Promoting COVID-19 Vaccine Confidence and Access among Youth Experiencing Homelessness: Community-Engaged Public Health Practice

Ingie Osman, MPH [a, *], Renee Sieving, PhD, RN [a, b], Lauren Vasilakos, BA [c], Katie Pierson, MA [a], Asha Elgonda, MPH [d], Trenton Bartlett, BA [e], Janna R. Gewirtz O'Brien, MD, MPH [a]

[a] Department of Pediatrics, University of Minnesota, Minneapolis, MN, USA

[b] School of Nursing, University of Minnesota, Minneapolis, MN, USA

[c] Medical School, University of Minnesota, Minneapolis, MN, USA

[d] School of Public Health, University of Minnesota, Minneapolis, MN, USA

[e] YouthLink, Minneapolis, MN, USA

[*] Corresponding author. Department of Pediatrics; University of Minnesota; 717 Delaware St. SE, Minneapolis, MN, 55414, USA. Email address: osman175@umn.edu. Phone number: 608-588-4700.

Ingie Osman ORCID: 0000-0003-2199-780X
Renee Sieving ORCID: 0000-0001-6523-3989
Janna R. Gewirtz O'Brien ORCID: 0000-0002-7611-0260

Osman, I., Sieving, R., Vasilakos, L., Pierson, K., Elgonda, A., Bartlett, T., Gewirtz O'Brien, J.R. (2023) Promoting COVID-19 Vaccine Confidence and Access among Youth Experiencing Homelessness: Community-Engaged Public Health Practice. *Progress in Community Health Partnerships*. (Forthcoming.)
27 March 2023.

Acknowledgements: Thank you to all the youth, staff members, and community partners who so generously shared their time, wisdom, and experiences to guide this work. What we learned and accomplished in this project would not have been possible without their many contributions.

Financial Support: This publication is supported by a supplemental award to Cooperative Agreement Number [6U48DP006414-02-02; R. Sieving, PI] funded by the Centers for Disease Control and Prevention, Prevention Research Center Program. Its contents are solely the responsibility of the authors and do not represent the official views of the CDC.

ABSTRACT

Background: Youth experiencing homelessness (YEH) face a wide range of complex barriers to COVID-19 vaccine confidence and access.

Objectives: Describe our process for engaging a cross-sector team centering equity and youth voice; outline our intervention strategies to enhance COVID-19 vaccine confidence and access among YEH; and discuss lessons learned through this community-engaged process.

Methods: We engaged partners from across sectors, including youth-serving agencies, healthcare organizations, public health organizations, and YEH. We used focus groups, key informant interviews, and other community engagement strategies to develop and implement a series of interventions aimed to increase COVID-19 vaccine confidence and access among YEH.

Results: We identified youths' key concerns about vaccine confidence and access. To address these concerns, we implemented four community-driven interventions: youth-friendly messaging, health events, vaccine aftercare kits, and staff training.

Conclusion: This community-engaged project highlighted the value of cross-sector partnership and consistent youth engagement in addressing vaccine confidence among YEH.

KEYWORDS: Homeless Persons, Community health partnerships, Adolescent Health Services, Public Health, COVID-19, vaccines

Background

An estimated 4.2 million U.S. adolescents and young adults experience unaccompanied homelessness annually, including sleeping on the street (rough sleeping), running away, being thrown out of the home, staying in a shelter, and/or staying in someone else's home because they had nowhere else to go (couch-surfing).[1–3] Within Hennepin County, the site of this project and the urban county that includes Minneapolis, Minnesota– the state's largest city– over 2,000 unaccompanied youth and young adults were reported to be homeless in 2021 without an adult family member.[4] Lesbian, gay, bisexual, transgender, and queer (LGBTQ+) youth and youth who are Black, Indigenous, and people of color (BIPOC) are over-represented among youth experiencing homelessness (YEH) and frequently experience poorer health outcomes than their heterosexual, cis-gendered, white homeless peers.[5–10] YEH demonstrate remarkable strength and resilience,[11] often in the context of significant adversity, trauma, and marginalization.[6,12–16] More than two decades of research suggests that when a young person's living situation is unstable, they are at risk for adverse health outcomes, including high rates of chronic medical conditions, mental illness, substance use, sexually transmitted infections, and victimization.[17–22]

During public health crises, such as the COVID-19 pandemic, YEH are particularly vulnerable, yet they're often excluded from disaster response planning.[3,10,23–25] Youth are at increased risk of entry into homelessness due to family conflict and financial strain within households,[12,26–28] coupled with limited access to housing programs that reduced their volumes or shut down altogether during the pandemic.[29] YEH may be at higher risk for contracting COVID-19 than their housed peers, especially while couch-surfing, or staying in shelters or encampments.[23,24,29–31] They may have limited access to masks and hand-washing stations, making it difficult to adhere to public health guidelines to reduce COVID-19 transmission.

Even before the pandemic, YEH were less likely to receive preventive care and to be fully vaccinated when compared to their peers.[32–36] YEH face a range of complex barriers to accessing healthcare, including transportation, insurance, and financial barriers.[35–37] Many youth report fear and mistrust in healthcare systems as a barrier to healthcare access broadly and vaccination specifically, often in the context of structural racism and marginalization.[36,38,39] These barriers, among others, may limit access to COVID-19 vaccination, testing, and therapeutics that significantly reduce the risk of COVID-19 infection, hospitalization, and death.[40–42] In fact, data from multiple jurisdictions, including ours, reveal that people experiencing homelessness are much less likely to have received the COVID-19 vaccination than their stably-housed peers.[39,43,44] This disparity is further magnified among BIPOC people experiencing homelessness.[44] A recent mixed-methods study of LGBTQ YEH in Canada exploring attitudes about COVID-19 vaccination among YEH revealed that numerous youth reported mistrust in healthcare, a lack of targeted vaccine information, concerns about safety and side effects, and accessibility issues.[37] In sum, there are significant gaps in vaccine confidence and access among YEH and there is an urgent need to address these gaps in Hennepin County and beyond.

