Exceeding Expectations:

Underrepresented Minorities in Medicine at University of Utah Health

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Abstract

Problem: The University of Utah (UU) serves an increasingly diverse state and houses the only public medical school, dental school, and college of pharmacy in the state, as well as a college of nursing and health. Like most states, Utah’s diversity in the health professions lags behind the diversity of its general population.

Approach: This paper describes the Health Sciences Learning, Engagement, Achievement and Progress (HS-LEAP) Program, a 4-year undergraduate pipeline program intended to increase racial and ethnic diversity in the health professions, specifically focused on, but not limited to, underrepresented minorities in medicine (URMM). Self-identified demographics were submitted by each student at the time of enrollment. Students are followed to successful engagement in their profession of choice. Graduation and post-graduation outcomes were compared to non-HS LEAP students at the UU.

Outcomes: Almost 600 students have participated in HS-LEAP. HS-LEAP students are 40% Latinx, 7% black, 3% American Indian/Alaskan Native and 30% Asian and 1% Pacific Islander. HS-LEAP students had lower ACT scores (67% below 23) on admission and higher grade point averages (GPAs) (+0.44, p<0.05) in their first semester, higher fall to fall first-year retention rates (+16.8%) and higher 6-year graduation rates (+11%) when compared to non-LEAP UU students. Forty percent of students of color that participated in HS LEAP went to graduate school. Fifteen percent of HS LEAP participants have completed graduate school with 63% becoming health professionals.

Next Steps: The HS-LEAP program is changing to accommodate changing student needs, as well as medical and professional school requirements, seeking external funding and implementing GPA targets. In collaboration with professional programs, holistic admissions are constantly being improved to greater diversify the student body in our professional schools.

Problem

In 2002, the National Academy of Sciences published their report on health disparities in the United States entitled "Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care." The report documented how Black, Latino, Native American/Alaskan Natives and Pacific Islanders, also known as underrepresented minorities in medicine (URMM), essentially had poorer health outcomes than their non-URMM peers. The report offered many solutions to this problem, including diversification of the healthcare workforce. The follow up report from the National Academy of Sciences entitled, “In the Nation’s Compelling Interest, Ensuring Diversity in the Health-Care Workforce” elucidates the benefits for all Americans from racial and ethnic diversity in healthcare. While some gains have been made, the URMM representation in health professions remains well below their representation in the general population. We have since learned that
patients from URMM communities often prefer health professionals who share their cultural background and that URMM health professionals are more likely to serve URMM communities and are twice as likely to practice in inner city and rural areas. URMM nurses, physician assistants, and medical technicians follow the same patterns. These data help us to connect the diversity of the healthcare workforce as a solution to support health equity. Racial and ethnic disparities in healthcare still remain, however, and there is a pressing need to diversify the workforce.

While this is a national problem, as a state with rapidly shifting demographics, it is also very much of concern to Utah. Utah has a large and growing Latinx population (almost 500,000) and is one of the homes to the largest Native American nation, the Navajo Nation. No state outside of Hawaii has a higher proportion of Pacific Islanders in the US than Utah. There are over 60,000 refugees in Utah, the great majority of which are from Somalia, the Democratic Republic of Congo, Syria, Iraq, Vietnam, and Burma. There are over 120 languages spoken at home in Utah. The need to diversify healthcare in Utah is perhaps more urgent than in other areas because of the rapid growth of these groups. University-based diversity-focused biomedical pipeline programs have been shown to be an essential element in meeting the science and health-related workforce needs our state faces now and in the future.

Numerous programs exist at all educational levels to interest URMM students in health profession careers. The majority of these programs are research-focused summer programs which target specific skills and are designed to prepare for one specific branch of health care. We report on a similarly targeted program at the University of Utah, aimed at increasing URMM students in our schools of Medicine and Dentistry, as well as our Colleges of Nursing, Pharmacy and Health. Our program is unique in its integrated curricular approach that is designed to be a part of each of the four undergraduate years. Successful programs that maintain the interest of URMM students in the health sciences can effectively move toward equity in health profession education and improve healthcare delivery and outcomes.

**Approach**

In 2001, the School of Medicine at the University of Utah launched a 4-year experiential learning program called Health Sciences Learning, Engagement, Achievement and Progress (HS-LEAP), to prepare URMM students to be competitive for admission to health sciences graduate/professional programs. Ultimately, HS-LEAP sought to increase the number of Latinx, American Indian/Alaskan Native, Black, Pacific Islander, lower SES and rural healthcare professionals in Utah.

