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## Education for Limited English Proficiency Parents to Enhance Student Influenza Vaccination Rates

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Education for Limited English Proficiency Parents to Enhance Student Influenza Vaccination Rates

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## Abstract

Influenza is a significant public health concern, especially among pediatric populations who are at increased risk of severe illness and complications. Despite strong recommendations from health authorities, vaccination rates among children in the United States are declining, with notable decreases in Vermont. Vaccine hesitancy, particularly among parents with limited English proficiency (LEP), contributes to this trend. This quality improvement (QI) project aimed to enhance accessibility to educational materials for parents with LEP to reduce vaccine hesitancy and improve influenza vaccination rates among students at a public school-based flu clinic in Vermont. An infographic containing evidence-based information on influenza vaccination benefits, safety, and efficacy was developed at a 5th-grade reading level and translated into Spanish and French. The infographic and reminders via emails, text messages, and automated voice calls were distributed to parents before and during the school-based flu clinic. Vaccination data were collected during three clinic days in the Fall of 2024, and a post-clinic parental survey evaluated the impact of the educational materials. In 2024, 153 students received the influenza vaccine at the school-based flu clinic, a 50% increase from 2023. Post-clinic surveys indicated that all participating parents found the infographic easy to understand, and the majority reported that it positively influenced their knowledge and decision to vaccinate their child. This project demonstrated that expanding access to multilingual educational materials may positively impact parental attitudes toward influenza vaccination and improve vaccination rates. These findings support implementing culturally and linguistically inclusive communication strategies to enhance vaccine uptake in school settings.

*Keywords:* Influenza Vaccine, School-based Clinics, School-age, Vaccine Hesitancy, Limited English Proficiency, Vaccine Promotion

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## Introduction

Infectious diseases have consistently posed a tremendous threat to public health throughout history, with influenza being one of the primary challenges due to its high transmissibility and potential risk for severe short-term and long-term outcomes (CDC, 2023a). With the influenza virus's ability to rapidly mutate and form new strains, developing reliable and effective vaccines is a cornerstone for preventative healthcare strategies worldwide. Influenza, commonly known as the "flu," is a contagious respiratory illness, usually uncomplicated in healthy people. However, it can be associated with severe morbidity and mortality in vulnerable groups. Certain age groups, such as children, are at higher risk of developing severe complications from influenza, such as pneumonia, bronchitis, and sinus infections, leading to hospitalization or even death (Bambery et al., 2017).

Annual vaccination is one of the best preventive measures against influenza, helping protect individuals from infection and reducing the severity of symptoms if infection occurs. The Centers for Disease Control and Prevention (CDC), Advisory Committee on Immunization Practices (AICP), and American Academy of Pediatrics (AAP) recommend that all individuals six months of age and older receive an annual influenza vaccine (CDC, 2023c). Reports indicate that when the influenza vaccine viruses match the circulating ones, the vaccine has been shown to reduce the risk of medical care by 40% to 60% (CDC, 2023b). During the 2019-2020 influenza season, influenza vaccination prevented an estimated seven million influenza illnesses, three million influenza-associated medical visits, 100,000 influenza-associated hospitalizations, and 7,000 influenza-associated deaths (CDC, 2023b). Despite the strong recommendation for vaccination, influenza continues to be one of the leading public health concerns in the U.S. It is estimated that between 2010 and 2022, there were 100,000 to 710,000 hospitalizations and 4,900

to 52,000 deaths annually in the United States due to influenza (CDC, 2023). Influenza infection rates are highest among children under 18 years old, estimated between 20% and 30% (National Foundation for Infectious Diseases, 2023). During the 2022-2023 influenza season in the U.S., the vaccine uptake rate was 57.4% for ages 0-17 years old, while the rate was 63.7% in 2019-2020 (CDC, 2023d). This represents a 6.3% decrease within four years. In the state of Vermont, the rate of influenza vaccination for children 5 to 17 years old is also decreasing. Data from the Vermont Department of Health (VDH) reports that during the 2023-2024 influenza season in Chittenden County, the influenza vaccination rate was 51% among children ages 5 to 12, reflecting a 9% decrease from the average of the past three years (VDH, 2024). Preventing infections is one of the most effective methods to reduce economic burden on patients and the healthcare system (CDC, 2023b). Therefore, prioritizing immunization is essential. The Healthy People 2030 goal aims for an annual influenza vaccination rate of 70% for everyone six months and older (OASH, n.d.).

A study by Szilagyi et al. (2019) reported that half of U.S. school children remain unvaccinated yearly. Several reasons exist, including parental vaccine hesitancy (Kempe et al., 2020). The World Health Organization (WHO) has identified vaccine hesitancy as one of the ten leading threats to global health that requires immediate attention because it “threatens to reverse progress made in tackling vaccine-preventable diseases.” (WHO, n.d. para. 26). Vaccine hesitancy can be defined as a state of uncertainty or opposition towards receiving vaccinations. A survey was conducted in 2019 to assess the national prevalence of U.S. parental vaccine hesitancy around routine childhood and influenza vaccinations. After surveying 2,175 parents, stepparents, and foster parents of children aged 6 months to 18 years old, Kempe et al. (2020) concluded that one in four U.S. parents is hesitant about the influenza vaccine, one in eight

parents is concerned about its safety, and three out of four believe that the influenza vaccine is ineffective. This survey shows that vaccine hesitancy is prevalent in the United States, particularly for influenza vaccines, and poses a barrier to influenza vaccination.

