

# For Jude: Improving Influenza Immunization Uptake in Children 6-59 Months of Age

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## ABSTRACT

Children aged 6-59 months are at high risk for complications from influenza.<sup>1</sup> Vaccination coverage rates for this age group fail to meet the 80% target that has been set for high risk groups;<sup>2</sup> the coverage rate in Nova Scotia was 36.1% for the general population and 45.5% for children aged 6-59 months in the 2018-2019 season.<sup>3</sup> Our project involved incorporating mailed invitation letters to parents, immunization pain prevention strategies and increased team communication throughout the influenza vaccine season to increase coverage rates. Our rate at the end of the 2019-2020 immunization period was 76.3%.

## Problem

Children 6-59 months of age are considered high risk for influenza-related complications and hospitalization.<sup>1</sup> It is recommended that all children over the age of six months have the influenza immunization, especially those in the 6-59 month age group.<sup>1</sup> The national immunization coverage goal for this and other high risk groups is 80%.<sup>2</sup> The Nova Scotia statistics for influenza vaccine coverage rates were from the 2018-2019 season, the rate for children 6-59 months of age in Nova Scotia was 45.5%, and within central zone (Halifax Regional Municipality) was 54.4%. The provincial average for all ages was 36.1%.<sup>3</sup>

The aim of the project was to increase coverage rates in our practice group, with a target of exceeding the 2018-2019 central zone coverage rates, aiming to approach the national recommendation of 80%. Our practice group is comprised of three collaborative clinics in the Halifax Regional Municipality, located in Bedford, Timberlea and Spryfield. A total of three nurse practitioners, 12 general practitioners and three registered nurses participated in the project. These providers have a total of 870 children rostered to them in the 6-59 month age group.

Our project was inspired by an influenza immunization awareness campaign called "For Jude For Everyone", started by a Canadian mother who tragically lost her son, Jude, to influenza at the age of 2. Further impetus for initiation of the project came from previous experiences of team members having cared for critically ill children due to influenza infection, as well as other media and social media stories of pediatric influenza fatalities.

## Background

Pediatric influenza hospitalizations are monitored from 12 hospital sites across Canada. In the 2018-2019 influenza season there was a total of 1,352 pediatric cases reported, 66% of hospitalizations were in children under the age of five.<sup>4</sup> There were 161 ICU admissions in this age group (6-59 months), accounting for 59% of the total pediatric

ICU admissions.<sup>4</sup> There was a total of 10 pediatric deaths, eight (80%) were in children 2-4 years of age.<sup>4</sup> In Nova Scotia during the same time period there were 72 confirmed cases in the 6-59 month age group, and six pediatric ICU admissions.<sup>5</sup>

The World Health Organization has identified vaccine hesitancy and an influenza epidemic as one of the top 10 threats to global health.<sup>6</sup> This statement provided further validation to the importance of working to improve coverage rates.

Needle fear due to past immunization experiences being painful is common and contributes to some parents avoiding influenza immunizations.<sup>7</sup> Using interventions that address pain such as parent education, access to analgesic, breast or bottle-feeding during vaccinations, oral sucrose, positioning and distraction techniques are recommended to reduce fears and vaccine non-compliance.<sup>7</sup> Best practice guidelines exist to address immunization pain prevention but they are not consistently used in practice.<sup>8</sup>

Our literature review to determine factors that may increase uptake found that there has been a significant amount of work done in the United Kingdom on this topic. Through their research, independent factors that were associated with higher vaccine uptake included having a lead staff member plan the flu campaign. Writing a report of performance was found to increase rates by 8% and a personal invitation to eligible patients correlated with a 7% higher uptake rate.<sup>9</sup>

## Measurement

The initial baseline measurement we used was from the 2018-2019 Nova Scotia report on influenza immunization. It showed an uptake rate of 54.4% for central zone and a provincial average of 36.1%.<sup>3</sup> After interested participants were identified, we compiled clinic reports and found a 50.9% rate for the 2017-2018 year and 29% for 2018-2019 (vaccine became unavailable in late January 2019 so we expect this accounted for some of the lower rate).

