



# Vaccine acceptance, hesitancy and refusal in Canada: Challenges and potential approaches

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## Abstract

“Vaccine hesitancy” is a concept used frequently in vaccination discourse. This concept challenges previously held perspective that individual vaccination attitudes and behaviours are a simple dichotomy of accept or reject. Given the importance of achieving high vaccine coverage in Canada to avoid vaccine preventable diseases and their consequences, vaccine hesitancy is an important issue that needs to be addressed. This article describes the scope and causes of vaccine hesitancy in Canada and proposes potential approaches to address it.

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## Introduction

Vaccination is one of the most effective interventions to prevent life threatening communicable diseases (1). Vaccination programs have successfully lowered the prevalence of many infectious diseases and, thus in Canada, poliomyelitis and smallpox have virtually disappeared (2). While the scientific and medical consensus on the benefits of vaccination is clear, an omnipresent negative discourse around the safety and efficacy of vaccines continues to play out in social and traditional media. Because of vaccination success, new generations of Canadians are unaware of the risks of many vaccine preventable diseases and their concerns have shifted to the risks of vaccines (3).

Vaccine hesitancy is a concept that challenges the previously held perspective that vaccination attitudes and behaviours are a simple dichotomy of “accept” or “reject” (4-6). The World Health Organization (WHO) Strategic Advisory Group of Experts (SAGE) Working Group on Vaccine Hesitancy has defined vaccine hesitancy as a “delay in acceptance or refusal of vaccines despite availability of vaccine services” (7). Vaccine hesitancy is recognized by the WHO as a growing concern worldwide, affecting high, middle and limited resource settings (8). This definition was adapted to the Canadian context based on the opinions of vaccination experts and health professionals. Vaccine hesitancy in Canada has been defined as “reluctance to receive recommended vaccination because of concerns and doubts about vaccines that may or may not lead to delayed vaccination or refusal of one, many or all vaccines” (9). This article describes the scope and causes of vaccine hesitancy in Canada and proposes potential approaches to address this issue.

## Prevalence of vaccine hesitancy in Canada

Most Canadian parents choose to provide all recommended vaccines to their children and childhood immunization rates are generally high across Canada (10,11). According to the results of the last Childhood National Immunization Coverage Survey (CNICS), only 1.5% of children in Canada have never received a vaccine (10). However, 70% of the parents surveyed indicated they were concerned about potential side effects from vaccines and 37% believed that a vaccine can cause the same disease it was meant to prevent (10). Results also showed that there is a small proportion of Canadian parents who believe that alternative health practices, such as homeopathy or chiropractic manipulations, can eliminate the need for vaccines (10).

Results of other recent surveys conducted in Canada have also shown that a significant proportion of Canadians hold negative views about vaccination (12-15). Almost one-third of Canadians believe that parents should be able to decide against vaccination; approximately 20% believe that vaccines are directly linked to autism; and significant numbers of Canadians are not convinced of the benefits of herd immunity (the protection of a population against an infectious disease due to a high proportion of the population being vaccinated against it) (12-15). Results of a recent online survey conducted by the Canadian Immunization Research Network (CIRN) indicate that, while only three percent of parents said that their child had not received any vaccines, 19% considered themselves to be vaccine hesitant (*Dubé, E, oral presentation, CIRN Annual Meeting, May 19, 2016*).

Results of another Canadian study indicate that front line vaccine providers believe that vaccine hesitancy is an increasingly prevalent issue in Canada. The surveyed vaccine providers noted that vaccine hesitancy resulted in increased time spent



discussing vaccination issues with concerned patients and extra appointments were needed to accommodate patients who wanted to spread out the vaccines over multiple visits (9).

Important gaps also exist in the understanding of what factors influence vaccine hesitant individuals' decision for or against vaccination. Vaccine uptake does not always equal vaccine acceptance. There are situations where the uptake is high and the acceptance is low; for instance when individuals with concerns about the safety and/or effectiveness of vaccines choose to vaccinate only because of the requirements for school entry. In contrast, there are situations where the uptake is low but not due to vaccine hesitancy, such as when individuals believe in the value of getting vaccinated but do not do so because of logistics and accessibility barriers.

It is difficult to gain a clear picture of the prevalence of vaccine hesitancy among Canadians. Vaccine hesitancy varies across time, place and vaccine (6). There is no standardized tool to measure vaccine hesitancy except for one developed and validated in the United States to predict vaccination decisions of parents of infants based on their attitudes at birth or just after birth (16). In the absence of standardized indicators and without immunization registries (electronic records of all the public health recommended vaccines an individual has received, the age they received them and the specific lot numbers they came from—for safety surveillance reasons and reporting of adverse event following immunization), it is challenging to measure the scope of vaccine hesitancy in Canada. The results of a recent Ontario study that examined trends in medical and nonmedical immunization exemptions to measles containing vaccines have shown that the overall percentage of students with any exemption classification remained low between 2002/03 to 2012/13 (less than 2.5%) (17). However, religious or conscientious exemptions significantly increased during the study period whereas medical exemptions significantly decreased for students between 7–17 years of age, which indicates an increase in vaccine refusals due to vaccine hesitancy (17).

