

Evaluation of a Remote Youth Health Advocate Training Program During the COVID-19 Pandemic

Sara W. Heinert, Shaveta Khosla, Shaveta Khosla, Nasseef Quasim, Jenni Schneiderman, Victoria Soliz, Olivia Finks, Terry Vanden Hoek

Sara W. Heinert, PhD, MPH, Rutgers Robert Wood Johnson Medical School in New Brunswick, NJ.

(Affiliation during project: University of Illinois at Chicago in Chicago, IL.)

Shaveta Khosla, PhD, University of Illinois at Chicago in Chicago, IL.

Nasseef Quasim, BS, Icahn School of Medicine at Mount Sinai in New York, NY.

(Affiliation during project: University of Illinois at Chicago in Chicago, IL.)

Jenni Schneiderman, MDes, Aledade, Inc.

(Affiliation during project: University of Illinois at Chicago in Chicago, IL.)

Victoria Soliz, University of Illinois at Chicago in Chicago, IL.

Olivia Finks, University of Southern California, Los Angeles, CA.

(Affiliation during project: University of Illinois at Chicago in Chicago, IL.)

Terry Vanden Hoek, MD, University of Illinois at Chicago in Chicago, IL.

Submitted 11 February 2022, revised 1 July 2022, accepted 27 September 2022.

FUNDING:

The Summer 2020 cohort of the CHAMPIONS program was supported by funding from Michael Reese Health Trust and University of Illinois Hospital and Health Sciences System (UI Health).

Dr. Heinert is currently supported by the National Center for Advancing Translational Sciences (NCATS), a component of the National Institutes of Health (NIH) under award number KL2TR003018/ UL1TR003017. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Acknowledgments: We thank the following collaborators for their time and support of the CHAMPIONS program in Summer 2020. We thank Hugh Musick, MBA (Associate Director of the Population Health Sciences Program at University of Illinois at Chicago (UIC)), Jerry Krishnan, MD, PhD (Associate Vice Chancellor for Population Health Sciences at UIC), and Lisa Gehm (Associate Professor of Clinical Emergency Medicine at UIC) for their guidance as members of the CHAMPIONS executive leadership team. We thank Michael Zenn, MBA (Chief Executive Officer at University of Illinois Hospital and Health Sciences System (UI Health)) and Larry Appel, FHFMA, CPA (Chief Financial Officer at UI Health) for their support of the CHAMPIONS program and assistance with program funding. We also thank our partners from UI Health Human Resources- Nicholas Haubach (Chief Human Resources Officer at UI Health) and Kinga Mateja (Director of Volunteer Services at UI Health) for their assistance with student onboarding and workforce development opportunities. Additionally, we thank Bhrandon Harris, MD (Assistant Professor of Clinical Family Medicine at UI Health) and Shane Borkowsky, MD (Associate Professor of Clinical Family Medicine at UI Health) for their support and leadership for the CHAMPIONS students to participate in COVID-19 patient calls. We also thank Anthony Heard, MSW, LCSW (Director of Care Management at UI Health), Jessica Johnson, MHA, RN (Senior Quality Specialist at UI Health), Aisha Davis, MSW (Social Work Care Coordinator at UI Health), and Amalia De Jesus, RN (Nurse Care Coordinator at UI Health) for their leadership and collaboration for the students to participate in COVID-19 patient care coordination calls. We thank Alexandra Baczynski, Olivia Finks, Dymphna Ghasarah, Anna Liu, and Jillian Sachen for their leadership as CHAMPIONS Team Leads. We also thank UI Health medical students who assisted with the program- Kate Galvan, Elzbieta Kalata, Ushasi Naha, and Georgina Sorrentino. Additionally, we thank David Eaton, MA (Director of Development at UI Health) for his continued support for the program and assistance with securing program funding.

ABSTRACT

Background. Since 2016, Changing Health through Advocacy & eMPloyment In Our NeighborhoodS (CHAMPIONS) has utilized in-person programming to engage high school students from underserved Chicago communities in health advocacy education and exposure to health professional careers.

Objective. Describe outcomes after CHAMPIONS' shift from in-person to remote programming during the COVID-19 pandemic.

Methods. The Summer 2020 remote program consisted of four main activities- 1) didactic public health curriculum, 2) phone calls to COVID-19 patients, 3) COVID-19 community health projects, and 4) health professional speaker series. Program evaluation consisted of pre-/post-program surveys and focus groups.

Results. Participants were very satisfied with CHAMPIONS and reported increased healthy habits, self-efficacy, and knowledge. "First-hand experiences" increased equivalently or more for the remote compared to in-person cohorts.

Conclusions. The remote CHAMPIONS program maximized positive effects for participants. Strengths and lessons learned may be used in future enrichment programs to improve accessibility and exposure for underserved students.