Common reasons for hesitancy include gaps in knowledge, insufficient awareness, and understanding of the importance of influenza vaccination (Price, McColl, & Visram, 2022). This is particularly relevant among the refugee, immigrant, and migrant (RIM) population in the United States. A recent systematic review conducted in 2022 showed that influenza vaccination rates were 25% lower in foreign-born than in US-born participants (Daniels et al., 2022). The study also found that limited experience with vaccines and low health literacy are significant barriers to engaging RIM populations, affecting their understanding of the importance of vaccination (Daniels et al., 2022). Nippak et al (2024) conducted an online cross-sectional survey, and they found that enhancing access to reliable and accurate vaccine information in multiple languages and dialects can help increase awareness about COVID-19 vaccinations within the Black, Indigenous, and people of color (BIPOC) communities. Another study also found that reminders for parents and educational initiatives have increased influenza vaccination rates at school-based influenza clinics (Szilagy et al., 2019). According to Zhou et al. (2020), education methods via messages and letters effectively improved students' influenza vaccination rates. When school-based influenza clinics are combined with reminders that include educational materials about the benefits of the influenza vaccine, accessibility improves and raises awareness for the importance of vaccination. Receiving an influenza vaccine has been shown to reduce influenza illness, doctor's visits, and missed school days and decreases the risk of hospitalization and death in children (CDC, 2024a).

### *Problem Statement*

Influenza vaccination rates are declining in the pediatric population in the U.S., which is a well-known high-risk population for severe infection and complications. In Vermont, specifically Chittenden County, current influenza vaccination rates have declined by 9% among children aged 5 to 12 and 11% among those aged 13 to 17 compared to the average rate over the last three years (VDH, 2024). In 2020, a local health network established a school-based influenza vaccination program for a pre-kindergarten (pre-k) to 12<sup>th</sup>-grade public school in Vermont to increase community access. However, vaccination rates at the school-based influenza clinic have remained steady and have not increased over the past four years. While many parents may recognize the importance of the flu vaccine, various barriers and misconceptions still exist, including concerns about the vaccine's safety and efficacy, leading to hesitancy and an overall lack of awareness and understanding of the importance of vaccinating (Kempe, 2020).

### *Purpose Statement*

This quality improvement project aimed to enhance the accessibility of educational materials for parents with limited English proficiency (LEP). This effort was designed to reduce vaccine hesitancy and ultimately increase influenza vaccination rates among school-age students at the school-based flu clinic. This QI project focused on creating and providing informational materials that are accessible to all parents, especially LEP parents, to enhance their understanding of the influenza vaccine. These materials were presented through an infographic and distributed via various methods, including school-based emails, electronic newsletters, and text messages.

### *Rationale*

Obtaining an influenza vaccine has been shown to reduce influenza illness, doctor's visits, missed school days, and decrease the risk of hospitalization and death in children (CDC, 2024a). Increasing influenza vaccination uptake in children, especially within a school-based setting, will protect children from severe flu-related complications and decrease the spread of the disease into the community (Munoz & Morven, 2023). Children's immature immune systems lead to more vulnerability and infection susceptibility. Therefore, by providing precise and accessible information, this project aimed to equip parents with the knowledge and confidence to choose influenza vaccinations for their children.

### **Project Specific Aims**

1. The global aim of this QI project is to decrease influenza illness, morbidity, and mortality by increasing vaccination rates in Vermont, aligning with the Healthy People 2030 goal of 70%.
2. The primary aim of this project is to increase accessibility to educational materials for all parents at the school and to enhance understanding of the benefits of influenza vaccination.
3. The secondary aim of this project is to increase the influenza vaccination rate among students aged three to 18 at a school-based clinic by 10% by December 31, 2024.

### **Conceptual Framework**

Nola Pender's Health Promotion Model (HPM) is based on a social cognitive theory that aims to promote health by understanding and addressing individual and environmental factors that affect health behaviors (Pender, 2011). HPM's goal is to assist individuals in making

behavior changes that will improve their health outcomes and prevent and minimize their disease risk. The model aligns with this QI project's aim of decreasing influenza vaccine hesitancy and increasing vaccination rates. It provides a framework for understanding and addressing factors influencing health behaviors, including vaccination. The HPM focuses on three major concepts: individual characteristics and experiences, behavior-specific cognitions and effects, and behavior outcomes (Pender, 2011). These three components are the driving force for interventional content and strategies for health promotion, like preventative care. Applying this model to vaccination highlights an individual's specific factors, like perceived benefits and barriers to accepting the vaccine. Understanding these characteristics can help tailor communication strategies to promote and increase influenza vaccination rates. The HPM also emphasizes the importance of self-efficacy; increasing knowledge and building confidence in vaccine safety and efficacy might decrease parent hesitancy and increase vaccination rates.

