A Five-Year Evolution of a Student-led Elective on Health Disparities at The Alpert Medical School

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ABSTRACT

BACKGROUND AND OBJECTIVE: Medical students are often unprepared for social challenges in caring for safety net patients. We aim to evaluate and chronicle the evolution of a pre-clinical elective alongside medical disparities curriculum.

DESIGN AND METHODS: Medical students designed the course to supplement clinical training on care of vulnerable patients. From 2011–2015, there have been 80 first-year medical student participants, five cohorts of second-year course leaders, and two supporting faculty advisors for this 10–12 session evening elective.

RESULTS: Students (n=67) rated the course extremely highly (ranging from 4.4-4.6 on a five-point Likert scale). Medical students reported having significantly more knowledge of underserved populations after taking the course (difference=0.72, SE=0.16, P <0.001). Career interests and attitudes toward health disparities remained strong after taking the course.

CONCLUSIONS: This student-created elective equipped participants with improved knowledge in caring for underserved patients and contributed to the incorporation of health disparities in medical curriculum.

KEYWORDS: medical education, health disparities, underserved patients

INTRODUCTION

Medical students increasingly have the opportunity to care for underserved patients. Student-run health clinics are present in most medical schools, accounting for more than 36,000 annual patient–physician visits nationally.[1] In these clinics, medical students learn how to treat acute illness and manage chronic conditions in predominantly low-income, minority patients. These clinical experiences are often a student's first exposure to social and economic determinants of health inequality, extensively documented in Institute of Medicine's *Unequal Treatment* report on racial-ethnic disparities in United States healthcare.[2] While many authorities urge academic institutions to take responsibility for educating medical students on these health disparities,[3-5] medical students have risen to the challenge of educating themselves on this important subject.

Student-run clinic participants are quick to recognize that patients they care for have complex needs and are calling for more health disparities training. University of California San Diego medical student survey respondents perceived that student-run free clinics were a valuable educational experience and improved attitudes toward working with underserved patients.[6] Jefferson Medical College student-run clinic participants reported on a survey that they were not prepared to confront social problems and barriers to care encountered at free clinics but that they welcomed orientation to these issues prior to working in these clinics.[7]

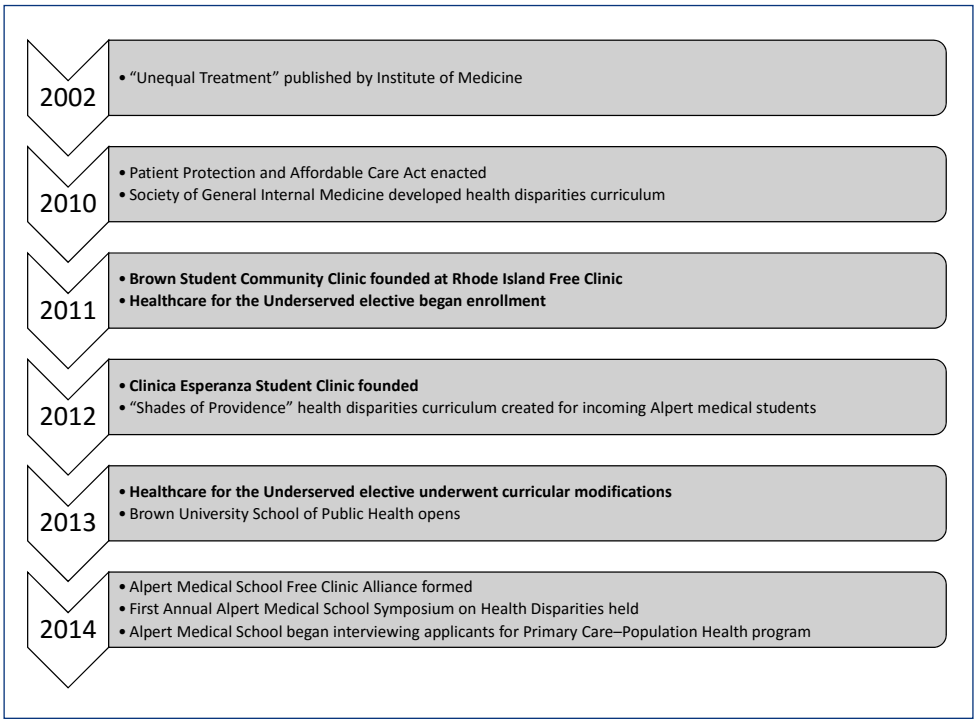
Despite both institutional and student-led demands to incorporate health disparities into medical education, there are few case reports of health disparities training in didactic settings. Literature describes examples of peer mentoring and clinical teaching in student-run clinics[9,10] and also examples of student-initiated didactic curricula separate from clinical experience.[8] One case report from the University of California San Francisco highlighted students who developed a preclinical service-learning curriculum about hepatitis B viral infection.[11] To our knowledge, this report is the first to chronicle student-led efforts to care for underserved patients alongside the evolution of medical curriculum to include health disparities education.