For this project the measure we used was the number of influenza immunizations administered to our target group, expressed as a percentage of the total group of children. The birth dates we used to capture our target population were Oct 21, 2014 to September 1, 2019. The lists were then checked to remove children that had moved. We utilized our electronic medical record [EMR] to run reports on the numbers of children in the target group that had received their influenza immunization. Reports were compiled biweekly to determine progress.

We also handed out surveys to parents with questions to determine factors in their decision to have the immunization. We had anticipated there would have been more organized pediatric flu shot clinics, and envisioned the surveys being passed out at these. In reality, people tended to book their appointments in regular appointment spots, which made it difficult for providers to always have the surveys on hand and to remember to use them.

## Design

The quality improvement project team consisted of nurse practitioner and registered nurse leads at the clinics, a health service lead, and a medical office administration lead. The team collaborated to compose an invitation letter that was mailed out to families with children in the target group. The letter also included information on pain reduction strategies and instructions for Emla® patch placement and clinic supply of the patches if parents wanted to utilize these tools. Drafts of these documents were emailed between team members for feedback and revisions.

Once interested providers were identified their reports were compiled from their rosters to determine who would be sent a letter. Letters were mailed out in the first two weeks of November. As we progressed through the following weeks, periodic reports were run to determine our coverage rate and these were communicated to participants via EMR messaging and at collaborative team meetings.

## Strategy

After our invitation letter and immunization pain reduction strategy handout was completed, they were circulated throughout the three clinics to provide opportunities for providers to review them and decide if they wanted to join the project. Once we had confirmation on those that wanted to participate, the patients were identified by using the EMR to generate lists of children that would be 6-59 months of age in the period of time from when we received the first flu shot shipments up to March 31, 2020.

Letters were mailed out in early November and providers communicated to their medical office administrators if they wanted to reserve any specific appointment spaces for pediatric flu shots, or where they could schedule them otherwise. Initially we had planned to send the letters earlier in October but decided to delay mailing them until we found out if we had been successful in securing grant funding for the project. The group decided that if we were to obtain funding for items such as sucrose and Emla® patches, the wording in the letters would be changed to inform parents they would be provided this year and could be picked up from the clinic. There was also a delay in vaccine shipments at the start of the season so we wanted to ensure we would have adequate supply before the letters were sent out. Orders were placed for Emla® patches,

sucrose, bubbles and pinwheels to utilize for pain reduction strategies as discussed in the invitation letter. Flu vaccines were also offered at routine immunization visits such as six, nine or 12 month well baby checks, as well as at visits for other concerns.

## Results

At the end of the influenza immunization period (March 31<sup>st</sup>, 2020) our coverage was 76.3%, 644 out of 870 children received their immunization. Due to the frequency at which the immunizations were administered at booked office visits versus dedicated flu shot clinics, the number of surveys handed out was lower than we had anticipated. From the 22 surveys returned 14% indicated the invitation letter was a factor in coming for a vaccine, 50% indicated their provider recommending it was a factor, 23% indicated social media had a role in their decision, 45% indicated friend or family was an impact, 32% indicated ease of booking, and 20% indicated the pain reduction strategies were a factor. Feedback from some of the nursing team members indicated they felt that awareness of the project and the competitive spirit of team members may have been a positive factor in immunizers recommending the immunization and offering it at visits for other concerns.

## Lessons and Limitations

Our team learned that planning for a seasonal project like this needs to be ideally started in the preceding spring to allow opportunities for the project team to meet before summer. For the next season we would like to work towards providers using a more standardized template to document the immunization visit to capture things such as pain prevention interventions used and patient response. We also discovered that in order to have accurate numbers, accurate patient lists are required. Having medical office administration staff that is able to review the lists to check for accuracy is key.

For this project ordering of pain prevention supplies was dependent on if we obtained grant funding. Due to the timing of this we were unable to order supplies until after the season had begun; as a result there was some delay and difficulty in obtaining things such as sucrose. If we were to use these things again we would ideally order them earlier in the season.

## Conclusion

The problem identified in this project was that influenza immunization coverage rates for children age 6-59 months in Nova Scotia and within our clinic group was below the recommended rate of 80%. By utilizing a multipronged approach including mailed invitation letters, offering pain reduction strategies, and increased awareness and communication within the team, we have experienced a significant improvement in coverage rates.

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