KEYWORDS: Public Health, Health promotion, Adolescent Development, Technology Assessment, Biomedical, Health Occupations, Community health partnerships, Community-Based Participatory Research

Introduction

In 2016, the University of Illinois at Chicago (UIC) convened a community–university–hospital partnership to implement the CHAMPIONS NETWork (Community Health And eMPowerment through Integration Of Neighborhood-specific Strategies using a Novel Education & Technology-leveraged Workforce) to empower underserved youth to improve population health in their communities and expose them to health careers. It included an in-person paid six-week summer experience for high school juniors and seniors from some of Chicago’s most disadvantaged communities. Between 2016 and 2019, CHAMPIONS graduated 89 high school students with 54 going to college, and at least 4 taking jobs in healthcare.

In this partnership, community partners (community-based organizations, community members, and public and charter schools) assist with student recruitment. The university partner (University of Illinois at Chicago) houses the program and program staff, while the hospital partner (University of Illinois Hospital & Health Sciences System) provides clinical shadowing and internship opportunities, health professional speakers, and hospital volunteering and employment opportunities. All three partners appreciate the opportunity for a paid youth summer enrichment program that has the potential to increase diversity in health professional careers and positively affect the health of local communities.

In late 2019, the program expanded to include workforce development with University of Illinois Hospital and Health Sciences System (UI Health)’s Human Resources Office coordinating summer internships and job shadowing. This expansion was responsive to community residents’ request for education and employment opportunities in the health system’s triennial UI Community Assessment of Needs (UI-CAN). The emphasis on employment was

also included in CHAMPIONS' revised acronym- Changing Health through Advocacy & eMPloyment In Our NeighborhoodS. Prior to the pandemic, the program planned for students to participate in-person with job shadowing, clinical internships at UI Health, and community health advocacy training and implementation. Many health system employees start as volunteers, so we created an opportunity where students who completed the summer program and completed four hours of volunteer service per month during the school year would be pre-qualified for entry-level hospital employment. However, the anticipated direction of CHAMPIONS suddenly changed in response to the COVID-19 outbreak in Spring 2020.

Early indicators revealed a disproportionate COVID-19 health and economic burden on Black and Hispanic communities in Chicago and across the nation bringing into focus root-cause systemic inequities.¹ At a time when schools were closing, the city was locking down, and work-based summer learning experiences were being cancelled, UI Health remained committed to host CHAMPIONS. During this public health crisis, more than ever, there has been a need for anchor institutions (i.e., universities, health systems, and government entities) to invest in innovative programming to develop a representative and inclusive workforce to support population health.

Due to uncertainty related to the safety and viability of an onsite internship and community health advocacy program, the team adapted by rapidly pivoting to a completely remote program focused around COVID-19 while maintaining the core CHAMPIONS components. The program also had the timely relevance of aiding adolescent mental health in a challenging time by providing an outlet to decrease loneliness, increase remote social connections, and provide routine through meaningful programming.²

Several enrichment programs for high school students have described their pivot to remote programming during the COVID-19 pandemic³⁻⁷ with some evaluating outcomes of their

remote program.⁵⁻⁷ One program that focused on science, technology, engineering, and math (STEM) disciplines found that students gained scientific literacy and critical thinking skills and were satisfied with the program.⁶ Programs on cancer research have also found high student-reported satisfaction with the program⁷ and increases in cancer topics and scientific communication skills.⁵ CHAMPIONS was unique in its ability to provide youth with remote clinical opportunities including patient and community member interactions.

We aim to evaluate quantitative and qualitative outcomes of the inaugural CHAMPIONS remote program in Summer 2020. Evaluation of these opportunities is important so that other youth programs may consider similar models.

Methods

Summer 2020 CHAMPIONS Program

CHAMPIONS 2020 summer program participants were recruited from both school-based and non-school-based recruitment channels. Since program inception in 2016, we have partnered with Northeastern Illinois University Gaining Early Awareness and Readiness for Undergraduate Programs (NEIU-GEAR UP) for program recruitment, and this continued in 2020. CHAMPIONS' alignment with Chicago Public School's Career and Technical Education (CTE) program became the key partnership for school-based recruitment in 2020, as CTE has many parallel goals to CHAMPIONS. The 2020 cohort included students from 5 CTE Health Sciences schools. Other recruitment partners included the UIC Urban Health Program (a student resource center dedicated to increasing minority representation in health sciences and health professions) and West Side United (an organization focused on revitalization of Chicago's West Side).

Eligible students were juniors and seniors from targeted local high schools in underserved Chicago neighborhoods. COVID-19 cases and deaths in Chicago have affected minority populations at a disproportionately higher rate than the non-minority population, and summer 2020 students' homes and schools were in areas with some of the highest rates of COVID-19 cases in Chicago (Figure 1S in Supplement). All students who applied to the program were interviewed via Zoom by program staff and 18 were selected for the program.

