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Family Physician and Patient Care Staff Knowledge and Attitudes about Childhood Immunizations in A Clinic with A Large Somali Population: Effect of Clinic Wide Education and Use of A Parental Vaccine Refusal Form

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Abstract

Background: A clinic in Minneapolis MN provides care for a large Somali population whose parents who are reluctant to give their children the measles-mumps-rubella vaccine, contributing to local measles outbreaks. The clinic implemented two strategies to improve immunization rates. 1) The patient care staff (PCS) were included in the process of counseling about vaccinations by providing them with "talking points" to give in response to common parent concerns. 2) Physicians were provided with "Decision to not vaccinate my child" forms for parents to sign who refused immunizations.

Methods: Physicians and PCS completed online surveys to evaluate their knowledge, views and beliefs regarding routine childhood immunizations. Educational sessions were given to address knowledge gaps, to give "talking points", and to introduce the vaccine refusal form. Nine months after implementation, the providers and PCS were surveyed again.

Results: Of the 25 respondents who were parents themselves, 5 (20%) had refused a vaccine for their child. Thirty-six percent of respondents agreed that they felt uncomfortable giving more than two injections at once. The respondents who felt they usually or always had enough information to discuss parental concerns about immunizations increased from 74% to 93%. (p=0.0112). There was no significant change in the respondents' knowledge of contraindications to vaccinations, or discomfort in giving more than two injections at one visit.

Conclusion: Vaccine hesitancy was common in these physicians and staff. Interventions involving provider education and use of a vaccine refusal form made minimal change in their knowledge and attitudes.

Keywords

Vaccine refusal; Child health services; Family physicians

Introduction

Vaccine hesitancy continues to be a problem that contributes to periodic disease outbreaks. In Minnesota, parental refusal for vaccination is thought to be the cause of outbreaks of measles in 2011 and 2017. In the 2017 outbreak, 79 people became sick, 90% of who were unvaccinated [1]. Most of the cases occurred in children of Somali descent. Many Somali parents believe that the measles-mumps-rubella (MMR) vaccine causes autism. These fears have caused a reduction in the number of Somali children who are vaccinated for MMR [2].

Previous studies have shown that health care providers are the most frequent source of vaccine information, and that the recommendation of the medical provider is one of the strongest factors associated with vaccine acceptance by a parent [3,4]. However, earlier studies have also shown that, while health care providers are generally advocates of immunizations, they too can have a degree of vaccine hesitancy [3-6].

A family medicine residency clinic in Minneapolis, Minnesota with a large Somali patient population implemented two strategies to try and improve their childhood immunization rates.

1. The patient care staff (PCS) were included in the process of counseling about vaccinations by providing training on "talking points" to give in response to common parent concerns.

2. Providers and PCS were provided with "Decision to not vaccinate my child" forms for parents to sign who refused immunizations.

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An educational session was provided that discussed the "talking points", true and false vaccine contraindications, use of the vaccine refusal form, and tips for communicating with vaccine hesitant parents.

The purpose of this study was to evaluate the knowledge, views and beliefs regarding childhood vaccinations of the physicians and PCS of the Minneapolis clinic before and nine months after clinic interventions to improve immunization rates.

Methods

The physicians and PCS completed online surveys before the educational session to evaluate their knowledge, views and beliefs regarding routine childhood immunizations. Some of the questions were based on a previous survey of non-physician health care professionals' views and beliefs regarding childhood vaccinations [6]. The surveys were reviewed to determine knowledge gaps regarding vaccines, which were then addressed in the educational session. Nine months after the educational session and implementation of the vaccine refusal form process, the physicians and PCS were surveyed again. The providers were asked about their experience with the "talking points" and the vaccine refusal form. The study was approved by the University of Minnesota Institutional Review Board.

Counts and percentages were used to describe the survey data. Comparisons of pre- and post- Likert scale responses were made with Wilcoxon signed rank tests for questions of interest. *p*-values less than 0.05 were considered statistically significant. SAS V9.3 (SAS Institute Inc., Cary, NC) was used for the analysis.

Results

Eight PCS, 18 resident physicians and 12 faculty physicians completed surveys before the intervention. The characteristics of these respondents are shown in Table 1. Fifty-three percent of respondents felt they had enough time to discuss parents' concerns; 74% felt they had enough information to discuss their concerns; and 86% felt confident about answering parental concerns. Thirty-six percent of respondents agreed that they felt uncomfortable giving more than two injections at one time. Twenty-three percent agreed there are too many vaccines given during the first two years of life. Of the 25 respondents who were parents themselves, 5 (20%) had refused a vaccine for their child and 5 had requested a delayed immunization schedule for their own child.

