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Future Doctors From Underrepresented in Medicine Communities at the University of Utah

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Abstract

Background and Objectives: Future Doctors (FD), a high school pathway program, was developed to address the lack of compositional diversity in the health professions at our health sciences campus.

Methods: We obtained, analyzed, and compared data on FD student demographic and educational achievement at undergraduate and graduate programs at the University of Utah and graduate programs at other institutions to non-FD students. We followed students from high school to graduate school.

Results: We analyzed data from 1,897 FD participants (2014–2019). FD participants were 71% women, with 50.3% identifying as students of color. Ninety-eight students matriculated in graduate school, with 75 (76%) remaining at University of Utah and 45 (46%) attending health sciences graduate programs.

Conclusions: FD student cohorts are more diverse than those in the University of Utah undergraduate and graduate programs, contributing to the diversity of those programs. More research is needed to ensure that graduate school gains are evidenced in all underrepresented groups.

Introduction

Utah has experienced rapid population growth, principally among individuals from groups underrepresented in medicine (URiM).[1,2] At the Spencer Fox Eccles School of Medicine (SFESOM) at the University of Utah, these groups have been defined as Latinx (Hispanic or Latino), Black or African American, American Indian or Alaska Native, Native Hawaiian or Pacific Islander, and women from all backgrounds. Utah is home to a growing Latinx population, eight tribal nations, and the highest percentage of Pacific Islanders in the continental United States (only Hawaii and Alaska have higher representation).[3] More than 60,000 new Americans have come to Utah through refugee programs, with more than 120 languages represented.[3]

To increase the diversity of the physician workforce in Utah, SFESOM established and funded the Future Doctors (FD) program in 1998. FD is a precollege program designed for high school learners to promote academic preparedness and increase exposure to health careers. FD focuses on recruiting URiM students from local schools through partnerships with teachers and administrators. SFESOM employees visit classrooms and

give presentations designed to encourage participation. FD students are recruited from groups of students less likely to attend college in the first 3 years after high school graduation.

FD sessions, held monthly after school at the health sciences campus of the University of Utah, are organized by second-year medical students. Sessions consist of a faculty speaker with an hour-long presentation related to their specialty in medicine, followed by a short question and answer period. Medical students lead the activity and are the principal instructors for the hands-on portion of the curriculum. Table 1 illustrates the curriculum for three recent cycles of FD programming. We performed this study to evaluate the associations of FD students with graduate programs at the University of Utah.

In Utah, relatively low numbers of students attend college in the first year after high school. Most Utah residents are members of the Church of Jesus Christ of Latter-day Saints,[4] and men and women in that faith often delay formal education to serve as missionaries in the first 2 years after high school. Even after 3 years, no population had more than 70% of their eligible students attending college (Table 2).[5,6]

As evidenced in the table, 52% to 66% of the target recruitment group do not attend college in the first year after high school in the state of Utah. Even 3 years after high school, 40% to 52% of the target group do not attend college.

Methods

Ours is an observational cohort study of FD participants. We collected FD enrollment data from 2014 to 2019. We included participant data in the final analysis if the students were enrolled in and attended at least one session of FD at any time during the study period.

We compared FD data to University of Utah student demographics, FD students enrolled at the University of Utah, and FD students enrolled in graduate education at any institution. We obtained all demographic data for participants at the time of registration. We obtained data on University of Utah matriculants (FD and non-FD) from institutional student enrollment records. We also queried the National Student Clearinghouse[7] database for additional data on FD and non-FD students who may not have attended the University of Utah graduate programs. We used college and graduate school matriculation data from spring 2022. We analyzed the quantitative data from this study using RStudio version 2022.07.1 (Posit Software, PBC). This study was deemed exempt by the University of Utah Institutional Review Board.

Results

From fall 2014 through spring 2019, 1,879 students registered and attended at least one FD activity. About half (47.7%) of the students were enrolled in Title I (low-income) schools. Average monthly attendance was 152 students. Students most frequently attended one FD session, and few students attended more than four. A greater proportion of FD participants identified as Black, Indigenous or People of Color (BIPOC, 50.8%), when compared to the Utah population (BIPOC, 20.5%) and the University of Utah student population (BIPOC, 36.5%). A greater proportion of FD participants identified as women (70%), when compared to the Utah population (50% women) and the University of Utah student population (49% women), as illustrated in Table 3. All students who identified with more than one race were considered multiracial unless they identified as Latinx (Hispanic or Latino). In the FD cohort, all multiracial students also identified as Latinx (Hispanic or Latino), so they were not classified as multiracial to avoid counting those students twice.

Of note, nearly 50% of the FD cohort identified as White. FD is URiM-focused but does not turn anyone away. Because we recruit in Title I schools, most of the students in FD qualify for free or reduced lunch, adding an element of socioeconomic diversity. Table 4 shows the distribution of participants in graduate education. We

defined graduate education as any educational program that produces a master's, PhD, or professional degree (eg, JD, PE, DDS, DNP, DPT, MD, MPH, PA-C).

Conclusions

FD recruits heavily from populations that are unlikely to go to graduate school (URiM and socioeconomically disadvantaged students). While we cannot state that FD causes these students to go to graduate school, an argument for value added could be made because the students who attend FD are mostly from those populations less likely to attend graduate programs. Because FD has higher race, ethnicity, and gender diversity than the University of Utah, the high school program may have contributed to the diversity of the university's programs by influencing participants to pursue college or graduate school. Of note, 4.2% of participants (10.2% of those for whom we had complete data) participated in graduate programs, the overwhelming majority of whom were women (72%). In addition, 53.9% of the FD graduate students identified as BIPOC, compared to 19% BIPOC in all University of Utah graduate programs. More than 76% of FD students enrolled in graduate programs chose the University of Utah for their graduate education.

