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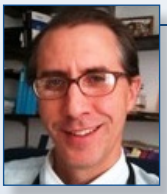

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Health Disparities Education – The Time Is Now

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If differences in health outcomes are seen between populations, a disparity exists. However, there have been disagreements on the exact definition of a health disparity.[1] The National Institutes of Health's definition in 2000 was: "differences in the incidence, prevalence, mortality, and burden of diseases and other adverse health conditions that exist among specific population groups in the United States." The Institute of Medicine's 2002 definition included "racial or ethnic differences in the quality of health care that are not due to access-related factors or clinical needs, preferences and appropriateness of intervention." In an updated definition, *Healthy People 2020* defines a health disparity as "a particular type of health difference that is closely linked with social, economic, and/or environmental disadvantage. Health disparities adversely affect groups of people who have systematically experienced greater obstacles to health based on their racial or ethnic group; religion; socioeconomic status; gender; age; mental health; cognitive, sensory, or physical disability; sexual orientation or gender identity; geographic location; or other characteristics historically linked to discrimination or exclusion."[2]

Despite these differences in definitions, medical schools have a responsibility to work towards reducing health disparities by graduating culturally competent students who receive appropriate education around health disparities and social determinants of health, and are involved in community-based programs that stress an understanding of these principles and include training in a setting that truly affects outcomes. It is, therefore, imperative for medical schools to develop curricula to improve students' understanding of health disparities and provide the tools to help them engender change.

In this issue of the *Rhode Island Medical Journal* focused on medical education, we have devoted the entire section to highlight curricular innovations and future directions at the Warren Alpert Medical School around health disparities, and to elucidate selected initiatives at the Brown University School of Public Health. These innovative curricular approaches have exposed our medical students to the societal implications of health disparities, especially for patient populations that lack access to health care or encounter barriers that prevent them from taking advantage of existing opportunities. However, there is a need for additional student experiences with vulnerable patient populations that may also include those patients for whom there may be a lack of regional expertise to provide appropriate care. Further efforts are needed to foster these ideals in our students. This will include initiatives to further promote inter-professional education and engage students in field experiences with patient populations in whom positive outcomes can be assessed and challenges can be overcome. Physicians must assume a role as champions of social justice, which must begin during medical school and be maintained throughout their careers.

References

1. Carter-Pokras O, Baquet C. What is a "health disparity?" *Public Health Reports.* 2002;117:426-434.
2. U.S. Department of Health and Human Services. The Secretary's Advisory Committee on National Health Promotion and Disease Prevention Objectives for 2020. Phase I report: Recommendations for the framework and format of Healthy People 2020. Section IV. Advisory Committee findings and recommendations. Available at http://www.healthypeople.gov/2020/#_Toc211942917 and http://www.healthypeople.gov/2020/about/disparitiesAbout.aspx. Accessed July 31, 2014.

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Health Disparity Curriculum at The Warren Alpert Medical School of Brown University

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ABSTRACT

There is increasing recognition that, in addition to acquiring knowledge of basic sciences and clinical skills, medical students must also gain an understanding of health disparities, and develop a defined skill set to address these inequalities. There are few descriptions in the literature of a systematic, longitudinal curriculum in health disparities. Using Kern's six-step approach to curriculum development along with principles of experiential and active learning, student champions and the Office of Medical Education developed a multimodal health disparities curriculum. This curriculum includes required experiences for medical students in the 1st, 2nd and 3rd year, along with elective experiences throughout medical school. Students are examined on their knowledge, skills and attitudes towards health disparities prior to graduation. It is our hope this curriculum empowers students with the knowledge, skills and attitudes to care for patients while helping patients navigate the socioeconomic and cultural issues that may affect their health.

KEYWORDS: Education, medical, undergraduate; Students, medical; Curriculum; health disparities; social determinants of health

INTRODUCTION

There is increasing recognition that, in addition to acquiring knowledge of basic sciences and clinical skills, medical students must also gain an understanding of health disparities, and develop a defined skill set to address these inequalities.[1,2] There are broad efforts nationally to incorporate curricular components that focus on health disparities, but, to our knowledge, the only longitudinal systematic health disparities curriculum in undergraduate medical education exists at the University of Michigan. During their four-year medical school experience, students at the University of Michigan visit community sites, are involved in longitudinal case discussions that incorporate social determinants of health, enroll in electives on the effect of poverty on health and work in a family-centered care program.[3] Additional curricular efforts at other institutions include integrating a public health curriculum (including health disparities) into clinical teaching[4]; teaching medical students how to use interpreters[5]; and even development of a board game on the social determinants of health.[6]

At the Warren Alpert Medical School of Brown University (AMS), there is increasing momentum to introduce a cohesive, longitudinal curriculum around health disparities. Faculty, students and other key stakeholders at AMS have initiated and developed core elements of a health disparities curriculum in order to empower students with the knowledge and skills to practice effective clinical medicine. At the same time, it is envisioned that this curriculum will help patients navigate the health care delivery system and mitigate the socioeconomic and cultural issues affecting their health. In light of the growing national impetus to address health disparities, as evidenced by a recent publication ranking the social mission scores of undergraduate medical schools,[7] we describe the current health disparities curriculum at AMS.

SHADES OF PROVIDENCE

Using Kern's six-step approach to curriculum development for medical education along with principles of experiential and active learning, student champions and the Office of Medical Education developed a multimodality health disparities curriculum.[8] AMS students in the MD Class of 2015 took the lead in developing the first curricular component, entitled "Shades of Providence", which was initiated in the fall of 2012 and was modified the following year based upon student feedback. All members of the MD Class of 2017 participated in the "Shades of Providence" experience during their first two weeks of medical school. This included an early introductory lecture on health disparities by the President of Brown University, a required reading assignment, a community experience, a brief assignment, and two small group sessions in which community experiences, readings and assignments were discussed.

The goals of the early "Shades of Providence" curriculum were as follows:

- To introduce students to the social and structural factors that shape and influence health outcomes using a didactic curriculum.
- To enhance medical students' knowledge of the demographics of the community in which they will live and work through direct exposure to Providence's diverse neighborhoods.

- To demonstrate community-based and collaborative approaches to addressing health inequities that can serve as opportunities and models for student engagement in the community.

Specific components of the curriculum included the following:

- **Introduction to Health Disparities:** A lecture delivered by the President of Brown University, Christina Paxson, PhD, whose background is in the economics of public health. During her lecture, she discussed quantitative measures of health disparities in the United States.
- **Reading Assignment:** Students were asked to read an eight-page handout that was prepared by one of the authors (M.E.) and reviewed and edited by three faculty members (L.D., R.D., and P.G.), summarizing important findings from the literature in health disparities. It was designed to provide an introduction to the topic and a framework for group discussions. The reading provided basic definitions of terms such as health disparity, race and health literacy, and reviewed major categorical factors that drive health disparities such as race, housing and income. Survey data on Providence were incorporated to illustrate ways in which these issues manifest locally.
- **Community Exploration:** In order to contextualize the health disparities issues addressed in readings and in the introductory lecture, all 120 students in the MD 2017 class spent an afternoon at one of eight different community agencies in greater Providence during their first week of classes. The decision to position this community experience so early in the curriculum was deliberate. For many students, an early exposure to community agencies allows them to begin to understand the communities in which they will be engaged during their four years of medical school.

  The agencies represented a diversity of services, such as nonviolence outreach and refugee settlement, whose core missions address one or several social determinants of health. We intentionally chose organizations that were not directly involved in health care delivery. Instead, the goal was to find organizations that might provide students with a broader perspective on the factors that influence health and how health disparities are addressed, as well as orient students to the Providence community.
- **Mapping Exercise:** We divided students into groups of ten. Using a map of Providence neighborhoods and census data, each student in the small group had a different assignment related to a specific social determinant of health. Students were asked to highlight neighborhoods on the map that demonstrated extremes of the given social determinant. For example, one assignment entailed highlighting the neighborhoods with the highest and lowest family incomes. Each assignment was related to the specific community experience site.
- **Small Group Discussions:** The following week, students were divided into groups of ten with at least one student who had visited each of the different community sites. Second-year students, who were trained as facilitators and provided with a discussion guide, served as the small group leaders. During this time students debriefed the community exploration experiences and mapping exercises. Subsequently, students watched a video clip from the documentary "Unnatural Causes"[9] on the importance of physical environment in shaping health. The second-year facilitators then led a discussion that incorporated the documentary data, the assignments, and the community experience.
- **Examination Questions:** We added several questions to the first examination of the year for the first-year class in order to evaluate student knowledge and skills gained from completion of the health disparities sessions.
- **Survey Assessment:** Before the introduction of the curriculum, the students were given a survey to assess preexisting knowledge and attitudes with regards to health disparities. After the completion of the "Shades of Providence" community exploration and small-group sessions, the students repeated the survey to assess any changes. The survey results indicated that the curriculum was successful in teaching the students specific facts regarding health disparities and also gave students more confidence in their knowledge and skills. However, results did not demonstrate any significant changes in attitudes.