Similar to previous years, the six-week program was held Mondays through Thursdays, but prior years' sessions of 9:00 a.m.-3:00 p.m. were reduced to 9:00 a.m.-12:30 p.m. to limit screen time. Program funding for Summer 2020 and previous years was provided by local foundations and other groups in our institution with similar missions of development of youth from underserved areas, with future funding committed from UI Health. As in previous years, the program paid youth about \$1,000 so that they did not have to choose between CHAMPIONS and summer employment. Students completed four main activities during the 2020 Summer program- didactic public health curriculum, and three types of enrichment curriculum: phone calls to COVID-19 patients, COVID-19 community health projects, and health professional speakers.

Didactic Curriculum

Past CHAMPIONS didactic curriculum focused on cardiovascular disease and cancer health advocacy,⁸ but the 2020 program pivoted to a focus on COVID-19 response (Table 1). In both past and 2020 cohorts, community health knowledge was woven into student training in public health, patient navigation, social determinants of health and patient communication.

Enrichment Curriculum

Past enrichment curriculum has included work-based learning opportunities such as in-person community health fairs and pre-health activities in the simulation lab. Work-based learning in 2020 centered around follow-up calls with COVID-19 patients and a COVID-19 community health project.

Table 1. Comparison of Recruitment and Curriculum Elements for In-Person and Remote Cohorts (with Number of Times Enrichment Activity Sessions Took Place in Parentheses)

		2019 Cohort	2020 Cohort
Recruitment	Application Opened	April 12	May 22
	Application Closed	May 3	June 9
	Program Start	July 8	July 6
	Program End	August 16	August 14
	# Schools	6	11
	# Student Participants	17	18
	# Team Leads	6 total: 1 Medical Student, 4 Undergraduates, 1 High School Student	5 total: 3 Medical Students, 1 Applied Health Sciences Student, 1 Undergraduate
Curriculum Type	Subject	2016-2019 Cohorts (Emphasis on Cardiovascular Disease and Cancer)	2020 Cohort (Emphasis on COVID-19)
<i>Didactic</i>	Public Health	X	X
	Community Health	X	X
	Health Disparities	X	X
	Health Careers	X	X
	Patient Communication	X	X
	Cardiopulmonary Resuscitation (CPR)	X	X
	Cardiovascular Health	X	
	Cancer	X	
	Nutrition	X	
	College and Job Preparations	X	
	Coronavirus (COVID-19)		X
	Virology		X
	History of Epidemiology		X
Care Coordination		X	
<i>Enrichment</i>	Patient Interaction	In-person health education with ED patients (x20)	Remote COVID-19 patient calls (x20)
	Mentorship from Health Professionals	Lunch and Learn (x1) Leadership Café (speed networking) (x1) Career Panel (x1) Clinical shadowing (x12) Expert Speakers + Discussion on such topics as violence, lead poisoning, and oral health (x6)	Remote Health Professionals Speaker Series (x12)
	Interaction with Community Members, including family/friends	CHAMPIONS Challenge, including training family CPR (2018, 2019) (x20) Community health fair (2018) (x1) Digital badging- electronic tool where youth learn and educate adult family members about cardiovascular health (2018, 2019) (x20)	COVID-19 Community Health Project (x16)

		Champions 1000 (Hospital Community Health Needs Assessment) (2019) (x10)	
	CPR Certification	X (x2)	
	Hands-On Pre-Health Exposure Activities	Simulation lab- suturing, ultrasound (x1) Anatomy lab with animal organs (x6) Cadaver lab- emphasis on physiology of cardiovascular disease (x1)	
	Asset mapping of community resources	X (x1)	
	Hospital Volunteering		X (x6)

1. Phone Calls to COVID-19 Patients: With the help of team leads and medical staff, students called health system patients recently diagnosed with COVID-19, taking note of their symptoms, as well as care coordination calls about patient care plans. These calls involved a detailed training program that progressively gave students increased responsibility (see Figure 2S in Supplement). Students made 213 symptom tracking calls, reaching 127 patients (60%), and 31 care coordination calls yielding outreach to 11 people (35%).
2. COVID-19 Community Health Project: The number of COVID-19 patients fluctuated from week to week, making it difficult to predict call volume. In response, CHAMPIONS initiated a parallel community health project during the program’s final 4 weeks so students had meaningful and relevant work each day. The project began with an introduction to epidemiology (emphasizing women of color- the predominant student demographic) and review of COVID-19 cases with emphasis on map interrogation and interpretation. To deepen understanding about the pandemic’s impact on community residents, students were introduced to an ethnographic activity called “Day in the Life.” Students developed scripts and conducted interviews with three family members or friends to learn about their lived experiences throughout the pandemic, then presented findings to peers.

3. Health Professional Speakers: In the last 30 minutes of the day, guests from different health disciplines were invited to speak with students about their career paths and roles. There were 28 total health professional and health professional student speakers.