At The Warren Alpert Medical School of Brown University, student-run clinic participants observed a gap in their ability to successfully care for the needs of uninsured Rhode Island patients. In order to enhance and deepen their patient care at these clinics, medical students developed a preclinical elective called "Healthcare for the Underserved." Based on a peer-learning model, the elective examines the unique health and healthcare challenges faced by underserved patients in Rhode Island. This paper aims to share the opportunities, mechanics, and challenges characterizing the experiences of student leaders in pre-clinical course development. We argue for the feasibility and sustainability of this student-led elective's structure as a supplement to student-run clinic efforts, formal medical school curriculum, and as a model for shaping pre-clinical medical education.

INTERVENTION

In 2010, several medical students founded Alpert Medical School's inaugural student-run health clinics, Brown

Figure 1. Timeline of events pertinent to development of the Healthcare for the Underserved elective.



Student Community Clinic within the Rhode Island Free Clinic, and later, a second one within the existing Clinica Esperanza (**Figure 1**). Quickly thereafter, student clinic leaders recognized the need for more formal education in the care of underserved patients. In addition to an experiential component in free clinics, the classroom allowed a forum for discussion on topics relevant to underserved populations with a focus on health disparities. Two medical students designed the pre-clinical elective, Healthcare for the Underserved, as a venue to engage others in peer-learning about health disparities. In 2011, the Medical Curriculum Committee approved the elective and opened the course to enrollees.

A senior medical student and a faculty advisor helped with the elective during its first two years and recruited the initial cohort of 19 junior medical students from a student activity fair. Students determined class content, invited class speakers (i.e., physicians, community leaders), facilitated class discussion for realistic solutions to problems discussed. This effort culminated in 10–12 evening seminars on student-selected topics such as homelessness/teenage runaways, immigrants and non-English speakers, and safety-net workplace culture. At the end of the elective's second year, three class participants volunteered to be course leaders for the following year and continued to engage previous students in preparing for the next series of seminars.

In 2013, based on course feedback showing evolving student interests, course leaders restructured the elective. Evaluations from the previous year called for more formal structure and content in each student-led session. Students wanted a more cohesive framework for exploring health disparities, while preserving student-determined course content.

In response, student leaders reorganized the course into five modules on designated topics: (1) refugee/immigrant health and medical-legal issues, (2) child obesity and the built environment, (3) hypertension rates and race/ethnicity, (4) teen pregnancy and sex education, and (5) mental health and homelessness. Students were also divided into five groups based on these modules, and each group was asked to collaborate on a presentation or workshop. This framework allowed the flexibility of peer-learning within a set of core topics in healthcare for the underserved.

Student evaluations also pointed to the importance of linking class topics to clinical practice. Because students were no longer required to volunteer at local free clinics (although many did), student leaders incorporated clinical cases into didactic sessions. They invited physicians to present examples of patients they cared for in underserved communities. These examples included asthmatic children living in mold-infested housing and overweight children with poor access to balanced and healthy nutrition.