HEALTH DISPARITIES SYMPOSIUM

The first annual Warren Alpert Medical School Symposium on Health Disparities held in January 2014 was designed to offer members of the Brown University and greater Rhode Island communities the opportunity to share research, curricular initiatives and grant information, and learn about community programs that address health disparities in Rhode Island. The list of nearly 100 attendees included physicians and other healthcare personnel, medical and graduate students, community organizers, and researchers. The event began with an introduction given by Elizabeth Tobin Tyler, JD, MA, director of Rhode Island Hospital's Medical Legal Partnership. In breakout groups, participants were encouraged to identify and discuss current initiatives related to health disparities in Rhode Island, outline the gaps within these strategies, and explore opportunities for collaboration and partnership both within Brown and in collaboration with the greater Rhode Island community. The symposium culminated in a keynote address by Brown University's President Christina Paxson, an expert in the economics of disparities in health, who outlined the ways in which Brown University plays a central role in providing sustainable programs and collaborations to address healthcare disparities in Rhode Island.

INTER-PROFESSIONAL WORKSHOP

Each year, second- and third-year medical students participate in two inter-professional workshops. These workshops, which include nursing, pharmacy and physical therapy students from the University of Rhode Island, and social work and nursing students from Rhode Island College, focus on various issues pertaining to health disparities. In inter-professional health-care teams, students are asked to brainstorm methods for providing the best possible care to patients during particular clinical scenarios by overcoming socioeconomic factors that affect health. For example, students are introduced to a non-English speaking Cape Verdean patient with a terminal illness, who is the victim of elder abuse and cannot afford his medications. Students must devise a plan of care for this patient and then present it to their peers and faculty. Finally, students participate in an Objective Structured Clinical Examination (OSCE) in which they interview a standardized patient who presents with an illness, but also has family or social problems. The students formulate a diagnosis and a management plan that addresses both the illness and the social or economic factors affecting the patient. Through participation in these inter-professional workshops, students begin to develop team-building skills essential in holistically addressing health-care needs as well as learn about the roles of each prospective health care provider.

FAMILY MEDICINE CLERKSHIP

During the Family Medicine clerkship, which is part of the required third-year clinical curriculum, students are exposed to health disparities at many clinical sites, and in addition have two structured exercises in health disparity education. During weekly small group sessions, students discuss clinical scenarios based upon a virtual, multi-generational, Cape Verdean family who lives in Pawtucket. In addition to the biomedical health issues faced by this family, the cases raise social issues such as teenage pregnancy, alcoholism, and poverty, and encourage the students to consider these factors when discussing their management and care of the family members.

Additionally, each student is assigned a Social and Community Context of Care (SACC) project that accounts for 15% of the clerkship grade. The project is paired with a half-day session early in the rotation during which students explore one of two communities in Rhode Island and learn about agencies that address the social influences on the health of that community. For their projects, students perform a similar exploration of the community surrounding their preceptor site, speak with key informants regarding a health issue that they have identified as affecting the population served, investigate the existing community resources that have an impact on this health issue, and propose a community-level intervention that is relevant to the needs and resources of their preceptor site community.[10] (See "Building a workforce of physicians to care for underserved patients" in this issue for further details).

FOURTH-YEAR OBJECTIVE STRUCTURED CLINICAL EXAMINATION

To ensure students are graduating with the knowledge, skills and attitudes necessary to practice effective clinical medicine while at the same time addressing health disparities, students must successfully navigate cases addressing health disparities in their fourth-year Objective Structured Clinical Examination (OSCE). For example, in one of the OSCE cases, students must counsel a non-English speaking patient, who has inadequate resources, about leaving the hospital against medical advice during an exacerbation of congestive heart failure. In another case, students must counsel a non-English speaking patient on resources to obtain medications not covered by her insurance.

ELECTIVES

In addition to the required curriculum that has been developed as a part of the mission to provide AMS students with a comprehensive health disparities education, there are a number of electives offered to students that allow them to further explore these interests. For example, the "*Healthcare for the Underserved*" elective aims to provide students with the knowledge, skills and support to care for underserved populations. Over the course of the semester, each of the evening class sessions deals with a topic on health and healthcare challenges that face underserved populations. Additional preclinical electives include "*Race, Health Disparities and Biomedical Interpretations,*" "*Poverty, Health and Law,*" "*Science and Power,*" "*Gender and Sexuality in Healthcare,*" "*Refugee Health and Advocacy,*" and "*Healthcare for the Underserved.*" Each of these electives is a cooperative effort of faculty and student leaders and has significant participation among the AMS student body. In addition, AMS offers scholarly concentrations, or elective opportunities, for students to gain formal curricular exposure to topics related to medicine but not usually included in the curriculum. These include areas such as Caring for the Underserved, Global Health and Advocacy and Activism – all with significant curriculum on health disparities.

CONCLUSION

To our knowledge, this initiative to longitudinally introduce health disparities education at AMS is unique among medical schools. The effort to grow and develop a Health Disparities medical school curriculum is not without limitations or challenges. Although members of the student body provided a great deal of the motivation behind the curricular changes at AMS, not all students share the same fundamental knowledge or concern about these issues or have an interest

in participating in these initiatives. While all students entering medical school are expected to have a baseline level of knowledge in biological and physical sciences from their pre-medical studies, there is no such universal curriculum requirement for topics that inform health disparities. The attempt to design a curriculum that effectively and adequately addresses the complexities of health disparities while accommodating the wide range of student familiarity with these topics resulted in some disparate feedback; some students described the curriculum as oversimplified, and others suggested that it was too broad and ambitious.

This challenge is exacerbated by curricular time and resource constraints. By necessity, medical school curricula place high demands on students as well as faculty, who must dedicate tremendous resources to preparing students for the United States Medical Licensing Exam and residency in four years of undergraduate medical education. Although many argue that a rigorous understanding of health disparities is critical to quality patient care, medical education has historically focused on the more traditional biomedical approaches to patient care. With finite time and resources, education pertaining to health disparities and social determinants of health is all too often given much lower priority within the realm of medical education.

The challenge moving forward is to strike the appropriate balance between providing students with a strong biomedical fund of knowledge and gaining a deep understanding of the social influences that often drive health outcomes. Equipping students to address these determinants in their communities and in their future practices is one of the goals of a robust health disparities medical curriculum. At AMS, student leaders, faculty and community members are working together to ensure that these efforts continue through the implementation of our evolving student-initiated health disparities curriculum, the development of a new Primary Care-Population Medicine Program and the introduction of a full semester, first-year course on health disparities for all medical students (see Rappaport et al in this issue for further details). It is our hope this curriculum empowers students with the knowledge, skills and attitudes to enable them to care for patients and allows them to help navigate patients through the disparities that may affect their health.

