind people of color in their awareness of themselves as racial beings and of racism as a whole.<sup>24</sup> DTBI was an important intervention for these students, as indicated by comments in their follow-up surveys.

A second set of white students came to DTBI already possessing highly evolved multicultural skills. For these students, the racism curriculum was confirming but not transformational. Still, there is room for growth among experienced students as well. The results of the factor analysis linking “safety” to individual confidence in addressing racism, sexism, and homophobia suggests that if feelings of safety could be improved, so then might the ability of all participants to deal with multicultural issues arising in groups.

The finding that LGB participants demonstrated more change than their hetero-

sexual counterparts also merits discussion. DTBI provided an arena in which LGB students could “come out” and openly discuss their sexuality. As a result, a substantial increase in feelings of community, safety, trust, hope, alliance, appreciation, and respect (the defining variables of team atmosphere) occurred. Yet, LGB participants showed greater change for all variables, including measures of interdisciplinary understanding. The likelihood that this pattern would occur by chance alone is only .007. A considerable body of educational research finds that students learn better in atmospheres where they feel safe and appreciated.<sup>25–27</sup> Perhaps a similar phenomenon is at work here.

The positive impact of DTBI on LGB participants does not signify a lack of change amongst heterosexual team members. On the contrary, follow-up surveys repeatedly cited heightened awareness of

homophobia as a major effect of DTBI. For example, one midwifery student in Cohort 2 wrote:

DTBI really impacted my overall awareness. I notice how racism and homophobia are so prevalent in health care settings and among health care workers. In dealing with patients, I am much more aware and open. I try to be more inclusive in my questioning and less biased.

Despite these positive outcomes, of course not all important changes revealed by the data can be credited to DTBI. Students had many other experiences during their participation in DTBI. The improvements in interdisciplinary understanding, for example, could stem from other encounters occurring during the same time period as DTBI. Taken individually, any one of the research variables is vulnerable to a similar criticism. However, the power of the results presented in this report lies in their composite una-



nimity: They all indicated that DTBI made a positive impact on the lives of participants.

In closing, we believe that DTBI has offered important leadership, personal growth, and community involvement opportunities to participating students. Students committed significant amounts of their valuable time—not due to the crack of an administrative whip, attendance lists, or looming grades—but because they wanted to be in multicultural and interdisciplinary settings and to contribute something to their broader community surroundings. As such, DTBI genuinely advances the goals outlined by the Medical School Objectives Project (MSOP) by promoting altruism, respect, compassion, honesty, and integrity not only in medical students but also in other health professionals.<sup>28</sup> This fundamental theme appears throughout this research and is captured in the following PA student's reflection about DTBI, "Now when I look at people I realize that I am only seeing the surface. I need to extend myself to see and understand deeper. This is how I can make connections." Effective team building is about effective relationship building. DTBI successfully teaches students to foster connections across their vastly diverse professional and cultural lives. By doing so, the DTBI approach to team building can improve the ability of future health care providers to work cooperatively in delivering quality health care.

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## Appendix

### **Overview of the Downstate Team-Building Initiative (DTBI) Curriculum, State University of New York, Downstate Medical Center, 2000–2003**

#### **Session 1: Breaking the Ice: Who's Our Team?**

The first official session of DTBI is spent getting to know who is in the room, why each person chose to participate, and what expectations and concerns participants have about the experience they are about to undergo. Students come to consensus on a set of group process agreements. A series of "ice breaker" activities designed to help participants lighten up and get comfortable with each other are introduced.<sup>1</sup> Both a written evaluation tool and an ongoing method for self-assessment are initiated.

#### **Session 2: Health Care Teams: Roles and Relationships.**

Session two explores questions such as: What are the professional roles of each discipline represented? What (mis)perceptions do participants carry about each others' disciplines? What are the barriers to forming productive professional relationships? The issues raised are addressed through a variety of small group activities designed to uncover underlying assumptions about one another. Each DTBI participant is asked to find a partner from a different health specialty with whom to build a more in-depth relationship throughout the program.

#### **Session 3: Tinker Toys: Teamwork in Hierarchical Organizations.**

This session looks more closely at the inner workings of health care teams. The group participates in a two-hour long role-play designed to bring forth the challenges of working as a team within a hierarchical structure. Working members of health care teams are invited to participate and apply the general insights gained from the exercise to the health care context.

