


# A Multicomponent Health Education Campaign Led by Community Health Workers to Increase Influenza Vaccination among Migrants and Refugees

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## Abstract

**Objectives:** To evaluate the impact of a Community Health Worker (CHW)-led influenza campaign on knowledge and attitudes about vaccination in Latinx migrant and refugee populations. **Methods:** Twelve online workshops were conducted with 183 participants and 24 CHWs between January 12 and May 12, 2021. Participants were Latinx families living in underserved communities throughout Washington state. The initiative also included radio, animated videos, advertisements, social media, and educational materials. **Results:** Analysis of pre and post workshop surveys from 155 participants showed statistically significant improvements in all questions about the definition of influenza, symptoms, and risks; and in 7 of 9 questions about treatments and vaccines. Analysis of 2 open-ended questions showed increases in words key to understanding influenza, such as “virus,” “illness,” “death,” and “contagious.” There were significant increases in rates of participants identifying vaccination and antibiotics as cures for influenza. **Conclusions:** CHW-led workshops can be an effective way to increase knowledge about influenza and influenza vaccine. Future curriculum should emphasize the difference between viruses and bacteria, and the use of vaccination for prevention as opposed to treatment for illness.

## Keywords

influenza vaccine, CHW model, virtual workshops, media and social campaign, health education, health literacy, health promotion, community health, migrant population, Latinx

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## Introduction

Influenza vaccination is the most effective way to prevent illness and serious influenza-related complications, but as with numerous health issues, disparities in vaccination rates exist among racial and ethnic minority groups in the United States. Nationwide, 59.3% of Latinx adults 65 and older received the influenza vaccine in the 2019 to 2020 flu season, compared with 71.9% of non-Latinx whites.<sup>1</sup> Among adults 18 years and older, the vaccination rate was 38% in Latinx or Latinx persons compared with 48% overall (2019-2020).

In Washington state, 53% of Latinx persons aged 6-months and older received an influenza vaccine. This is better than the national average (47%) but continues to lag behind the non-Latinx white populations in Washington (57%). These differences persist despite an innovative

community based “Knock Out Flu” campaign launched in early fall of 2015 which targeted increasing vaccination rates in all age groups.

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Nationwide, several factors contribute to lower vaccination rates in racial and ethnic minority groups, such as distrust of the medical care system due to experiences with discrimination<sup>2,3</sup> and a history of medical experimentation.<sup>2</sup> Racial and ethnic minority adults are also less likely to have health insurance and a regular source of health care,<sup>3</sup> and compared with non-Latinx whites, Latinx workers are less likely to have any type of paid medical or family leave.<sup>4</sup>

In 2020, the Washington Department of Health continued its community-focused approach to promoting flu vaccination, by providing grants to community-based organizations. This paper describes the work undertaken to promote flu vaccination by one of those community-based organizations, Community Health Worker Coalition for Migrants and Refugees (CHWCMR), working with migrants and refugees from Latin America. CHWCMR is a 501c3 statewide organization in Washington State. Its mission is to increase the capacity and competencies of CHWs to meet the needs of underserved communities by creating sustainable opportunities, implementing innovative solutions, and cultivating productive partnerships. A key element of the campaign is CHWs who conduct outreach efforts and lead educational workshops with members of their community designed to increase the flu vaccination rate in migrant communities.

“Community Health Worker (CHW)” describes many peer-to-peer public health education and patient activation positions.<sup>5</sup> CHWs address a variety of health topics by raising awareness, dispelling misinformation, providing reminders, offering social support, and linking community members to a service. These activities have been used to increase vaccination rates; however few studies are available to demonstrate their effectiveness. In one CHW initiative at a university in the United States student vaccination rates increased by 66% to 85%.<sup>6</sup> A CHW led influenza vaccination intervention with a predominantly low-income, Latinx, immigrant participants resulted in successfully vaccination of 22% of participants with no control group for comparison.<sup>7</sup> A similar program provided an “immunization navigator” for adolescents to provide follow-up calls. Rates of successful immunization by the end of the program were 44.7% for the group given a navigator and 32.4% for the control group.<sup>8</sup> In Virginia, a community-based service approach with CHWs provided bilingual services and addressed the unique access needs of community members, such as localized services and weekend appointments has been credited with helping the Latinx population become the second most vaccinated group for COVID-19.<sup>9</sup>