References

1. Lucey CR. Medical Education: part of the problem and part of the solution. *JAMA Internal Medicine.* 2013;173:1639-1643.
2. Vela MB, Kim KE, Tang H, Chin MH. Innovative Health Care Disparities Curriculum for Incoming Medical Students. *J Gen Intern Med.* 2008;23(7):1028-1032.
3. Doran KM, Kirley K, Barnosky AR, Williams JC, Cheng JE. Developing a novel Poverty in Healthcare curriculum for medical students at the University of Michigan Medical School. *Acad Med.* 2008;83:5-13.
4. Harper AC. A proposal to incorporate a public health perspective into clinical teaching. *Clin Teach.* 2011;8:114-117.
5. McEvoy M, Santos MT, Marzan M, Green EH, Milan FB. Teaching medical students how to use interpreters: a three-year experience. *Med Educ Online.* 2009;2:12.
6. Reeve K, Rossiter K, Risdon C. The last straw! A board game on the social determinants of health. *Med Educ.* 2009;42:1125-1126.
7. Mullan F, Chen C, Petterson S, Kolsky G, Spagnola M. The social mission of medical education: ranking the schools. *Ann Intern Med.* 2010;152:804-811.
8. Kern DE, et al: Curriculum Development for Medical Education – A Six-Step Approach. Baltimore: The Johns Hopkins Univ. Press. 1998.
9. *Unnatural Causes.* DVD. Created and produced by Larry Adelman. San Francisco: California Newsreel, 2008.
10. Family Medicine Clerkship [internet]. SACC Project. Available online at https://sites.google.com/a/brown.edu/family-medicine-clerkship/sacc-project. Accessed on July 15, 2014.

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Disclosures

None

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Teaching and Addressing Health Disparities Through the Family Medicine Social and Community Context of Care Project

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ABSTRACT

By training future physicians to care for patients with backgrounds different from their own, medical schools can help reduce health disparities. To address the need for education in this area, the leaders of the Family Medicine Clerkship at the Warren Alpert Medical School of Brown University developed the Social and Community Context of Care project, required of all medical students rotating through this clerkship. Students develop a hypothetical intervention addressing a health issue seen at their preceptor site, and are assessed on their grasp of the social and contextual issues affecting that health issue in their particular community. Some interventions are actualized in later clerkships or independent study projects; one example, a health class for pregnant and parenting teens at Central Falls High School, is described here. If made a routine part of medical education, projects such as these may help medical students address the health disparities they will encounter in future practice.

KEYWORDS: Education, medical, undergraduate; Students, medical; Curriculum; Peer mentoring

INTRODUCTION

Medical education has an important role in addressing health disparities. Patient outcomes, for example, can be affected by sociocultural differences between patients and their providers; when these differences are not understood or addressed, disparities in care may be exacerbated.[1] Education that improves future physicians' abilities to care for patients with backgrounds different from their own could reduce the health disparities we see in the United States, by helping physicians understand sociocultural factors that may impact their patients' health decisions.[1]

At the Alpert Medical School (AMS) of Brown University, the undergraduate medical curriculum is organized into nine abilities which represent competencies expected of each graduate.[2,3] Ability VII, Community Health Promotion and Advocacy, is defined as follows:

> *"The competent graduate practices medicine in a broader context by understanding the many factors that influence health, disease and disability. The graduate advocates for the patient's well-being and works with community partners to identify and address environmental, social and behavioral factors and health system policies which alter the opportunities to be healthy."*[4]

Family Medicine, a specialty providing "continuing, comprehensive health care for the individual and family,"[5] has incorporated into its national clerkship curriculum the idea that contextual care is important.[6] This curriculum highlights objectives that consider patients in the context of their communities and cultures, and asks students to discuss the role that these factors might have on health outcomes. At AMS, the Family Medicine Clerkship has long embraced teaching the concepts of Ability VII,[7] and this teaching has had an impact on both our students and the communities in which they learn.

THE SOCIAL AND COMMUNITY CONTEXT OF CARE (SACC) PROJECT

To address Ability VII, and to help students achieve the contextual care learning objectives for Family Medicine, the Social and Community Context of Health (SACC) project was developed in 2006. This project, completed by every student on the required, six-week Family Medicine Clerkship, serves as an opportunity for students to consider the social and community context of a particular health issue affecting patients at their preceptor sites and to propose a hypothetical intervention to address that issue. The project is paired with a half-day session and one-hour group discussion during which students explore one of two communities in Rhode Island and learn about the agencies that address the social issues affecting the health of the populations living in those communities.

In completing their individual projects, students first perform a similar exploration of the communities surrounding their individual preceptor sites by walking or driving around the area to investigate key resources such as service organizations. Students also use internet resources to explore the demographics and health statistics relevant to that community and to further understand the health issue chosen for the project. They conduct a literature review to inform their intervention design, and compile information about the status, content and quality of existing community resources related to their target health problem. Students next conduct key informant interviews with patients/caregivers affected by the health problem and with non-physician

Table 1. Sample Community-Based Interventions Proposed by AMS Students

Health Issue	Community	Proposed Intervention
Obesity	South County, RI	Improve reporting of sidewalk problems and encourage community involvement for sidewalk repairs
Body Image	Plainville, MA	Implement middle school curriculum addressing healthy relationships with bodies
Melanoma	Newport, RI	Increase sun safety among visitors to Newport beaches
Depression	East Greenwich, RI	Develop a mindfulness meditation program to prevent and treat depression
Homelessness	Danielson, CT	Provide sliding-scale transportation from homeless shelters to job interviews, trainings, and newly obtained jobs
Falls	Pawtucket, RI	Offer Tai Chi classes to seniors at the senior center and in Pawtucket parks

community-based individuals who can provide them with information about the problem from differing perspectives. Finally, students propose a feasible, community-based intervention that is relevant to the needs and resources of their community, is informed by their key-informant interviews, and is targeted to the particular social and community context. Often the chosen health issue comes to students' attention during the first weeks they spend seeing patients in their preceptor's practice.

Students are encouraged to broadly define the health problem they are addressing, while adequately explaining the contextual relevance of the problem and designing an intervention that is community-based rather than office- or hospital-based. For example, one student might intervene to improve transportation access to reduce social isolation among rural, community dwelling older adults, while another might choose to address inadequate dietary adherence to foster better disease control among urban, low-income patients with diabetes. For further examples of student SACC projects, see **Table 1**.

During the final week of the clerkship, each student gives an eight-minute presentation which counts for 15% of the final clerkship grade. Students are evaluated on their grasp of 1) the social context of the health issue addressed by their proposed intervention, and 2) the extent to which their intervention is appropriate for that particular social context.

Due to the clinical demands of the clerkship, SACC projects are hypothetical in nature; however, some students choose to fully implement their proposed interventions as independent study projects or as assignments for another course. One student's SACC project, for example, proposed a digital mindfulness-based intervention to address stress in residents of Central Falls. A year later, he actualized this project during his fourth-year Clerkship in Community Health. Another project, described in detail below, has grown from the SACC project of two medical students into a lasting partnership between Central Falls High School, AMS, and the Department of Family Medicine at Memorial Hospital of Rhode Island.

Evolution of a SACC Project

In 2011, two students (JH, CD) noticed that many of the patients they saw for prenatal appointments at the Family Care Center at Memorial Hospital of Rhode Island in Pawtucket were adolescents, and they sought to better understand teen pregnancy in the clinic's catchment population. Their initial research brought them to neighboring Central Falls, which, at the time, had a teen pregnancy rate more than three times the state average (nearly one in 10) and a child poverty rate of 41.5%.[8] To better understand the young women behind these statistics, the students interviewed the following key informants at Central Falls High School (CFHS): several high school students who were pregnant or parenting, a gym/health teacher, a guidance counselor, an English teacher, and the school's Expanded Learning Opportunities (ELO) coordinator. Their interviews demonstrated that pregnant and/or parenting female teens felt as though pregnancy itself was relatively easy, but that they were underprepared for the realities of parenthood. Faculty members at the school also expressed feeling underprepared – in their case, for helping guide their pregnant students through this life-changing event. Taking this information into account, the students' SACC project proposal was to create a health class that would combine medical information related to conception, birth, and parenting with a peer support group. The class would provide knowledge, support and course credit, something many teen mothers were lacking due to the time off required by their pregnancies.

