

underrepresented in higher education and science-related careers. Adolescents from these groups are less likely to attend college and obtain a science degree or pursue a science-related career. The COVID-19 pandemic has highlighted the importance of a diverse healthcare workforce and exacerbated educational disparities already experienced by youth from disadvantaged backgrounds. While science internship programs can help encourage science interest and pursuit, we know less about the role that virtual curricula play in advancing science education and mentorship opportunities. The Stanford STEP-UP Kickstarter Program seeks to expose underrepresented youth from various geographic locations to the scientific community, enhance scientific identity, promote interest in STEM fields, and provide research experience. The goals of this study were to determine whether the virtual program was acceptable, changed students' interest and confidence in pursuing a science-related career, and increased sense of belonging in the scientific community.

**Methods:** The Kickstarter program was a weekly 8-month virtual program that included panels from professionals in science-related careers, research seminars, and student-led mentored research projects. Eight 9th and 10th graders from two high schools in the Midwest and two of their teachers participated. A mixed-methods assessment (interviews and pre- and post-program surveys) was conducted. For the surveys, a Likert-type scale (strongly disagree [5] to strongly agree [1]) was used.

**Results:** All students completed the surveys and interviews; teachers completed the interviews. There was significant ( $p < 0.05$ ) improvement from pre- to post-survey in the following: students felt part of the scientific community (2.62 to 1.88), enjoyed working on science problems (2.63 to 1.75), thought of themselves as a scientist (2.88 to 2.00), and know how to communicate clearly and professionally in the research environment (2.63 to 1.75). Trends demonstrated improvement in students' ability to conduct experiments (2.38 to 1.63), contribute to science (2.25 to 1.75), and succeed in a science-related career (2.38 to 1.63) or science major (2.63 to 1.86). Themes that emerged from the interviews included: the program was a positive distraction during COVID, helped reduce isolation during this time, provided exposure to professionals from diverse backgrounds, and provided learning opportunities on time management, delegating tasks, and how to conduct and present a research project. Participants also discussed that the program was acceptable and met their expectations. Some students reported challenges managing their school responsibilities with those of the program. Teachers noted difficulties with their internet connection, their students' access to electronic devices, and student distraction during learning when discussing the virtual aspect of the program.

**Conclusions:** The Stanford STEP-UP Kickstarter program was acceptable and had a positive impact on students' scientific identity and confidence, and in their interest in pursuing a science-related career. The virtual platform of the program made it accessible to underrepresented students from various geographic locations. Given this, virtual science mentorship programs should continue to be developed and studied as they have great potential to help increase the STEM workforce in underserved areas and its diversity.

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### “MORE WORTHWHILE THAN THE PAYCHECK”: AN INNOVATIVE SUMMER INTERNSHIP IN NORTHERN MANHATTAN TO ENGAGE YOUTH IN FOOD JUSTICE PROMOTION

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**Purpose:** Youth engagement in food justice movements to address healthy food access and nutrition-related disparities is a powerful tool for community health promotion and youth empowerment. Such opportunities are often unpaid and inaccessible to low-income youth. Launched in 2019, NewYork-Presbyterian Hospital (NYP) Youth Market is a paid 8-week summer internship in Northern Manhattan that engages youth in a community health intervention and supports their personal professional development.

**Methods:** Youth ages 16–22 were recruited from NYP partner schools and youth programs in Washington Heights, Inwood, and the South Bronx, communities with suboptimal access to healthy food and disparately high rates of obesity and food insecurity. Interns managed their own weekly farm stand and provided nutrition education and cooking demonstrations at GrowNYC Fort Washington Greenmarket. They participated in didactics led by NYP staff and community partners on nutrition and disease, food systems, and small business management. Due to COVID-19, the 2020/2021 programs were adapted to become partially-virtual with interactive didactics on Zoom, and responded to community needs by distributing emergency food packages to food insecure families. Matched, de-identified pre-post online surveys for 2021 assessed attitudes, self-efficacy, and lessons learned via Likert scale (analyzed using Wilcoxon signed-rank test) and open-ended questions (assessed for common themes).

