Expanding Access to Health Care for Agricultural Workers in Rural North Carolina

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Author Note

This author declares no conflicts of interest.

Abstract

Purpose: This quality improvement project offered free hypertension screenings to agricultural workers in a single farm in rural North Carolina to gain insight into whether the participants felt that onsite screenings during working hours on the farm would improve their access to health care.

Sample: A convenience sample of 42 agricultural workers on a single farm in rural North Carolina.

Method: Over the course of 12 weeks, agricultural workers on a single rural farm were offered screenings for hypertension. Before conducting the screening, each participant completed a pre-screening survey and a post-screening survey. Demographic surveys were also completed after the screening and education had concluded. This project was deemed quality improvement via a self-assessment process; therefore, Institutional Review Board (IRB) approval was not required.

Findings: Most participants felt that onsite visits during working hours would improve their accessibility to health care.

Conclusion: Rural agricultural workers face a disadvantage in health care due to time constraints, affordability, and transportation. These social determinants contribute to a lack of health care access, which in turn affects long-term health and well-being. Providing onsite visits to agricultural workers can improve access to health care by closing the gap between these social determinants of health and accessibility.

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Background

Screening for hypertension is an essential component of primary care and for maintaining an individual's health and well-being. Without adequate and annual screenings for hypertension, an individual can develop a chronic or life-altering disease process. Rural agricultural workers often face barriers to health screenings due to transportation, medical insurance, and time. Providing personal, onsite screenings for hypertension would eliminate the need for transportation or time away from work and improve access to health care.

For this project, it is essential to understand what the term "rural" means and who the agricultural workers are. First, the term rural has been identified by the United States Census Bureau and defined by the Office of Management and Budget (OMB). The United States Census Bureau states that an area is considered rural if not urban (Ratcliffe et al., 2016, p.4). One must know the definition of urban to understand what the term rural means or how the term rural relates to a population. The OMB defines an area as urban if the population of that area consists of 50,000 people or more; therefore, any area with less than a population of 50,000 is considered to be rural.

Most agricultural farms are located in rural areas with vast amounts of farmland to grow crops or raise livestock. Most people identify with a farmer when conceptualizing who works on a farm; in reality, many other people also work on farms, including migrant workers, immigrant workers, seasonal workers, and residents. The term agricultural worker includes the farmer and everyone else who works on the farm (Rajjo et al., 2018).

Access to Health Care

Access to health care and health screenings among the agricultural population is primarily affected by transportation, availability of insurance, and time constraints (Rajjo et al., 2018). Rural North Carolina is home to a large agricultural population directly affected by lack of access to care. North Carolina's primary care physician-to-patient ratio is 1:1,410 people (Compare Counties, n.d.). In contrast, rural areas of North Carolina may only have one primary care physician for more than 4,500 people, demonstrating the need for improved access to care, especially for more vulnerable populations.

Evidence supports the need to increase the accessibility of screening for hypertension for the agricultural population due to the nature of work, stress, and risk factors encompassing the agricultural worker. Healthy People 2030 aims to decrease the prevalence of hypertension in adults to 42.6%; currently, North Carolina is at 45.7% (Office of Disease Prevention and Health Promotion [ODPHP], n.d.).

Screenings

Screening for hypertension is recommended by the US Preventive Services Task Force (USPSTF) for adults 40 years and older annually and for those with known risk factors, such as obesity, Black and Hispanic race, tobacco and alcohol use, sedentary lifestyles, and diets high in fat (Krist et al., 2021). Adults between the ages of 18-39 without risk factors for hypertension should have screenings at least once every five years unless they have an elevated blood pressure reading. The American Heart Association identifies a normal blood pressure reading as a systolic blood pressure <120 mm Hg and a diastolic blood pressure <80 mm Hg (Goetsch et al., 2021).

Providing onsite screening for hypertension to rural agricultural workers would intersect with all three of the goals of the Triple Aim. The Triple Aim’s objective is to improve patient care and the public’s health while reducing costs associated with health care (Berwick et al.,

2008). The implications associated with not screening for hypertension have resulted in poorer health outcomes (Goetsch et al., 2021). Hypertension increases the risk of developing cardiovascular disease, which can lead to myocardial infarction, congestive heart failure, and stroke. Essentially, without screening for hypertension and providing necessary education, vulnerable populations are placed at an increased risk of developing chronic diseases.

Additionally, personalized care has been shown to improve a person's experience in health care (Rajjo et al., 2018). Traveling to farms and providing onsite screenings for hypertension and education to agricultural workers during working hours will aid in improving accessibility and population health.

Purpose

This project aimed to improve agricultural workers' access to health care by providing screening for hypertension onsite during working hours. Early identification of hypertension in agricultural workers, identification of risk factors associated with hypertension, and education on ways to manage and prevent hypertension can ultimately decrease health care costs.

