

Project Title:

Vaccine hesitancy: bridging the gap between provider and patient

Primary Investigator:

Mundeep K. Kainth, DO, MPH

Co-Investigators:

Tiffany Scotto, BS

Affiliated Department:

Pediatric Infectious Diseases
Cohen Children's Medical Center

Section for Grant:

GME

Contact Information:

Mundeep K. Kainth

Mkainth1@northwell.edu

516 606 5849

PROPOSAL ABSTRACT

Problem/Educational Issue: Providers are challenged by families when delivering information regarding vaccination and vaccination safety. Over the last decade, vaccination rates have declined nationally, resulting in multiple disease outbreaks such as measles in New York. Many other vaccines are commonly refused by parents, including influenza vaccine. In medical school and residency, vaccine schedules and administration is taught on the practical level; however, education regarding vaccine hesitancy and management of vaccine hesitancy is not systemically addressed.

Goal: To educate providers on managing vaccine hesitancy among parents through an interactive training program during pediatric residency.

Approach: An introductory session will be held at the start of the academic year to assess knowledge and comfort level with addressing vaccine hesitancy with parents and baseline knowledge of reasons for vaccine refusal. Didactic information will be imparted and interactive, role-playing sessions will be held to inform and respond to reasons why parents refuse vaccination. Finally, a 'real-time' implementation of the educational role-play will occur in the influenza vaccine standing order program for inpatients at Cohen Children's Medical Center. Feedback on the proportion of interactions that resulted in influenza vaccination will be communicated to the trainees.

Predicted Outcomes: By the end of the educational series, resident providers will have a boosted confidence level in their comfort, knowledge, and approach to parents who refuse vaccination of their child.

Anticipated impact including dissemination plan:

Impact measured by:

1. Improvement in adherence to our influenza standing order program and
2. Feedback from pediatric resident participants.

Future projects include expanding this program to medical students as well as providers such as internal medicine residents. Ultimately, this skill development model could be incorporated into the curriculum of ACGME pediatric residency programs nationally. We will present our data at an AME conference and prepare a manuscript for publication in a peer reviewed journal.

PROPOSAL NARRATIVE

Rationale and statement of the problem

Vaccination is the ‘bread and butter’ of general pediatrics. However, vaccination refusal among families is common and has led to outbreaks of preventable illness across the country in the last decade, including pertussis, mumps, and measles. Further, total vaccination rates in children by Kindergarten entry have fallen down to 80% in some states.¹ Providers face hurdles in their daily interactions with patients, particularly in the pediatric population where medical decision making falls to parents. In the age of social media and widespread information dissemination through the internet, the interaction between medical providers and parents may be dominated by efforts to debunk myths perpetuated through inaccurate sources. Our goal is to use a pilot educational program with pediatric residents at CCMC to create a tool to reduce parental vaccine hesitancy that may be used across all pediatric GME programs in the country.

Our primary aim is to develop and evaluate a communication tool for pediatric residents to use for provider recommendation with vaccine hesitant parents. A secondary aim is to evaluate impact of influenza vaccine rate after implementation of provider recommendation tool targeting parents who refused influenza vaccine in a standing order program.

Our question is whether an educational module that includes an interactive session for pediatric residents with educational components driven towards vaccine education can improve rates of vaccination within an influenza vaccine standing order program as well as increase comfort with addressing vaccine myths with parents and patients.

