

Building A Workforce of Physicians to Care for Underserved Patients

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ABSTRACT

There is a shortage of physicians to care for underserved populations. Medical educators at The Warren Alpert Medical School of Brown University have used five years of Health Resources and Services Administration funding to train medical students to provide outstanding primary care for underserved populations. The grant has two major goals: 1) to increase the number of graduating medical students who practice primary care in underserved communities ("Professional Development"); and 2) to prepare all medical school graduates to care for underserved patients, regardless of specialty choice ("Curriculum Development"). Professional Development, including a new scholarly concentration and an eight-year primary care pipeline, has been achieved in partnership with the Program in Liberal Medical Education, the medical school's Admissions Committee, and an Area Health Education Center. Curriculum Development has involved systematic recruitment of clinical training sites and disease-specific curricula including tools for providing care to vulnerable populations. A comprehensive, longitudinal evaluation is ongoing.

KEYWORDS: Education, medical, undergraduate; Students, medical; Curriculum; Underserved care

BACKGROUND

Rhode Island is becoming a more diverse state: between 2000 and 2010, the percentage of Rhode Islanders from the Latino, Black, and Asian communities increased by 43%, 27%, and 26%, respectively.¹ The Rhode Island Department of Health's 2011 report on minority health details numerous racial and ethnic disparities in mortality, health behaviors, and access to healthcare.² As one example, Black and Latino adults were 32% and 84% more likely than Whites to report having no specific source of ongoing healthcare, respectively. In response to this growing crisis, in 2010, the Division of Medical Student Education in the Department of Family Medicine at the Alpert Medical School (AMS) of Brown University secured federal funding from the Health Resources Services Administration (HRSA) to enhance its training of medical students in care of the underserved.

The overall purpose of this five-year project (2010–2015)

is to train medical students at AMS to provide outstanding primary care for underserved populations. The target populations being served are Rhode Island's underserved communities. Our experienced project team is composed of primary-care educators and administrators who are well positioned in leadership roles at AMS and in the community to carry out the specific objectives that have been identified for each goal. Currently in its final year, the project is affecting every medical student in all four years at AMS as well as another 200 undergraduate students per year in Brown University's Program in Liberal Medical Education (PLME). Additionally, the project has had a direct positive impact on providers, community leaders, and citizens by supporting innovative local-, state- and region-wide solutions to caring for underserved populations. This manuscript describes the original goals and current progress of our five-year HRSA-funded project (Table 1).

GOAL 1: PROFESSIONAL DEVELOPMENT

The first goal of the grant is to increase the number of graduating medical students who intend to practice primary care in underserved communities. Specific professional development activities have included the development, implementation, and evaluation of a new scholarly concentration and a series of primary-care pipeline activities.

Scholarly Concentration in Caring for Underserved Communities

Many medical students enter training with a desire to care for the underserved; however, this altruism declines throughout medical training.³ Research suggests that early, positive clinical experiences with primary care in underserved settings, particularly community health centers (CHCs), increase the likelihood that students will continue to work in these settings once they graduate.⁴ Several medical schools have designed pre-clinical curricula aimed at helping students develop skills needed to practice in underserved communities.^{5,6,7} Most of these programs have been limited to a single clinical rotation, but several have a curriculum extending into the third and the fourth years.

The Brown Scholarly Concentration in Caring for Underserved Communities,⁸ co-led by Dr. El Rayess, spans four years of training and incorporates a sustained interaction with specific mentors and patients at local commu-

nity health center partners including Thundermist Health Center, *Clinica Esperanza*, and the Veterans Affairs (VA) Homeless Veteran Program. At the end of their first year, medical student concentrators choose a community site that reflects their own interests and are then matched with a mentor at that site to develop a summer project which serves as foundation for their scholarship.

During the second year, concentrators continue to implement their projects by building on their summer experience.

They also attend monthly seminars held at the medical school or in conjunction with the student-run free clinic at *Clinica Esperanza*. These interactive sessions start with a review of frameworks for understanding health inequity and health disparities and continue to a broad range of topics, including but not limited to the impact of social stressors and resilience on health outcomes, health issues of immigrants and refugees, and the impact of language and culture on health and parenting differences. Concentrators compose

Table 1. HRSA Predoctoral Training Grant: Overall Goals, Targets, and Outcomes, 2010 – present.