Implementation of Remote Tools

The remote delivery of the CHAMPIONS summer program was enabled through the use of the video conference application, Zoom. Students were expected to always have their webcam video on to facilitate engagement and student attendance was recorded. For presentations and guest speakers, all students were in the main “room” and the speaker shared screens to present content and engage in discussions. We implemented “breakout rooms” to conduct huddles between teams of 5-6 students and one team lead to reinforce collaboration and communication for patient calls and training, and small group learning and discussions. Google Classroom was used to distribute and host materials that could be shared with students. Patient calls were conducted via cellular telephones. The clinical supervisor connected to the patient using Doximity (a Health Insurance Portability and Accountability Act (HIPAA)-compliant platform) and then merged the call with the participating CHAMPIONS student. Other students on the team listened in on the call through Zoom.

Program Evaluation

Program evaluation took a mixed methods approach, with pre-/post-program surveys and focus groups.

Quantitative Surveys

Participants completed surveys at the beginning and end of the program. Surveys included questions on demographics, COVID-19 knowledge, self-efficacy, interest in healthcare and confidence in abilities. These surveys were broadly consistent with those of previous years

with some adaptations to better reflect the program’s remote nature and COVID-19 emphasis. We compared data from the 2020 cohort to the 2019 cohort to assess if the remote program was comparable to the in-person program.

Qualitative Focus Groups

At the end of the Summer 2020 program, we conducted three CHAMPIONS focus groups- two with students and one with team leads. All students and team leads participated. The focus groups were moderated by members of the CHAMPIONS leadership team who did not have day-to-day contact with team leads or students, so that participants felt comfortable speaking honestly about their experiences. Focus groups took place on Zoom and were audio recorded and later transcribed word for word. All participants received a random study ID number that they used as their Zoom name which de-identified them in the transcript. Focus group data was analyzed by the two moderators of the focus group, along with a student research assistant not involved in the program.

The institutional review board at the University of Illinois at Chicago deemed that board approval was not needed for this program evaluation.

Results

Participant Characteristics

Table 2 shows characteristics of the Summer 2020 cohort, which were similar to the Summer 2019 cohort, with majority for both being female and Hispanic.

Table 2. 2019 and 2020 Summer Cohort Student Characteristics

Variables	2020 cohort N (%) N=18	2019 cohort N (%) N=17
Age		
	15 1 (5.6)	--
	16 8 (44.4)	5 (29.4)
	17 8 (44.4)	11 (64.7)
	18 1 (5.6)	--
	19 --	1 (5.9)

Gender							
Male		5 (27.8)			5 (29.4)		
Female		13 (72.2)			12 (70.6)		
Race							
White		9 (50.0)			4 (23.5)		
Asian		3 (16.7)			5 (29.4)		
Black/African American		4 (22.2)			3 (17.6)		
American Indian		1 (5.6)			3 (17.6)		
Unknown		1 (5.6)			2 (11.8)		
Table 3. Student Outcomes for 2019 In-Person Cohort Compared to 2020 Remote Cohort							
Ethnicity		Students Who Strongly Disagree			Students Who Strongly Agree or Agree		
Hispanic/Latinx		10 (55.6)			9 (50.0)		
NOT Hispanic/Latinx		8 (44.4)			8 (47.1)		
Languages spoken at home		2019 (N=17)			2020 (N=18)		
English		Pre	Post	% Change	Pre	Post	% Change
Spanish/both English/Spanish		10 (55.6)			6 (35.3)		
Health Care/Community Health Promoter		6 (33.3)			7 (41.2)		
I have a lot of first-hand experience with chronic disease management (2019)		2 (11.8%)	13 (76.5%)	160.0%	4 (22.2%)	14 (77.8%)	75.0%
I have a lot of first-hand experience with COVID-19 management (2020)							
Foreign Born							
Do you like to have a career as a health professional.							
Yes		2 (11.1)			4 (23.5)		
Community Health/Health Promotion		No			13 (76.5)		
Upcoming grade health problems in my school/ community.		Junior					
		14 (82.4%)	14 (82.4%)	0.0%	17 (94.4%)	18 (100%)	5.9%
		3 (27.8)			3 (17.6)		
I have a lot of first-hand experience with health promotion activities.		Senior					
		13 (76.5%)	13 (76.5%)	62.0%	14 (77.8%)	15 (83.3%)	36.4%
Assist family with health promotion activities.							
I have a lot of first-hand experience with chronic disease management (2019)		Yes					
		2 (11.8%)	9 (52.9%)	28.5%	2 (11.1%)	18 (100%)	350.0%
		No			15 (88.2)		
COVID-19 management (2020)							
I have a lot of first-hand experience using technology for health promotion activities.		9 (52.9%)	12 (70.6%)	33.3%	8 (44.4%)	17 (94.4%)	112.5%
I have a lot of first-hand experience learning about community health.		9 (52.9%)	14 (82.4%)	55.6%	12 (66.7%)	17 (94.4%)	41.7%
I learned how to be a health advocate.		-	17 (100%)	-	-	18 (100%)	-
I am more motivated to pursue a career in the health professions than when I began the program.		-	16 (94.1%)	-	-	17 (94.4%)	-
Participant Satisfaction							
The program met my needs.		-	16 (94.1%)	-	-	18 (100%)	-
I would recommend this program to others.		-	15 (88.2%)	-	-	18 (100%)	-