In response to excitement at the school about this hypothetical project, the students then turned the class into a reality during their fourth-year Community Health Clerkship. The ELO program at CFHS, which supports students in crafting academically rigorous experiences in a particular field of interest, became the setting for this class. After advertising widely throughout the school, JH and CD designed and taught a weekly health class to teen mothers and mothers-to-be. Classes opened with journaling, included didactic and peer-to-peer teaching on a particular topic (e.g., "how is a baby made?" and "what do I do to calm a fussy child?"), and ended with teaching about nutrition through preparing a healthy snack as a group. Overall, nine students ranging in age from 14-18 years participated in the course, and about half were pregnant with their first child. Though individual attendance varied throughout the semester, students overall voiced that they had had a positive experience, with one student stating that the class "was worth my time because

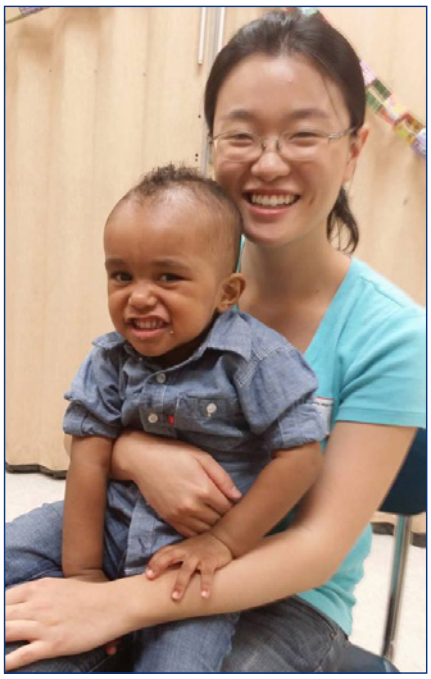

Figure 1. Rye-Jim Kim, AMS Class of 2014, with a child of a mother in the team mom health class at Central Falls High School.

Figure 2. Teen mom health class at Central Falls High School, 2013-2014.

I got to express how I felt and ask questions if I wanted to."

Upon the graduation of JH and CD from AMS, two other medical students (AY and RK), each with interest in primary care and underserved communities, continued to work with CFHS on this project. As before, it was designed to serve as both a source of useful information for adolescent mothers and as a peer support group with medical students serving as mentors and facilitators/teachers. In the second year, the CFHS students in the class all had at least one child and, as such, the curriculum was adapted to already-parenting adolescents (see **Figures 1 and 2**). Overall, eight students ranging in age from 18-20 years participated; classes focused on learning about prenatal care, parenting, and contraception, to name a few. Input from students often determined the material for future classes; for example, questions and concerns about child development led to two sessions focused on how to best engage with a child according to his/her stage of growth.

This second group of high school students collectively decided to create a workshop in which they would share personal stories about pregnancy and teen motherhood with younger students at the Dr. Earl F. Calcutt Middle School, also in Central Falls. With this goal in mind, the majority of spring semester class sessions focused on "Storytelling," guiding these young mothers in reflecting upon their own life experiences in order to facilitate their role as peer educators for the middle school students. Students listened to a teenage mother's story on National Public Radio, discussed how they viewed themselves and their relationships, and talked about what makes a story powerful. Each student chose a specific message she wanted to convey to the younger girls. For example, one student discussed the financial burden of having a child; another spoke about her birthing experience and being pregnant. This process resulted in the development of a video that was shown at the beginning of the middle school workshop, conveying the powerful impact that motherhood has had on these adolescent women, and allowing them to share this experience in a productive way with younger girls. High school students' thoughts about the value of this class can be seen in **Table 2**. (If interested in viewing the video, please contact cfhsteenmomsams@gmail.com).

Table 2. Quotations from High School Students Describing the Impact of the CFHS Project

High School Student	Quote
N.	"I enjoyed being a part of the Teen Parenting ELO because it gave me ideas of ways to have my son express himself. It was great working with Brown Medical Students because we found what we had in common."
C.	"I loved it … it was a lot of fun. Especially knowing the other girls' experiences… It's interesting knowing other people's stories because you know you are not alone – that you're not the only young mother out there…people by your side, know how you feel, the struggle you have." "A lot of people think they [teenage mothers] are into this because they had sex. It's not just that. There's so much more to it that a lot of people don't understand…" "I learned I'm a strong person."
Y.	"At first, I didn't want to talk about my life, my personal life. But after, I got closer to you *[medical student]*, and you got closer to me, I actually started to get more open and not shy…help other people. Now I can actually say this class helped me realize a lot of things I didn't know so I'd like for this class to keep going."

Table 3. Quotations from Medical Students Describing the Impact of the CFHS Project

Medical Student	Quote
JH	"The work that I did with the wonderful students and staff of CFHS…is exactly the type of community-based work that I hope to engage in once I graduate from residency. To be able to see disparities in clinic and then carefully design interventions based on community needs and in conjunction with community members reinforces my decision to pursue a career in family medicine centered around caring for and serving the underserved."
RK	"Just as starting clinical rotations adds a whole different dimension to the medical school experience that students cannot get in their preclinical years, working out in the community adds something that physicians and physicians-in-training can't get from working just in the hospital or office. Seeing people in their community allows the physician to see their patients in context and compels him/her to collaborate with their patients from a place of true respect and love. [And with regard to teen pregnancy], what I've gained greater appreciation for is that raising a baby is difficult for anyone and everyone regardless of age and background, and having children can be a powerful motivator for many people who may have had little hope for or confidence in themselves. If they are given the right tools and resources, the contact with the right people, the opportunities to prove their abilities and determination to themselves and others who have doubted their worth, they want to improve."
AY	"When we think of teenage mothers or encounter them as patients in the clinical setting, it is tempting to group them into a challenging and needy population for which we think 'sex education and access to contraception-related resources' is the answer. Yet in getting to know the teen mothers in our class – hear their stories, meet their children, learn of their struggles and witness some of their achievements and efforts – I have been profoundly struck by themes of social and economic hardships, painful familial and relational brokenness, and cycles of social immobility. It compels me to believe that in our responsibility to care for them, we must advocate for mentorship and peer support with good role models, creative educational opportunities, and a committed presence in the community to help but also to learn and adapt."

Impact of the CFHS SACC project on Medical Students' Education

For the medical students involved in this project, working with the young mothers at CFHS has had a long-lasting impact on their perspectives about community work in general, and teen pregnancy more specifically. For quotations detailing the influence this work has had on the medical students involved, see **Table 3**.

CONCLUSION

The SACC project provides medical students with the opportunity to address a specific health issue affected by contextual issues in a systematic fashion. Through the work required for this project, students developed a deeper understanding of the societal issues that affect the health of the populations for whom they are caring during their clinical training. It is this type of education that may provide future physicians with the training they need to better understand their patients and deepen their abilities to care for diverse communities.

As exemplified by the CFHS partnership, SACC projects can demonstrate the possibilities that exist when health professionals dig beneath the surface of disheartening data and build relationships outside of the physician's office. As Elizabeth Ochs, the CFHS ELO coordinator, stated, "The partnership…is a prime example of the power of mentorship and community connection. The medical students developed relationships with the students that extended far beyond sharing medical knowledge and health guidelines. They created a learning community in which everyone felt safe enough to express themselves, share their hopes and fears, and develop a sense of agency around their own health and the health of their children." And as the medical students saw, the impact on their own education and career paths was equally powerful. If partnerships such as this continue to be cultivated as a routine part of medical education, perhaps our future physicians truly will begin to break down the disparities that continue to challenge our healthcare system.

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References

1. Betancourt J. Eliminating racial and ethnic disparities in health care: What is the role of academic medicine? *Acad Med.* 2006;81:788-792.
2. Alpert Medical School. Evaluation and Assessment: The Nine Abilities. Accessed 15 July 2014. https://brown.edu/academics/medical/education/evaluation-and-assessment
3. Smith S, Dollase R, Boss J. Assessing students' performances in a competency-based curriculum. *Acad Med.* 2003;78(1):97-107.
4. Alpert Medical School. Ability VII: Community Health Promotion and Advocacy. Accessed 15 July 2014. http://www.brown.edu/academics/medical/node/2833
5. American Academy of Family Physicians. Family Medicine, Definition of. Accessed 15 July 2014. http://www.aafp.org/about/policies/all/family-medicine-definition.html
6. Society of Teachers of Family Medicine National Clerkship Curriculum. Contextual Care. Accessed 15 July 2014. http://www.stfm.org/Resources/STFMNationalClerkshipCurriculum/CurriculumContentandCompetencies/PrinciplesofFamilyMedicine/ContextualCare
7. Smith S, Goldman R, Dollase R, Taylor J. Assessing medical students for non-traditional competencies. *Med Teach.* 2007;29(7):711-716.
8. Profile of Central Falls, Rhode Island. Rhode Island Kids Count 2014 Factbook: Indicators of Child Wellbeing. Accessed 10 July 2014. http://www.rikidscount.org/matriarch/documents/CentralFalls2014.pdf

