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Community Health Workers Promote COVID-19 and Influenza Vaccination: The ProUD Project-Creighton University Center for Promoting Health and Health Equity

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Abstract

This paper summarizes a Community Health Worker (CHW) project in Omaha, Nebraska to enhance Black/African American (B/AA) and Hispanic/Latino (H/L) vaccination uptake for COVID-19 and influenza: Protecting the Underserved from COVID-19 Disparities (ProUD). The Creighton University Center for Promoting Health and Health Equity (CPHHE) designed the project and curriculum that built on CHPPE CHWs' existing expertise and COVID-19 competencies, adding an influenza vaccination focus. CPHHE then coordinated CHW community activities, reporting, and meetings from November 2022 through August 2023. CHWs used a digital interface to detail community encounters. The project demonstrated how continued support of a cadre of CHWs facilitates taking advantage of new funding opportunities. Over ten (10) months, the eight (8) ProUD CHWs achieved substantial community interactions involving group and individual educational encounters: 635 educational sessions, 5186 people educated, and 321 service referrals. CHW encounters involved about 50% Black/African/African Americans not of Latinx origin, about 25% Latinx, and about 20% Whites. Monthly CHW and program leader meetings identified new informational needs, further informed CHWs about vaccine and vaccination myths and misunderstandings, and promoted mutual discussions about how CHWs could respond. Narratives about CHW community experiences enabled fruitful dialogue about how best to address local community issues. Monthly meetings also afforded opportunities to increase CHW understanding of chronic diseases and their management. Lessons learned emerged. In future programs we advise adding more formal mental health content to support CHW well-being and enhance their capacities in assisting community members. To understand how best to enhance programs like ProUD, community outcomes assessments are crucial regarding vaccination uptake and also enhancements in chronic disease self-management. ProUD resources did not allow such assessments. ProUD was funded by Creighton Community Collaborative. CPHHE operational funds flow from the state of Nebraska LB692 allocations of tobacco judgment dollars to address health disparities, allocated through Creighton University.

Keywords: Equity; Disparities; Latino/Hispanic; COVID-19; Vaccination; CHW; Community health worker; Education; Support

Introduction

Community Health Workers (CHWs) are globally effective in promoting health equity and reducing community health disparities. Many international examples involve communicable diseases, the COVID-19 pandemic most recently [1,2]. This coronavirus infection raised new needs for CHW assistance. In the United States of America (USA), many studies document the "disproportionate impact that COVID-19 had on Black and Latinx communities in terms of exposure risk, case rate, hospitalization rate, mortality rate, economic hardship, and psychosocial consequences [3]."

In USA diverse communities, CHWs are helping mitigate these COVID-19 impacts through community education and vaccination promotion. Examples include Latino/Hispanic (Lx/H, Latinx) and Black/African American (B/AA) communities [4,5]. In the state of California, USA, Nawaz and colleagues (2023) found that in Lx/H communities: "CHWs facilitated 159,074 vaccinations and vaccine appointments by countering mis/disinformation, addressing mental health and social needs, building digital competencies, and meeting people where they are, all of which expanded access and instilled confidence in the COVID-19 vaccine [3]." Notably, local factors influenced what were most effective CHW practices in particular California communities. Thus, when CHWs implement new community programs, an open question is what approaches will best complement their existing competencies in specific contexts and for particular health needs.

This paper summarizes how Creighton University's Center for Promoting Health and Health Equity (CPHHE) built on CHWs' general expertise and prior COVID-19 education, training, and field experience to extend CHWs' local COVID-19 efforts in their B/AA and Lx/H communities: The CPHHE "ProUD" program. "ProUD" stands for Protecting the Underserved from COVID-19 Disparities. ProUD stressed COVID-19 vaccination, but annual influenza vaccination was a further emphasis. In metro Omaha, 2022 population estimates were B/AA 76,243 and Lx/H 103,279. The 2022 metro Omaha

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area population estimate was 779,265 [22]. The next section elaborates aspects of CHW education and training programs and issues, CHW achievements, related COVID-19 and influenza considerations, and ProUD's CPHHE. The following remarks then summarize what CHWs do, their education and training, and some challenges. The account then details CHW work in COVID-19 vaccine promotion. We also discuss CHW's potential for promoting influenza and other vaccines.