Quantitative Surveys

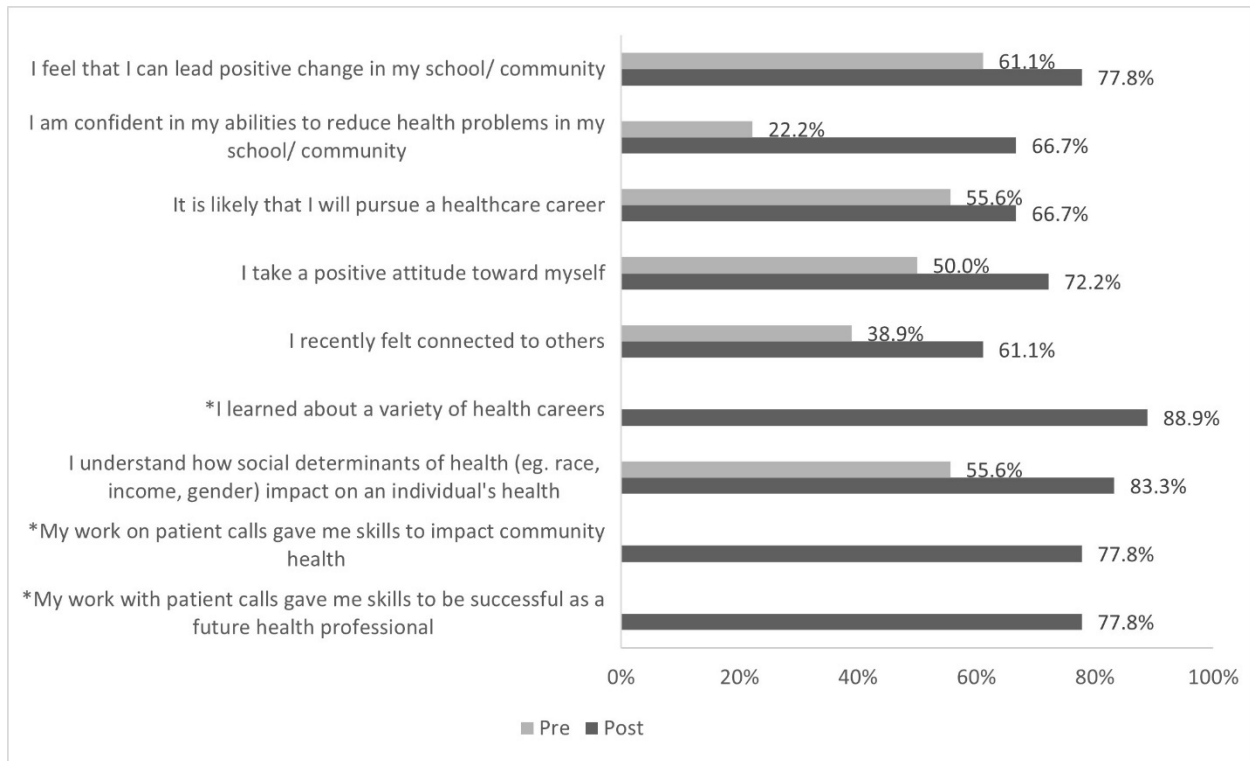
Table 3 compares 2019 and 2020 cohort outcomes.

Overall, the average percent change from pre- to post-program was similar for both cohorts. Two statements where there was much greater percentage change from pre- to post-program for 2020 than 2019 cohorts were “I have a lot of first-hand experience with chronic disease management (2019 cohort)/COVID-19 management (2020 cohort)”, which increased by

28.5% in 2019 and 350.0% in 2020, and “I have a lot of first-hand experience using technology for health promotion activities”, which increased by 33.3% in 2019 and 112.5% in 2020.

Figure 1 shows pre- and post-program responses on attitude and confidence in abilities to make a change for the Summer 2020 cohort. Participants’ feeling that they can lead positive change in their school/community increased from 61.1% to 77.8%. Their confidence in their ability to reduce health problems in their school/community tripled from 22.2% to 66.7%, and their confidence in their pursuit of a healthcare career also increased. Mental health measures of taking a positive attitude toward oneself and feeling connected to others also increased post-program. Participants’ self-reported learning about a variety of health careers and understanding of social determinants of health also increased. Most youth (77.8%) said their work on patient calls gave them the skills to impact community health and to be successful as a future health professional.