### **Appraisal of The Literature**

Influenza vaccination has proven to be the most effective way to control and prevent the disease, and according to the CDC, it has reduced childhood morbidity and mortality (CDC, 2023b). However, the influenza vaccination rate within the pediatric population continues to decline. Many barriers prevent the pediatric population from receiving the vaccine, one of which is parental hesitancy regarding its effectiveness and safety. Many different strategies and interventions have been conducted to improve vaccination uptake. This literature review examined the benefits of influenza vaccination, barriers to vaccination, and various approaches to increase vaccination rates among different age groups.

### ***Benefits of the Influenza Vaccine***

As of March 8, 2024, the CDC reported 103 flu-related deaths in children in the U.S., and almost 90% of these children were not vaccinated against influenza (CDC, 2024b). Out of 103 pediatric deaths, 98 children were eligible for vaccination. This is alarming because most flu-related deaths in children each season occur among those who have not been fully vaccinated as recommended. (CDC, 2024b). A recent systematic review and meta-analysis by Kalligeros et al. (2020) evaluated 28 studies worldwide and confirmed that influenza vaccination offered significant protection against any influenza-related pediatric hospitalization. They also found that the influenza vaccine's effectiveness was high in children under 5 years old at 61.71% and in children 6 to 17 years old at 54.37% (Kalligeros et al., 2020). Another study performed recently by Adams et al. (2024) analyzed emergency department or urgent care encounters or hospitalizations at three health systems in the US among children and adolescents aged 6 months to 17 years who had influenza molecular testing and found that vaccination reduced the risk of influenza-associated emergency department or urgent care encounters and hospitalizations by almost half (40-48%).

### ***Barriers to Vaccination***

Kempe et al. (2020) conducted a national survey in the U.S. to identify the prevalence of hesitancy and the factors driving hesitancy for routine childhood and influenza vaccination. This descriptive study concluded that 6.2% of U.S. parents are hesitant about routine childhood vaccines, and 25.8% are hesitant about influenza vaccines. They found that the main reason for hesitancy surrounding routine childhood vaccinations is safety concerns, while for influenza vaccination, it is primarily due to the perception of low vaccine effectiveness. Three out of four

U.S. parents believe the influenza vaccine is ineffective (Kempe et al., 2020). The study also evaluated sociodemographic factors with hesitancy and found a significant association with hesitancy for routine childhood and influenza vaccines in respondents of lower educational levels and household income less than 400% of the federal poverty level (Kempe et al., 2020).

### ***Improving Influenza Vaccination Rates***

Szilagyi et al. (2020) conducted a randomized controlled trial to evaluate whether vaccine clinics in schools could increase influenza vaccination rates. After evaluating 36 schools across six suburban school districts in Monroe County, New York, the study found that combining parent reminders and education with a school-based influenza clinic led to a 3.4% increase in vaccination rates compared to schools without such clinics. The educational methods used in this study included a YouTube link to a CDC video highlighting the importance of influenza vaccination and an infographic informing parents about the burden of influenza disease and the safety and effectiveness of the vaccine.

Lee et al. (2020) also conducted a randomized controlled study to examine whether mobile applications may improve influenza vaccination rates. This study included participants aged 18 to 65 in a large national health plan called Humana. All messaging interventions were delivered through the Humana mobile application. As members of Humana, all participants were eligible to receive a flu vaccination at no cost through the health plan. The study concluded that using a mobile platform and sending simple vaccination reminders increased influenza vaccination rates by more than one percent. “The CDC estimates that even a modest 1% increase in influenza vaccination rates, could avert 96,600 illnesses, 46,400 medical visits, and 1390 hospitalizations” (Lee et al., 2020, para. 3.). The study emphasized the benefits of this intervention being

relatively inexpensive based on the already existing mobile patient portals by most healthcare systems and insurance companies.

Zhou et al.'s (2020) study, called "Effectiveness of Educational Intervention on Influenza Vaccine Uptake: A Meta-Analysis of Randomized Controlled Trials," is a meta-analysis of randomized controlled trials that evaluated interventions such as education by messages and letters in correlation with improving the influenza vaccination rate. After evaluating eight RTCs with 21,523 cases, the study found that education through messages and letters improved influenza vaccination rates and could be more efficacious when combined with convenient vaccine access (Zhou et al., 2020). The educational materials in the studies primarily centered on the safety and efficacy of the influenza vaccine, with a specific focus on its benefits for children and older adults.

In summary, these seven articles underscore the vital role of the influenza vaccine in protecting children and adolescents while exposing parental vaccine hesitancy as a significant obstacle (Kempe et al., 2020). The evidence highlights the urgent need for targeted educational efforts to dispel misinformation and reinforce the vaccine's safety and efficacy. Additionally, implementing robust strategies, such as reminder systems and improved access to vaccination, is essential to increasing uptake. Boosting vaccination rates among school-aged children not only curtails illness and absenteeism but also mitigates severe influenza-related complications, ultimately reducing morbidity and mortality on a broader scale.

### **Intervention**

A quality improvement project was developed and implemented at a public school from Pre-K to 12th grade in Vermont to reduce the risk of influenza and the potential morbidity and mortality associated with the disease. The team involved in implementing this project included

the project manager, the project advisor, a pediatrician, a nurse practitioner (NP), the nurse manager, and the school communication leader and liaisons.