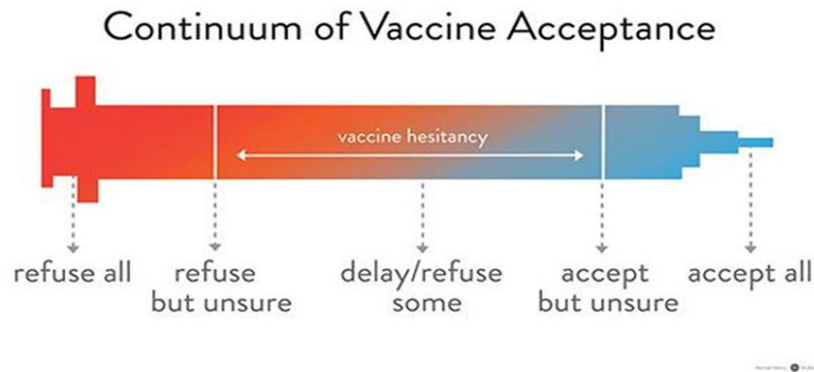
Background & Theoretical Framework

Vaccine Hesitant Parents

According to Opel et al., Vaccine-Hesitant Parents (VHP) are defined as parents who are cautious about administering vaccines to their children which manifest as requests for delaying vaccines or refusal of a select few vaccines but agreeing to administer all others. This may result in missed vaccines or a modified vaccine schedule that results in delay in vaccine administration, which can be harmful to children.² Vaccine decision-making is noted to be on a spectrum (see Fig 1.), where there are certain parents who will refuse all vaccines, those who will accept a few vaccines but not others and finally, some who only refuse a select few vaccines. Our goal is to target the latter two groups, those who accept or refuse some vaccines.

Due to the nature of vaccine hesitancy, a child’s provider tends to have a certain influence over VHP’s decisions.²⁻⁴ A study conducted by Gust et al. determined that receiving information or assurance from a health-care provider altered the decision of parents who delay vaccines.⁵ However, data regarding the influence of specific types of healthcare providers, such as pediatric residents, is limited. Further, vaccine hesitant parents are a scarcely explored population when investigating parental acceptance of childhood immunizations.⁶

Fig 1. MacDonald, N. E. (2015). Vaccine hesitancy: Definition, scope and determinants. *Vaccine*, 33(34), 4161-4164



Influenza statistics

Influenza places a considerable burden on the health of the United States population annually. Since 2010 the Center for Disease Control (CDC) has reported that influenza has resulted in 9.3 million to 49 million illnesses, between 140,000 and 960,000 hospitalizations and between 12,000 and 79,000 deaths annually.⁷ A study conducted by the CDC reported that from 2010-2016 half of the pediatric influenza-related deaths occurred in healthy children, with only 22% of those children having received recommended doses of influenza vaccine.⁷ This past 2017-2018 influenza season, which had a death toll of 172 children due to influenza-related symptoms, set the record for the highest number of deaths reported during a single influenza season in the United States. Approximately 80% of the 172 children had not received an influenza vaccination.⁷ These estimates exemplify the importance of vaccination to prevent influenza, however, few individuals and families vaccinate for this virus in particular.⁸

Hospitalization

According to an estimate in a Cochrane review, in order to prevent one case of influenza illness, 28 children over the age of 6 years need to be vaccinated. Additionally, for children under the age of 6 years, 6 children need to be vaccinated.⁹ These statistics highlight the importance of influenza vaccination and support taking advantage of all vaccination opportunities when they occur.¹⁰ Since recent studies indicate that hospitalization is an often missed opportunity to vaccinate against influenza, starting in the 2012 influenza season, the Center for Medicare and Medicaid Services instituted a requirement for hospitals to screen patients and vaccinate all admitted children unless either contraindicated or refused by parents.¹¹⁻¹⁴

The implementation of a screening platform such as a Standing Order Program has been used successfully to aid in the increase of influenza vaccine uptake in the hospital setting.¹² In 2018-19, a standing order influenza vaccination program was implemented at CCMC. We are currently conducting a pilot study evaluating the social determinants of vaccine hesitancy. A study conducted by Hofstetter et al. determined that hospitalized children with vaccine-hesitant parents were more likely to decline the influenza vaccine compared to parents who were nonhesitant.¹⁰ We will use the opportunity provided by the presence of a standing order program to examine response of vaccine hesitant parents to pediatric resident intervention in a setting with readily available influenza vaccine.