Literature Search

A literature search was conducted using the databases Cumulated Index in Nursing and Allied Health Literature (CINAHL) and PubMed to explore the current literature on agricultural workers, the barriers to health care access, and hypertension among this population. Search terms included: Farmers, farmworkers, agricultural worker, social determinants of health, transportation, time away from work, medical insurance, health literacy, screening for hypertension, health screenings, cardiovascular disease, hypertension, and hypertension screening. Boolean phrases were used during each search. CINAHL produced 300 related articles, but only ten were kept after inclusion and exclusion criteria were applied. The PubMed

review yielded a total of 132 articles, but only one was kept. The inclusion criteria consisted of academic articles published within five years and included only populations from the United States of America (USA). Articles were excluded if they were published for more than five years, including populations outside of the USA, or if they were unrelated to agricultural workers and their social determinants of health, or not related to hypertension or cardiovascular disease. The level of evidence varied from Evidence Levels I and above. Each article retained was read thoroughly, and further exclusions were made, resulting in a total of five final articles kept for review and synthesis.

Review of Literature

Mobile health units have been utilized in several studies and have been found to have a high satisfaction rate among agricultural workers. Tulimiero et al. (2020) conducted a study among farm workers in a rural area of California to determine if utilizing mobile health units would improve access to care for this population. It was determined that the mobile health units improved access to the farm workers of the community in more than one aspect. First, the mobile health units can move around the community and farms, allowing the health care providers to visit the farmworkers. Another study used a similar approach to bridge the gap and improve access to health care by providing health screenings onsite to farmworkers in Minnesota (Rajjo et al., 2018). Rajjo et al. (2018) and Tulimiero et al. (2020) discovered that farmworkers were more satisfied with the care they received from the onsite visits and mobile health units. It was also determined that farmworkers would be more likely to utilize these services for primary care health screenings, such as screening for hypertension (Tulimiero et al., 2020).

Providing onsite health screenings, explicitly screening for hypertension, and health promotion education for agricultural workers in rural North Carolina will close the gap in

accessing care and improve the health and well-being of the farming community. Although mobile health units have successfully improved access to care, a more personalized approach may prove even more effective.

Methodology

Model

The Plan-Do-Study-Act (PDSA) model for improvement was utilized for this project (Institute for Healthcare Improvement, 2023). A small produce farm in rural North Carolina was selected as the site to conduct screenings for hypertension, and a convenience sample of agricultural workers was obtained during each visit. During the project's implementation phase, over 12 weeks, five onsite screenings for hypertension occurred on a single farm in rural North Carolina. Utilizing the PDSA model, changes were made throughout implementation based on whether the site visits would be announced, unannounced, during the weekdays, or on the weekend. The first onsite visit was announced and completed in the produce fields on a weekday. The second visit was announced on a weekday at the packing and loading building located on the farm. The third visit was unannounced at the packing and loading building but on a weekend day. The fourth visit was unannounced at the packing and loading building on a weekday. The final visit was announced and occurred in the produce fields and at the packing and loading building on a weekday.

Data Collection

Pre- and post-Likert surveys in English and Spanish were created to gain insight into several key areas. The pre-Likert survey asked five questions and the post-Likert survey asked three questions (see Appendix for survey questions). To answer the questions, participants chose one of five: Strongly agree, agree, neutral, disagree, or strongly disagree. The responses were

anonymous, and the participants completed the surveys individually and privately. Demographic data collected included sex, ethnicity, age, and medical insurance status. Prior to screening or education, the participants completed the pre-Likert survey. Demographic and post-Likert surveys were administered after completing the screening and education. Participants did not disclose any personal identification information, and none was collected. Participants were asked to participate in only one screening and completion of one pre- and post-survey and one demographic survey only.

Screening and Education

Participants were asked to sit with both feet flat on the ground in the chair provided for five minutes before the actual blood pressure screening was completed. A manual blood pressure was obtained, and the result was shared with the participant. Safety precautions were established that if a participant had a blood pressure reading greater than or equal to 180/90, the participant would be referred to the nearest emergency room. The participants were encouraged to follow up with their primary care provider if their blood pressure was elevated. A list of local providers was available if the participant did not have a primary care provider. Education on a heart-healthy diet, exercise, and how to check one's blood pressure was then provided to the individual participants. Educational handouts about the education provided were also available for participants to take home.

Ethical Considerations

Ethical considerations for this project include the confidentiality of all participants and the farm site. All agricultural workers were provided the opportunity to participate in the free screening for hypertension and health promotion education. To ensure that the intervention was equal for all participants, a bilingual translator was present during each site visit to eliminate

language barriers. There was no potential for anyone within the target population to be taken advantage of during implementation. This project was deemed quality improvement via a self-assessment process; therefore, Institutional Review Board (IRB) approval was not required.

Results

A convenience sample of 42 agricultural workers participated in screening for hypertension. All the participants completed the pre- and post-surveys, as well as demographic surveys. Each agricultural worker participated in receiving educational instruction on ways to manage or prevent the occurrence of hypertension and how to check their blood pressure in the future after completion of their screening.

Of the 42 participants, 59.5% were male, and 40.5% were female. The majority (85.7%) were of Hispanic or Latino ethnicity. Ages ranged from 18 to 72 years or older, with 87.5% of participants reporting their age between 18 and 53 years. Only 21.4% of participants reported having medical insurance, leaving 78.6% uninsured.