In addition, didactic sessions were typically followed by workshops that aimed to teach students patient-centered skills essential to the care of underserved patients. These skills included optimizing interpretation in patient encounters, techniques in culturally-sensitive motivational interviewing, and composition of legal advocacy letters. Following the 2013 course, this new structure has persisted and even incorporated new topics based on student feedback each year (**Table 1**). All the while, the same faculty advisor, since the elective's inception, continues to support all curricular activities and attend class sessions.

Following the Healthcare for the Underserved elective, new electives and required courses increased opportunities for health disparities training for Brown medical students. Emerging preclinical electives furthered several issues touched on by Healthcare for the Underserved (e.g., "*Poverty, Health and Law," "Gender and Sexuality in Healthcare," "Refugee Health and Advocacy"*).[6]

RESULTS

Following each class and at the end of every Healthcare for the Underserved course, students provided quantitative

Table 1. Elective curricular content as chosen and organized by students

Class seminar topics by academic year
2011–2012
Healthcare for homeless
Geriatric issues
Med student cynicism, professionalism, and the underserved
Addiction and substance abuse
2012–2013
Underserved communities in Rhode Island
Adolescent mental health
Domestic violence
Emergency room diversion
At-risk youth
Race and biomedicine in historical perspective
Patient-physician communication
2013–2014
Refugee and immigrant health
Immigration and medical-legal partnerships
Disparities in childhood obesity
Nutrition counseling and WIC/SNAP*
Disparities in hypertension
Race and biomedicine
Teen pregnancy in Rhode Island
Interventions in teen pregnancy
Veteran homelessness
Mental health
2014–2015
Refugees and medical-legal partnerships
Working with interpreters
Prisoner health
Lesbian, gay, bisexual, transgender, and queer health
Veterans health and the VA
Teen pregnancy and sex education
Homelessness
Race and biomedicine
2015–2016
Introduction to social determinants of health
Power, privilege and oppression
Racial and ethnic disparities in health and healthcare
Race and medicine
Gender, sexuality and intersectionality
Unconscious bias in medicine
Neighborhood and the built environment
Health, social policy & the role of the physician advocate

*WIC/SNAP= Supplemental Nutrition Assistance Program for Women, Infants, and Children

feedback on their experiences via 5-point Likert scales. From 2011–2014, a total of 67 students enrolled in our class and 48 completed evaluations on the final session, for an overall survey response rate of 72%. Unweighted average ratings across the years were high on all four of our measures: quality of information provided (4.5), clarity and organization of presentations (4.4), topics' level of interest (4.4), and whether students would recommend the class (4.6).

Class surveys also included qualitative feedback. In a free response section, participants reflected on what they learned and offered suggestions on course improvement. Several themes emerged from students' qualitative feedback, including the benefit of discussing topics relevant to the local community, learning from different perspectives among peers, and engaging with local experts. Students felt class sessions "inspired fruitful discussion between the medical community at Brown and local advocacy groups."

Students particularly valued the course as a space to discuss and implement solutions to health inequities. They asked for more emphasis on "on student projects and finding problems that can be fixed by student involvement." They found discussion "thought-provoking" and "definitely something that I want to look more into and think more about." Ultimately, they connected policy discussions back to the patients they served: "I think this is a great way for us to start thinking about health policy and how we as clinicians can establish or develop programs that will help the livelihoods of our patients."

Student feedback was instrumental in shaping curriculum changes from year to year. A specific recommendation in 2012 asked to integrate the sessions into a more cohesive framework and for "a bit more continuity between sessions." Students reflected on the importance of structure and asked for leaders to "be more systematic and focused," citing, "Because we are handling so much information every day, it is difficult to follow when things get too informal at 6 pm (for the elective)." These comments led to the development of the five modules in 2013.

Following the implementation of modules, a one-time pre- and post-course survey with 4-point Likert scales was added to track changes in student knowledge (i.e., definition of "underserved") and attitudes (i.e., interest in a medical career providing care for underserved and interest in non-clinical health disparities work). Univariate analysis with paired t-tests was performed on STATA 13.0. From 2013-2014, the overall survey response rate was 90% (n=18).