Students apply in the spring of their senior year in high school, after being accepted to the University of Utah. Students are recruited from local and regional high schools, and the application is now available online. A committee of Health Sciences Center and HS-LEAP faculty and staff select a cohort of 30-35 entering students from among the applicants.

Students gather for a “Welcome Day” in the week before fall classes begin. There they meet the faculty member who teaches most of their HS-LEAP classes and their Peer Advisor, who will be with them throughout that first year. Peer Advisors are competitively selected from the previous year’s HS-LEAP first-year students and are registered for the second-year classes in the program. These
advisors attend all of the first-year classes with the new students. The faculty member and Peer Advisors purvey the cultural capital needed for success at the University. They also serve as mentors for HS-LEAP students throughout their four-year HS-LEAP experience.

The 4 year-curriculum is intended to provide building blocks and experiences that allow the student to engage in clinical, research, and community engagement aspects of the health professions.

Table 1 shows the 4 year-curriculum:

<table>
<thead>
<tr>
<th>Year</th>
<th>First Semester Topics</th>
<th>Second Semester Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>Underrepresented communities in healthcare, research skills and documentation formats</td>
<td>Introduction to bioethics</td>
</tr>
<tr>
<td>Sophomore</td>
<td>Health Professional shadowing (nursing, dentistry, medicine, health, and pharmacy), Law and medicine, cultural humility, professionalism</td>
<td>Qualitative and Quantitative research methodology</td>
</tr>
<tr>
<td>Junior</td>
<td>Research in a university lab, conventions of scientific reporting</td>
<td></td>
</tr>
<tr>
<td>Senior</td>
<td>Community engagement project, preparation for application to graduate training.</td>
<td></td>
</tr>
</tbody>
</table>

**Outcomes**

To assess the efficacy of the HS-LEAP Program, we stratified students by ACT score at admission, assessed educational outcomes, and compared them to non-HS-LEAP students with similar ACT scores. Outcome metrics include: first-semester grades, fall-to-fall retention rates for first-year students, six-and eight-year graduation rates, and number who entered graduate education. The data were provided by the Office of Budget and Institutional Analysis (OBIA) at the University of Utah.

**Demographics:**

**Figure 1: Health Sciences LEAP Student Headcount by Race/Ethnicity, aggregating cohorts 2003 through 2016**
Participants have been 75% female over the last 18 years. Of note, 87% of all HS-LEAP participants were domestic students of color.

**Academic Profile at College Entry:**

HS-LEAP students have typically entered the program with ACT scores lower than those of other first-year students, as demonstrated in Figure 2.

**Figure 2: Comparison of ACT Composite Score Distribution between HS-LEAP and non-HS-LEAP First-Year Students, aggregating cohorts 2003 through 2016**

**Academic Outcomes: Exceeding Expectations**
First semester grades: HS-LEAP students generally finish their first term with higher GPA’s than those of non-HS-LEAP first-year students, in every ACT score category, as illustrated in figure 3.

Figure 3: Mean GPA difference for HS LEAP Students Compared to all Other First Term Students, aggregating cohorts 2003-2016

Fall to fall retention rates: At every ACT score level, a higher percentage of HS-LEAP students were retained, from first to second year, as illustrated in figure 4. This is a significant predictor of college success and eventual graduation.22

Graduation Rates: HS LEAP students also graduated in higher percentages than their peers at every ACT score level at both 6 and 8 years. This is most pronounced at the lower ACT scores (21-23). (Figure 4)

Figure 4: Mean difference in Fall-to-Fall Retention Rates, 6- and 8-year graduation rates for First-Year HS-LEAP Students and non-HS-LEAP Students by ACT Scores, aggregating cohorts 2003-2016. Including full- and part-time freshmen.
HS-LEAP students and non-HS LEAP students go on to graduate school at near identical rates, which is currently 30%. Of the students of color who have enrolled in HS-LEAP, however, 40% participated in graduate degree programs, compared to 30% of non-HS LEAP students. As illustrated in Figure 5, 15% have completed their degrees. At the time of this writing, about half (63%) of those who obtained graduate degrees became health professionals (MD, PA, DNP, DPT, DDS, Pharm D, MSW and MPH).
Figure 5: Advanced degrees obtained by HS-LEAP participants

Figure 6 illustrates outcomes of those who did not continue to graduate school. About half completed their bachelor’s degree, and we were not able to obtain any data for 15% of those who enrolled in HS-LEAP at any time. The majority of the remaining students are currently enrolled in undergraduate classes.