#### **Session 4: The Power Shuffle: Identity and Inequality within Groups.**

Two basic models for understanding societal inequality are introduced: the "Five I's of Oppression"<sup>11</sup> (which defines oppression along ideological, institutional, interpersonal, internalized, and isolation lines) and the "Agent/Target model"<sup>1</sup> (which assists students in understanding how their individual identities assign them societal privileges and/or disadvantages). These models serve as the framework through which the group explores how race, gender, sexuality, and class intersect with health care delivery.

#### **Session 5: Speaking-Out about Racism: Building Multicultural Alliances on Teams.**

The "Five I's" and "Agent-Target" models introduced in the previous session are revisited through the lens of racism. The participants move into race specific caucus groups for a story-telling exercise and then reunite in a special facilitated dialogue called a "speak-out." In doing so, the participants of color have the chance to speak first amongst themselves and then directly to the white participants about racism in health care. The white participants, in turn, have the opportunity to reflect on their role in perpetuating and resisting racism in health care and to take steps toward becoming allies to the people of color in the group. Direct communication and active listening skills are emphasized as key team-building strategies.

#### **Session 6: Theatre of the Oppressed: Homophobia and Health Care.**

The "Five I's" and "Agent-Target" models are analyzed through the lens of heterosexism. Using the theatrical techniques of Brazilian educator Augusto Boal, the group conceptualizes, enacts, and practices intervening in homophobic scenarios likely to be encountered on health care teams and in the delivery of health care. Guest speaker(s) are invited to participate.

#### **Session 7: DTBI Culture and Talent Share and Party.**

Fun is had!! Hidden (and not-so-hidden) talents are revealed. Music, food, and a little reflection are shared in the last session before winter vacation designed to deepen friendships, lighten the tone, and strengthen group cohesion.

#### **Session 8: Managing Conflict on Health Teams.**

Using role-playing, "hassle lines," and "freeze" theater techniques, the group practices addressing a variety of conflicts common to health care teams. The scenarios presented—ranging from ethical dilemmas to quality-of-care disputes—were generated by practicing health care workers who are also invited to participate in this session. A theoretical framework for addressing conflict in health organizations is introduced to help contextualize the examples of conflict addressed.

#### **Session 9: The Impact of Social Class and Education on Access to Health Care: An International Patient Perspective.**

Patients from a range of national and international backgrounds are invited to speak about their experience of how nationality, immigration status, social class, and education have impacted their medical treatment and interactions with health care providers. Broader social themes such as caring for the uninsured and the impact of managed care are addressed.

#### **Session 10: Moving Deeper: Systemic Challenges between Health Disciplines.**

The leadership and planning of this session is handed over to the group members. Volunteers are asked to design a session that furthers the exploration of challenges facing health care teams. Topics from earlier sessions (such as interdisciplinary stereotyping, health team conflicts, and ethical dilemmas) are re-examined with the goal of forming deeper alliances among team members. Giving participants a chance to plan and facilitate a meeting sets the stage for the action phase at which time participants take over leadership of the group entirely.

#### **Session 11: Leadership: Strategies for Team Decision Making and Action Planning.**

The merits and challenges of consensus decision making are analyzed. Participants address the questions of if and when consensus is possible within hierarchical health teams. A strategic action-planning model designed to help groups implement decisions is presented. The session ends with a facilitated brainstorm for the DTBI community action project

#### **Sessions 12–17: Action Project Development and Implementation.**

DTBI participants take over the facilitation of the group and work together to decide upon and plan the implementation of their community action project. The range and scope of the action project is left intentionally vague—the only specification being that it must be related to health care in some way. This lack of structure is in stark contrast to the minute-by-minute delineation of the curriculum during the first 11 sessions. The purpose of this openness is to allow the newly formed student team to grapple with the frustrations and triumphs endemic to implementing a group decision.

#### **Session 18: Evaluation, Reflection, and Closure.**

The final group session involves an evaluation of the group process, a synthesis of insights born from the DTBI experience, and an opportunity to appreciate the individual participants. The postevaluation tool is administered at this time.