Figure 1. Summer 2020 Cohort Pre and Post Program Responses (N=18)- Attitude and Confidence in Abilities/Able to Make a Change in Self and Community



*represents variables that were included in post assessment only

Qualitative Focus Groups

Program Expectations

Students were expected to make calls to COVID-19 patients, learn about public health and health disciplines, and learn how to help patients and the community regarding the pandemic. They reported that their expectations were met and they were happy to participate in the program, especially given that many other programs were cancelled. Some students reported that the program exceeded their expectations as it was more hands-on than what they had expected and had a variety of activities within the curriculum that kept students engaged.

“It exceeded the expectations...I thought we would just [be] sitting in this one spot all day making these phone calls like the same phone calls all day but it was actually all these discussions and fun activities and these guest presentations and so I kind of have a variety of everything.” -Youth Group 2 ID2

Program Strengths

Youth participants most appreciated that, despite the remote modality, the program was hands-on, in-depth, and interactive. They liked that they were not just listening to people talking- they were actively participating in it. Specifically, they liked the variety of activities and the diversity of health care career speakers who took varying paths to get where they were presently. Youth also especially enjoyed the timely opportunity of learning about COVID-19's impact on people on a personal level by completing calls with patients and interviews with family members. The calls allowed students to hear patient experiences, gain insight into people's lives and feel empathy. They appreciated the training process for the calls and felt very prepared for them because of the phased approach to training and practicing the scripts. Youth also mentioned an appreciation for the public health curriculum. Learning about public health allowed for programming to fit together and for better preparation for COVID calls.

"The calls... gives you hands-on experience to see how patients are getting better and how COVID-19 has affected them. That's what I'd enjoy most..." -Youth Group 2 ID6

Participant Suggestions

Students were overwhelmingly positive about the program. The few who had suggestions wanted the responsibility of making calls sooner in the program or had logistical suggestions like starting the program later than 9am.

"... I would say it would be nice to have some other responsibilities sooner... we were practicing for weeks and then for only two weeks out of the whole thing we got to make our own phone calls..." -Youth Group 2 ID 3

Technology/Remote Nature of Program

Students reported an overwhelmingly positive experience with the remote program. It allowed them to learn, communicate with others, and listen to guest speakers while staying safe

at home. Overall, the remote nature was positive and there was little mention of technical issues, however students also noted that they would prefer in-person programs because it is more hands-on and allows them to socialize and bond more.

“...every other program was cancelled so this program actually went above and beyond ... And it’s still hands on which is really interesting.” -Youth Group 2 ID 3

Personal Growth

Students reported growth in the areas of empathy, patience, confidence, professionalism, knowledge, and better understanding of a path toward a healthcare career. They commented on their initial nervousness making patient calls and eventually gained confidence by the end of the summer. In doing so, they learned how to communicate with a patient and be compassionate.

“I feel like patience, confidence and professionalism was something I took out of this program because you have to think about how you're going to be dealing with many different people with many different thoughts and many things.” – Youth Group 2 ID5

Continued Involvement

The remote nature of the program allows for ease of students and team leads to continue their involvement. Students resoundingly agreed that they would like to continue with the program, the COVID-19 calls and gain more work experience. Many students also expressed the wish to continue as a hospital volunteer, either remotely or in-person.

“... to build off [what] they've already provided us with. It'll be nice to continue with the COVID calls... we could gain more work experience possibly in the public health or just medical field overall will be nice too.” – Youth Group 2 ID1

Challenges and Lessons Learned

The adaptation of CHAMPIONS to accommodate students during a pandemic posed challenges and offered several lessons. While we anticipated that there would be potential

programmatic obstacles, we also conducted a focus group with team leads to better understand these challenges.

The pivot imposed by the pandemic compressed the typical period for recruiting students and truncated time devoted to program development, which required program staff to be nimble and responsive. Future iterations of a clinical work-based learning experience will build upon the training and supervision models that were piloted. One limitation of our analysis is that we did not measure fidelity of the program across breakout groups of students with different team leads, however most curriculum was conducted with the entire group, so we believe that all students received very similar experiences. Additional planning time will allow benchmarks to be outlined so that training can proceed faster and give students opportunities to eventually lead patient calls. Executive leadership of CHAMPIONS, including the Chief Medical Officer of the health system, enabled the team to quickly identify and align with clinical partners. Future projects will benefit from proactive planning to ensure adequate measures for student recruitment, clear benchmarks from clinical partners, and more time for students to participate on calls.

In addition to such challenges, team leads commented on their own growth of gaining leadership, mentorship, and collaboration skills, and most found a new skill in teaching. Team leads were surprised that they were still able to become close with the students and they reported minimal technical issues during the program. Most said they wanted to continue involvement with the program and students, and a remote program would allow them to participate from anywhere.

