



University of California
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A Novel Academic/Community Pipeline Program for Under-Represented Minorities in Medicine for Pre-med Undergraduates at the University of California, San Francisco

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Background

Undergraduate students from racial and ethnic groups that are under-represented in medicine (UIM) face steep challenges during pre-medical training and medical school admissions. We evaluated an 8-week summer research program aimed at keeping UIM pre-medical undergraduate students in the pipeline for careers in medicine. We hypothesized that an intensive program would increase their self-efficacy.

Purpose

The goal of this pre-medical summer program is to expose pre-med UIM undergraduates to clinical and research experiences in the health sciences while providing individualized counseling on how to get accepted to a graduate medical program. The primary purpose of this study was to compare self-efficacy of each program participant before and after the 8-week summer program. Our secondary objective was to measure the acceptance rate into graduate school in the health sciences of graduates from this program.

Methods

The University of California, San Francisco/Kaiser Permanente Undergraduate Research Program (URI) is an 8-week program that started in 2009 for UIM undergraduate students attending the University of California, Berkeley. There are a total of 16 interns per yearly cohort, with a total of 170 current alumni who were surveyed. The URI curriculum requires 20 hours weekly in a research setting, one weekly clinical shadowing session, and 4 hours weekly didactic session. Participants completed pre and post program questionnaires that included the Guerra-Robertson Self-Efficacy Survey for Pre-med Undergraduates. The first nine items of this survey are from a validated self-efficacy survey and the next seven items were designed for this program. URI alumni are tracked annually to determine their professional outcomes.

Table 1: Demographics

Item		n (%)
Race (n=152)*	Asian or Pacific Islander	42 (27.6)
	Black	19 (12.5)
	Hispanic	74 (48.7)
	White	6 (4.0)
	Bi-racial	9 (5.9)
	Other	2 (1.3)
Gender (n=79)†	Women	66 (77.2)
	Men	16 (20.3)
	Non-binary	1 (1.3)
	Prefer to self-describe	1 (1.3)
Sexual orientation (n=79)‡	Heterosexual	65 (82.3)
	Bisexual	9 (11.4)
	Gay, lesbian or queer	5 (6.3)
First generation college student (n=79)§		61 (77.2)
First language other than English (n=79)¶		51 (64.6)

*Source: URI baseline and graduation surveys 2010-2019

† Source: URI alumni survey 2019

Table 2: Outcomes

n = 170*	
Medical School : 54 (one MD/PHD)	
Graduate Nursing School: 5	
MPH/MPP Degree: 11	
*Many URI grads are still completing their undergraduate degrees, gap years to take the MCAT or other preparation for graduate school, or in health careers e.g. research assistants, lab/case managers	

Figure 1: Comparison of Pre and Post URI Self-Efficacy Scores*†

" I am confident I can	Baseline Mean (SD) (n=76)	Graduation Mean (SD) (n=70)	δ	p-value
...Manage to solve difficult problems if I try hard enough.	79.1 (19.6)	87.4 (13.4)	+8.3	0.0042
...Find the means and ways to follow my unique career path.	71.6 (22.4)	86.4 (14.4)	+14.8	<.0001
...Deal efficiently with unexpected events.	73.8 (20.1)	83.3 (16.0)	+9.5	0.0079
...Handle unforeseen situations.	73.7 (19.4)	84.3 (15.4)	+10.6	0.0005
...Solve most problems if I invest the necessary effort.	82.9 (16.4)	89.5 (13.7)	+6.6	0.0004
...Remain calm when I am facing difficulties.	74.2 (19.4)	84.9 (13.8)	+10.7	0.0002
...Find several solutions when I am confronted with a problem.	74.4 (19.0)	86.4 (12.0)	+12.0	<0.0001
...Think of a solution when I am in trouble.	78.9 (17.3)	86.4 (14.6)	+7.5	0.0028
...Handle whatever comes my way.	76.2 (21.8)	86.4 (15.2)	+10.2	0.0050
...Master the material that will help me get a competitive MCAT score.	58.9 (25.6)	76.6 (20.1)	+17.7	<0.0001
...Become a physician.	69.4 (24.4)	89.3 (13.0)	+19.9	<0.0001
...Understand research in medicine and science.	62.3 (24.8)	84.3 (19.6)	+22.0	<0.0001
...Contribute to research in medicine and science.	61.9 (30.0)	83.8 (19.8)	+21.9	<0.0001
...Access the resources that I need to navigate the medical school application process.	59.8 (24.6)	87.0 (12.1)	+27.2	<0.0001
...Reach out to medical students, faculty and administrators for support.	63.1 (24.5)	88.8 (13.2)	+25.7	<0.0001
...Do well in a rigorous academic setting.	68.0 (21.2)	81.3 (17.2)	+13.3	0.0005
Overall score (mean of all items)	70.5 (16.4)	85.4 (11.6)	+15.4	<0.0001

* Source: Scores calculated from URI baseline and graduation surveys 2015-2019

† Range is 0-100 (low to high confidence) for all items

Discussion

Our URI summer program has had a significant impact on the self-efficacy of the program participants. Many of them take advantage of continued mentoring by the program Co-Directors and their research mentors, as they go through their remaining years of their undergraduate programs at the university, during their gap years, medical school application process, and medical school and residency. The peer connections that they form with their cohort often last for years. The program has successfully combined the two purposes of the academic and community stakeholders: this year, one URI student started as a pediatric resident at Oakland Kaiser, and one as a Fellow in Maternal-Fetal Medicine at UCSF.

One URI graduate wrote: " URI solidified my desire to become a physician and pursue a medical career. It instilled in me the confidence to do so and gave me the guidance I need. I think it's important for any Black/Indigenous/Person of Color attending Cal, to know that the system is not entirely against them and there is a way for us to make it work. We are capable, smart and deserving."

Conclusion

A combined community/academic 8 week summer program for UIM undergraduate pre-med students increases their self-efficacy in many areas. At this time, 39% of URI graduates have entered health graduate schools, with many still in the pipeline.

References

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