**Results:** 2021 interns ( $n=20$ , median age=17, 100% self-identified as persons of color) largely aspired to careers in healthcare/public health/nutrition (65%). Youth led 21 nutrition workshops for community members; a total of 17,645 pounds of healthy food was distributed to the community via farm stand sales, emergency food distributions, donations, and redemptions of NYP fruit and vegetable prescriptions. Pre-post analysis findings (missing=1) demonstrated several statistically significant findings of improvement. Interns self-reported a median increase of one more fruit ( $p < 0.01$ ) and one more vegetable ( $p < 0.01$ ) eaten per day, but did not significantly change their sugar-sweetened beverage consumption ( $p=0.48$ ). Youth expressed increased confidence (5-point scale: 1=not confident at all to 5=very confident) in their ability to share information with friends/family about healthy eating (mean pre=3.20, post=4.21,  $p < 0.01$ ) and information on resources for someone experiencing food insecurity (mean pre=2.40, post=4.00,  $p < 0.001$ ). In response to open-ended questions, interns emphasized improvement in their public-speaking/communication skills and felt enriched by mentorship from both their peers and a diverse group of professionals. They gained positive feelings of community connectedness through customer nutrition education and emergency food distributions. One

intern stated, “There are so many people that don’t have the key information about nutrition and how to overall live healthy lives and it’s so important to acquire and spread this knowledge because it allows you to become self-reliant and more responsible with your lifestyle.” Another intern commented, “The experience is so much more worthwhile than the paycheck”.

**Conclusions:** NYP Youth Market demonstrates a valuable model of youth engagement in paid work to promote community access to healthy food, improve their own nutrition behaviors, and develop their burgeoning health careers. Next steps include developing program enhancements, such as hands-on farming experience and strengthening the program’s mentorship component.

**Sources of Support:** NewYork-Presbyterian Hospital Choosing Healthy & Active Lifestyles for Kids Program, partnered with Grow-NYC Greenmarkets.

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#### EXPANDING THE HEALTH PROFESSIONS PIPELINE: A QUALITATIVE ANALYSIS OF THE STANFORD MEDICAL YOUTH SCIENCE PROGRAM

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**Purpose:** The underrepresentation of individuals from minority and low-income backgrounds is a pressing and persistent issue in medicine. High school biomedical pipeline programs offer a promising strategy to diversify the medical pipeline by supporting underrepresented students towards successful transition into college and health careers. One of the most established university-based pipeline programs is the Stanford Medical Youth Science Program (SMYSP). For over thirty years, SMYSP has fostered the potential of low-income and under-represented high school students interested in careers in

health and medicine through a 5-week summer program. We partnered with SMYSP to qualitatively explore the impact of their high school biomedical pipeline program on alumni at different stages of their educational and professional careers.

**Methods:** We conducted a cross-sectional, qualitative study with alumni who participated in the SMYSP program from 1988–2019 who completed an online survey (n=83); a subset (n=21) who were working in or completing training in a clinical field were interviewed using a semi-structured, in-depth interview examining the perceived impact of SMYSP throughout different stages of their educational and professional careers. Interviews were audio-recorded, transcribed, and coded and thematic analysis was performed with input from SMYSP collaborators.

**Results:** Eighty-three alumni completed the survey, 45% had completed or were enrolled in an undergraduate degree program and 40% had completed or were enrolled in a graduate degree program. Twenty-one alumni were interviewed (66% men; ages 17–46 year; 43% Latino; 29% Asian; 14% Black; 5% Native; 5% White; 5% Mixed). The following themes emerged: (1) clinical experiences (hospital internships, anatomy laboratory practicums) were often described as the most impactful program component, (2) inspiration was gained by meeting students and professional mentors that “looked like me” during the program, (3) participation in the program at a young age was important in developing self-confidence to pursue higher education and (4) many alumni felt a sense of belonging in their school, work, and community despite challenging academic and career journeys.

**Conclusions:** High school biomedical pipeline programs for under-represented students can have a positive impact on alumni throughout different stages of their educational and professional careers. Established and evaluated programs like SMYSP should serve as a model to guide the development of future programs seeking to support under-represented students interested in health professions.

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