Objectives

To address these disparities, an interdisciplinary team from the University of Minnesota (UMN) collaborated with youth-serving agencies, public health professionals, healthcare institutions, and youth to improve vaccine confidence and access among YEH in Hennepin County, Minnesota. Funded by the Centers for Disease Control and Prevention (CDC), this work was conducted as part of a national Vaccine Confidence Network focused on identifying, developing, and

implementing community-engaged projects to enhance COVID-19 vaccine confidence and access among communities disproportionately affected by the COVID-19 pandemic. Here, we (1) describe our process for engaging a cross-sector team centering equity and youth voice; (2) outline our intervention strategies to enhance COVID-19 vaccine confidence and access among this historically marginalized population; and (3) discuss initial results and lessons learned through this community-engaged process.

Methods

Project Design and Approach

Drawing on the tenets of community-based participatory research (CBPR), our team designed and implemented a public health project with four interrelated steps depicted in **Figure 1**: (1) Engage key cross-sector partners; (2) Collect data regarding vaccine confidence through focus groups and interviews with YEH and youth-serving agency staff; (3) Gather evidence regarding the most successful intervention strategies to improve vaccine confidence and vaccine access among YEH; and (4) Evaluate intervention strategies, strengthen community engagement, and responsively adapt the program in real-time. We used data from Step 2 to drive selection and implementation of intervention strategies most likely to be successful among YEH. The UMN IRB determined that this project was not research involving human subjects, and IRB review was not required.

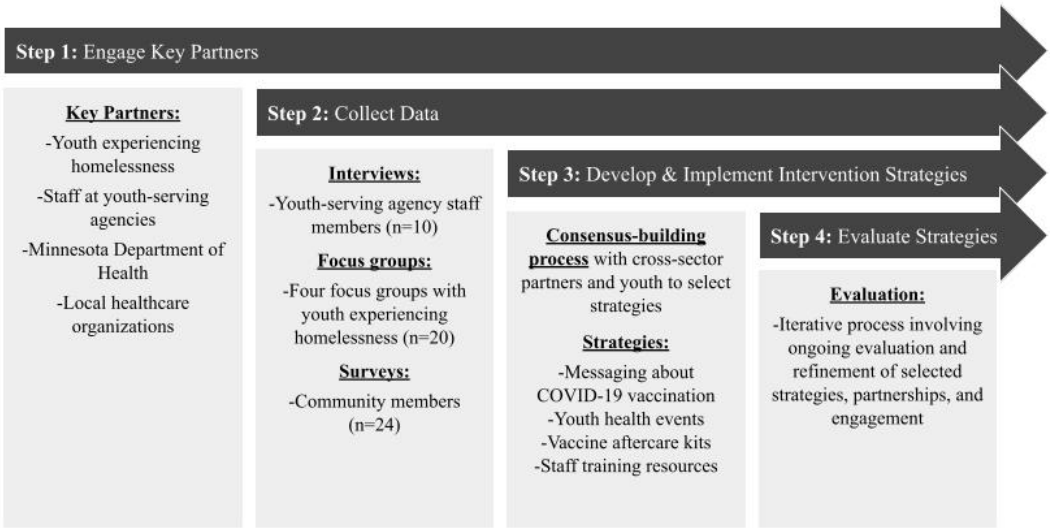

Figure 1. Project design and approach

Step 1: Partnership Development

The first phase of this project focused on engaging with key partners across sectors, including state-level public health, healthcare organizations, youth-serving agencies, and YEH in Hennepin County. The development of these partnerships began in May 2021, and project efforts concluded in July 2022.

Cross-sector project planning team. In July 2021, the UMN team convened a cross-sector group around shared goals of promoting health and wellbeing among YEH. Partners from a wide range of sectors came together monthly to learn about and align work around these shared goals, collaborate, and share resources to promote COVID-19 vaccine confidence among YEH. This group consisted of public health organizations, healthcare organizations, youth-serving agencies, and academic partners. A total of 11 organizations were represented, and 33 individuals

participated in this cross-sector group, with attendance varying on a monthly basis. Three representatives were from public health organizations, 12 were from healthcare organizations, 12 were from youth-serving agencies, and 6 were UMN team members. These cross-sector organizations partnered together at every phase of this project, from assessment planning to intervention development, implementation, evaluation, and dissemination. Feedback from partners was prioritized throughout every phase of the project, and processed in real-time during meetings or follow-up conversations. All credit for the work resulting from this partnership is shared among cross-sector partners and importantly, YEH, without whom, none of this work would have been possible.

All participating members in this cross-sector planning group were operating on behalf of their organizations as part of their job, and thus paid by their place of employment for the work on this planning team. However, recognizing that many organizations were spread thin over the course of the pandemic, and to share the resources associated with the project, we offered remuneration to each of the five partnering youth-serving agencies, as well as partnering healthcare organizations that assisted with project implementation efforts. In addition to sharing monetary resources, our cross-sector group also shared information and resources related to the evolving COVID-19 pandemic, such as information on where to access free, on-site testing for youth-serving agencies, in addition to sharing resources such as space for events.