Background

Publications and reports summarize many existing and proposed CHW competencies, roles, responsibilities, educational and training curricula, and programs. CHW educational and training programs can be quite detailed and comprehensive. For example, Lee and colleagues' 2021 components included didactic elements, a competency-focused skills lab, a practicum experience, professional development, organizational readiness, and continuing education. Language and cultural issues are often layered into these aspects [19]. Publications illustrate that with language and health literacy proficiency, CHWs can help community members traverse language barriers and navigate healthcare system structures [2,6]. Thus, major published resources can help inform education, training, and programmatic options for local CHW programs.

Although COVID-19 mortality and morbidity are declining, new infections continue causing major suffering and deaths. In 2023, total USA hospitalizations were 6,326 and 20,698 during weeks in June and September respectively. But hospitalizations were up to 34,893 cases during a week in January 2024 [7]. In the same 2023 weeks, total weekly USA deaths were 578 and 1305 for June and September. In January 2024, USA weekly deaths varied from 2,258 for January 6th to 934 for January 27th. Thus, COVID-19 is a continued source of USA morbidity and mortality. Enduring ("long") COVID-19 morbidity is substantial [8-11].

In our local area, Douglas County, Nebraska, 2023 weekly COVID-19 hospitalization cases and rates varied somewhat from USA totals. (NYT 2024) June and September 2023 total cases/rates per 100,000 were 3/<1 and 15/0.8 respectively [21]. After ups and downs, total/rates of hospitalizations in late January were 17/0.9. Total county deaths in 2023 were 96 versus 298 and 491 for 2022 and 2021 respectively. In summary, COVID-19 has continued and major impact nationally and locally, but less [12].

In Douglas County's COVID-19 experience through January 2024, reported COVID-19 death rates did not reflect disparities in AA/B and Lx/H individuals. In fact, non-Hispanic Whites had a slightly higher death rate than AA/B (265 versus 252 respectively) and Lx/H much lower (158). American Indians and Alaska Natives had the strikingly highest death rate of 536 [12]. For Douglas County COVID-19 vaccinations as of February 13, 2024, "Primary Series" rates for White, B/AA, and Lx/H were 59%, 45%, and 67% respectively [13]. Thus, all three groups had major room for vaccination rate improvement. However, B/AA had had the greatest vaccination deficit.

While influenza continues killing and harming people for both short and longer term, the influenza season commenced during our program. People most susceptible to worse COVID-19 outcomes are comparably at risk for adverse influenza outcomes: The elderly, people with chronic disease, and individuals otherwise immune compromised. Further, people with "long COVID" conditions may also be a special at-risk group for influenza complications and mortality, as are people with chronic diseases. The considered advice is co-administration of COVID-19 and influenza vaccines [14]. CHWs expertise and effectiveness in COVID-19 prevention and vaccination promotion situates them excellently to promote community influenza vaccination and improve influenza outcomes.

In a COVID-19 global review, Bhaumik and colleagues (2020) found that CHWs have played several roles globally in addressing pandemics. However, they also found that CHWs sometimes "experienced stigmatisation, isolation and socially ostracisation." Our USA literature scan revealed no reports of such negative responses regarding CHWs and COVID-19. Also, Bhaumik et al.'s review found that digital technology was used for "supporting and monitoring CHW programmes." They further report that "what constitutes appropriate training for CHW [sic] might be very context specific," given significant differences in locations' features and CHW roles. Thus, assessing needs for local education and training modifications should be routine.

Diverse local and national contexts, including health and social resources and policies, and existing CHW infrastructures, mean that best approaches can vary significantly. Thus, a "one size fits all" approach for CHW programs is inappropriate. However, multiple examples from published projects can help inform new CHW program development and refine existing enterprises. Reports about CHW work often address their personal support needs, recently including stresses that the COVID-19 pandemic posed for CHWs. For instance, a small Latinx CHW study in Chicago found that support involved trainings that included technology and digitally shared resources. Mayfield-Johnson et al. (2021) detail many pandemic-related CHW challenges and constructive [20]. The ProUD program built on CPHHE's multi-year success in educating, training, certifying, and coordinating CHW efforts to benefit their communities [4,5]. Creighton University, in Omaha, Nebraska, USA, is a Jesuit institution strongly focused on social justice and addressing health inequities through its undergraduate, graduate, and health sciences professional schools and colleges. Some 15 years ago, Creighton's Health Sciences funded CPHHE, a community-academic partnership for promoting health and health equity. CPHHE's core funding is through a state of Nebraska tobacco judgment award (LB 692) that the State directs to Creighton and other institutions for addressing health disparities. Co-authors SKL and JRS are CPHHE co-founders and voluntary co-executive directors. Co-author EE was CPHHE Assistant Director and primary ProUD Coordinator. Since inception, CPHHE has garnered over ten (10) million dollars in primarily federal (USA) grants to address health disparities. (Centers for Disease Control and Prevention, Federal COVID-19 related funds passed through Douglas County Health Department, Federal Health Services Research Administration, and the Department of Defense).