These examples demonstrate the importance of using trusted partners that understand the needs of communities being served. However, little is known about how such a CHW-led influenza vaccination initiative impacts knowledge and attitudes about vaccination in Latinx migrant populations. The purpose of this study is to add to this limited

literature on CHW vaccination promotion campaigns by describing a multimedia campaign and presenting evaluation results both from the campaign and from a pre/post survey of workshop participants.

## Methods

### Program Description

CHWCMR supported CHWs who developed a multimedia campaign to increase knowledge in their migrant and refugee communities in Washington State about understanding influenza and the importance of getting an influenza vaccination. More than 60 CHWs participated in this campaign to develop flyers, Instagram, infographic, animated videos, PSA, and radio spot to use and share medical-evidence information about the benefit of Influenza immunization gathered from CDC and WA DOH guideline. Graphic 1 lists the materials produced and the audience reach of the multicomponent campaign. Because the campaign occurred during the COVID-19 pandemic, it included information about preventive measures such as social distancing, hand washing, and using face masks. Other elements of the campaign included: CHW-produced videos to advocate for the influenza vaccine among migrants and refugees; radio spots; advertisements (eg, car bumper stickers and yard signs); social media posts; and an array of educational materials for distribution. Bumper stickers were distributed by CHWs, and yard signs were posted at businesses, cars, community organizations, and the houses of CHWs across 6 counties in Washington state.

The educational materials designed by 3 CHWs, included banners, infographics, brochures, flyers, and posters. Three CHWs produced 3 radio spots for a Spanish language public radio. These spots were played for 1 month. These radio spots were also played every hour on the “Los Originales CHW Radio” a virtual radio: Los Originales CHW Radio | CHWCMR ([chwcoalition.org](http://chwcoalition.org)). Programs produced for the radio were also broadcast live on Facebook, YouTube, and Twitch with a reach of 90 to 556 social media users per episode. In addition, a video about influenza was produced by 2 CHWs for social media. In addition, 300 printed handheld fans were distributing at community events such as soccer games and vaccination events.

A key part of the campaign was a series of CHW-led community facing workshops focused on the importance of getting the influenza vaccine. The workshop curriculum included: understanding influenza as a viral illness, symptoms and signs of influenza and COVID-19, its complications, how it is spread, available treatments, and the benefits of vaccination in addition, each participant received information about where they can go to get vaccinated. Each 2-h virtual workshop was facilitated by 2 CHWs. All participants were recruited by CHWs from their local community

**Table 1.** Age, Smoking, Chronic Conditions.

Question	Pre	Post
<b>Age</b>		
<30 years	23.90%	
30-39	27.1	
40-49	29	
50+ years	20	
<b>Smoking, chronic conditions</b>		
Current smoker	5.20%	3.90%
Asthma	6.8	7.4
COPD	3.4	2
Obesity	7.4	7.4
Diabetes	9.5	7.4
Renal insufficiency	0.7	0
Cancer	1.3	2
Liver disease	1.4	0.7
Neuromuscular disease	0.7	0
Anemia	7.4	7.4
COVID-19	13.5	12.2
AIDS	0	0

which have a high concentration of Latinx migrants and refugees. Each participant consented to participate in the workshop and complete the pre and post surveys. At the conclusion of each workshop, each participant received \$100, while each CHW who led the workshop received a stipend of \$200.

CHWCMR trained 24 CHWs to facilitate the workshops; 6 to create radio spots; 3 to create videos; and 10 to distribute the banners, brochures, flyers, and posters, as well as design the media campaign distributed on YouTube, Facebook, Twitter, LinkedIn, and the organization's website.

### Design and Data Collection Methods

A survey was designed for administration before and after each workshop to assess participant knowledge about influenza and influenza vaccinations. The survey was administered by phone with the CHW who led the participant's workshop both before and after the workshop.