### **Ethical Concerns**

Before implementation, this project was reviewed by the University of Vermont Institutional Review Board (IRB) and was classified as a quality improvement project, not "research." Before this initiative, no educational materials, text messages, or social media reminders were provided to parents about the benefits and importance of the influenza vaccine. All information was provided in English, with no translations, except for automated voice messages informing LEP parents that influenza vaccinations would be available at the school-based health clinic (SBHC). Evidence from the literature strongly advocates using parental reminders and educational interventions to increase childhood vaccination rates.

### **Methods**

An infographic pamphlet, including other educational materials (YouTube videos), was created to explain the safety, benefits, and effectiveness of the influenza vaccine. The pamphlet was written at a 5th-grade reading level (age 10-11) to enhance comprehension across a wide range of literacy levels (Morony, 2015). ChatGPT, a generative artificial intelligence computer program, was used to ensure the content was appropriately tailored to the target reading level. The infographic incorporated reliable and evidence-based information from the CDC, WHO, and AAP.

At the public school where this project occurred, 57% of the students identified as BIPOC, and 33% received multilingual services. Research has shown the importance of adapting

parental education to meet diverse populations' cultural and language needs (Harmsen et al., 2015; Essa-Hadad et al., 2024). A key focus of this project was to create materials that are inclusive and accessible for parents, particularly those who have limited English proficiency (LEP).

With the help of school liaisons, the infographic was translated into two languages commonly spoken by the students' parents at this public school: French and Spanish. The infographic was then beta-tested with parents to ensure the information was clear and easy to understand, especially in their native languages. Beginning September 26, 2024, the infographic with QR codes for educational videos was included in the weekly newsletter.

Reminders to receive the influenza vaccine at the school-based clinics were sent weekly for seven weeks via email, social media postings, automated telephone messages (in multiple languages), and text messages, both before and during the three scheduled vaccination dates at the school health clinic.

### **Data Collection**

A comprehensive Microsoft Excel spreadsheet was used to organize and account for students in grades pre-K through 12 who received the influenza vaccine at the school-based influenza vaccination program during Fall 2024. The data included the date of the influenza vaccine and the student's age. This data was collected throughout the three vaccine clinic days offered in October and November 2024. The data was safely stored in a password-protected Excel spreadsheet, which could only be viewed by the project manager, the pediatrician, and the SBHC nurse manager.

## **Measures**

The outcome of this project was determined by the number of students who received the influenza vaccine during the school-based influenza vaccination clinical days. The number of students vaccinated and their ages were recorded. The data was compared to the data from the four years since the start of the influenza clinic at this public school. The percentage of vaccinations administered over the five years was analyzed.

The dependent variable of this QI project was the number of influenza vaccinations among the students at this specific public school. The independent variable was the intervention of educational materials through the translated infographic and reminders about the benefits of the influenza vaccine to the parents/guardians of these students. Upon concluding the three clinic days, a survey administered through Google Forms was sent to all parents via the school newsletter. The survey was available in English, Spanish, and French. The primary objective of this post-clinic survey was to evaluate parents' overall perceptions of the influenza vaccination and to determine whether the infographic had altered their knowledge or attitudes toward vaccinating their children. Additionally, the survey aimed to provide insights into the benefits derived from the use of infographics, educational materials, and communication through reminders via voice mails, text messages, and emails.

## **Data Analysis/Analytical Strategies**

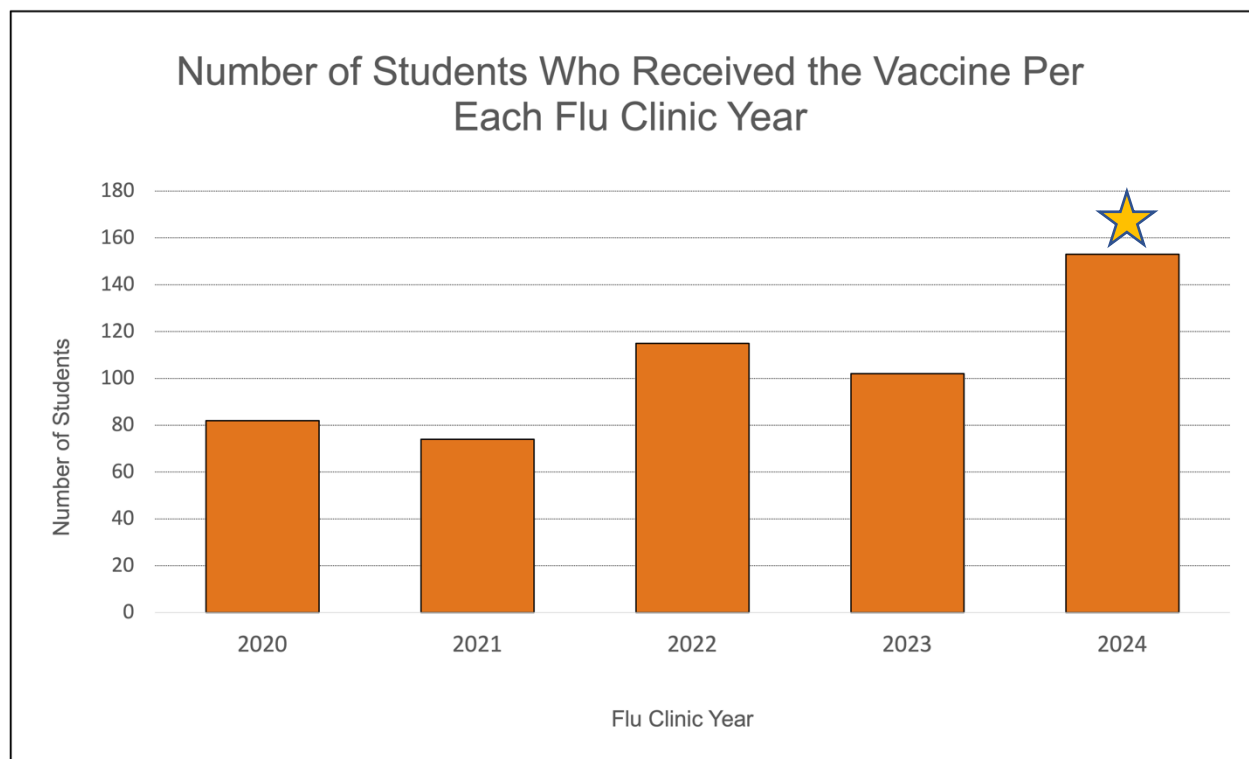
During this project, the influenza vaccination program had three vaccination days at the SBHC. The project manager was present all three days to collect data in a secure, password-protected Excel spreadsheet. The number of students who received the influenza vaccine each clinic day was recorded. All data was deidentified.