Mean (SD) age, years		36.6 (9.4)
Female		55%
Race		
White (non-Hispanic)		46%
Asian		18%
Black		13%
Hispanic		8%
Other		15%
Born in the United States		65%
Number of years discussing shots with parents		
	<1 year	13%
	1-10 years	63%
	11-20 years	13%
	>20 years	10%
Is a parent		
	Refused a vaccine for own child	20%
	Delayed a vaccine for own child	24%

Table 1: Characteristics of providers (N=38)

The PCS and physicians were asked six questions about possible contraindications to vaccination. The lowest number of respondents (71%) correctly answered that a family history of convulsions is not a contraindication to vaccination. The most number of respondents (84%) correctly answered that a mild cold or low grade fever is not a contraindication to vaccination. The PCS and physicians were also asked the most common reasons given by parents for refusing vaccines. They could choose up to three from a list of 7 options. The most common reason chosen was "fear that the vaccines cause autism", followed by "concern over too many injections in one clinic visit" and "fear that too many vaccines at once can overload the child's immune system".

These sources of parental concern were further confirmed in the following statements to which the respondents agreed somewhat or completely. Seventy-six percent of respondents agreed that parents often bring up concerns about vaccine safety. Eighty-seven percent agreed that parents are worried that vaccines can cause autism. Eighty-one percent agreed that Somali patients at Smiley's often refuse the MMR vaccine for their children. Seventy-nine percent agreed that vaccine refusal is a big problem in our clinic population. However, only 58% agreed that parents are open to hearing information about childhood vaccinations. Table 2 lists the vaccines for which the respondents reported the parents most often had questions. Although MMR was chosen most often by the respondents, the human papilloma virus and influenza vaccines also frequently generated parental questions.

After the intervention, the respondents who felt they usually or always had enough information to discuss parental concerns about immunizations increased from 74% to 93% (p=0.0112). Respondents reported that, after discussing the "talking points", parents usually (8%) or occasionally (85%) changed his or her mind and agreed to shots. There was no significant change in the respondents' knowledge of contraindications to vaccinations, or discomfort in giving more than two injections at one visit.

The respondents reported getting the vaccine refusal form from the PCS usually (38%), occasionally (48%), or never (14%) when a parent indicated he or she did not want to give one or more shots to a child. Respondents reported that a parent changed his or her mind about a shot after reviewing the vaccine refusal form usually (5%), occasionally (43%) or never (38%).

Discussion

Several providers in this clinic were vaccine hesitant, with 36% of respondents feeling uncomfortable giving more than two injections at

Vaccine name	% of providers choosing this vaccine
MMR	87
Human Papilloma Virus	44
Influenza	36
Hepatitis B	10
Meningococcal	8
Rotavirus	8
Varicella zoster	5
Hepatitis A	5
Polio	3
Pneumococcal	3

Table 2: Childhood vaccines generating the most questions from parents (Providers could choose more than one vaccine)

one time, and 23% agreeing there are too many vaccines given during the first two years of life. Provider hesitancy is an important problem since the medical provider recommendation has been shown to strongly influence parental vaccine acceptance [3,4]. Similar vaccine hesitancy has been documented previously in pediatric healthcare providers [4], family medicine providers in New York State [3], non-physician health care professionals [6], and pediatric and family medicine residents [5].

The intervention appeared to have a limited effect on provider hesitancy. After the intervention, more respondents reported feeling that they had enough information to discuss parental concerns about immunizations. However, the number of respondents feeling uncomfortable giving more than two injections at one time, or agreeing there are too many vaccines given during the first two years did not decrease significantly.

In other studies, providers report parents are more concerned about the human papilloma virus and influenza vaccines than the MMR vaccine [3,4]. Because of the clinic's large Somali population, these respondents report that parental concerns about MMR far out outnumber that of other vaccines, as shown in Table 2. The respondents also report that the Somali parents often refuse the MMR vaccine for their children because of fear of autism, and that vaccine refusal is a big problem in our clinic population. It has also contributed to the measles outbreaks in the state [1].

The vaccination refusal form was not used consistently by study participants for unclear reasons. Some PCS reported just forgetting to get the form for the physician, and some physicians reported never seeing the refusal form. Refusal form use may be more common amongst pediatricians than family physicians in general; in a 2015 report of a national survey of pediatricians and family physicians, significantly more pediatricians than family physicians reported always or often requiring parents to sign a form if they refused a vaccine (64% *vs* 29%, $p<.0001$) [7]. The American Academy of Pediatrics has developed their own refusal form and has a policy encouraging its use, while the American Academy of Family Physicians has not. The effectiveness of the refusal form in increasing the acceptance of vaccines has not been evaluated and should be [7].

There are several limitations to this study. It involved only one clinic with a small number of providers. It is unknown whether the invention would work in different clinic settings. The results are based on self-report. The refusal form was not used consistently, so it's true effectiveness can't be determined from this study.

Conclusion

Vaccine hesitancy was common in these family medicine physicians and PCS caring for a very vaccine hesitant patient population. An intervention involving provider education and use of a vaccine refusal form made minimal change in their knowledge and attitudes. Eradicating vaccine hesitancy from physicians, staff and patients is an ongoing challenge.

Authors Contributions

Both authors contributed to all aspects of the study, including study design, data collection and paper preparation.

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