Monthly 60-minute cross-sector meetings were organized and facilitated by UMN team members, however, space was created in each meeting to address the priorities of cross-sector members and to stray from any predetermined agendas and meeting goals, depending on what members felt was most important to address. Cross-sector meetings were leveraged to guide the project from planning to implementation to dissemination. Group decisions were made through

consensus-building, with the goal of maximizing benefit to all and reaching overwhelming agreement. If agreement was not able to be reached, UMN team members had the ability to make decisions on behalf of the group. This open facilitation style paired with our consensus-building approach helped build trust among cross-sector project planning team members, and worked to ensure that mutual benefit was provided through this work. All cross-sector planning team members were invited to participate in dissemination planning and manuscript development; updates on progress and drafts were shared at cross-sector planning meetings.

It is important to note that YEH themselves were not represented on this cross-sector project planning team, however, youth-serving agencies that were represented played a critical role in helping facilitate connections to YEH who utilized their service agencies. Below, we describe in detail our engagement with both youth-serving agencies and YEH, with the goal of centering youth voices throughout this project.

Engagement with youth-serving agencies. To center youth through all stages of this project, we partnered closely with youth-serving agencies, who were also represented on the broader cross-sector team. These youth-serving agencies were organizations across Hennepin County, MN who provide services and support to YEH specifically. Five youth-serving agencies formally agreed to partner on this project. A Memorandum of Understanding (MOU) was developed to formalize partnerships and clearly define roles, responsibilities, and activities of project partners.

Partnering agencies identified 1-2 agency champions whose roles included assisting with youth engagement and the development, implementation, and evaluation of identified strategies to increase COVID-19 vaccine confidence. Some activities agency champions engaged in included: recruitment of YEH and staff members for focus groups and interviews;

collaboratively interpreting results from data collection to identify interventions of interest; facilitating access to YEH at their agencies through advisory board meetings and tabling events; assisting with implementation and evaluation of strategies; and planning and assisting with project dissemination efforts, including manuscript preparation. Partnering with agencies across Hennepin County allowed our project team to better understand emerging priorities as the COVID-19 pandemic evolved, opportunities and challenges for engaging with YEH, and the capacity of youth-serving agencies to implement various strategies.

Youth engagement. Our team initially worked to hire youth with lived experiences of homelessness by creating paid, hourly "Youth Advisor" positions at the UMN and sharing information about these positions with youth at our partnering agencies. Nine youth expressed interest and after follow-up, two youth currently experiencing homelessness were hired onto our team. Youth Advisor positions were created to be flexible with existing schedules and commitments; the two youth hired stayed with our team for four and ten-week appointments. During these appointments, Youth Advisors attended project meetings, contributed to data collection efforts, helped interpret results, and helped identify interventions of interest to implement. We also worked to engage youth through existing YEH advisory board structures across the county; these advisory board structures existed at multiple youth-serving agencies partnering on this project, and members of these advisory boards were youth currently experiencing homelessness. Several other youth advisory board groups existed across Hennepin County, however, engagement was limited to agencies that were formally partners on this project. Through facilitated discussions at youth advisory board meetings (approximately 60-minutes) and regular tabling events (approximately two to three hours) at partnering youth-serving agencies, our team was able to meet young people where they were and gather input and

feedback on project strategies, key messages, and project evaluation. Some activities that YEH engaged in at tabling events and youth advisory board meetings included: sharing their perspectives on barriers and facilitators to COVID-19 vaccination among YEH; sharing ideas for interventions to increase vaccine confidence among YEH; voting on interventions to implement through this project; reacting to informational videos and messages; sharing feedback on events and infographics created by our team; and more. These facilitated spaces also provided YEH opportunities to ask questions about COVID-19 and have discussions with team members. Across events, approximately 50 youth meaningfully engaged with this project and provided guidance and feedback.

Centering equity and positionality. As our team formed around a common goal of working with youth and community to develop anti-oppressive and equitable strategies to increase COVID-19 vaccine confidence and access among YEH, we committed to having discussions about equity and our positionality in this work early and often. One step in this process of reflection and accountability was creating an "equity and positionality statement" with our UMN team. The goal of this document was to hold our team accountable to our commitments and to encourage continual reflection on our identities and how they intersect with this work. It was necessary to reflect on our identities coming from a land-grant institution with a history of perpetuating harm in the community, and to reflect on our identities as individuals and how they shape our relationships to this work. Utilizing the Nine Evidence-based Guiding Principles to Help Youth Overcome Homelessness as a guide, our team generated a list of commitments to youth and community partners in this work.[45] Throughout the project, we periodically reflected on our approaches and their impacts, and adjusted as necessary to re-align with these commitments. Our team equity and positionality statement is included in the

Supplemental Material section of this manuscript, however, individual team members' positionality statements were removed for privacy purposes.

Step 2: Data Collection to Identify Intervention Strategies

To uplift the voices of youth and ensure this work aligned with the priorities and experiences of YEH, the UMN team, with input and guidance from cross-sector partners, spent several months engaging youth and youth-serving agency staff across Hennepin County.

We conducted four 60-minute youth focus groups (n=20) and 10 60-minute key informant interviews with staff at youth-serving agencies (n=10). We used semi-structured focus group and interview guides, developed with input from cross-sector partners, to solicit information regarding barriers and facilitators to youth COVID-19 vaccination, youth attitudes about vaccines, strategies to promote vaccine confidence and access, and specific vaccine messaging to address youth concerns. YEH and staff were recruited for focus groups and interviews by Agency Champions from our cross-sector project planning team. Agency Champions were staff members from youth-serving agencies who were well-connected to both YEH and staff, and who were trusted figures at their respective agencies, which helped facilitate recruitment in this space. All youth recruited for focus groups had lived experiences of homelessness, and all staff recruited for interviews worked at partnering youth-serving agencies and worked directly with YEH. Focus groups and interviews were conducted by team members with expertise in working with youth. Most focus groups were conducted in person with an option for virtual participation; one focus group session was in-person, two were hybrid, and one was virtual. All interviews were conducted virtually. Interviews and focus groups were recorded and transcribed. All participants were also invited to complete a brief survey to supplement their

input during the focus group or interview. Participants were provided with $50 gift card incentives.

