

# How does acquiring a vaccine-preventable disease impact parental and physician responses to vaccine hesitancy?

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## Background

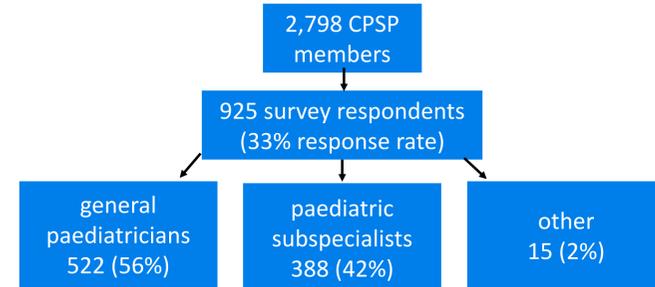
- The 2015 Canadian Childhood National Immunization Coverage Survey reported a national vaccination coverage rate of 89% by age two for the measles vaccine, 77% for diphtheria, pertussis and tetanus, and 91% for polio, all of which fall below national immunization targets<sup>1</sup>.
- Below-target vaccination coverage threatens herd immunity, increases the risk of outbreaks, and places children who cannot be vaccinated due to medical concerns at risk of contracting vaccine-preventable diseases.
- Despite decades of accumulated evidence supporting the safety and effectiveness of vaccines, surveys have shown that a small proportion of the Canadian public is not confident in routine childhood immunization<sup>2</sup>.
- This phenomenon has been termed “vaccine hesitancy” by the World Health Organization and its prevalence poses an urgent threat to public health.
- A 2016 analysis of measles and pertussis outbreaks in the United States revealed that vaccine refusers have a substantially greater risk of contracting a vaccine preventable disease (VPD) compared to fully-vaccinated individuals (in one study the risk was 35 times greater for unvaccinated individuals)<sup>3</sup>.
- The review also found that communities with higher rates of vaccine refusals had higher rates of both measles and pertussis among both unvaccinated and fully-vaccinated individuals<sup>3</sup>.

## Objectives

- Determine how often and what types of vaccine-preventable diseases (VPDs) are brought to the attention of Canadian paediatricians in cases where vaccines have been refused by parents.
- Identify the factors that contributed to vaccine hesitancy among parent(s) with a child who had contracted a VPD.
- Examine whether paediatricians are using a formal strategy to discuss future vaccinations or vaccinations for siblings with vaccine-hesitant parent(s) caring for a child who had contracted a VPD.
- Determine how likely vaccine refusers are to accept vaccination following a VPD as perceived by paediatricians.

## Methods

- A one-time survey was sent to Canadian paediatricians and paediatric subspecialists through the Canadian Paediatric Surveillance Program (CPSP). The survey tool can be accessed at [www.cpsp.cps.ca/surveillance](http://www.cpsp.cps.ca/surveillance).



- The majority of respondents were practicing in urban settings (722; 78%) within academic centres; (566; 61%) most often on inpatient wards (500; 54%) or outpatient clinics (459; 50%). Note that respondents were able to select multiple areas of practice.
- Univariate descriptive analysis was conducted using SPSS statistical software (version 25; SPSS Inc, Chicago, IL).

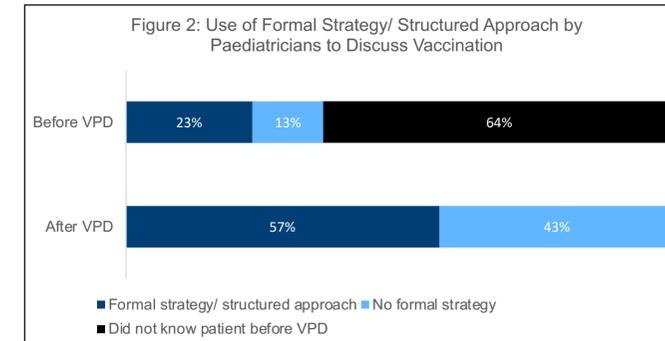
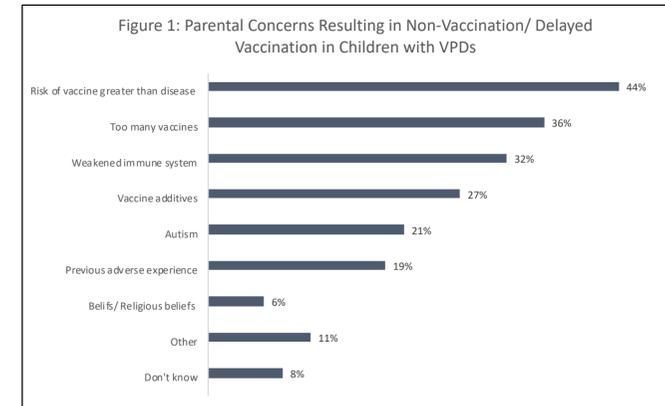
## Results