CPPHE has educated and trained over 150 CHWs (called

CHAs for Community Health Advisors and Community Health Ambassadors) through a Creighton University certification program and other programs and projects. CPHHE publications summarize CPHHE's 2014-2022 project, CPHHE-REACH, through a CDC funded cooperative agreement, involving CHA efforts to advance Omaha-area African American physical activity [15,16]. Other CHW programs specifically providing ProUD infrastructure were CPHHE-Douglas County Health Department awards for further CHW education, training, and outreach regarding COVID-19 transmission prevention (2021) and vaccination promotion (2022) [5]. CPHHE is now in year two (2) of training some 80 community members yearly for three (3) years, aiming for 240 total, including an apprenticeship component. Funding is from the USA Health Resources and Services Administration (HRSA).

Methods

Funding, CHA/CHW Recruitment and Selection. Creighton Community Collabrative funded CPHHE's ProUD. ProUD CHWs were recruited from CHWs involved in the prior CPHHE-Douglas County Health Department COVID-19 prevention and vaccination program summarized above. Email solicitations were sent to CPHHE-connected CHWs. For ProUD, CHW selection criteria were (1) documented Creighton University certificate education and training, (2) community outreach experience, (3) prior effectiveness as CHAs, and (4) membership in B/H and Lx/H communities.

CHW education and training

Author EE was the lead recruiter, educator, and coordinator. Authors SKL and JRS provided educational and programmatic advice and assistance. At ProUD outset, these experienced CHAs were already knowledgeable about and experienced in preventing COVID-19 prevention and promoting vaccination. They understood the heightened morbidity and mortality risks in people with chronic disease, immune compromise, and advanced age. Thus, the ProUD program launched with a 3-week refresher education curriculum, adding influenza content. Training emphasized vaccination education and relevant community resources while stressing how CHWs/CHAs could contribute as community leaders and advocates. The initial three weekly sessions included how to use a digital encounter survey to summarize their community educational outreach experiences. Educational content summarized the importance of demographic and services data collection, how CHAs could access the survey via a mobile device, and how to inform their community members about what data were being collected and why.

After the initial three weeks training of 3-hour sessions twice a week, monthly training and educational meetings for all CHAs included updated COVID-19 and influenza vaccine and disease trends, CHW feedback and discussion about field experiences and related community work, digital strategies regarding the survey tool, and solicitating CHWs' suggestions for future session topics. The field narratives often included specific, but anonymous, case experiences that presented challenges or illustrative examples. CHWs and program leaders would then analyze the experiences for lessons learned and future strategies. Such cases also raised opportunities to clarify and enhance scientific information and various health conditions. The CHW monthly sessions were also opportunities for mutual support and reinforcement. CHWs were reminded that they could always contact ProUD program leaders for questions, issues, and problems.

CHA community outreach data collection

CPHHE used the digital surveying tool, Qualtrics XM, to create an online 10-question survey in English and Spanish. In their preferred language (English or Spanish), CHAs completed a survey form for each community educational encounter. As detailed in Appendix A, survey items were:

- Encounter date, time, and setting; audience number;
- Presentation medium (in-person, online);
- Content (COVID-19, influenza, children and elderly vaccines, monkey pox, and other);
- Audience apparent race or ethnicity;
- Referrals to healthcare facilities or vaccination sites; and
- Whether people they encountered had seen related pamphlets, Facebook posts, radio ads, TV information, CPHHE's COVID-19 website, and a relevant city bus or bench wrap.

Data analysis

For CHA community encounters, the data were summarized quantitatively (e.g., numbers of community educational sessions and audiences by demographic criteria) and by educational topic. CHA comments were tabulated and reviewed for common themes.