Four UMN team members reviewed all interview and focus group transcripts for salient themes regarding COVID-19 vaccine confidence. Our team also developed a comprehensive list of ideas and strategies identified by youth and youth-serving agency staff to share with partners. De-identified summaries of interview, focus group, and survey responses were shared with the cross-sector project planning team for feedback, assistance with interpretation, and identification of potential interventions.

Step 3: Identify and Implement Intervention Strategies

Based on Step 2 findings, we further engaged youth and community partners in the selection of intervention strategies. To engage youth voice, we hosted five tabling events at youth-serving agencies to facilitate individual conversations with youth, and we facilitated discussions with youth boards. At these sessions, YEH were able to discuss ideas for interventions, provide feedback on proposed interventions, and vote on interventions they would like to see implemented. To invite a broader range of community perspectives, we invited youth and community members who work with youth (n=24) to complete a community survey, which included questions about messaging, trusted sources of information, barriers and facilitators to vaccination, and health events. This survey was shared at events and was also shared with our cross-sector planning team, youth-serving agencies, other community organizations across Hennepin County, and through flyers posted in public spaces across the county. Of those that responded to this community survey, 33% were youth ages 11-24, 67% were individuals who worked/volunteered with young people, and 68% had lived experiences of homelessness. Results

from this survey helped continue to guide the selection of intervention strategies, and helped shape ideas for implementation. We then used cross-sector planning team meetings to share feedback and results, build consensus around strategies most likely to meet the needs of youth and youth-serving agencies, and consider opportunities for collaboration and collective learning. Using this iterative, community-engaged process, we identified and implemented four strategies to promote vaccine confidence and access among YEH: 1) youth-friendly, trauma-informed, culturally responsive messaging about COVID-19 vaccination; 2) site-based, fun, and inclusive health events at youth-serving agencies in partnership with youth-serving agencies, local public health, and local healthcare organizations; 3) vaccine aftercare kits for youth to offer physical, emotional, and educational support after vaccination; and 4) training and resources to direct service staff at youth-serving agencies for navigating vaccine conversations with youth.

Step 4: Evaluation and Sustained Community Engagement (ongoing)

Table 1 outlines our approach to evaluating feasibility and effectiveness of the project and each of our intervention strategies**.**

Results

In total, 20 youth and 10 agency staff from five unique programs provided input in our initial series of focus groups and interviews. **Figure 2** highlights prominent barriers to vaccination from our initial review of focus group and interview data (thematic analysis ongoing, data available upon request). From this data and our iterative, community-engaged consensus-building process, we identified and implemented four intervention strategies to promote vaccine confidence and access among YEH.

Strategy #1: Youth-friendly, trauma-informed, culturally responsive messaging about COVID-19 vaccination. Our team outlined the most prominent concerns identified by youth and proposed messages to address them (**Table 2**). In addition to these key messages, our team compiled a list of existing print and video resources to address these concerns, and created a series of infographics specific to YEH. We plan to widely distribute these resources to youth-serving agencies across the state.

Strategy #2: Site-based, fun, and inclusive health events at youth-serving agencies in partnership with youth-serving agencies, local public health, and local healthcare organizations. A salient barrier to vaccination identified by youth is accessibility (**Figure 2**). To help increase accessibility of COVID-19 vaccinations, we collaborated with youth-serving agencies, healthcare, and public health partners to host on-site health events. Prior to these events, we facilitated discussions with youth advisory boards at different agencies to identify topics of importance, activities, resources to include, and ways to make environments at events safe and inclusive for youth who attend. Through these discussions, we learned that youth advisory board members were interested in learning more about a variety of health topics, including sexual and reproductive health, dental hygiene, mental health, primary care, and COVID-19. Youth emphasized the importance of making these events a supportive, non-judgmental environment, where staff and healthcare providers can answer questions and ease any concerns that might come up. Additionally, youth suggested having a variety of activities at these events, such as raffles, games, dinner, and music, all contributing to a fun, inclusive, and accessible space.