The survey included questions about describing characteristics of the participant such as age, gender, and chronic conditions, questions about their knowledge of influenza (eg, symptoms, groups most at risk), and questions about the influenza vaccines (eg, methods of administration). Response options to the question included yes or no answers, multiple choice, and open-ended questions. Open-ended responses were translated from Spanish to English, reviewed for errors and duplications, and then coded by one researcher. Descriptive statistics and paired *t*-tests for the knowledge questions were conducted using Stata.<sup>13</sup>

## Results

### Multimedia Campaign Reach

Mass media campaigns are widely used to expose high proportions of large populations to messages through routine uses of existing media, such as television, radio, and newspapers. Our multimedia influenza campaign reached more than 10 000 social media users on Facebook; 3900 website visitors; more than 800 influenza page visitors; and over 500 connections on LinkedIn. Radio KDNA's audience was more than 50 000 people during the campaign. Programs produced for Los Originales CHW Radio are also broadcast live on Facebook, YouTube, and Twitch with a reach of 90 to 556 social media users per episode. Both the CHWs and the participants shared the radio media with 10 people each resulting in a total of 2070 shares.

### Workshops

Twelve workshops were conducted with a total of 183 participants led by 24 CHWs between January 12, 2021 and May 12, 2021. Pre and post surveys were completed with 155 workshop participants (85% response rate). The age distribution and chronic disease status are shown in Table 1. The majority of survey respondents (56%) were in their 30s and 40s, with relatively low rates of smoking (5% at baseline) and few chronic conditions. Thirteen percent of respondents reported having had COVID-19.

Pre-post survey results around knowledge of influenza symptoms and the populations at greatest risk are shown in Table 2. All pre-post improvements in knowledge were statistically significant. For over half of the questions (8 of 15) the amount of increase in knowledge was greater than 10%. Areas of knowledge with particularly large increases included: children less than 6 months are a high-risk group, which increased from 78.9% to 92.9%, and identifying vomiting and diarrhea as flu symptoms, which increased from 64.5% to 91.6%.

Knowledge questions related to influenza cures and vaccines are shown that the pre-post increase in knowledge was statistically significant for 7 of the 9 questions. All questions but one showed pre an increase of greater than 10%. Of particular note, the proportion of participants who identified vaccination as effective for influenza increased from 29% to 47.7%. However, participants who identified antibiotics as a cure for influenza increased from 44.5% to 58.1%, suggesting a misunderstanding of the difference between viruses and bacteria. This is an opportunity for future teaching. Knowledge of the existence of a vaccine for influenza increased from 61% to 81% and knowledge of the existence of oral influenza vaccines increased from 45% to 75%.

There were several notable changes between the pre and post surveys in response to the first open-ended question: "What is the flu [gripe] or influenza?". First, there was a

**Table 2.** Knowledge Questions.

Knowledge questions: definition, symptoms, risks, cure, vaccine		
Question	Pre	Post
Is “la gripe” and “el flu” the same illness?		**
Yes	43.20%	71.60%
No	42.6	27.1
I don’t know	14.2	1.30%
Symptoms of the flu (could check >1)		
Fever/feeling feverish, chills	90.30%	96.8%*
Cough	80	92.9*
Sore throat	85.2	94.2*
Runny or congested nose	90.3	96.1*
Body or muscle aches	84.5	95.5*
Headache	87.7	96.8*
Fatigue	83.9	95.5*
Vomiting and diarrhea	64.5	91.6*
Who are at highest risk? (could check >1)		
Children (<6 months)	78.9	93.4*
Seniors (>65)	90.1	98.7*
Medical personnel	67.1	82.2*
Child and elderly caretakers	69.7	80.9*
Pregnant women	75	90.8*
People with chronic illnesses	83.6	90.1*
How do you cure the flu? (could check >1)		
Vaccine	29	47.7*
Antibiotics	44.5	58.1*
Home remedies	52.3	30.3*
Nothing	7.7	5.2
Is there a vaccine for the flu?		**
Yes	61.3	81.3
No	27.7	16.1
I don’t know	11	2.6
What types of vaccines are there? (could check >1) (n=91)		
Nasal	45.1	75.5*
Injectable	98.4	99.2
Oral	26.7	17.6*
How many times do you have to get the flu vaccines?***		
One time per year for adults	71	61.2
Two times for children <9 years	3.2	3.2
The first and second are true	7.7	34.2
None of the above	1.3	0
I don’t know	11	0.7
Only once per lifetime	1.3	0
Every 10 years	0	0
Other	4.5	0.7

\*Statistical significance from a t-test,  $P < .05$ .