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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	• Successful implementation of a new scholarly concentration	• 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	• Established Advisory Group • Placed family physician faculty on Admissions Committee • Linked PLME† to FMIG‡ and NHSC* scholars	• 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	• Successful implementation of Chronic Disease Management/HIV workshop and 6 new simulated family paper cases	• 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	• Successful recruitment of new community health centers (CHCs) for clinical training of AMS students	• 6 new CHCs taking clerkship students • 176 FM Clerkship students who have trained at CHCs since 2010
Social and Community Context (SACC) Projects	• Successful implementation of SACC/Community Health Projects	• 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	• Successful completion of interview-guided focus groups	• 4 focus groups conducted • 5-10 students per focus group • Qualitative analysis of themes
Annual Student Surveys	• Successful development and validation of the survey, piloted survey, and administered it yearly	• 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	• Successful development and implementation of 3 new fourth-year OSCE** stations	• 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)	• Healthcare utilization among homeless veterans • Food access survey of patients at *Clinica Esperanza* • 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	• Elective and support group for new mothers attending Central Falls High School • Development of digital mindfulness-based interventions for patients at Progresso Latino in Central Falls, RI
Funded Projects in Care of the Underserved Patients and Populations	• 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	• 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	• 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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References

1. American FactFinder. Community Facts – Rhode Island. US Census Bureau. Available at: http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml###. Accessed July 1, 2014.
2. Minority Health Facts: Major health indicators in the racial and ethnic minority populations of Rhode Island. Office of Minority Health, Division of Community, Family Health, and Equity. Rhode Island Department of Health. Sept, 2011. Available at: http://health.ri.gov/programs/minorityhealth/. Accessed July 1, 2014.
3. Crandall SJS, et al. Medical students' attitudes toward underserved patients: a longitudinal comparison of problem-based and traditional medical curricula. *Advances in Health Sciences Education*. 2007;(10):71-86.
4. Littlewood S, et al. Early practical experience and the social responsiveness of clinical education: systematic review. *BMJ*. 2005;331:387-391.
5. Goldstein AO, et al. Teaching advanced leadership skills in community service (ALSCS) to medical students. *Academic Medicine*. 2009;84(6):754-764.
6. Carufel-Wert DA, et al. LOCUS: Immunizing medical students against the loss of professional values. *Family Medicine*. 2007;39(5):320-325.
7. Cox ED, et al. Clinical skills and self-efficacy after a curriculum on care for the underserved. *Am J Prev Med*. 2008;34(5):442-448.
8. https://brown.edu/academics/medical/education/concentrations/concentration-caring-underserved-communities. Accessed July 9, 2014.
9. Mulvaney K. Human-rights Clinic Aids Asylum Seekers in Rhode Island. *Providence Journal*. March 29, 2014. Available at URL: http://www.providencejournal.com/breaking-news/content/20140329-human-rights-clinic-aids-asylum-seekers-in-rhode-island.ece. Accessed July 2, 2014.
10. Rosenblatt RA, Andrilla CH, Curtin T, et al. Shortages of medical personnel at community health centers: implications for planned expansion. *JAMA*. 2006;295(9):1042-1049.

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Future Health Disparity Initiatives at the Warren Alpert Medical School of Brown University

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ABSTRACT

As the United States embarks on health care reform through the Affordable Care Act (ACA), the knowledge, skills and attitudes necessary to practice medicine will change. Education centered on health disparities and social determinants of health will become increasingly more important as 32 million Americans receive coverage through the ACA. In this paper, we describe future initiatives at the Warren Alpert Medical School of Brown University in training medical students on health disparities and social determinants of health through mechanisms such as the Primary Care-Population Medicine Program, the Rhode Island Area Health Education Center, the Scholarly Concentration program and other mechanisms.

KEYWORDS: Education, medical, undergraduate; Students, medical; Curriculum; health disparities; social determinants of health

INTRODUCTION

As the United States health care system embarks on the task of covering 32 million newly insured Americans through the Affordable Care Act, medical schools must re-examine how and what they teach their students. In addition, the increased complexity and diversity of the population seeking care requires that students understand how social determinants of health will affect their future practices. In 2011, the Association of American Medical Colleges (AAMC) report on Behavioral and Social Sciences for Future Physicians presented a list of recommended core competencies students were expected to reach by the end of medical school, which included understanding and integrating knowledge of social determinants of health into clinical practice.[1] At the same time, the AAMC began an Equity of Care campaign, which called for an elimination of health disparities nationally.[2] One of the main goals of this campaign was to increase health disparity education and cultural competency in the national medical workforce.

In the literature, there are multiple studies examining the impact of health disparity training on medical students and residents. A recent study examined the impact of a social medicine-oriented curriculum versus a research-oriented curriculum on students' attitudes toward reducing health disparities; students in the social medicine-oriented curriculum had more positive attitudes toward reducing health disparities.[3] Another study demonstrated that students who participated in a longitudinal experience supporting interest in caring for underserved populations were more likely to enter primary care residencies and practice with underserved populations.[4] Finally, opportunities for students to engage in service learning with underserved populations improved student ability to comprehend ethical issues as well as develop critical thinking and knowledge around underserved populations.[5]

While the importance of teaching about health disparities and social determinants of health cannot be understated, there are multiple barriers to implementation in a medical school curriculum. Issues directly related to health disparities, such as patients' knowledge of social services and patients' cultural and spiritual values, are not commonly included in medical school, which may be due to an already full curriculum.[6] In addition, faculty may have received sparse training on cultural competency, and thus their comfort in teaching health disparities and social determinants of health may be limited.[7]

At The Warren Alpert Medical School of Brown University (AMS), there is increased momentum from both faculty and students to include curricula that will provide graduates with the knowledge, skills and attitudes necessary to address health disparities and social determinants of health in their practice. In the rapidly evolving health care system, medical students will need to navigate these complex issues on a daily basis to provide quality healthcare to a diverse population. Curriculum centered on health disparities and social determinants is currently in place for first- and third-year medical students through the Integrated Medical Sciences (IMS) Curriculum and Family Medicine clerkship, respectively (see Erlich et al and Anthony et al papers in this edition of the *Rhode Island Medical Journal*). However, there is recognition that more is needed in order to adequately prepare students for practicing medicine while taking into account health disparities and social determinants of health.

Here, we describe initiatives at AMS to further the health disparities and social determinants of health curriculum for medical students.

BROWN

The Primary Care-Population Medicine (PC-PM) program is an innovative, dual-degree curriculum that focuses on preparing students for a career in medicine while providing comprehensive, longitudinal training in population medicine. The program will prepare medical students for leadership roles in health care on the local, state, or national level in areas ranging from primary care clinical service to research, education, and health policy. This four-year program, **the first of its kind in the United States**, results in the awarding of both a Doctor of Medicine and a Master of Science in Population Medicine.

PRIMARY CARE-POPULATION MEDICINE PROGRAM

The Primary Care–Population Medicine (PC-PM) Program is an innovative, dual-degree program that focuses on preparing students for a career in medicine while providing comprehensive, longitudinal training in population medicine, including a substantial focus on health disparities and social determinants. This four-year program, the first of its kind in the United States, results in the awarding of both a Doctor of Medicine and a Master of Science degree in Population Medicine. There will be 24 additional medical students admitted to AMS as part of this program.

Students in the PC-PM program will participate in a longitudinal integrated clerkship (LIC). In this clerkship model, students spend one half-day per week with a mentor in family medicine, internal medicine, obstetrics and gynecology, pediatrics, psychiatry/neurology, and surgery over the course of one year. This clerkship model is currently being used in approximately 30 medical schools nationally and has outcomes similar to that of traditional clerkships.[8] Students will also spend time in the emergency department, where they will be the first provider to see, diagnose, and propose treatment plans for patients. In addition, students will be assigned their own panel of approximately 75–100 patients. Students will follow these patients to health care settings such as the operating room, labor and delivery floor, primary care office visits, rehabilitation, and home care. It is our hope that students will serve as navigators, helping these patients through the health care system and, as a result, reduce disparities by advocating for them through a complicated health care system.