Physician Recommendation and Future work

Since studies suggest that physician recommendation has a large influence on the acceptance of vaccinations, an inpatient standing order program creates an ideal opportunity to implement strategies that will provide the opportunity to discuss the importance and use of vaccines.^{3, 10-11, 15-16} We will use the 'presumptive approach' which encourages physicians to recommend vaccination with persistence, proven to increase uptake of immunizations.¹⁷ According to Hofstetter et. al., during clinician-parent discussions about influenza vaccination, the rate of acceptance was 94% when the presumptive format was used versus 28% with the use of the participatory format. Persistence by the clinician in pursuing the recommendation in the face of parental resistance also resulted in higher uptake than if the clinician did not persist.¹⁷ Motivational interviewing, a patient-centered approach that enhances the patients' internal motivation to change a health behavior will be used as a way to continue the vaccine discussion in the face of resistance. Using motivational interviewing as a tool to address vaccine hesitancy has the ability to address both immunization concerns and benefits while reinforcing a patient's motivation to change a behavior as discussed by the World Health Organization (WHO).¹⁸⁻¹⁹ A study conducted by Gagneur et al. showed that an intervention using motivational interviewing significantly increased parents' intention to vaccinate their child as well as significantly increasing the vaccination coverage among these children.²⁰ An intervention of pediatric resident recommendation will address both the vaccine-hesitant and influenza-hesitant parents with the goal of increasing influenza vaccination. The results of this study can eventually be used to further explore the impact healthcare workers have on communicating influenza vaccine importance and use on influenza-hesitant parents.

Approach

Setting: Pediatric residency program required noon conference

Participants: First and second year pediatric residents

Faculty: Pediatric hospitalists in partnership with Pediatric Infectious Disease

Preparation:

1. Recruit pediatric hospitalist to team
2. Our educational tool is an instructional PowerPoint on motivational interviewing provided by the WHO.¹⁹ Faculty, including pediatric hospitalists and participating pediatric infectious disease faculty will be presented with the WHO self-study powerpoint.

Outcome: Influenza vaccine standing order program rates of acceptance and survey responses from our pediatric residents, which may be limited to other confounding factors effecting these dependent variables.

Unit 1: Understanding the myths of vaccination

The unit will start with a pre-test for the pediatric residents to assess their knowledge of vaccines, the definition of vaccine hesitancy, and the reason why vaccines are most commonly refused. Then this introductory didactic will introduce the common reasons for vaccination refusal in the pediatric population.

Unit 2: How do vaccines work?

This unit will provide the scientific basis for vaccinology. Reviewing the importance of timing of vaccinations in childhood, the necessity of booster vaccinations, and the etiology of outbreaks of vaccine preventable disease.

Unit 3: Addressing a parent's concern with vaccination – 'role play' design

Our third unit will be comprised of group interactions where experiences are shared regarding their previous clinical experience with parents and patients and vaccines. We will introduce and practice a presumptive format, when persistence is used on the part of the provider to encourage vaccine hesitant parents to immunize their children. Presumptive format will be followed by motivational interviewing, a patient-centered method for enhancing intrinsic motivation to change health behavior by exploring and resolving uncertainty. Motivational interviewing in regard to vaccine hesitancy will be taught using an instructional PowerPoint provided by the World Health Organization.¹⁹ The role-play interaction will allow the pediatric residents to develop an approach to various challenges when discussing vaccines with parents and patients.

Unit 4: Using tools and information learned in 'real time' interaction for influenza vaccination.

We take the previous three units and now implement the interaction between resident and parent in the hospital setting. Residents will be paired and asked to approach an inpatient medically eligible for influenza vaccine but has refused administration within the CCMC standing order program. The patients are identified via a pre-screening process to evaluate if upon admission, they refused vaccination for influenza. One resident will attempt a 'presumptive' approach with motivational interviewing to discuss vaccination with the parent while the paired resident will observe and document the interaction via RedCap through a secured iPad device. The observer will be introduced to the patient and parent as a team provider. A role switch will occur with the next inpatient eligible for influenza vaccine.

Unit 5: Assessing comfort level of pediatric residents with knowledge base of vaccines, myths, and addressing parental concerns.

This final unit allows the pediatric residents to reflect upon their interactions in the previous four units but also how their approach may have (or have not) shifted in their outpatient practice experience.

Outcomes and Evaluation Plan:

The outcome of this interactive educational program will be evaluated in three ways:

1. Pre/post-test evaluation of pediatric resident understanding of vaccine hesitancy, vaccine science, and addressing parent concerns.
2. Assessment of ability to influence parental consent for influenza vaccination – real time feedback by pediatric residents.
3. Assessment of the effect on rate of influenza uptake in the inpatient pediatric influenza vaccine standing order program.

The proposed project will allow pediatric residents to develop a new skill set to address vaccine hesitancy and use it in their future general pediatric/subspecialty careers.

Plan for dissemination of project outcomes regionally and nationally

We intend to present this work at the AME conference within 18 months of award as well as present at the Pediatric Academic Society Conference.

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