Results

ProUD CHW initial education and training were conducted in November 2022. Monthly CHW meetings were then held through August 2023. As planned, these continuing sessions updated COVID-19 and influenza vaccine information and disease trends, solicited CHW field experiences and facilitated related discussion, addressed CHW issues using the digital data entry system, and CHW suggestions for future session topics. Information during monthly meetings included leader-guided group review of current data and current CDC guidelines on COVID-19, influenza, and other communicable infections. Discussions addressed what CHWs should advise community members about responses when exposed to someone with a COVID-19 infection, isolation practices, testing schedules, and numerous vaccinations, among others. For example, CHWs would report community members' vaccine/vaccination myths and misbeliefs. Leaders and CHWs would then discuss strategies for addressing those vaccination obstacles.

Field narratives presented illustrative challenges and examples that were learning opportunities. CHWs and program leaders then analyzed the experiences for lessons learned and constructive responses. Such cases were opportunities for leaders to elaborate scientific aspects, health condition elements, and public health or clinical issues. A repeated CPHHE focus throughout all CHW education, training, and coordination programs is enhancing CHW knowledge about ways to ameliorate chronic disease, including how to enhance self-management. Thus, updated aspects of chronic diseases

like hypertension, cardiovascular disease, and diabetes were addressed in the monthly discussions.

CHW monthly sessions also involved informal mutual support and reinforcement. Regarding informational, emotional, and psychological support, leaders always reminded CHWs that they could always contact ProUD program leaders for questions, issues, and problems. Leaders also stated that if they could not answer a need, they would ensure others' assistance. A need for such outside assistance did not emerge. The eight (8) CHWs extensively communicated with their community peers about COVID-19, and Influenza Vaccines for children and adults. The elderly were an emphasis, including how chronic diseases increase needs for vaccine protection. Using CHW digital input, the following Tables 1 and 2 quantitatively summarize their educational efforts from November 2022 through August 2023 for B/AA and Lx/H. In summary, over 10 months these eight (8) CHWs held 635 educational sessions for 5186 individuals and made 321 service referrals. The latter included guidance for where and how to get vaccinated. The sessions varied from digital online small groups to in-person group sessions and one-on-one education.

CHWs designated community members' race or ethnicity when their presentation type was "Individual Education Session" (Tables 2&3). Of these individual education session participants, roughly half were Black/African/African American, not of Latinx origin; Latinx comprised about a quarter of those encountered; Whites not of Latino origin were about a fifth; a few were considered Asian, and even fewer were designated American Native or Alaskan Native. Table 3 addresses why the race and ethnicity data pose some analytical problems. However, we can confidently say that roughly half were Black/African/African American and so forth.

Table 1: Educational Sessions, People Educated, Service Referrals. (#: number)

Month	**November 2022**	**December 2022**	**January 2023**	**February 2023**
Educational Sessions (#)	25	54	52	53
People Educated (#)	80	302	430	339
Service Referrals (#)	16	28	30	33
Month	**March 2023**	**April 2023**	**May 2023**	**June 2023**
Educational Sessions (#)	120	63	88	64
People Educated (#)	913	793	782	348
Service Referrals (#)	47	39	47	22
Month	**July 2023**	**August 2023**	**Total**	
Educational Sessions (#)	46	50	635	
People Educated (#)	814	385	5186	
Service Referrals (#)	31	28	321	

Table 2: Educational Sessions per Format

Educational Sessions	
Online Small Group Presentations	10
Table Set-Up at a Community Event	97
In-Person Large Group	29
In-Person Small Group	80
Individual Education	419
Total	635

Discussion

Table 3: Individual Education Sessions: CHW Perceived Race or Ethnicity of Community Members Educated

Perceived Race or Ethnicity*	**Percentage of Individuals*$**	**Number of Individuals***
American Native or Alaskan Native	0.3%	3[#]
Asian	4.1%	44[&]
Pacific Islander	0%	0
Latino	25.7%	277[@]
Black/African/African American, not of Latino Origin	47.1%	507[**]

White, not of Latino Origin	20.6%	222[++]
Other	1.9%	20
Race/Ethnicity Unclear (indeterminate)	0.4%	4
Total	100.1%	1074

[*]Of determinable race or ethnicity (see next note).