\*\*Statistical significance from a chi-square test,  $P < .05$ .

100% reduction in the response, “I don’t know,” from 5 participants to 0. Although 14 referred to influenza as “a cold” in the pre-survey, none did so in the post-survey. Additionally, there were increases in words that indicate an improved understanding of influenza such as responses that

included the words “virus” or “viral,” “contagious,” and “infectious.”

The second open-ended question is, “What topics would you like us to give in a workshop about the flu or flu vaccine?”. Compared to the pre-workshop survey, several unique topics emerged from the analysis of the post-workshop survey. These included: concern around vaccine reactions or consequences, mentions of the COVID-19 vaccine. advantages of the vaccine, educating other people, and knowing when to seek emergency treatment. In addition, analysis of the open-ended questions revealed increases in confidence and knowledge around influenza and the influenza vaccine with interest to learn more. The post-survey also inquired about participant satisfaction and shows there were generally favorable opinions of the workshops; 76% rated their workshop as “excellent” and 83% said the trainer was a “very good educator.”

## Discussion

This CHW-led intervention had a positive impact on knowledge about influenza and the vaccine. In addition, inclusion of CHWs in developing and implementing a multi-media campaign is an effective method to quickly spread trusted health information in the communities they serve. There was a bi-directional sharing of knowledge and ideas: knowledgeable CHWs developed content and messaging, and then served as trusted messengers to deliver that information to their communities through workshops, social media posts, radio interviews, blog posts, and other avenues of communication.

These results are similar published results from other CHW-led programs on other health topics such as oral health and participation in the census with demonstrated success at increasing knowledge among Latinx migrant populations in Washington State.<sup>10-12</sup> However, these results may be difficult to reproduce in other settings without strong partnerships, an existing workforce of CHWs trusted members of the community collaborating with local government, and funding. CHWCMR has strong relationships with more than 60 organizations in the state and has worked with 101 CHWs in this campaign. In addition, CHWCMR provided resources in the form of time, training, technology, and administrative support to conduct these workshops.

Another challenge was garnering interest about influenza vaccination during the COVID-19 pandemic. However, this presented an opportunity to discuss the effectiveness of vaccines to protect people against viral illnesses such as COVID-19 more broadly. Specific implications of the influenza campaign on COVID-19 vaccination might include: (1) an increased knowledge about how viral illnesses spread and can be prevented, (2) reducing vaccine hesitancy by improving the understanding of both the safety and



effectiveness of vaccines for viral illnesses, and (3) the possibility of increasing COVID-19 vaccination rates since the CDC recommends co-administration of the COVID-19 vaccine with influenza vaccine for 2021 to 2022. For the Washington Department of Health 2021 to 2022 influenza campaign, a primary message will be concurrent administration of influenza and COVID vaccines. By increasing awareness and knowledge of influenza vaccination in the 2020 to 2021 campaign described here, groundwork was laid for this messaging. Although there were no specific questions about COVID-19 asked in the survey, it is possible that the communities reached by this campaign may be more receptive to the COVID-19 vaccine. As noted in the results, a few open-ended comments requested more information about COVID-19.

The lack of a control group is a limitation. The pre-survey results, however, do reflect a change in the knowledge of individuals who participated in the CHW-led training. Opportunities for improving the content of the training include education on the distinction between bacteria and viruses, as well as the difference between disease treatment and disease prevention.

This urgent and necessary multimedia campaign<sup>14</sup> run by CHWs achieved its goal to increase influenza vaccination knowledge and understanding, a crucial ingredient in acceptance among migrants and refugees who are a hard-to-reach population with many structural barriers to vaccination including long working hours, limited English proficiency, lack of health insurance, lack of transportation, and the migratory nature of their work.