“...I was thinking ‘oh they are in high school they are so much younger than me’ but they are so smart and it was kind of like important for me to learn that they want to be challenged.” – Team Lead ID4

“I would have wanted the kids to be in more of a position of power. I think they are old enough to have led their own lectures...”- Team Lead ID 2

“I just think it is unbelievable that we were able to find such close connections with these students over the computer. I never would have thought it was possible...” – Team Lead ID 5

Discussion

Amidst a public health crisis, CHAMPIONS exposed youth to a spectrum of COVID-19-related experiences. This was our first foray into integrating students into clinical care remotely. Despite our rapid adaptation to the remote environment, participants had high levels of satisfaction and reported increased knowledge, healthy habits, self-efficacy, and confidence. Measures of “first-hand experience” changed equivalently or more for the 2020 cohort compared to the 2019 cohort despite the remote program. Ultimately, the 2020 program was able to replicate the quality and maintain CHAMPIONS’ values in a new, online setting while giving the cohort a safe remote environment to interact and learn. However, it should be noted that the topic matter varied between the 2019 and 2020 cohorts, where students may have been more interested in the topic of COVID-19 during the remote program as they were actively living during a public health crisis and thus it was affecting them and their families first-hand, compared to cardiovascular disease which may have felt like a more distant topic to many students in the 2019 cohort.

Additionally, inclusion of remote programming can be extended for use with future CHAMPIONS cohorts, perhaps as a hybrid approach in concordance with in-person programming. While in-person programming has many benefits and has re-emerged recently with COVID-19 vaccine availability, there also exist benefits to remote programming including reductions in commuting time and remote participation in patient outreach activities. Remote programming may be particularly well-suited for winter when weather and darkness from shorter

days can become barriers to students feeling safe commuting to the program. CHAMPIONS plans to consider a hybrid model beyond the pandemic, so that the program can be expanded geographically while giving youth flexibility.

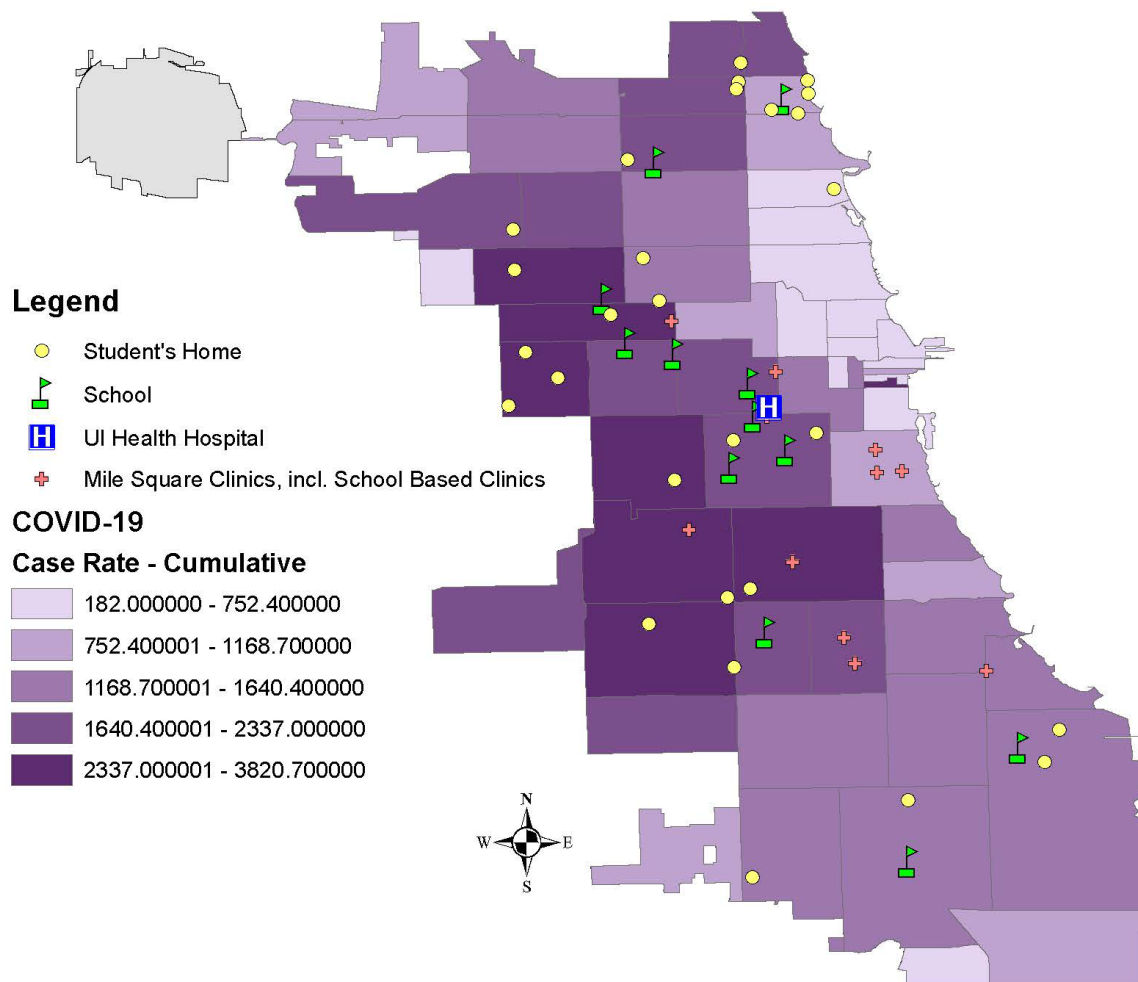
By offering a variety of experiences through the remote program, the high school students and their communities were still able to maximize the positive effects of the CHAMPIONS program, despite the challenges posed by COVID-19. The strengths of the 2020 CHAMPIONS program may be used as a template for future enrichment programs, in hopes of allowing improved accessibility and exposure for underserved students.