[$]Percentage is approximate because the number of individuals of a given race or ethnicity could be more than indicated in the right column. The reason for "approximate" is as follows: In cases of "Individual" sessions with multiple participants and the quantity of participants recorded equaled or exceeded the quantity of perceived races or ethnicities, the entries do not all specific determination of the number of individuals of any given race or ethnicity. For example, in a hypothetical session of 8 participants, race/ethnicity designations were (A) Latino, (B) Black/African/African American not of Latino Origin, and (C) White, not of Latino origin. Here from one to six Latinos could be present. In this table, the "Number" column includes at least the minimum number of that racial or ethnic group that had to be present. Thus, both the number column and percentages are approximate. See related notations below regarding each racial or ethnic number.

[#]At least 3 individuals were Native. At least 3 individuals were American Native or Alaskan Native when the number of participants exceeded the number of races or ethnicities listed. No Individual Education Sessions involving a single participant had American Native or Alaskan Native recorded.

Our experience in metro Omaha, Nebraska, USA, shows that eight (8) skilled CHWs had substantial outreach success in promoting COVID-19 and influenza vaccination among especially L/H, B/AA, and White community members. Chronic diseases were emphasized as important reasons for vaccination. Over ten (10) months, they educated 5,196 individuals, held 635 educational sessions, and referred 321 persons for services. Reflecting their hard work, the CHWs held 29 large and 80 small group sessions, plus 419 individual educational encounters. After enhancing CHW education and training in the program's first three weeks, monthly meetings further enhanced CHW learning and interpersonal support through mutual sharing and leader updates. The lead instructor and coordinator (author EE) was available through emails and phone calls to answer questions, address technical issues, and ensure digital encounter data recording through their mobile devices. We suggest that such leader availability creates significant comfort among CHWs. They know they can get helpful advice when needed. Lx/H and other populations may experience adverse mental health consequences related to COVID-19.

For Lx/H, Garcini and colleagues note community needs and related CHW educational and training requirements. However, ProUD CHW education and training did not include a specific mental health component [17,18]. But our previous CHA programs included the scope of mental health issues and strategic responses. Some mental health issues emerged during scheduled ProUD CHW reporting sessions. Participating CHWs and program leaders then considered possible CHW responses for future encounters. However, ProUD CHW encounter forms did not require recording mental health issues. We conclude that assessments of community mental health issues should inform future CHW education, training, and outreach. Sometimes, such as with the COVID-19 pandemic, rapid emergence of new mental health stressors may initially preclude a detailed needs assessment. However, focus groups can be quickly formed and contribute valuable information. Also, given potential mental health challenges among CHWs, our future programs (and others when needed) should include more education and training components to enhance CHW mental health well-being. The ProUD project demonstrates how sustained programs of educating and training CHWs enables quickly responding to new community needs and funding opportunities. In this instance, CPHHE recruited a subgroup of eight (8) ProUD CHWs from existing community CHWs that CPHHE had already (1) educated and trained and (2) coordinated in prior COVID-19 prevention and vaccination promotion work. These CHWs' prior community experience enabled them to rapidly enhance new community outreach especially regarding COVID-19 and influenza vaccination. Further, the CHWs already knew how to craft their words and approaches to match their communities.

Limitations

ProUD lacked funding to support assessing (1) how many individuals were consequently vaccinated and (2) granular details of specific CHW encounters, including mental health aspects. The race and ethnicity demographics are only approximate for reasons Table 3 addresses.

Conclusion

This paper summarizes a CHW project in Omaha, Nebraska to enhance B/AA and H/L vaccination uptake for COVID-19 and influenza: ProUD. The Creighton University Center for Promoting Health and Health Equity (CPHHE) developed a curriculum that built on the CHWs' existing expertise and COVID-19 competencies, adding an influenza vaccination focus. CPHHE then coordinated CHW community activities, reporting, and meetings from November 2022 through August 2023. CHWs used a digital interface to detail community encounters. The project demonstrated how continued support of a cadre of CHWs facilitates taking advantage of new funding opportunities for community benefit. Monthly CHW and program leader meetings were important in identifying new CHW informational needs, further informing CHWs about vaccine and vaccination myths and misunderstandings, and mutually discussing communication strategies with community members. Narratives or stories about CHW community experiences informed those strategy discussions. Monthly meetings were also opportunities to increase CHW

understanding of chronic diseases and their management. Enhancing review of community member and CHW mental health issues, prevention approaches, and strategic response would be a useful addition.

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Conflict of Interest

Authors have no conflicts of interest to declare.

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