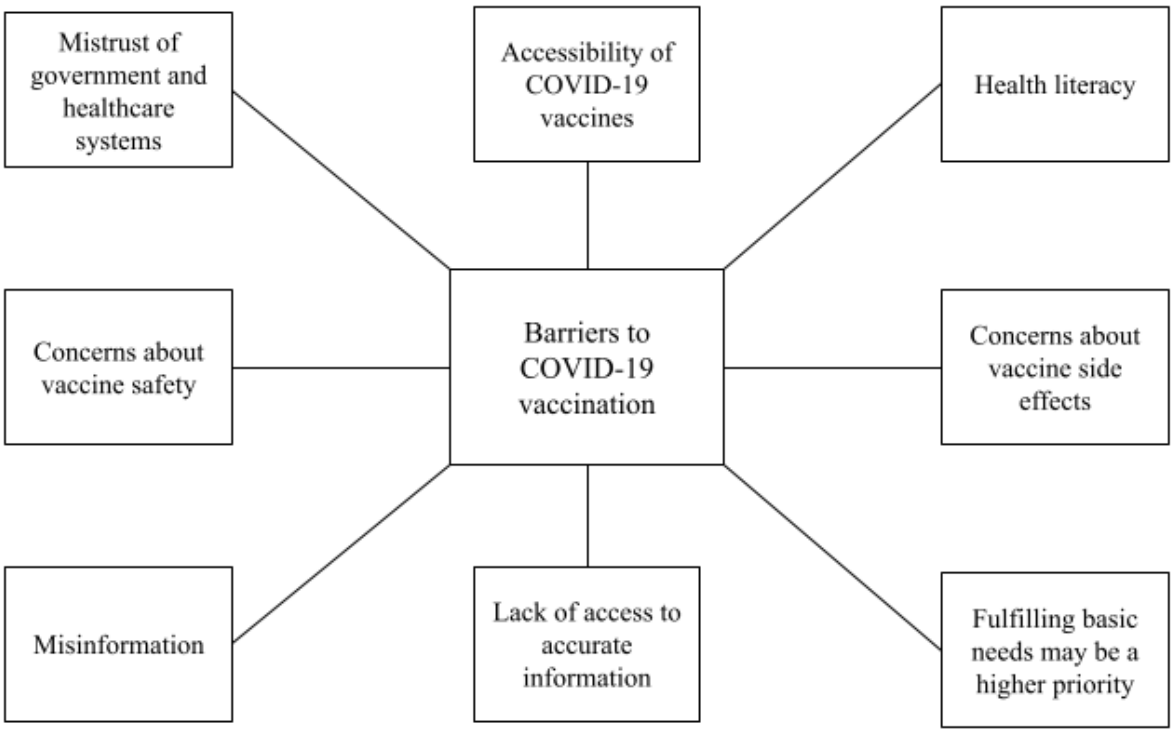

Figure 2: Prominent barriers to vaccination from initial review of focus group and interview data

To date, we have hosted three events with 10 different community partners. In addition to 34 YEH choosing to get vaccinated at these events, youth have learned more about mental health, primary care, sexual and reproductive health, holistic health and wellbeing, and more, as well as different organizations and resources in our community.

Strategy #3: Vaccine aftercare kits for youth to offer physical, emotional, and educational support after vaccination. Youth voiced questions and concerns around COVID-19 vaccine side effects and how to care for oneself post-vaccination. To address these questions and provide physical, emotional, and educational support after vaccination, our team created vaccine aftercare kits to be distributed at health events. Vaccine aftercare kits contained a variety of items including: hand sanitizer, disinfectant wipes, tissues, chapstick, face masks, a journal, gel pens, affirmation notes, crackers/chips, drink mix, tea, and KN95 masks, along with an infographic

about what to expect post-vaccination. To date, about 100 kits have been distributed at events and to youth-serving agencies across the county.

Strategy #4: Training and resources to direct service staff at youth-serving agencies for navigating vaccine conversations with youth. Staff at youth-serving agencies expressed a resounding interest in resources and support to have conversations about COVID-19 and vaccination with youth. We partnered with a local organization that had already created training for staff serving YEH, and funded this organization to provide training to staff at partnering youth-serving agencies. To date, four training sessions have been held with 33 staff members. Evaluation results show that 88% of respondents were "satisfied" or "very satisfied" with the training session, and 96% of respondents "agreed" or "strongly agreed" that after this session, they had the skills and tools to support youth in conversations about vaccination.

Lessons Learned

We learned several valuable lessons in cross-sector engagement, youth engagement, centering equity and accountability, and working within the broader COVID-19 landscape.

1. *Cross-sector engagement is complex and ever-evolving.* There were clear challenges to engaging a large cross-sector group in the context of a public health crisis, especially when organizations were stretched thin amidst their COVID-19 response. In addition, there was considerable staff turnover across sectors, limiting agency capacity for engagement with this work. This reinforced the need to adapt and adjust as the pandemic evolved, listen to our cross-sector partners and support them through times of uncertainty

and crisis, and maximize the utility and benefit of this group for all participating organizations.

2. *YEH engagement requires adaptability.* Continual engagement with YEH was vital to the aims of this project, but logistically challenging. Initially, we thought that virtual engagement would be a good modality amidst the rapidly-evolving COVID-19 landscape. However, we quickly learned there was very little interest and ability to consistently engage in a virtual format. We then pivoted to consistent in-person engagement, which was far more successful. We worked to meet youth in spaces where they were already engaging by tabling at youth-serving agencies. This helped limit the burden on youth and promote accessibility to our project and team members. Though we initially sought to hire Youth Advisors into paid, hourly positions, we encountered many challenges in onboarding and employing youth within the structures of a large academic institution; payment structures, paperwork, access to technology, and required vaccination status were all barriers that we had to navigate alongside youth. Because we were not anticipating many of these barriers, our team was not adequately prepared to guide youth through the process. Navigating these barriers, in addition to being stretched thin with other commitments, resulted in temporary appointments for youth on our team. After encountering these challenges, we shifted our focus to engaging youth through existing youth boards at youth-serving agencies, again, to minimize burden. Being adaptable, and working to meet youth where they were, allowed us to continue to center youth perspectives throughout our project.
3. *Continual reflection on equity and positionality as a team is a necessary step in accountability.* Creating an "equity and positionality" statement for our UMN team

allowed us to outline our commitments and continually reflect on our identities and how they influence our relationships to this work.[46] Throughout the project, we revisited this document to reflect on our commitments to promoting equity, the results of actions we have taken, and how to better align with these commitments moving forward. This statement was shared with our broader cross-sector team to promote accountability, and members were invited to independently reflect on their own positionality, as well. However, the creation of this statement and reflections were primarily centered within the UMN team, and were not inclusive of youth or youth-serving organizations. In future work, opening up these conversations and including those with lived experience is incredibly important to help hold our team accountable, and open our eyes up to other ways in which our positionality may influence our approaches to this work. Continuing to refine this approach will help our team better understand where harm has occurred and where improvements can be made. In doing so, we can work to create an avenue of accountability for this group to better serve youth and youth-serving agencies.

