

**Executive Summary- Knowledge is Immunity: An Intervention to Increase Vaccination
Rates in Pediatric Patients During Flu Season**

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Main Points

- ❖ Influenza (flu) vaccines are safe, widely available, and effective, but flu vaccine uptake is suboptimal in the United States.
- ❖ Tailored caregiver education and provider recommendations can effectively increase pediatric vaccine uptake by addressing caregiver vaccine hesitancy.
- ❖ The study employed an intervention combining caregiver education and clear provider vaccination recommendations.
- ❖ The intervention did not effectively improve pediatric flu vaccination rates within the project site.
- ❖ The intervention addressed the Healthy People 2030 goals of increased health literacy and improved health communication.

Background and Purpose

Despite the proven safety and efficacy of annual flu vaccines, pediatric flu vaccination rates have decreased in recent years; consequently, flu cases, hospitalizations, and deaths have increased (Centers for Disease Control and Prevention [CDC], 2024). To address this public health crisis, Healthy People 2030 (n.d.-b) has set a goal of 70% flu vaccine uptake; unfortunately, current vaccination rates are not on target to meet this goal. Caregiver vaccine hesitancy is a top contributor to suboptimal pediatric flu vaccination (Kempe et al., 2020). Current literature supports using tailored caregiver education and clear provider recommendations for annual flu vaccines to increase vaccine uptake (Srivastav et al., 2023; Welch et al., 2023). This Doctor of Nursing Practice project seeks to identify factors that

promote or inhibit flu vaccine adherence among pediatric patients, with the goal of developing and implementing an intervention to increase flu vaccination rates.

Methodology

The intervention was implemented for 13 weeks in an outpatient pediatric primary care clinic. Patient-caregiver dyads presenting for wellness visits were given a handout with education on flu vaccine recommendations, safety, efficacy, and common misconceptions. Caregivers were asked to complete a short questionnaire consisting of demographic questions (i.e., patient's age and caregiver's gender, race, and education level). During triage, medical assistants reviewed the demographic questions to ensure completion and were prompted to verbally ask caregivers additional questions, including whether caregivers reviewed the educational handout and caregiver intention to vaccinate. Finally, providers reviewed the questionnaire responses with caregivers during the wellness visits, clearly expressed their recommendations for caregivers to vaccinate their children against the flu, and addressed any questions or concerns posed by caregivers.

The project team consisted of front desk staff, medical assistants, providers (i.e., physicians, nurse practitioners, and physician assistants), the project site nurse manager, and the project team leader. A pediatric nurse practitioner employed within the practice served as the project site liaison. Project team members were given an algorithm to facilitate the efficient implementation of the intervention. Plan-Do-Study-Act cycles were used to assess staff satisfaction with the intervention (Agency for Healthcare Research and Quality, 2024). Four staff surveys were distributed during the implementation phase, and the implementation algorithm was revised based on feedback.

The study utilized a mixed-methods design. Quantitative data included the number of vaccines administered and refused, obtained from the North Carolina Immunization Record (NCIR), and caregiver questionnaire responses (North Carolina Immunization Branch, n.d.). Qualitative data included caregiver demographic information, staff feedback, and reasons for caregiver vaccine refusal, collected from staff surveys and caregiver questionnaires. Data collection occurred weekly or biweekly as determined by scheduling and availability of the project team leader and site liaison.

Results

To determine whether the intervention achieved the intended goal of increasing pediatric flu vaccine uptake within the project site, pre- and post-intervention data were compared. Pre-intervention data included the number of flu vaccines administered at the project site during September, October, and November 2023, while post-intervention data consisted of flu vaccine administration numbers from the corresponding period in 2024. Vaccination rates declined by 22.3% from 2023 to 2024. Thus, the intervention did not effectively increase pediatric flu vaccination rates within the project site. Most caregivers who declined flu vaccination did not provide a reason, while others cited antivaccination beliefs or children requiring other vaccinations during the visit as reasons for vaccine refusal. Interestingly, male caregivers chose to vaccinate more frequently than female caregivers. Sixty percent of white caregivers vaccinated their children, while only 32% of Black caregivers opted to vaccinate their child against the flu during the visit. Additionally, a positive correlation was noted between post-secondary education and intent to vaccinate.

Responses to staff surveys were limited, with only five completed surveys received back. Project team members indicated that they were either “very satisfied,” “satisfied,” or “neither

satisfied nor dissatisfied” with the intervention. Positive feedback included receptionists consistently distributing handouts to appropriate candidates, and staff members perceiving the handout as a helpful reference when providing vaccine counseling to clients. Negative staff feedback included medical assistants finding it difficult to remember to complete their portion of the questionnaire.

Strengths and Limitations

A notable strength of the intervention is that it addressed gaps in patient and caregiver knowledge related to flu vaccination and the flu virus. Although the intervention did not address the intended Healthy People 2030 goal of increasing flu vaccination, it addressed alternate areas of the initiative, including enhancing healthcare communication between patients and providers, and improving health literacy (Healthy People 2030, n.d.-a, Healthy People 20230, n.d.-b). Staff feedback indicated that the educational handout served as a useful resource that can be referenced when counseling patients and caregivers on flu vaccines.

Various limitations may have impacted the success of the study. All electronic communication was conducted through the project site nurse manager, which often resulted in delays in the distribution of information. Additionally, in-person communication proved challenging due to scheduling conflicts and daily workflow. All communication with patients and caregivers occurred via project site staff members; thus, there was a lack of direct communication between the project team leader and study participants. Appointment time was limited, and adding another item to be completed within the respective timeframe presented a challenge for project team members. Finally, the study used convenience sampling, which carries an inherent risk of bias, and the study sample may not accurately represent the whole population.

Implications

Suboptimal flu vaccination rates lead to a higher incidence of flu-related illness within the community. Flu-related illness causes an increase in healthcare utilization and expenditure, which further strains an already-burdened healthcare system. Increasing pediatric flu vaccination rates would benefit healthcare facilities, nursing practice, and patient and population health. Increased flu vaccine administration would generate revenue for healthcare facilities, ultimately leading to reduced healthcare utilization. Nurses and medical staff may encounter fewer flu-related cases, leading to decreased flu exposure and lighter workloads. Decreased flu transmission within the community would result in improved patient outcomes and lower rates of hospitalizations and flu-related deaths. Importantly, increased flu vaccination would protect immunocompromised patients and individuals who have medical contraindications to vaccination.

Conclusion

To address low pediatric flu vaccination rates, a multifaceted intervention combining caregiver education and provider recommendation was implemented within an outpatient pediatric primary care practice. The intervention did not accomplish the intended goal of improving pediatric flu vaccine uptake within the project site. Various factors may have negatively influenced the study's success (i.e., inadequate communication with project team members, limited appointment time). In contrast, other factors facilitated the successful implementation of the intervention (i.e., staff motivation and buy-in). Although the project did not achieve the intended aim, the educational handout filled gaps in knowledge related to the flu vaccine and flu virus, improved health literacy, and improved communication between healthcare providers and caregivers of pediatric patients. This study may be used to inform the development of future related interventions.

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