GOALS	TARGETS	OUTCOMES TO DATE
Goal 1: Professional Development		
Scholarly Concentration	<ul style="list-style-type: none"> • Successful implementation of a new scholarly concentration 	<ul style="list-style-type: none"> • 10 students enrolled in the concentration • Positive student written evaluations of curriculum and presenters • Positive faculty evaluations of curriculum • Positive faculty evaluations of students • Many students inspired to and intending to work with underserved populations
Primary Care Pipeline	<ul style="list-style-type: none"> • Established Advisory Group • Placed family physician faculty on Admissions Committee • Linked PLME[†] to FMIG[‡] and NHSC* scholars 	<ul style="list-style-type: none"> • Students entering Alpert Medical School (AMS) interested in working with underserved populations • 19 students applied for NHSC* scholarships (9 awarded) • 187 students and faculty on FMIG listserv • 41 students applied to family medicine residencies • 199 students applied to primary care residencies
Goal 2: Curriculum Development		
Improve Content Knowledge	<ul style="list-style-type: none"> • Successful implementation of Chronic Disease Management/HIV workshop and 6 new simulated family paper cases 	<ul style="list-style-type: none"> • Positive student written evaluations of modules and presenter • Positive student informal feedback during group session • Faculty written evaluations of modules • Student performance on Family Medicine Clerkship final exam • Successful student performance on fourth-year OSCE**
Improve Clinical Skills	<ul style="list-style-type: none"> • Successful recruitment of new community health centers (CHCs) for clinical training of AMS students 	<ul style="list-style-type: none"> • 6 new CHCs taking clerkship students • 176 FM Clerkship students who have trained at CHCs since 2010
Social and Community Context (SACC) Projects	<ul style="list-style-type: none"> • Successful implementation of SACC/Community Health Projects 	<ul style="list-style-type: none"> • 463 students who completed a SACC project • 176 SACC projects completed in CHC settings (38% of total) • Student written evaluations of the new curriculum • Positive feedback from FM Clerkship preceptors
Evaluation		
Mixed-method Analysis	<ul style="list-style-type: none"> • Successful completion of interview-guided focus groups 	<ul style="list-style-type: none"> • 4 focus groups conducted • 5-10 students per focus group • Qualitative analysis of themes
Annual Student Surveys	<ul style="list-style-type: none"> • Successful development and validation of the survey, piloted survey, and administered it yearly 	<ul style="list-style-type: none"> • Creation of valid survey instruments • The majority of students in each class completed the survey annually • Increasing numbers of students who identify an interest in caring for the underserved
OSCEs	<ul style="list-style-type: none"> • Successful development and implementation of 3 new fourth-year OSCE** stations 	<ul style="list-style-type: none"> • 3 new cases developed • All graduating students took 1 of these 3 OSCEs** • Student performance: 100% passed this OSCE** station

[†] Program in Liberal Medical Education

[‡] Family Medicine Interest Group

* National Health Service Corps

** Objective Structured Clinical Examination

Table 2. Specific Examples of Student Initiatives and Projects Funded by the HRSA Family Medicine Predoctoral Training Grant.

Types of Funded Student Projects	Project Examples
Scholarly Concentration in Caring for Underserved Populations (10 students over four years)	<ul style="list-style-type: none"> • Healthcare utilization among homeless veterans • Food access survey of patients at <i>Clinica Esperanza</i> • In-depth interviews with Cape Verdean patients about their understanding of hypertension • In-depth interviews with Dominicans about antibiotic use in both the US and in the Dominican Republic • The positive deviance model among incarcerated men who have not returned to smoking after release • Family networks and smoking patterns among primary care patients in Pawtucket
Completed Projects in the Social and Community Context of Care	<ul style="list-style-type: none"> • Elective and support group for new mothers attending Central Falls High School • Development of digital mindfulness-based interventions for patients at Progreso Latino in Central Falls, RI
Funded Projects in Care of the Underserved Patients and Populations	<ul style="list-style-type: none"> • Creating and strengthening mental health programming for recent refugee teens attending an academic enrichment program in Providence • Reproductive health education for RI middle school students to reduce teen pregnancy • Health promotion and cost-effective disease prevention in everyday clinical practice for the population of Great Plains Native American Tribes, Rapid City, Iowa • Pilot project that explores language barriers in the clinical setting by speakers of other languages with medical providers in Providence, RI • Quantification of outcomes from a comprehensive nutrition curriculum implemented at a local high school setting by an Alpert Medical School student group
Student Travel and Scholarship	<ul style="list-style-type: none"> • 24 Students sponsored for the American Academy of Family Physicians National Conference for Family Medicine Residents and Medical Students • Membership for all pre-medical and medical students to Rhode Island American Family Physician, including subscription to American Family Physician • Student presentations at the Society of Teachers of Family Medicine (STFM) Annual Meeting, the STFM Conference on Medical Student Education, and the First International Congress on Whole Person Care
Student Initiatives and Courses	<ul style="list-style-type: none"> • Health Care in America preclinical elective course • First Annual Health Disparities Symposium • Asylum Training, Brown Human Rights Asylum Clinic

and share reflective narratives during monthly meetings. In the third and fourth years, concentrators are matched with their longitudinal communities for their primary care rotations (when logistically possible) and complete analyses of their longitudinal projects culminating with a capstone presentation in the spring of their fourth year. To date, the concentration has enrolled 10 students, the first two of whom will be graduating in the summer of 2015 (Table 2).

Primary Care Pipeline Activities

In addition to the now established scholarly concentration, we continue to develop and enhance our eight-year coordinated primary care pipeline at the university-level in partnership with the undergraduate-graduate PLME, the medical school’s Admissions Committee, the on-campus Rhode Island Area Health Education Center (AHEC), and the Department of Family Medicine’s residency program.