Our study was limited because the commercially available National Student Clearinghouse depends on participant institutions providing data on their students, and the data may be incomplete. In addition, FD students are recruited in high school based on their interest in medicine or health careers. This type of recruitment can potentially confound the data. Generalizing the results of this study is difficult because this is a single-institution program at one public university in the United States. FD students likely are more predisposed and open to the idea of graduate work than other students. Perhaps this disposition is the greatest asset of FD; associated students want to go to graduate school or develop the desire after exposure to FD. Further research examining implementation and evaluation of this program at other types of health sciences campuses, including both public and private institutions, is needed.

Future Doctors is one of multiple successful initiatives at University of Utah Health designed to increase the diversity of our learners in the health sciences.[3,8-11] Programs that pair individual URiM students with near-peer mentors also have been found to be effective,[12] and peer mentorship will be included in future iterations. We also are developing robust tracking systems to ensure that impact can be measured. Continued contact throughout college also will be implemented. With continued improvements and tracking, FD can have a greater impact, further improving race/ethnic and gender diversity among health professionals in Utah. This study adds to the literature in that few high school programs are described and even fewer with outcomes. Family medicine can lead the way in developing further study of high school student programming.

Tables and Figures

Table 1. Future Doctors Calendar and Curriculum, Fall 2016–Spring 2019

Month	Fall 2016–Spring 2017		Fall 2017–Spring 2018		Fall 2018–Spring 2019	
	Lecture	Activity	Lecture	Activity	Lecture	Activity
October	Day of the Dead Premedical Conference		Grades 9-12 Health Sciences Conference		Day of the Dead Premedical Conference	
November	Sonography	Hands-on ultrasound	Chronic Traumatic Encephalopathy	Sheep brain dissection	Genetics and the Importance of a Thorough History	History and physical
January	Kidney Disease	Kidney dissection	Diseases of the Eye	Cow eye dissection	Polycystic Kidney Disease	Beef kidney dissection
February	Heartbeats	Hands-on EKG	Congestive Heart Failure	Cow heart dissection	Asthma and Chronic Obstructive Pulmonary Disease	Beef lung dissection
March	Wilderness Medicine	Survival skills	Wilderness Medicine	Survival skills	Dressing, Suturing, and Casting Procedures	Sutures

Table 2. College Attendance in the First and Third Years for Utah High School Graduates[5]

Demographic group*	College attendance in first year after high school	College attendance 3 years after high school	National US immediate college enrollment rate[6]
Male	44.4%	57.4%	66.9%
Female	59.6%	67.7%	71.3%
Free or reduced lunch in high school	***37.6%***	***47.9%***	**
Hispanic or Latino	***35.4%***	***44.7%***	***67%***
American Indian or Alaska Native	***37.7%***	***50.0%***	**
Native Hawaiian or Other Pacific Islander	***44.2%***	***54.3%***	**
Black or African American	***48.8%***	***59.2%***	***58%***
White	54.1%	64.8%	69%
Asian	62.4%	70.9%	87%

*We recruit heavily for FD from the demographic populations shown in bold and italic.
**These groups were not discussed separately in the most recent data from the National Center on Education Statistics.

Table 3. Future Doctors Participants Matriculated at the University of Utah

Demographic group	FD enrollment 2014–2019, n (%)	University of Utah official Fall 2021 enrollment,[a] n (%)	FD University of Utah matriculants,[b] n (%)
Asian	286 (15.2)	2,028 (6.1)	143 (18.8)
Black or African American	94 (5.0)	429(1.3)	27 (3.5)
White, non-Latinx	924 (49.2)	21,230 (63.5)	347 (45.5)
International	0	2,724 (8.1)	0
Latinx (Hispanic or Latino)	500 (26.6)	4,300 (12.9)	55 (7.2)
Multiple race/ethnicity	0	1,754 (5.2)	177 (23.2)
American Indian/Alaska Native	34 (1.8)	126 (0.4)	3 (0.4)
Native Hawaiian/Pacific Islander	33 (1.8)	132 (0.4)	8 (1.1)
Unknown	8 (0.4)	724 (2.2)	2 (0.3)
Female	1,338 (71.2)	16,268 (49)	528 (69.2)
Male	509 (27.1)	17,179 (51)	230 (30.2)
Gender undisclosed	32 (1.7)	0	4 (0.5)
Total	**1,879 (100)**	**33,447 (100)**	**762 (100)**

[a] Includes degree-seeking undergraduate and graduate students
[b] Includes record of matriculation by Spring 2022 at undergraduate or graduate level
Abbreviation: FD, Future Doctors

Table 4. Future Doctors Graduate Program Matriculation

	% FD college graduates (N=217), n (%)	% FD total (N=1,879)
Eligible for graduate school*	217 (100)	14.50
Matriculated in graduate school	98 (45.20)	5.20
Matriculated in University of Utah graduate programs	75 (34.50)	3.90
MD program	25 (11.50)	1.30
School of Medicine graduate program (non-MD)	7 (3.20)	0.40
College of Health programs	6 (2.80)	0.30
College of Pharmacy programs	4 (1.80)	0.20
School of Dentistry programs	2 (0.90)	0.10
College of Law programs	2 (0.90)	0.20
College of Nursing programs	1 (0.50)	0.05
All other graduate programs	10.30	1.40

*As of spring 2022, insufficient time had passed for most FD participants from our dataset to graduate college.
Abbreviation: FD, Future Doctors

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