4. *Incorporating COVID-19 into the broader public health landscape helped combat COVID-19 fatigue among YEH and partnering organizations.* Throughout the 14-month project, the most common obstacle to engagement was individual and organizational fatigue related to the stress of adapting and adjusting to the COVID-19 pandemic. Discussion around COVID-19 and COVID-19 vaccination was constant, and as the pandemic continued to evolve, fatigue set in for many. In addition, YEH felt this same fatigue– continually adjusting, adapting, and engaging with this issue. Over time, we heard a clear desire from youth and agency partners to begin incorporating discussions about COVID-19 and COVID-19 vaccination into broader conversations about health and

wellbeing. Thus, we began to create broader health events, where COVID-19 vaccine information was present and vaccinations were offered, but YEH could also get information on other health topics of interest, such as mental health, sexual and reproductive health, and holistic health. This shift helped combat COVID-19 fatigue and helped promote sustainability of these efforts by incorporating them into the broader public health landscape. This work laid the foundation for ongoing cross-sector collaboration focused on optimizing health services and public health programming for YEH.

Conclusion

Our community-engaged project highlighted the value of cross-sector partnership and consistent youth engagement in addressing vaccine confidence among YEH. We engaged partners in planning and implementation of intervention strategies, interpreting project findings and adapting strategies in real time, promoting accountability, and honoring the wisdom of our project partners and youth. Iteratively engaging with youth and other key partners was essential in building trust, maximizing benefit for youth, and coming to a shared understanding in this work. As a result of this collective work, we have identified and implemented four promising strategies for increasing vaccine confidence among YEH. This work set the stage for continued community and cross-sector partnership focused on enhancing public health programming and health services for YEH.

References

1. Voices of Youth Count. *Missed Opportunities: Youth Homelessness in America: National Estimates*.; 2017. https://voicesofyouthcount.org/brief/national-estimates-of-youth-homelessness/
2. Morton MH, Dworsky A, Matjasko JL, et al. Prevalence and Correlates of Youth Homelessness in the United States. *J Adolesc Health Off Publ Soc Adolesc Med*. 2018;62(1):14-21. doi:10.1016/j.jadohealth.2017.10.006
3. Gewirtz O'Brien JR, Auerswald C, English A, et al. Youth Experiencing Homelessness During the COVID-19 Pandemic: Unique Needs and Practical Strategies From International Perspectives. *J Adolesc Health Off Publ Soc Adolesc Med*. 2021;68(2):236-240. doi:10.1016/j.jadohealth.2020.11.005
4. Hennepin County. *Hennepin County Coordinated Community Plan to Prevent and End Youth Homelessness*.; 2022.
5. Keuroghlian AS, Shtasel D, Bassuk EL. Out on the street: A public health and policy agenda for lesbian, gay, bisexual, and transgender youth who are homeless. *Am J Orthopsychiatry*. 2014;84(1):66-72. doi:10.1037/h0098852
6. Van Leeuwen JM, Boyle S, Salomonsen-Sautel S, et al. Lesbian, gay, and bisexual homeless youth: an eight-city public health perspective. *Child Welfare*. 2006;85(2):151-170.
7. Ecker J. Queer, young, and homeless: A review of the literature. *Child Youth Serv*. 2016;37(4):325-361. doi:10.1080/0145935X.2016.1151781
8. Cochran BN, Stewart AJ, Ginzler JA, Cauce AM. Challenges Faced by Homeless Sexual Minorities: Comparison of Gay, Lesbian, Bisexual, and Transgender Homeless Adolescents With Their Heterosexual Counterparts. *Am J Public Health*. 2002;92:773-777. doi:https://doi.org/10.2105/AJPH.92.5.773
9. Voices of Youth Count. *Missed Opportunities: LGBTQ Youth Homelessness in America*.; 2018. https://voicesofyouthcount.org/brief/lgbtq-youth-homelessness/
10. The U.S. Department of Housing and Urban Development. *The 2018 Annual Homeless Assessment Report (AHAR) to Congress, Part 1: Point-in-Time Estimates of Homelessness*.; 2018. Accessed July 19, 2022. https://www.hudexchange.info/resource/5783/2018-ahar-part-1-pit-estimates-of-homelessness-in-the-us
11. Cronley C, Evans R. Studies of resilience among youth experiencing homelessness: A systematic review. *J Hum Behav Soc Environ*. 2017;27(4):291-310. doi:10.1080/10911359.2017.1282912
12. Wong CF, Clark LF, Marlotte L. The Impact of Specific and Complex Trauma on the Mental Health of Homeless Youth. *J Interpers Violence*. 2016;31(5):831-854. doi:https://doi.org/10.1177/0886260514556770
13. Society for Adolescent Health and Medicine. The Healthcare Needs and Rights of Youth Experiencing Homelessness. *J Adolesc Health*. 2018;63(3):372-375. doi:10.1016/j.jadohealth.2018.06.012
14. Narayan AJ, Kalstabakken AW, Labella MH, Nerenberg LS, Monn AR, Masten AS. Intergenerational continuity of adverse childhood experiences in homeless families: Unpacking exposure to maltreatment versus family dysfunction. *Am J Orthopsychiatry*. 2017;87(1):3-14. doi:10.1037/ort0000133
15. Bender K, Ferguson K, Thompson S, Langenderfer L. Mental health correlates of victimization classes among homeless youth. *Child Abuse Negl*. 2014;38(10):1628-1635.