## Public Health Implications of CHW-Led Vaccination Education

Community health action should draw on the capacities of trusted members of the priority population

Health education is more effective when it is accessible, culturally sensitive, and tailored to the unique needs of the communities being served

Health education alone is not enough to create behavior change. It must be provided in combination with access to prevention services like vaccination

### Author Note

Ileana Maria Ponce-Gonzalez is now affiliated to Community Health Worker Coalition for Migrants and Refugees, Edmonds, WA, USA.

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### References

- Centers for Disease Control and Prevention. Flu vaccination coverage, United States, 2019–20 influenza season; 2020. Accessed June 14, 2021. <https://www.cdc.gov/flu/fluview/view/coverage-1920estimates.htm#additional>
- Grohskopf LA, Liburd LC, Redfield RR. Addressing influenza vaccination disparities during the COVID-19 pandemic. *JAMA*. 2020;324(11):1029-1030. doi:10.1001/jama.2020.15845.
- Artiga S, Michaud J, Kates J, Orgera K. Racial disparities in flu vaccination: implications for COVID-19 vaccination efforts. Kaiser Family Foundation. <https://www.kff.org/policy-watch/racial-disparities-flu-vaccination-implications-covid-19-vaccination-efforts/>. Accessed November 6, 2021.
- U.S. Bureau of Labor Statistics. Racial and ethnic disparities in access to and use of paid family and medical leave: evidence from four nationally representative datasets. Available from: racial and ethnic disparities in access to and use of paid family and medical leave: evidence from four nationally representative datasets: monthly labor review. U.S. Bureau of Labor Statistics (bls.gov); 2019.
- Malcarney MB, Pittman P, Quigley L, Horton K, Seiler N. The changing roles of community health workers. *Health Serv Res*. 2017;52(Suppl 1):360-382.
- Huang JJ, Francesconi M, Cooper MH, Covello A, Guo M, Gharib SD. Community health workers on a college campus: effects on influenza vaccination. *J Am Coll Health*. 2018;66(4):317-323.
- Brown LD, Vasquez D, Salinas JJ, Tang X, Balcázar H. Evaluation of healthy fit: a community health worker model to address Hispanic health disparities. *Prev Chronic Dis*. 2018;15:E49.
- Szilagyi PG, Humiston SG, Gallivan S, Albertin C, Sandler M, Blumkin A. Effectiveness of a citywide patient immunization navigator program on improving adolescent immunizations and preventive care visit rates. *Arch Pediatr Adolesc Med*. 2011;165(6):547-553.
- NPR. How Virginia improved vaccination rates among Latinx residents; 2021. <https://www.npr.org/2021/06/06/1003713835/how-virginia-improved-vaccination-rates-among-latinx-residents>. Accessed November 6, 2021.

10. Ponce-Gonzalez IM, Cheadle AD, Parchman ML. Correlation of oral health education by community health workers with changes in oral health practices in migrant populations in Washington State. *J Prim Care Community Health*. 2021;12:1-5. doi:10.1177/21501327211002417
11. Ponce-Gonzalez I, Cheadle A, Aisenberg G, Cantrell LF. Improving oral health in migrant and underserved populations: evaluation of an interactive, community-based oral health education program in Washington state. *BMC Oral Health*. 2019;19(1):30. doi:10.1186/s12903-019-0723-7
12. Ponce-Gonzalez I, Rodriguez CM, Cheadle A, Torrance S, Parchman M. Counting the unsung by promoting participation in the 2020 US Census: a survey of migrant workers in Washington State. *J Health Care Poor Underserved*. 2021;32(1):156-164. doi:10.1353/hpu.2021.0015
13. StataCorp. *Stata Statistical Software: Release 15*. StataCorp LLC; 2017.
14. Wakefield MA, Loken B, Hornik RC. Use of mass media campaigns to change health behaviour. *Lancet*. 2010;376(9748):1261-1271. doi:10.1016/S0140-6736(10)60809-4