As an additional component of the LIC, students will take two courses in population medicine. These courses, led by a physician board certified in both Family Medicine and Preventive Medicine, will focus on the intersection of clinical medicine and population health. Students will learn about topics such as the medical care of homeless patients, incarcerated patients and vulnerable adolescents, focusing not only on medical care, but on the health care policies that affect the health of these individuals.

HEALTH SYSTEMS AND POLICY

AMS is introducing a new Health Systems and Policy course for all first-year medical students. This course, led by a lawyer (ETT) with significant experience teaching in a medical school setting, will be integrated into both the Integrated Medical Sciences (IMS) and Doctoring (Introduction to Clinical Medicine) curriculum.

Through active learning opportunities, including case-based learning, team-based problem-solving exercises and small- and large-group discussions, this course will explore how multiple social determinants influence individual and population health; the laws and policies that shape the social environments in which patients live; and the role of physicians in advocating for systems and policy changes that will reduce health disparities and improve population health outcomes. Students will learn from experts from the health care system, as well as from state and local government community-based organizations and academics, who are working to address health disparities and social determinants.

Specific topics to be covered in the course include:

- Introduction to the United States Health Care System
- The American Health Care Paradox

- Introduction to Health Disparities
- The Role of Law and Policy in Health Disparities and Social Determinants
- Health, Poverty and Safety Net
- Immigrants: Language and Access Barriers
- Education as a Social Determinant of Health
- Food, Nutrition and Policy Responses to Obesity
- Aging Patients, Physicians and Caregivers: Roles, Responsibilities, and Decision-Making
- Limited English Proficient Patients: Civil Rights and Policies
- Health Housing Laws and Policy
- Asthma, Environmental and Social Risk Factors
- Racial and Socioeconomic Cancer Disparities
- Cancer – Insurance and Employment Issues
- Ethical and Legal Aspects of Genetic Counseling
- Occupational Health: Legal and Policy Protection for Workers

AREA HEALTH EDUCATION CENTER

The Rhode Island Area Health Education Center (RI AHEC) has been in existence since 2004, and has the following objectives[9]:

1. Recruit under-represented minority and disadvantaged students into the health professions through a broad range of programs.
2. Develop and support community-based interdisciplinary training of health profession students in underserved areas.
3. Facilitate and support practitioners, facilities and community-based organizations in effectively addressing critical local health care issues.
4. Provide continuing education and other services to improve the quality of community-based care.

AMS will implement these objectives through several strategies. For example, as part of the implementation of the PC-PM program, faculty met with premedical advisors from the University of Rhode Island (URI) and Rhode Island College (RIC) to promote the PC-PM program to underrepresented minority students from these two institutions. Second, we continue to develop and expand interdisciplinary and interprofessional training. Health professions students from the Schools of Nursing and Pharmacy at URI and the Colleges of Nursing and Social Work at RIC, along with medical students from AMS, bi-annually meet for workshops to promote interprofessional teamwork. In the future, these workshops will incorporate a greater emphasis on health disparities and social determinants of health. Finally, the AHEC will, in part, support the development of the PC-PM program as a whole and the aforementioned Health Systems and Policy course to provide opportunities for faculty and students to address critical local health care issues.

SCHOLARLY CONCENTRATIONS

As part of the Scholarly Concentration program at AMS, which enables students to gain knowledge and experience through research and project-based work,[10] students are increasingly focusing on issues related to health disparities and social determinants of health. Related scholarly concentrations include Advocacy and Activism, Caring for Underserved Communities, Health Policy, Medical Education, and Women's Reproductive Health. For example, a student in the Medical Education concentration is designing a health disparities workshop for second-year medical students in which students can integrate their knowledge of organ system pathophysiology with health disparities that may be contributing to the pathophysiology. A student, also in the Medical Education concentration, is working to set up a business plan framework to design free medical clinics in which individuals without insurance can get the health care they need at the social service agencies they frequent.

HEALTH DISPARITIES SYMPOSIUM

To further broaden health disparities education at AMS, students initiated the first Health Disparities Symposium in January 2014. Key stakeholders from across the Brown University campus and the greater Rhode Island community were invited to come together to identify and assess current efforts focused on health disparities. The goals of the symposium were as follows: (1) to describe the current landscape of curricular programs at Brown (many are mentioned above and in the accompanying Erlich et al article in this issue) focused on health disparities; (2) to identify gaps within existing educational, research and community-oriented health disparities programs; and (3) to solicit recommendations and ideas to create a more coordinated and comprehensive paradigm for teaching and addressing health disparities in our community. Christina H. Paxson, PhD, President of Brown University, served as the keynote speaker at the symposium. The health disparities symposium at AMS will now be an annual event intended to continue this dialogue.

CONCLUSION

The aforementioned AMS educational initiatives focused on health disparities and the social determinants of health are designed to augment a strong basic and clinical science curriculum. They are planned in order to train future physicians who are not only skilled in high-quality patient care, but also in identifying and advocating for systems and policy changes that will reduce health disparities and address social determinants at the population level. It is our hope that these initiatives, along with other AMS efforts described in this issue such as reforms to medical school admissions and the development of informal learning opportunities focused on underserved populations, will lead to improved health and health equity in Rhode Island and elsewhere.

References

1. Association of American Medical Colleges. Report of the Behavioral and Social Science Expert Panel. *Behavioral and Social Science Foundations for Future Physicians.* 2011. Available at https://www.aamc.org/download/271020/data/behavioralandsocialsciencefoundationsforfuturephysicians.pdf. Accessed July 3, 2014.
2. Kirsch DG. AAMC. A Word From the President: Eliminating Health Disparities to Improve the Health of All. Association of American Medical Colleges. 2011. Available at https://www.aamc.org/newsroom/reporter/october2011/262412/word.html. Accessed July 3, 2014.
3. Dopelt K, Davidovitch N, Yahaz Z, Urkin J, Bachner YG. Reducing health disparities: The social role of medical schools. *Med Teach*. 2014;36:511-517.
4. Kost A, Benedict J, Andrilla CH, Osborn J, Dobie SA. Primary care residency choice and participation in an extracurricular longitudinal medical school program to promote practice with medical underserved populations. *Acad Med*. 2014;89:162-168.
5. Liang Ed W, Koh GC, Lim VK. Caring for underserved patients through neighborhood health screening: Outcomes of a longitudinal, interprofessional, student-run home visit program in Singapore. *Acad Med*. 2011;86:829-839.
6. Shore WB, Muller J, Thom D, Mergendoller J, Saba GW. Analysis of clerkship student-patient interviews in underserved clinics. *Fam Med*. 2012;44:508-513.
7. Rollins LK, Bradley EB, Hayden GF, Corbett EC, Heim SW, Reynolds PP. Responding to a changing nation: Are faculty prepared for cross-cultural conversations and care? *Fam Med*. 2013;45:728-731.
8. Hauer KE, Hirsch D, Ma I, Hansen L, Ogur B, Poncelet AN, Alexander EK, O'Brien BC. The role of role: Learning in longitudinal integrated and traditional block clerkships. *Med Educ*. 2012;46:698-710.
9. Brown University. Rhode Island AHEC Initiatives & Outcomes. Rhode Island Area Health Education Centers. 2010. Available at http://med.brown.edu/ahec/objectives. Accessed July 3, 2014.
10. Green EP, Borkan JM, Pross SH, Adler SR, Nothnagle M, Parsonnet J, Gruppuso PA. Encouraging scholarship: Medical school programs to promote student inquiry beyond the traditional medical curriculum. *Acad Med*. 2010;85:409-418.

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Addressing Health Disparities: Brown University School of Public Health

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ABSTRACT

Health disparities are a public health concern in Rhode Island and around the world. Faculty members and students in the Brown University School of Public Health are working to understand, address, and ultimately eliminate disparities in health and health care affecting diverse populations. Our educational offerings and research efforts are directed toward understanding and addressing the social, cultural, and environmental factors that contribute to these health disparities. Research methods to carry out this work include implementing interdisciplinary, community-based, quantitative and qualitative research with the goal of preventing, reducing, and eliminating health disparities. This article focuses on some of the School's work with vulnerable communities confronting issues around the following: HIV/AIDS, obesity, nutrition, physical activity and delivery of health services.