doi:10.1016/j.chiabu.2014.03.001
16. Bender K, Brown SM, Thompson SJ, Ferguson KM, Langenderfer L. Multiple Victimizations Before and After Leaving Home Associated With PTSD, Depression, and Substance Use Disorder Among Homeless Youth. *Child Maltreat*. 2015;20(2). doi:https://doi.org/10.1177/1077559514562859
17. Briggs MA, Granado-Villar DC, Gitterman BA, et al. Providing Care for Children and Adolescents Facing Homelessness and Housing Insecurity. *Pediatrics*. 2013;131(6). doi:https://doi.org/10.1542/peds.2013-0645
18. Begun S. The Paradox of Homeless Youth Pregnancy: A Review of Challenges and Opportunities. *Soc Work Health Care*. 2015;54(5):444-460. doi:https://doi.org/10.1080/00981389.2015.1030058
19. Cauce AM, Paradise M, Ginzler JA, et al. The Characteristics and Mental Health of Homeless Adolescents: Age and Gender Differences. *J Emot Behav Disord*. 2000;8(4). doi:https://doi.org/10.1177/106342660000800403
20. Kulik DM, Gaetz S, Crowe C, Ford-Jones E (Lee). Homeless youth's overwhelming health burden: A review of the literature. *Paediatr Child Health*. 2011;16(6):e43-e47. doi:https://doi.org/10.1093/pch/16.6.e43
21. Rich OJ. Vulnerability of homeless pregnant and parenting adolescents. *J Perinat Neonatal Nurs*. 1992;6(3):37-46. doi:10.1097/00005237-199212000-00006
22. Tyler KA, Whitbeck LB, Hoyt DR, Cauce AM. Risk Factors for Sexual Victimization Among Male and Female Homeless and Runaway Youth - Kimberly A. Tyler, Les B. Whitbeck, Dan R. Hoyt, Ana Mari Cauce, 2004. *J Interpers Violence*. 2004;19(5). doi:https://doi.org/10.1177/0886260504262961
23. Auerswald CL, Adams S, Lightfoot M. The Urgent and Growing Needs of Youths Experiencing Homelessness During the COVID-19 Pandemic. *J Adolesc Health*. 2020;67(4):461-462. doi:10.1016/j.jadohealth.2020.07.026
24. Coughlin CG, Sandel M, Stewart AM. Homelessness, Children, and COVID-19: A Looming Crisis. *Pediatrics*. 2020;146(2). doi:https://doi.org/10.1542/peds.2020-1408
25. Silliman Cohen RI, Adlin Bosk E. Vulnerable Youth and the COVID-19 Pandemic. *Pediatrics*. 2020;146(1). doi:https://doi.org/10.1542/peds.2020-1306
26. Embleton L, Lee H, Gunn J. Causes of Child and Youth Homelessness in Developed and Developing Countries: A Systematic Review and Meta-analysis. *JAMA Pediatr*. 2016;170(5). doi:10.1001/jamapediatrics.2016.0156
27. Thompson SJ, Zittel-Palamara KM, Maccio EM. Runaway Youth Utilizing Crisis Shelter Services: Predictors of Presenting Problems. *Child Youth Care Forum*. 2004;33:387-404. doi:https://doi.org/10.1007/s10566-004-5263-9
28. Tyler KA, Bersani BE. A Longitudinal Study of Early Adolescent Precursors to Running Away. *J Early Adolesc*. 2008;28(2):230-251.
29. Lavasani KA, Aridomi H, Auerswald C, et al. *For the Good of Us All: Addressing the Needs of Our Unhoused Neighbors During the COVID-19 Pandemic*.; 2020. https://publichealth.berkeley.edu/wp-content/uploads/2020/04/For-the-Good-of-Us-All-Report.pdf
30. Centers for Disease Control and Prevention. Interim Guidance for Homeless Service Providers to Plan and Respond to Coronavirus Disease 2019 (COVID-19). Published 2022. Accessed July 19, 2022. https://www.cdc.gov/coronavirus/2019-ncov/community/homeless-shelters/plan-prepare-respond.html