A bar graph in Figure 1 compares the total number of students who received the influenza vaccine at the school-based health clinic to the previous four years. Additionally, a six-question post-clinic survey was distributed to parents to determine if the infographic and repeated reminders influenced their decision to vaccinate their child against influenza. The data from the survey was organized into another bar graph (see Figure 2). Four out of the seven questions are displayed in pie charts to highlight the significance and impact of the infographic (see Figure 3-6).

## Results

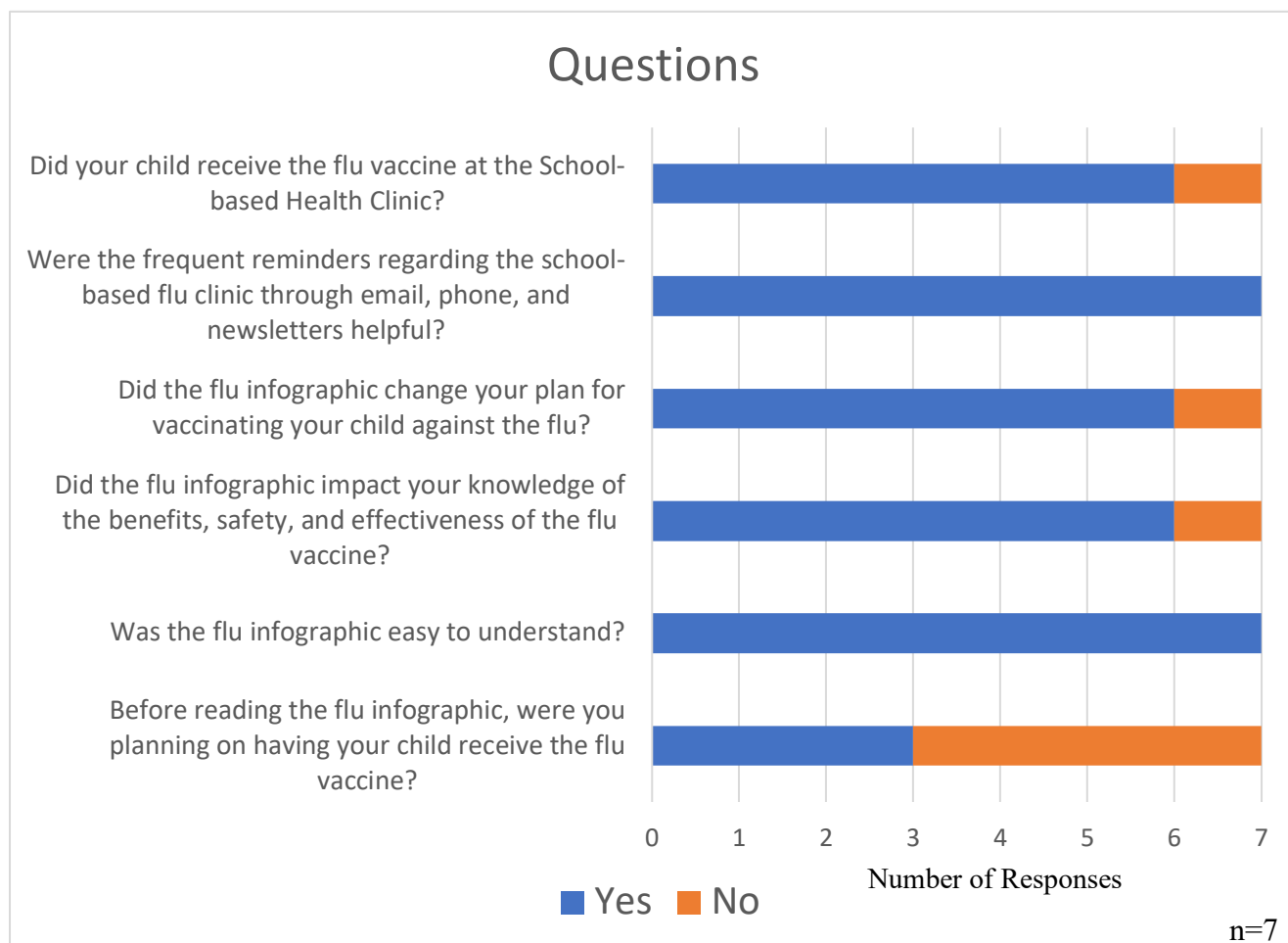
This QI project aimed to reduce vaccine hesitancy and ultimately increase influenza vaccination rates among school-aged students at the school-based flu clinic by enhancing access to educational materials for LEP parents from September to November 2024. By the end of the three school-based flu clinics, a total of 153 students received an influenza vaccine (Figure 1). After the flu clinic ended, the parental post-flu survey was distributed through the school's online newsletter from December 1, 2024, to January 15, 2025, yielding a total of seven responses (Figure 2). All responding parents found the infographic easy to understand, and six out of seven reported that it positively impacted their knowledge of the flu vaccine's benefits, safety, and effectiveness, as seen in Figures 3, 4, 5, and 6. Additionally, six out of seven parents stated that the infographic influenced their decision to vaccinate their child against the flu, and the same number confirmed that their child received the flu vaccine at the school-based health clinic (Figures 4 and 5). This data suggests that providing parents with educational infographics positively affected vaccine uptake and ultimately contributed to improved influenza vaccination rates at the school-based flu clinic.