As an example, the HRSA funding has allowed the Department of Family Medicine to increase its faculty representation on the medical school’s Admissions Committee. Over the last four years, Dr. Paul George has reviewed approximately 40 admissions files and interviewed 40 applicants with a goal of identifying and recruiting students interested in working in primary care with underserved populations.

Dr. George is also the faculty mentor to the Brown Family Medicine Interest Group (FMIG), which has grown into a nationally award-winning organization with broad impact. The FMIG has two student co-leaders, a faculty advisor, active members who participate regularly in events on campus, and an active listserv for members to stay informed of local, regional and national primary care initiatives. The FMIG membership increases with each incoming class, reflecting growth in interest in family medicine and primary care among the student body. In four of the last five years, the FMIG has been recognized with a national Program of Excellence Award from the American Academy of Family Physicians (AAFP). We have funded 24 medical students, mostly FMIG members, to attend the annual AAFP National Conference for Family Medicine Residents and Medical Students.

In addition to a very active FMIG, numerous other student initiatives have been developed and supported by the HRSA grant. As one example, three medical students implemented a popular for-credit elective entitled “Health Care in America,” which enrolled 37 first- and second-year medical students in 2013-14 and featured numerous high-profile, nationally known speakers. As a second example, three second-year students organized Brown’s first annual

Health Disparities Symposium in 2014, attended by 115 physicians and community leaders, to generate collaborative initiatives around health disparities among faculty, students, community partners, and others. The three-hour symposium, featuring a keynote address by Brown University President Christina Paxson, PhD, aimed to 1) describe the current landscape of efforts in the Brown community that address health disparities, 2) identify existing gaps within these efforts, and 3) gather recommendations and ideas for next steps with the ultimate goal of creating a common paradigm for teaching and addressing health disparities in the Rhode Island community. Finally, in 2014, the student-led Brown Human Rights Asylum Clinic (BHRAC) hosted its first training event in which 70 attendees, including physicians, residents, medical students and other allied health professionals from across the country, were trained how to provide pro-bono forensic physical and psychiatric evaluations for individuals seeking asylum in the United States. The Asylum Training and new Brown Human Rights Asylum Clinic were featured in a recent front-page article in the *Providence Journal*.⁹

GOAL 2: CURRICULUM DEVELOPMENT

The second goal of the grant is to prepare 100% of AMS graduates to care for underserved patients regardless of specialty choice. Through the implementation of new curricula in the Family Medicine Clerkship, the enhancement of an existing curriculum in the social and community context of care, and the development of new and existing community health center (CHC) clinical training sites, the project team has worked to ensure that all students receive thorough didactic and clinical training in the care of underserved patients and populations.

In the required Family Medicine Clerkship, led by Dr. David Anthony, two modules have been developed, implemented, and evaluated, including a skills workshop on chronic disease management using human immunodeficiency virus (HIV) infection as the model disease and a revised series of simulated family paper cases. The latter, taught in six two-hour small group sessions, covers a range of topics relevant to vulnerable and underserved patients, including trust in the healthcare system, language and cultural barriers, teen pregnancy, and domestic violence. The enhanced curriculum in the social and community context of care is described in detail in a separate manuscript in this issue.

In an effort to increase the number of students who have high-quality clinical training at sites providing care to underserved patients, we have actively recruited and developed CHC sites for clerkship students. By making two to three site visits at each of 17 CHCs over the grant period and by hosting annual CHC faculty development and appreciation events, we have successfully increased the number of CHC training sites as well as the number of students trained at each site. Through site visits to CHCs that regularly host

students, we have gathered best practices for teaching students at CHCs and have been able to systematically disseminate this key information to newly recruited sites. AMS and the Department of Family Medicine are immensely grateful for all of the clinical teaching provided by our invaluable network of CHC providers.

GOAL 3: EVALUATION

To assess the evolution of medical student attitudes towards working with underserved populations across their four years of medical school, we are in the process of conducting a formal, longitudinal, IRB-approved evaluation of our project with focus groups as well as the annual administration of a validated survey (Medical Students Attitudes Toward the Underserved and Jefferson Scale of Empathy) to every AMS student. Analysis of data from four full classes of medical students is ongoing.

As a check to the efficacy of our curricula, three new objective, structured, clinical examination (OSCE) cases featuring vulnerable patients have been integrated into AMS's required 4th-year OSCE: a patient who speaks English as a second language signing out of the Emergency Room against medical advice; an elderly Latino woman experiencing domestic violence; and a gay male with depression. Senior medical students are required to pass whichever of these stations they encounter in order to pass the summative 4th-year OSCE. For more detailed outcomes of our HRSA grant, see **Table 1**.

CONCLUSIONS

Despite the ongoing efforts of multiple clinicians, educators, students and trainees, health disparities in Rhode Island persist. The continual nature of such challenges and injustices serves not as a source of discouragement, but as a motivator for us to work harder and do more. We are encouraged by the remarkable projects that have been completed by AMS students, which have already had real and sustained impact on Rhode Island's underserved communities. We are pleased with the recent increase in AMS students matching in Family Medicine, the specialty that produces the most CHC physicians.¹⁰ Further analyses will determine if our efforts have had an impact on all AMS students' attitudes towards caring for the underserved.

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Disclosures

None

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