Upon analyzing the pre-screening survey, 52.4% of the agricultural workers reported not being established with a primary care provider. 28.6% reported not having access to a healthcare provider within 15 miles of their home, while 71.4% reported having access to a healthcare provider within 15 miles. Only 16.7% did not feel that they had a reliable source of transportation. 21.4% did not feel they could afford to see a healthcare provider, and 28.6% felt they did not have enough time.

According to the post screening survey, 95.2% of the participants felt that onsite visits during working hours would improve their access to healthcare, with only 2.4% in disagreement. Most participants, 90.5%, would like access to more primary care screening services at their job sites. Lastly, 100% of all participants felt comfortable attending the hypertension screening.

None of the participants were identified as being hypertensive during the screenings. There was one participant who disclosed a diagnosis of hypertension and reported being prescribed daily medication for treatment. Several of the participants were identified as being pre-hypertensive, but this data was not collected for this project.

Implications

Findings

Barriers to accessing healthcare include and are not limited to transportation, time away from work, and affordability (Tulimiero et al., 2021). The responses collected from the pre-screening surveys of the hypertension screenings determined that less than half of the participants felt that time and affordability impacted their ability to see a health care provider. Interestingly, Soto et al. (2022) discovered that all barriers to accessing health care are unequal across the USA. Barriers to health care are significantly impacted by the region of the country in which one lives. North Carolina is situated in the Northeast region of the United States of America, and the language barrier is more prominent than in others (Soto et al., 2022). The language barrier proved to be the most significant barrier during the implementation of the project. The majority of the participants spoke only the Spanish language. Being fluent or having a Spanish translator onsite during implementation was imperative. Unfortunately, the pre-screening survey did not ask if spoken language affected health care provider access.

Evidence also supports the need for change in health care delivery to agricultural workers. Mobile health clinics have improved access to health care and pertinent health screenings among this vulnerable population (Rajjo et al., 2018). Therefore, going to the farm and visiting the agricultural workers during working hours was determined to be beneficial in improving the agricultural workers' access to health care, as 95.2% felt this way, according to the

post-Likert survey. These results closely mirror the study conducted by Rajjo et al. (2018) in that onsite visits would benefit the agricultural worker and positively impact rural agricultural workers in expanding access to care.

Limitations

Limitations identified throughout this project included timing, sample size, language barriers, and literacy. The harvest season had yet to begin when the initial implementation phase began. A few agricultural workers were onsite and willing to participate during this time. As time went on and the harvest was underway, more agricultural workers were available, but the sample size remained relatively small (n=42). Implementing this project at only one farm site limited the sample size.

Additionally, the language barrier was a significant limitation to this project. Although there was always a Spanish translator available during the screenings, it was discovered that some of the agricultural workers spoke a language other than Spanish. The few participants that spoke a language other than Spanish or English were from Central America, and the interpreter believed it to be a Mayan language. Literacy levels were also a limitation because some surveys had to be read to the participants. Hence, this could have introduced bias into the survey results.

Finally, the wording of the pre- and post-Likert surveys should have been written at a lower literacy level for clarity, and the answers should have been simplified to three choices instead of five. Using terms such as a doctor, other than "primary care provider" or "health care provider," would have been easier for the naïve reader to understand.

Sustainability

Going forward, this quality improvement project could be reproduced and expanded upon for future scholarship. Offering additional preventative screenings and educational opportunities

would have a positive impact on the health of the rural agricultural workers. Utilizing an interpreter service that has access to multiple languages would be necessary to eliminate the language barrier. It would also be important to simplify the terminology used in the pre- and post-surveys to decrease confusion. Limiting the answer choices to only three answers to choose from would allow for concise responses.

Conclusion

Transportation, time, accessibility, and language barriers affect health care access for rural agricultural workers in North Carolina, decreasing opportunities for preventative screenings. Preventative screenings, such as hypertension screening, are necessary to prevent developing chronic diseases. Cardiovascular disease is prominent in rural areas of North Carolina (Samuel-Hodge et al., 2020). Providing routine screening for hypertension and education on health promotion strategies can improve the health and well-being of vulnerable populations such as agricultural workers. By providing onsite visits for hypertension screenings to the rural agricultural workers, their access to health care would be improved by eliminating time away from their jobs and the need for transportation. In addition, fluency in Spanish or having a Spanish translator is also necessary to close the language barrier gap in rural North Carolina. In conclusion, this project aligned with the literature findings in that providing onsite screenings increases access to health care for rural agricultural workers and opens the door for future endeavors.

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Appendix

Pre- and Post-Likert Surveys

Pre-Likert survey questions:

1. I am established with a primary care provider.
2. I have access to a health care provider within 15 miles of my home.
3. I have a reliable source of transportation.
4. I can afford to see a healthcare provider.
5. I have time to go and see my healthcare provider.

Post-Likert survey questions:

1. I would like to have access to more primary care screening services at my job site.
2. I felt comfortable attending the blood pressure screening.
3. I feel that onsite visits during working hours will improve my access to health care.