Figure 1

*Number of Vaccinated Students*

*Note.* This figure displays the number of students who received an influenza vaccine at the school-based flu clinic.

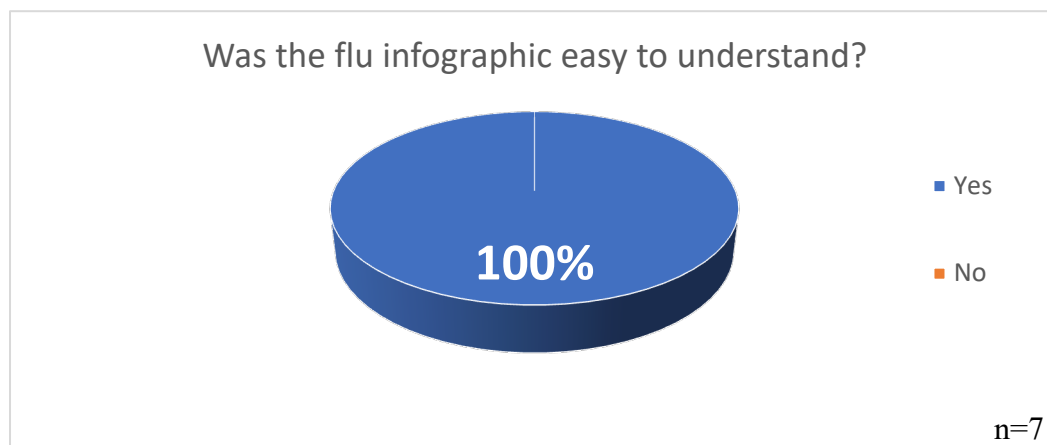
Figure 2

*Post-Flu Clinic Survey Questions for Parents*

*Note.* This figure displays parents' responses to the post-flu clinic survey questions.

Figure 3

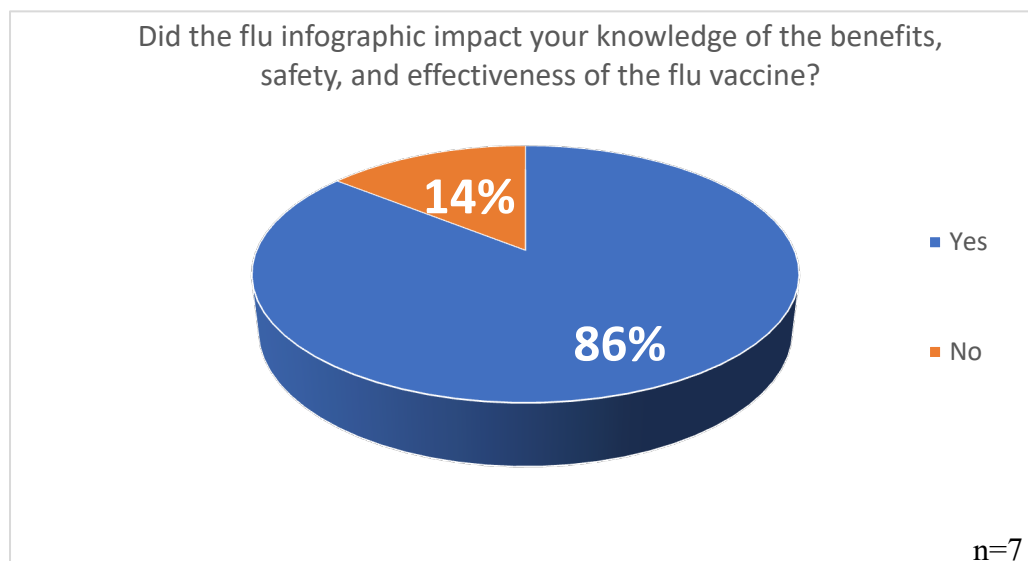
*One of the Six Questions from the Post-Flu Clinic Survey*



*Note.* This figure displays parents' responses to one of the survey questions.