Figure 6: Undergraduate degrees obtained by HS LEAP students
Qualitative Data:

Many of our graduates have offered testimonials to the efficacy of the program, and their testimonial suggest that some of what we provide is of particular value to the demographic we serve. When students graduate from HS-LEAP, they are asked to comment on their experience. The following are excerpts from our graduates exit statements:

“HS-LEAP is the best program I have ever been a part of.”

“The LEAP program provided me with resources, friendships and mentors, that as a first-generation college student, I struggled to obtain on my own.”

“HS LEAP played an integral role in my continued involvement in medical research.”

“HS-LEAP was pivotal in my development as a socially aware health care professional...It was the first place where I learned about my own privileges and how to use those to become a better ally to those less privileged than I am. Without HS-LEAP, I absolutely would not be the person I am today.”

“Through these LEAP experiences my passion for medicine, research, and helping others grew to an extent I never thought possible. Using these experiences and my background as an engineer I spring boarded multiple projects and activities, chief among them designing and filing a provisional patent for a medical device that I created, researched and developed.”

“In the span of four years, I’ve learned so much about disparities in health care, research and writing, and I feel like I’ve become a better human being with each class. LEAP offers many resources and opportunities to students that are hard to find.”

“I am sincerely grateful for the HS-LEAP program because I have gained a strong network of fellow STEM students, mentors and health care providers who are passionate, driven and are quick to lend a helping hand.”

**Next Steps**
Health Sciences LEAP encourages leadership positions on and off campus, and we find research placements for our third-year students with internationally renowned investigators that they might be unaware of or too shy to approach themselves. These research placements improve the quality of their undergraduate experience and qualify students for an award that appears on their transcripts. Because virtually all HS-LEAP students hold other jobs to help pay for their education, we hire them to work in these labs. These experiences, along with their HS-LEAP peer advisors and faculty, instill a confidence that academic and career success are within their reach. We encourage HS-LEAP students as they enter college to help address healthcare inequities in America.

Additional benefits of the program include the cohort effect. Students not only find a special identity that connects them to each other but become friends and supportive colleagues as they continue their education. In addition, they connect to program faculty and advisors who can mentor them throughout college and prepare them to go beyond. Inclusion and belonging are associated with academic success, and HS-LEAP participation enhances this aspect of the cultural capital students need to succeed.23

Health Sciences LEAP has been a passion-project for decades and has played a role in enabling URMM students to enter into the health professions at our institution. While we are delighted with these outcomes, we have learned that there are areas for improvement in our program. Some medical schools, including ours, require that community work be separate from course work—i.e. should not be for academic credit. This led some of our HS-LEAP students to create two separate projects in order to meet medical school admission requirements. We are now addressing this, and the community engagement project will no longer be a part of HS-LEAP. However, senior students will continue to work with HS-LEAP as mentors to newer students.

Like most pipeline programs, HS-LEAP could benefit from greater connection with the graduate programs. We are exploring ways to better connect these students with the programs. Currently we are exploring ideas like guaranteed interviews for HS-LEAP graduates in our professional degree programs. Another idea is involving key Health Sciences faculty and staff in the HS-LEAP curriculum, so that when the students do apply, they are not completely unknown to the programs to which they are seeking admission.

In an effort to be completely supportive of our URMM students, there has never been a GPA requirement for continuing in HS-LEAP. While we know that grades are only a part of admissions, they continue to be heavily weighted in applications. For this reason, we will be implementing a GPA threshold. We are still determining what number that is, but we will also examine circumstances carefully and offer every opportunity to stay in the program. The GPA target is designed to help the students have realistic GPA expectations, and to help them maintain the grades to ensure success.

Because HS-LEAP pays the students for their university lab experience, as well as many of the faculty members who lecture in the program, there are significant costs for the University of Utah. We are now in contact with foundations, donors, and community leaders to identify areas where we can collaborate, and to increase the external funding of this project.
The most heartening of the changes to HS-LEAP are happening outside of our program. Many of the graduate programs (MD, DDS, DNP) are switching to holistic admissions, essentially giving credit for the distance traveled of each student. This will assuredly help further diversify our student bodies in each professional school, and it will enhance the quality of our programs.

**About the Authors**

**Carolyn Bliss, PhD,** was the Director of LEAP Learning Communities from 2005-2017 and has taught the Health Sciences LEAP curriculum since the program’s inception in 2001. She is now a Professor Emerita at the University of Utah.

**Nora Wood, PhD,** teaches in the University of Utah LEAP Learning Communities Program and is in the process of assuming the role of principal instructor in the Health Sciences LEAP Program.

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**José Rodríguez, MD, FAAFP,** is the current Interim Associate Vice President for Health Equity and Inclusion, University of Utah Health. He is also a Professor in Family and Preventive Medicine.

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