KEYWORDS: Brown, Public Health, Disparities, Populations, HIV/AIDS, Obesity, Nutrition, Physical Activity, Aging

INTRODUCTION

The academic departments and research centers of Brown's School of Public Health are influential voices in the national dialogue on health issues affecting vulnerable populations. Their work makes important contributions to shaping public policy and practice. A major focus of public health research and education is to improve the health of at-risk communities, and addressing health disparities is part of the school's core mission. A few examples illustrate how faculty and students of Brown's School of Public Health work to promote population health and reduce health disparities.

HIV/AIDS

Disadvantaged and minority populations carry a disproportional burden of the HIV/AIDS epidemic. HIV Research has a long history at Brown, and, in the School of Public Health, includes many investigators, multiple topic areas, and diverse and innovative research methodologies. The history of HIV research goes back to the mid-1980s, when Vincent Mor, PhD; Ken Mayer MD, PhD and others, with funding from the Robert Wood Johnson Foundation, conducted a national survey of the relationship between immune status and health services utilization. This early effort has evolved into a vibrant interdisciplinary community of researchers focused on HIV prevention, treatment, and policy in domestic and international contexts. Another collaboration across Brown that includes the Alpert Medical School and its affiliated hospitals and partner institutions, is the Lifespan/Tufts/Brown Center for AIDS Research (CFAR), one of 19 national CFAR sites for the National Institutes of Health. This project led by the Alpert Medical School has been continuously funded since 1998 and has stimulated growth of HIV research at Brown.

Several new initiatives in the School of Public Health are informed by the work of CFAR. In 2010, Brown's Center for Alcohol and Addiction Studies (CAAS) received a Center Grant from the National Institute for Alcohol and Addiction to support a Brown Alcohol Research Center on HIV (ARCH). This project, led by Peter Monti, PhD, seeks to reduce the impact of alcohol on the HIV epidemic by studying the multiple pathways that alcohol impacts HIV morbidity, mortality and transmission. ARCH research projects range from basic science using MRI-based structural and metabolite neuroimaging to determine whether alcohol and its effects on liver function increase effects of HIV on the brain, to clinical trials aimed at reducing alcohol use.[1]

Another innovative approach to HIV/AIDS research is the work being done by Amy Nunn, ScD, assistant professor of behavioral and social sciences, in the Institute for Community Health Promotion. She uses community partnerships to address health disparities, by engaging clergy and community leaders in HIV testing, treatment and social marketing campaigns. In 2012, she established a comprehensive, neighborhood-based HIV and hepatitis C (HCV) prevention and treatment program called ***Do One Thing***. This program addresses unmet needs for testing and treatment in a Philadelphia neighborhood with high rates of HIV and HCV infection. In 2011, she founded Philly Faith in Action, a coalition of clergy in Philadelphia who work collaboratively to reduce racial disparities in HIV infection. In 2013, Dr. Nunn expanded her work with clergy by establishing Mississippi Faith in Action, a similar coalition based in the heart of the Bible belt in Jackson, Mississippi. Dr. Nunn has shown that these innovative, community-based approaches to HIV

prevention have enhanced linkage and retention in care in some of the most heavily affected communities and neighborhoods in the nation, including inner-city neighborhoods and the Deep South.[2,3,4,5]

There are currently more than twenty investigators from all four Departments in the School of Public Health who have significant funding for work on HIV/AIDS and related topics.

OBESITY, NUTRITION, AND PHYSICAL ACTIVITY

The obesity epidemic is a major public health concern. The areas of obesity, nutrition, and physical activity span the work of many investigators in several of the School of Public Health's research centers. Faculty and students in The Institute for Community Health Promotion (ICHP) seek to improve health, especially among underserved populations. The ICHP conducts interdisciplinary, community-based participatory research and education to empower individuals, providers, organizations, and communities to practice and promote healthier behaviors, increase resilience, and achieve healthier neighborhood environments.

Akilah Keita, PhD, assistant professor of behavioral and social sciences, investigates neighborhood contexts of diet, physical activity, obesity and obesity-related comorbidities, and neighborhood dynamics resulting from urban revitalization and public health interventions. She is currently funded by a 24-month Robert Wood Johnson Foundation (RWJF) grant through the ***New Connections*** program, a national program designed to introduce new scholars to the RWJF and expand the diversity of perspectives that inform the Foundation's programming. The grant will allow Dr. Keita to examine the risk and protective factors for childhood obesity among Southeast Asians. She is working with community leaders to identify how best to address their health concerns.[6,7,8]

The ICHP also leads research funded by the National Cancer Institute, which asks whether providing convenient access to affordable fresh fruits and vegetables — along with educational campaigns, recipes and chef-led demonstrations — will increase produce consumption and improve health. ***Live Well Viva Bien,*** is a research project that uses multilevel approaches in low-income housing to increase the consumption of fruits and vegetables. This research is a randomized, controlled trial at subsidized housing complexes to study the effectiveness of a multi-component intervention, including fruit and vegetable markets and nutrition education, for residents of low-income, subsidized housing complexes. This initiative has brought the mobile fruit and vegetable markets to eight Rhode Island subsidized housing projects over the last three years and, in a companion study called ***Good to Go,*** has brought mobile ***Fresh to You*** markets to 16 worksites.[9,10]

There is growing recognition among researchers, public health practitioners and policymakers that location and the design of neighborhoods influence health behaviors and health outcomes. Dr. Keita teaches a course that explores the features of community environments and their associations with health behaviors (e.g., physical activity, preventive care, alcohol, and sexual behaviors) and health outcomes (e.g., obesity, cardiovascular disease and mental health). Her expertise is informing a collaboration between the School of Public Health and the Rhode Island School of Design on a project entitled "Place Matters." This collaboration is focused on the question of how design of neighborhoods can improve population health by promoting healthier behaviors.

DISPARITES IN HEALTH CARE

Disparities in health screenings, treatment and health outcomes, particularly among aging populations has been one focus of work conducted in the Center for Gerontology and Health Care Research. Several research projects have examined how race, neighborhood, or socio-economic status is associated with disparities in quality of care and health outcomes.

Amal Trivedi, MD, PhD, associate professor of health services, policy and practice and associate professor of medicine, studies quality of care and health care disparities, with particular emphasis on the impact of patient and provider incentives on quality and equity of care. In a recent study with recent doctoral graduate, Danya Qato, they observed that of 6 million seniors in Medicare Advantage plans in 2009, 21 percent received a prescription for at least one potentially harmful "high-risk medication." Nearly 5 percent received at least two such prescriptions. Moreover, they observed that questionable prescriptions were more common in the South and among people who lived in economically disadvantaged areas. Dr. Trivedi has also studied the differential impact of higher copayments for health screening among different populations.[11,12,13]

Hispanic and African American senior citizens are living in nursing homes in ever-increasing numbers, but many face a gap in quality of care compared to white residents. A team led by Mary Fennell, PhD, professor of sociology and professor of health services, policy and practice, found that Hispanic elderly are more likely than whites to live in nursing homes of poor quality. These residences are often faced with structural problems, staffing issues and financial trouble.[14,15,16]

Vince Mor, PhD, professor of health services, policy and practice, has led a team of researchers examining the provision and quality of long-term care. His team created the nation's first large scale database aimed at providing information to be used in improving long-term care across the US. This database, available on line, is called ***LTC-Focus***, and it is intended for policy makers, insurers, and service providers. Other research by this team examines how factors such as state policies, regional differences, market factors, and racial segregation affect quality of care. This work

will help policymakers craft guidelines that promote high-quality, cost-effective, equitable care for older Americans. The American Health Care Association and the National Center for Assisted Living have provided support to Brown to launch a new Center for Long Term Care Quality and Innovation in the School of Public Health. The center will work to improve the quality of long-term and post-acute care by studying best practices, conducting implementation research, and developing training and leadership programs in the field.[17-21]

TEACHING THE NEXT GENERATION

The research conducted in the Centers and Institutes of the School of Public Health informs and enhances curricular content for undergraduate and graduate students. Many of the courses, taught by public health faculty, address the contributors to health disparities and effective strategies to improve population health. Students also learn about the conduct of research that is culturally aware and the design of interventions and programs that are culturally appropriate. For example, Steve McGarvey, PhD, teaches a course on the Burden of Disease in Developing Countries, which defines and critically examines environmental, epidemiologic, demographic, biomedical, and anthropological perspectives on health and disease in developing countries. By studying changes in the underlying causes of morbidity and mortality during economic development, students are helped to understand the complex issues associated with health disparities. Dr. McGarvey also involves undergraduate and graduate students in his own research, offering opportunities to study health in American Samoa and other locations.[22, 23, 24]

A majority of public health students gain experience in research relevant to health disparities, including work in local communities, at the Department of Health, and in international projects. Their work contributes to improvements in population health here and abroad.