Figure 4

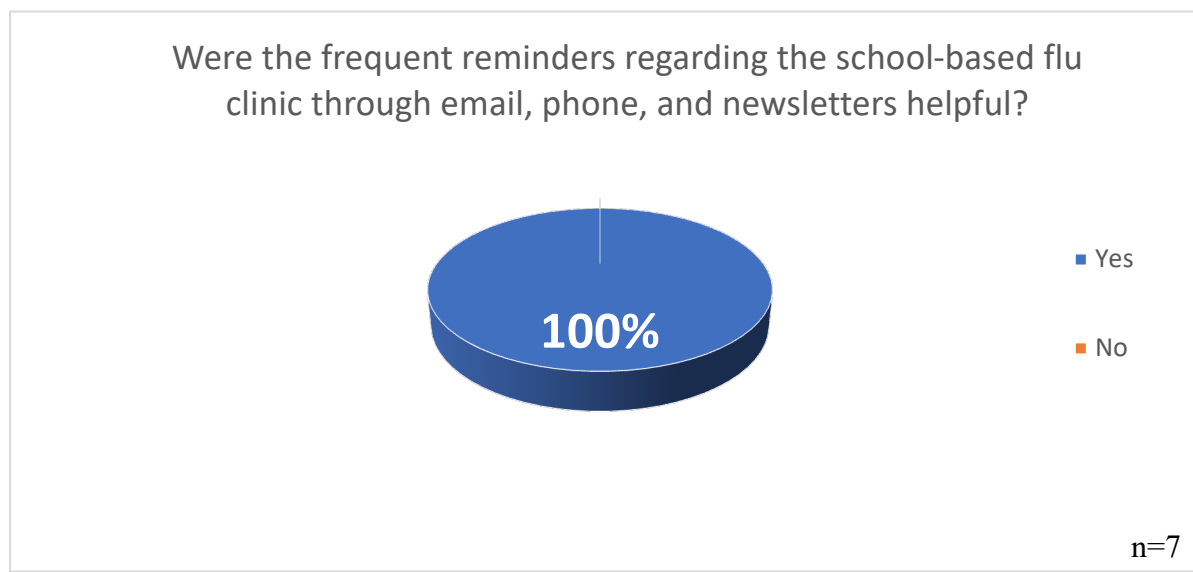
*One of the Six Questions from the Post Flu Clinic Survey*



*Note.* This figure displays parents' responses to one of the survey questions.

Figure 5

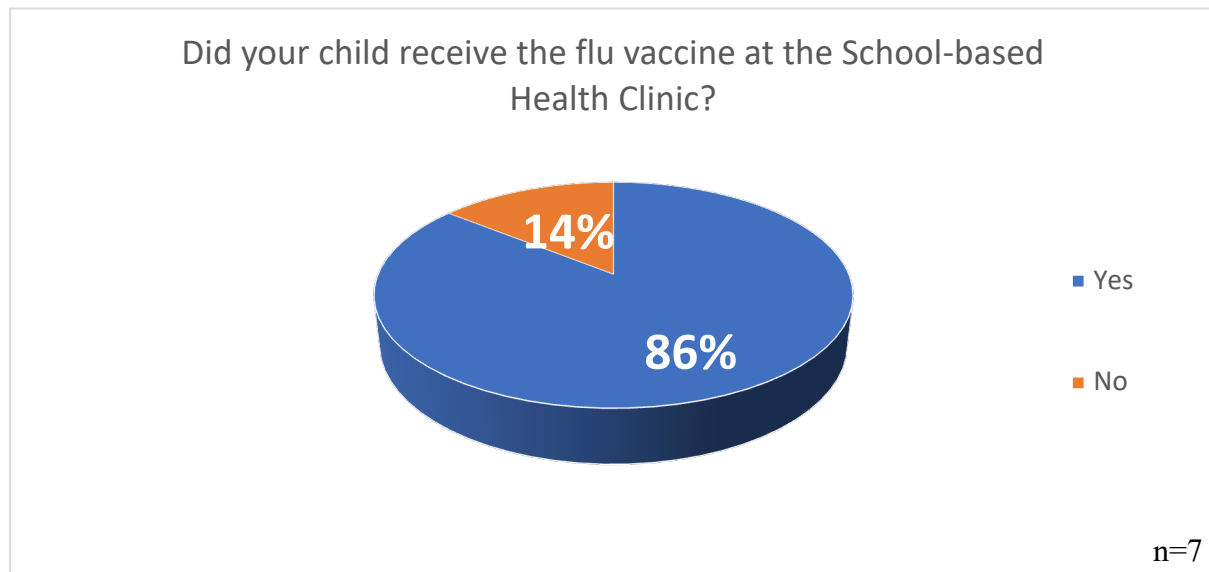
*One of the Six Questions from the Post Flu Clinic Survey*



*Note.* This figure displays parents’ responses to one of the survey questions.

Figure 6

*One of the Six Questions from the Post Flu Clinic Survey*



*Note.* This figure displays parents’ responses to one of the survey questions.