- Of the 925 survey respondents, 194 (21%) reported that they had seen a patient in the preceding 12 months who had not been fully vaccinated by parental choice and was diagnosed with a VPD.

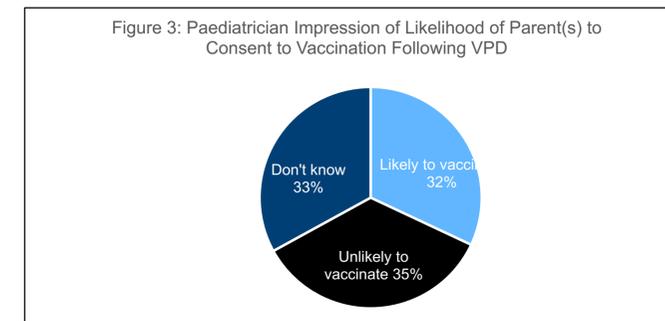
Disease	Number	Percentage
Diphtheria	0	0%
Tetanus	1	1%
<b>Pertussis</b>	<b>60</b>	<b>40%</b>
Polio	0	0%
Haemophilus influenza type b	7	5%
<b>Pneumococcal disease</b>	<b>20</b>	<b>13%</b>
Meningococcal disease	2	1%
Measles	1	1%
Mumps	5	3%
Rubella	1	1%
<b>Varicella</b>	<b>43</b>	<b>29%</b>
Rotavirus	9	6%
<b>Total</b>	<b>149</b>	<b>100%</b>

## Results continued

- The child's vaccination status against the VPD prior to contracting the VPD was reported as follows: 156 (81%) had no immunization and 36 (19%) had delayed immunization.



- 147 (79%) of respondents reported that they were aware of existing tools to manage vaccine hesitancy (e.g., Canadian Paediatric Society Practice Point *Working with vaccine-hesitant parents*). Of those who were aware of existing tools, 100 respondents (69%) had used the tools.



## Discussion/ Implications

- Despite sustained efforts to increase public awareness on the evidence of vaccine efficacy, 1/5 of responding physicians had seen at least one case of a child with a VPD and vaccine-hesitant parent(s) in the preceding 12 months.
- There is a dearth in the literature related to vaccine acceptance following VPD diagnosis; however, given the low rate of perceived vaccine acceptance post-VPD reported in this survey, a unique approach may be needed to address hesitancy in this subset of vaccine-resistant parents.
- In contrast to our previous CPSP survey which asked respondents about the reasons for hesitancy in parents who expressed concerns about vaccination (but who had not yet refused vaccination)<sup>4</sup>, concern about autism risk was not a top reason for vaccine refusal in this survey. This may indicate that autism concerns drive initial ambivalence about vaccination but not refusal.
- The data collected may not be representative of the wider Canadian population as many Canadian children receive primary care by a family physician and would not be cared for by a paediatrician. In addition, paediatricians who encountered an unvaccinated child with a VPD in the last 12 months may have been more likely to complete our survey, serving to overestimate the magnitude of this phenomenon.
- Some findings are limited due to incomplete responses from the survey respondents for certain data elements (Table 1).

## Anticipated Impact

- Vaccine hesitancy poses an urgent threat to public health, and effective interventions are critical to addressing this phenomenon.
- These results will encourage continued interdisciplinary collaboration on the subject of vaccine hesitancy, focusing on enhanced communication skills, including awareness and use of evidence-based structured approaches to care in these challenging situations.

## References

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