31. Centers for Disease Control and Prevention. Interim Guidance on People Experiencing Unsheltered Homelessness. Published 2022. Accessed August 4, 2022. https://www.cdc.gov/coronavirus/2019-ncov/community/homeless-shelters/unsheltered-homelessness.html
32. Gallardo KR, Santa Maria D, Narendorf S, et al. Human Papillomavirus Vaccination Initiation and Completion among Youth Experiencing Homelessness in Seven U.S. Cities. *Prev Sci Off J Soc Prev Res*. 2020;21(7):937-948. doi:10.1007/s11121-020-01131-5
33. Zemanek CE, Liu N, Sablak CH, et al. Relationship Between Vaccination Status and Biopsychosocial Characteristics in Sheltered Adolescents. *Cureus*. 2021;13. doi:10.7759/cureus.12575
34. McCosker LK, El-Heneidy A, Seale H, Ware RS, Downes MJ. Strategies to improve vaccination rates in people who are homeless: A systematic review. *Vaccine*. 2022;40(23):3109-3126. doi:10.1016/j.vaccine.2022.04.022
35. Gewirtz O'Brien JR, Barnes AJ, Scal PB, McRee AL. Preventive Health Care Utilization Among Youths Who Have Run Away, Experienced Homelessness, or Been Stably Housed. *JAMA Pediatr*. 2020;174(9):903-905. doi:10.1001/jamapediatrics.2020.1858
36. Chelvakumar G, Ford N, Kapa HM, Lange HLH, McRee AL, Bonny AE. Healthcare Barriers and Utilization Among Adolescents and Young Adults Accessing Services for Homeless and Runaway Youth. *J Community Health*. 2017;42:437-443. doi:https://doi.org/10.1007/s10900-016-0274-7
37. Department of Health & Human Services. Health Coverage for Homeless and At-Risk Youth. Published 2018. https://aspe.hhs.gov/sites/default/files/private/pdf/198441/HomelessHealth.pdf
38. Abramovich A, Pang N, Kunasekaran S, Moss A, Kiran T, Pinto AD. Examining COVID-19 vaccine uptake and attitudes among 2SLGBTQ+ youth experiencing homelessness. *BMC Public Health*. 2022;22(122). doi:https://doi.org/10.1186/s12889-022-12537-x
39. Tucker JS, D'Amico EJ, Pedersen ER, Garvey R, Rodriguez A, Klein DJ. COVID-19 Vaccination Rates and Attitudes Among Young Adults With Recent Experiences of Homelessness. *J Adolesc Health Off Publ Soc Adolesc Med*. 2022;70(3):504-506. doi:10.1016/j.jadohealth.2021.11.017
40. León TM, Dorabawila V, Nelson L, et al. COVID-19 Cases and Hospitalizations by COVID-19 Vaccination Status and Previous COVID-19 Diagnosis — California and New York, May–November 2021. *MMWR Morb Mortal Wkly Rep*. 2022;71. doi:10.15585/mmwr.mm7104e1
41. Scobie HM, Johnson AG, Suthar AB, et al. Monitoring Incidence of COVID-19 Cases, Hospitalizations, and Deaths, by Vaccination Status — 13 U.S. Jurisdictions, April 4–July 17, 2021. *MMWR Morb Mortal Wkly Rep*. 2021;70. doi:10.15585/mmwr.mm7037e1
42. Xu S, Huang R, Sy LS, et al. COVID-19 Vaccination and Non–COVID-19 Mortality Risk — Seven Integrated Health Care Organizations, United States, December 14, 2020–July 31, 2021. *MMWR Morb Mortal Wkly Rep*. 2021;70. doi:10.15585/mmwr.mm7043e2
43. Montgomery MP. Notes from the Field: COVID-19 Vaccination Coverage Among Persons Experiencing Homelessness — Six U.S. Jurisdictions, December 2020–August 2021. *MMWR Morb Mortal Wkly Rep*. 2021;70. doi:10.15585/mmwr.mm7048a4
44. Shearer RD, Vickery KD, Bodurtha P, et al. COVID-19 Vaccination Of People Experiencing Homelessness And Incarceration In Minnesota. *Health Aff (Millwood)*. 2022;41(6):846-852. doi:10.1377/hlthaff.2021.02030

45. The Homeless Youth Collaborative on Developmental Evaluation. 9 Evidence-based Guiding Principles to Help Youth Overcome Homelessness. Published 2014. https://avenuesforyouth.org/wp-content/uploads/2015/12/9-Evidence-Based-Principles-to-Help-Youth-Overcome-Homelessness-Webpublish.pdf
46. Andress L, Hall T, Davis S, Levine J, Cripps K, Guinn D. Addressing power dynamics in community-engaged research partnerships. *J Patient-Rep Outcomes*. 2020;4(1):24. doi:10.1186/s41687-020-00191-z

Table 1: Evaluation plan for project partnerships and intervention strategies

Project Component	**Evaluation Plan**
Building cross-sector partnerships	10-question survey administered to members of the cross-sector project planning team, assessing satisfaction with partnership and identifying areas for improvement.
Intervention Strategy #1: Youth-friendly messaging	10-question survey administered to youth-serving agency staff and youth to gather feedback on message effectiveness and modality.
Intervention Strategy #2: Health and vaccination events	Tracking vaccination rates and attendance at events, along with having youth contribute to posters with their feedback on events.
Intervention Strategy #3: COVID-19 vaccine aftercare kits	7-question survey included in all aftercare kits, assessing utility of aftercare kits and quality of support provided.
Intervention Strategy #4: Training for youth-serving agency staff	16-question survey that included questions about skills and knowledge before and after training sessions, along with questions to gather feedback on training structure, modality, and content.
Assessing COVID-19 vaccination rates	Monitoring local COVID-19 vaccination rates among youth experiencing homelessness utilizing data dashboards in the county.

Table 2: Common youth concerns about COVID-19 vaccines and key messages to address concerns

Youth Concerns	**Key Messages to Convey**
"I worry about possible long-term harms of the vaccine or having/managing its short-term side effects."	- *The vaccine is safe for most people (describe how it works, explain the vaccine development process, and identify and correct misinformation).* - *Even if you've had COVID-19, the vaccine adds protection.* - *Short-term side effects are possible, and supports are available to help you manage them.*
"I don't trust systemically-racist systems to protect me."	- *You're not alone and your concerns are valid.* - *Good information on vaccine development and testing is available from BIPOC experts and organizations.* - *People of color are especially vulnerable to severe COVID-19, related to a long history of racism and oppression.* - *Many BIPOC-serving organizations are working to protect their communities through COVID-19 vaccination.*
"I'm young and healthy: I don't need the vaccine."	- *People who get the vaccine aren't just protecting themselves. They are protecting their family, community, and loved ones who may be more vulnerable.* - *Getting the vaccine boosts your immunity whether you've had COVID or not.* - *Getting the vaccine is much safer than not getting it, especially for individuals being exposed frequently.* - *Long COVID is real. It's better to avoid getting it altogether.*
"I worry about the logistics (cost, taking time off, engaging with the healthcare	- *It's free.*

system, dealing with insurance, immigration documentation, or involving my parents).”	- *No one will ask about your immigration status.* - *In some circumstances, minors can consent to their own care.* - *You’re not alone in not trusting the health care system.* - *You deserve good health and good health care.* - *Here are some resources on accessible, youth-friendly places to get the vaccine.*