## Discussion

This quality improvement project addressed the lack of accessible educational materials for parents about the benefits of the influenza vaccine at a public school in Vermont and the low vaccination rates at the school-based flu clinic. By implementing an evidence-based improvement process, the overall number of students receiving the influenza vaccine through the school-based flu clinic significantly increased. Between 2020 and 2023, the average number of students vaccinated at the clinic was 93.25 per year. In 2024, the number of students vaccinated at the school-based flu clinic increased to 153, representing a 50% increase compared to the number of vaccinated students in 2023. This demonstrated a substantial improvement in vaccination uptake. The increased vaccination uptake among students at the school-based clinic suggests a clear association between the intervention and improved vaccination rates. Of the parents who completed the post-intervention survey, the majority reported that the infographic positively influenced their understanding of the flu vaccine's safety and efficacy, and nearly all stated that it played a role in their decision to vaccinate their children. These findings align with previous studies showing that educational materials and reminders effectively reduce vaccine hesitancy and improve uptake (Szilagyi et al., 2019; Zhou et al., 2020). The consistency of these results with prior research strengthens the conclusion that the intervention contributed to the observed outcomes.

While the project appears to have successfully increased awareness and improved vaccination rates at the flu clinic, several other factors may also have contributed to this outcome. In previous years, the flu clinic was not offered until November; however, it began in October this year, which may have made early vaccination more appealing to some parents. Additionally, vaccination permission slips were made available electronically for the first time,

allowing parents to print and sign them at home. In the past, these forms were sent home physically in students' backpacks, which often led to them being misplaced or overlooked, resulting in missed vaccination sign-up dates.

This QI project had a meaningful impact on individuals, families, and the broader school community. For families, particularly those with LEP backgrounds, the intervention helped bridge an information gap, providing them with accessible and reliable vaccine-related information. The intervention likely contributed to a more informed decision-making process regarding childhood vaccinations by improving parental knowledge and confidence. Increasing vaccination rates among school-aged children at the population level helps protect vaccinated individuals and the broader community by reducing flu transmission. This can lead to fewer missed school days, lower absenteeism among students and staff, and decreased healthcare burdens associated with influenza-related illnesses. At the system level, the project demonstrated the feasibility and effectiveness of integrating multilingual educational resources into school-based vaccination programs. The findings suggest that such strategies could be expanded to other schools and potentially incorporated into broader public health initiatives to address vaccine hesitancy in diverse communities.

### **Limitations**

A key limitation identified in this study was staffing shortages. The influenza program was initially planned for four clinic days; however, the fourth day was canceled due to limited medical assistants available to administer pediatric vaccines. Another limitation was the reduction in the number of languages into which the infographic could be translated. Because school liaisons had prior commitments and the short implementation period, the infographic was only translated into Spanish and French, the school's top two most spoken languages, instead of

the top five. Another significant limitation involved workflow and miscommunication challenges regarding the school-based flu clinic. A local health network organized the flu clinic, which required using its electronic health record system to document vaccinations. Since many students were not patients within this network, they had to be manually added and scheduled on the clinic day. This process took longer than anticipated, resulting in some students being rescheduled.

Furthermore, because students were scheduled through the health network's appointment system, automated reminders were sent to parents of the first group the night before the clinic, mistakenly instructing them to visit their primary care offices for the vaccine. This confusion led some parents to take their children out of school to receive the vaccine elsewhere. Students for the second and third flu clinics were added to the appointment book on the clinic day to prevent further issues. However, this scheduling error affected data from the first clinic day, as approximately 5–10 students received their vaccines at their primary care offices instead of the SBHC.

### **Conclusion**

Implementing a multilingual educational infographic and enhanced parental reminders distributed through multiple communication channels was crucial in increasing vaccination rates at the school-based influenza clinic. Providing accessible and culturally relevant information addressed language barriers and fostered greater understanding among parents about the importance of the influenza vaccine for their children. Furthermore, the strategic use of reminders through various outlets, such as emails, text messages, and automated phone calls, reinforced the message and encouraged timely participation.

While the project yielded positive results and demonstrated its effectiveness in boosting vaccination rates, it is clear that continued efforts are essential to achieve sustained

improvement. Ongoing strategies must be developed to reach the Healthy People 2030 goal of a 70% influenza vaccination rate. These strategies may encompass expanding educational outreach, targeting additional community resources, and ensuring greater vaccine accessibility for all students. Continued efforts in these areas can further increase vaccination rates, contributing to improved public health outcomes and a more robust and resilient community.

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**CERTIFICATION**

TO: Tram Lam

DATE OF CERTIFICATION: Wednesday, May 1, 2024 - 13:34

SUBJECT: Improving Influenza Vaccination Rate at a School-based Influenza Clinic Through Educational Materials

Based upon answers to the self-determination tool, this project does not require IRB review because it does not meet the definition of a "research" activity under the regulatory definition. According to 45 CFR 46.102(d), the definition of "research" is "a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge."

Projects that are not a systematic study or are not intended to contribute to generalizable knowledge, e.g. quality assurance, quality improvement, program evaluation, or public health practice, do not require IRB review.

This certification can be provided as documentation that this project does not meet the definition of research. Public presentations, academic curriculum vitae, publications, etc., with a planned statement similar to *"According to the policy defining activities which constitute research at the University of Vermont/University of Vermont Medical Center, this work met criteria for operational improvement activities exempt from ethics review."*