REFERENCES

1. Webb Hooper M, Nápoles AM, Pérez-Stable EJ. COVID-19 and Racial/Ethnic Disparities. *JAMA*. 2020;323(24):2466-2467.
2. Scott SR, Rivera KM, Rushing E, Manczak EM, Rozek CS, Doom JR. "I Hate This": A Qualitative Analysis of Adolescents' Self-Reported Challenges During the COVID-19 Pandemic. *J Adolesc Health*. 2020.
3. Afghani B. COVID-19 pandemic: a catalyst for transformation of a summer online research program. *Medical Education Online*. 2021;26(1):1886029.
4. Bergsman KC, Chudler EH. Adapting a Neural Engineering Summer Camp for High School Students to a Fully Online Experience. *Biomedical Engineering Education*. 2021;1(1):37-42.
5. Carey GB, Ezelle HJ, Steinle N, et al. Robust Institutional Support and Collaboration Between Summer Training Programs in Cancer and Biomedicine Drive the Pivot to a Virtual Format in Response to the COVID Pandemic. *Journal of Cancer Education*. 2022;37(3):857-871.
6. Berr AL, Ridge KM, Hu JY-S. Pivoting to a Remote-Learning Summer Student Program during the COVID-19 Pandemic. *ATS Scholar*. 2021;2(4):521-534.
7. Corson TW, Hawkins SM, Sanders E, et al. Building a virtual summer research experience in cancer for high school and early undergraduate students: lessons from the COVID-19 pandemic. *BMC Medical Education*. 2021;21(1):422.
8. Heinert S, Del Rios M, Arya A, et al. The CHAMPIONS NETWork: Training Chicago High School Students as Health Advocates to Improve Health Equity. *Health Promot Pract*. 2019;20(1):57-66.

Supplement

Figure 1S. Student Home and School Locations for CHAMPIONS Program Applicants- Summer 2020- With COVID-19 Cumulative Case Rate by Zip Code (Chicago, Illinois: March 1-June 6, 2020)










COVID-19 Data Source: Chicago Data Portal

Note: One student applicant lives and attends school in Orland Park, IL. This student is not included in the map.

PROGRESS IN COMMUNITY HEALTH PARTNERSHIPS: RESEARCH, EDUCATION, AND ACTION (PCHP). FORTHCOMING. ALL RIGHTS RESERVED.

Figure 2S. Session Format, Curricular Component and Description of Student Experience by Program Week for Summer 2020 CHAMPIONS Program

Session Format	Summer 2020 Curricular Component and Description of Student Experience		Program week					
			1	2	3	4	5	6
Work-based Learning: COVID-19 Patient Outreach								
 Clinical Supervisor  M3 or M4 Call Leader  CHAMPIONS Youth	Phase 0 Build Context	Receive project overview Engage in script role play in small groups with peers and team leads	X					
	Phase 1 Passenger Seat	Shadow patient calls made by clinical supervisors (i.e., medical students and care coordination staff) Practice delivering survey, entering data, and fielding patient questions		X				
	Phase 2 Co-Pilot	Conduct introductory patient communication portion of call with warm hand off to clinical supervisor for symptom tracking Enter patient responses into central database			X	X	X	
	Phase 3 Pilot	Lead complete call under supervision of clinical supervisor						X
Health Professions Speaker Series								
 Speaker  CHAMPIONS Youth	Career Pathways	Engage with health professions students and professionals to learn about their unique career path and current role and responsibilities	X	X	X	X	X	X
COVID-19 Community Health Project								
 Team Lead (Health Professions Student)  CHAMPIONS Youth	Day in the Life Interviews	Design and deliver qualitative protocol to engage with personal network and understand the impact of COVID-19 on the day-to-day			X	X	X	X