References

1. Bryant V, Kahler C, Devlin K, Monti PM, Cohen R. The effects of cigarette smoking on cognitive performance among people living with HIV/AIDS. *AIDS Care*. 2013;25:1308-1316.
2. Nunn A, Yolken A, Cutler B, Trooskin S, Wilson P, Little S, Mayer K. Geography should not be destiny: focusing HIV/AIDS implementation research and programs on microepidemics in US neighborhoods. *American Journal of Public Health*. 2014;104(5):775-780. doi: 10.2105/AJPH.2013.301864.
3. Nunn A, Cornwall A, Thomas G, Callahan PL, Waller PA, Friend R, Broadnax PJ, Flanigan T. What's God got to do with it? Engaging African-American faith-based institutions in HIV prevention. *Glob Public Health*. 2013;8(3):258-269. doi: 10.1080/17441692.2012.759608. Epub 2013 Feb 4.
4. Nunn A, Cornwall A, Chute N, Sanders J, Thomas G, James G, Lally M, Trooskin S, Flanigan T. Keeping the faith: African American faith leaders' perspectives and recommendations for reducing racial disparities in HIV/AIDS infection. *PLoS One*. 2012;7(5):e36172. doi: 10.1371/journal.pone.0036172. Epub 2012 May 16. PMID: 22615756 [PubMed - indexed for MEDLINE] Free PMC Article.
5. Sison N, Yolken A, Poceta J, Mena L, Chan PA, Barnes A, Smith E, Nunn A. Healthcare provider attitudes, practices, and recommendations for enhancing routine HIV testing and linkage to care in the Mississippi Delta region. *AIDS Patient Care STDS*. 2013;27(9):511-517. doi: 10.1089/apc.2013.0169.
6. Dulin Keita A, Thind H, Baskin ML. The associations of perceived neighborhood disorder and physical activity with obesity among African American adolescents. *BMC Public Health*. 2013;13:440.
7. Cardel M, Willig AL, Dulin-Keita A, Casazza K, Cherrington A, Gunnarsdottir T, Johnson SL, Peters JC, Hill JO, Allison DB, Fernandez JR. Home-schooled children are thinner, leaner, and report better diets relative to traditionally-schooled children. *Obesity*. 2014;22:497-503.
8. Dulin Keita A, Casazza K, Fernandez JR, Goran MI, and Gower B. Do neighbourhoods matter? Neighbourhood disadvantage and long-term trends in serum cortisol secretion. *Journal of Epidemiology and Community Health*. 2012;66(1):24-29.
9. Mello JA1, Gans KM, Risica PM, Kirtania U, Strolla LO, Fournier L. How is food insecurity associated with dietary behaviors? An analysis with low-income, ethnically diverse participants in a nutrition intervention study. *J Am Diet Assoc*. 2010;110(12):1906-1911. doi: 10.1016/j.jada.2010.09.011.
10. Gans KM1, Risica PM, Strolla LO, Fournier L, Kirtania U, Upegui D, Zhao J, George T, Acharyya S. Effectiveness of different methods for delivering tailored nutrition education to low income, ethnically diverse adults. *Int J Behav Nutr Phys Act*. 2009;6:24. doi: 10.1186/1479-5868-6-24.
11. Qato D, Trivedi AN. Use of high-risk medications among elderly Medicare Advantage enrollees. *Journal of General Internal Medicine*. 2013;28(4):546-553.
12. Trivedi AN, Grebla RC, Wright SM, Washington DL. Despite improved quality of care in the Veterans Affairs' Health System, racial disparity persists for important clinical outcomes. *Health Affairs*. 2011;30(4):707-715.
13. Trivedi AN, Moloo H, Mor V. Increased ambulatory care copayments and hospitalizations among the elderly. *N Engl J Med*. 2010;362:320-328.
14. Fennell ML, Feng Z, Clark MA, Mor V. Elderly Hispanics more likely to reside in poor-quality nursing homes. *Health Aff* (Millwood). 2010;29(1):65-73.doi: 0.1377/hlthaff.2009.0003. PubMed PMID: 20048362; PubMed Central PMCID:PMC3825737.
15. Feng Z, Fennell ML, Tyler DA, Clark M, Mor V. The Care Span: Growth of racial and ethnic minorities in US nursing homes driven by demographics and possible disparities in options. *Health Aff* (Millwood). 2011;30(7):1358-1365. doi:10.1377/hlthaff.2011.0126. PubMed PMID: 21734211; PubMed Central PMCID:PMC3785292.
16. Fenell ML, Feng, Z, Mor, V, Tyler, D, Smith, DB, Clark M. Separate and unequal access and quality of care in nursing homes: Implications of the research program for aging Hispanics and the transformation of the long-term care industry. *Aging, Health and Longevity in the Mexican-Origin Population*. Edited by Jacqueline Angel, Fernando Torres-Gil, and Kyriakos Markides. 2012; Springer Publishers. Pp. 207-226.
17. Cai S, Feng Z, Fennell ML, Mor V. Despite small improvement, black nursing home residents remain less likely than whites to receive flu vaccine. *Health Aff* (Millwood). 2011;30(10):1939-1946. doi: 10.1377/hlthaff.2011.0029. PubMed PMID:21976338; PubMed Central PMCID: PMC3833696.
18. Feng Z, Lepore M, Clark MA, Tyler D, Smith DB, Mor V, Fennell ML. Geographic concentration and correlates of nursing home closures: 1999-2008. *Arch Intern Med*. 2011;171(9):806-813. doi: 10.1001/archinternmed.2010.492. Epub 2011 Jan 10. PubMed PMID: 21220642; PubMed Central PMCID: PMC3748956.
19. Smith DB, Feng Z, Fennell ML, Zinn J, Mor V. Racial disparities in access to long-term care: the illusive pursuit of equity. *J Health Polit Policy Law*. 2008;33(5):861-881. doi: 10.1215/03616878-2008-022. PubMed PMID: 18818425.

20. Gruneir A, Miller SC, Feng Z, Intrator O, Mor V. Relationship between state Medicaid policies, nursing home racial composition, and the risk of hospitalization for black and white residents. *Health Serv Res*. 2008;43(3):869-881. doi: 10.1111/j.1475-6773.2007.00806.x. PubMed PMID: 18454772; PubMed Central PMCID: PMC2442243.
21. Smith DB, Feng Z, Fennell ML, Zinn JS, Mor V. Separate and unequal: racial segregation and disparities in quality across U.S. nursing homes. *Health Aff* (Millwood). 2007;26(5):1448-1458. Erratum in: *Health Aff* (Millwood). 2007 Nov-Dec;26(6):1794. PubMed PMID: 17848457.
22. Hawley NL, Johnson W, Nu'usolia O, McGarvey ST. The contribution of feeding mode to obesogenic growth trajectories in American Samoan infants. *Pediatric Obesity*. 2014; 9(1):e1-e13. doi: 10.1111/j.2047-6310.2012.00137.x. Epub 2013 Feb 5. PMID: 23386576. PMCID: PMC3797146.
23. DePue JD, Dunsiger S, Seiden AD, Blume J, Rosen RK, Goldstein MG, Nu'usolia O, Tuitele J, McGarvey ST. Nurse-community health worker team improves diabetes care in American Samoa: results of a randomized controlled trial. *Diabetes Care.* 2013; 36(7):1947-1953. Epub 2013 Feb 7. doi:10.2337/dc12-1969. PMID: 23393217. PMCID: PMC3687286.
24. AE Quinn AE, Rosen R, McGeary J, Amoa F, Francazio S, McGarvey ST, Swift RM. Translating the Semi-Structured Assessment for Drug Dependence and Alcoholism (SSADDA) in the Western Pacific: rationale, study design, and alcohol dependence. *Alcohol & Alcoholism.* 2014 Jun 16. pii: agu035. (Epub ahead of print). PMID: 24936588.

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