Following course completion, students reported having more knowledge about underserved populations and their career interests and attitudes toward health disparities remained above average (2.5 out of 5 on Likert scale). There was a large increase in self-reported understanding of what "underserved" means (difference = 0.72, SE = 0.16, p<.001) (**Table 2**). However, all other statements concerning career choices and interests (i.e., devotion to caring for underserved, work in primary care, interest in health disparities research) were not statistically significant. There was still an overall increase in knowledge and interest in caring for the underserved (difference = 0.15, SE = 0.06, p=.02), which likely resulted from the substantial self-reported improvement in knowledge of the underserved. Results should be interpreted knowing that there was no comparison group.

Evaluation from 2014 of the elective continues to inform course leaders. Students called for patients to speak about their own experiences of health disparities (e.g., "Definitely bring a patient next time! Would really love to hear a patient perspective."). At the same time, students called for more time for group discussion. They further reinforced the value

Table 2. Pre- and post-course student survey on knowledge and attitudes surrounding health disparities in 2013-2014.

	Pre	Post	Diff (SE)	P-value
I have a good understanding of what "underserved" means	3.06	3.78	0.72 (0.16)	<0.001
I envision myself devoting my future career to caring for underserved communities	3.33	3.61	0.28 (0.16)	0.10
Addressing health disparities will be a part of my future medical career	3.72	3.89	0.17 (0.12)	0.19
I am interested in working in a primary care field	2.89	2.89	0 (0.14)	1.00
There are special/additional skills unique to effectively caring for underserved populations (as opposed to patients at large)	3.61	3.83	0.22 (0.13)	0.10
I am interested in health policy	3.28	3.28	0 (0.11)	1.00
I am interested in physician advocacy	3.44	3.17	-0.27 (0.14)	0.06
I am interested in quantitative health disparities research (epidemiology, etc)	3.06	3.11	0.05 (0.21)	0.79
I am interested in qualitative health disparities research (humanities, social sciences, etc)	2.94	3.17	0.23 (0.26)	0.41
Overall	**3.26**	**3.41**	**0.15 (0.06)**	**<0.02**

of a student-driven course design, consistently giving positive feedback on student-led presentations (e.g., "My classmates really did a great job; I was very impressed.").

DISCUSSION

As the only medical students in the state of Rhode Island, Brown students successfully advocated for the creation of student-run clinics and more didactics to provide better care for its most vulnerable patients. The innovation in Healthcare for the Underserved is not in curricular content, but rather in its dissemination method, in which students became the catalyst for encouraging medical curriculum change.

As student leaders and faculty of Healthcare for the Underserved, the authors learned several lessons. First, the elective is an example of how student demand was harnessed into medical education reform. Second, it demonstrated that a student-designed elective with both clinical and didactic components can increase self-reported knowledge about health disparities and caring for the underserved. Despite its original intentions, it is unclear if the elective inspired any attitude or career changes, though the lack of demonstrated change may be due to significant interest of students who self-selected into this class. Despite limitations to extrapolating from case reports, Healthcare for the Underserved appears to be a sustainable student-run effort that generates strong support from class participants.

Since the elective's inception, the Alpert Medical School has undergone vast curricular change. An issue of the *Rhode Island Medical Journal* dedicated a 25-page special section to health disparities education at Brown, highlighting curricular innovations and future directions around health disparities.[12] In addition to elective courses, the following now exist: (1) a required multimodality health disparities curriculum, (2) an annual health disparities symposium, (3) required inter-professional workshops focusing on clinical issues pertaining to health disparities, and (4) an Objective Structured Clinical Examination that requires students to navigate cases addressing health disparities (e.g., counseling non-English speaking patient against leaving against medical advice).[13] There is also recognition of the shortage of physicians to care for underserved populations in Rhode Island, with an explicit goal to train Brown medical students to provide outstanding primary care for them.[14]

Healthcare for the Underserved is a successful, sustainable elective at the Alpert Medical School and a contribution to health disparities education. The increasing overlap between its content and that of required medical curriculum is evidence of the impact student efforts can have on the medical curriculum. Healthcare for the Underserved will continue to evolve to meet the needs of current students and make medical education relevant to the most vulnerable patients served by tomorrow's physicians.

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