## What are the causes?

Vaccine hesitancy is complex and multidimensional. Indeed, there is no single cause of vaccine hesitancy because a mix of different factors is at play. Important drivers of vaccine hesitancy include: concern about the safety of vaccines, perception that vaccines are not beneficial, pain and needle fear or distrust of the pharmaceutical industry in the implementation of vaccination programs (18–20). Negative and false information about vaccination online and in social media is also an important cause of vaccine hesitancy. Indeed, many studies have suggested that the ubiquity of anti-vaccination content on the Internet contributes to an increase in vaccine hesitancy (21–27). Most studies that have examined vaccination related content on websites or social media platforms have shown that the quality of information is highly variable and there is a substantial amount of negative and inaccurate information (26,28–34).

Lack of knowledge about vaccines is frequently identified as a cause of vaccine hesitancy (9,35,36). Studies conducted in different settings, however, have shown that vaccine hesitant parents appear to be well informed individuals who have

considerable interest in health related issues and actively seek information (37–39). Indeed, education and socioeconomic status are related to vaccine acceptance, but not in the same way as they are related to health conditions or adherence to public health recommendations. Instead, increased vaccine hesitancy has been associated with both high and low education and high and low socioeconomic status, highlighting the complex array of interrelated factors at play (19).

Many studies have shown that, like most health behaviours, vaccine behaviours are complex and knowledge is only one of many determinants of vaccination decisions (18,35,40). The three Cs model (confidence, complacency and convenience) outlines three key interrelated causes of vaccine hesitancy. Vaccine *confidence* is defined as trust in a) the effectiveness and safety of vaccines; b) the system that delivers them, including the reliability and competence of the health services and health professionals and c) the motivations of the policy-makers who decide which vaccines are needed when and where. Vaccine *complacency* exists where perceived risks of vaccine preventable diseases are low and vaccination is not deemed a necessary preventive action. Complacency about a vaccine or about vaccination in general is influenced by many factors including other life/health responsibilities that may be seen to be more important at that point in time. Vaccine *convenience* is measured by the extent to which physical availability, affordability and willingness to pay, geographical accessibility, ability to understand (language and health literacy) and appeal of immunization services affects uptake. The quality of the service (real and/or perceived) and the degree to which vaccination services are delivered at a time and place and in the cultural context that are convenient and comfortable also affects the decision to be vaccinated (definitions adapted from MacDonald [6]).

## What can be done about it?

Because causes of vaccine hesitancy and determinants of vaccine acceptance are complex and multidimensional, there is no “magic bullet” that can address vaccine hesitancy and enhance vaccine acceptance. A summary of the findings from 15 published literature reviews or meta-analysis of the effectiveness of different interventions to reduce vaccine hesitancy and/or to enhance vaccine acceptance reveals that simply communicating evidence about vaccine safety and efficacy to those who are vaccine hesitant has done little to stem the growth of hesitancy related beliefs and fears (41). Furthermore, failure to properly and systematically evaluate the relevance and effectiveness of these interventions across the spectrum of vaccine hesitant individuals and specific vaccines makes it difficult to know whether the results can be transferable or suitable for widespread implementation.

Addressing vaccine hesitancy requires strategies that are: tailored to the concerns of the different segments of the population; based on an empirical understanding of the situation; multi-component; ongoing; and pro-active rather than responsive or reactive (42). Unfortunately, most public health interventions that promote vaccination assume that vaccine hesitancy is due to inadequate knowledge about vaccines (the “knowledge deficit” approach) (35,36). However, as discussed



previously, the situation is complicated and underlying values and priorities compete with public health recommendations (43,44). Changing risk perception (a subjective judgment that people make about the characteristics and severity of a risk) through communication means that messages need to be tailored and targeted to account for the realities of community specific knowledge systems (e.g., adapted to address a vaccine scare peculiar to a specific context or tailored to religious beliefs of a specific community) and the unique information needs and preferences of particular communities (45,46). Successful communication is a “two way process, with an equal measure of listening and telling. Understanding the perspectives of the people for whom immunization services are intended, and their engagement with the issue, is as important as the information that experts want to communicate” (47).

Should the public health community respond to anti-vaccination activists (48)? Leask suggests that adversarial approaches against such activists can in fact enliven the battle and contribute to a false sense that vaccination is a highly contested topic (49). Most of the time, pro-vaccine advocates should “play the issue, not the opponent” (49). Efforts should be made to stop them only when anti-vaccination activists’ advice could lead to direct harm.

Future public health vaccine promotion efforts need to embrace Internet and social media possibilities and proactively promote the importance and safety of vaccines rather than adopt a reactive approach to anti-vaccination activists’ arguments (47,50,51). The role of social media in vaccine hesitancy creates a need to develop appropriate strategies for online communication. Such strategies should aim to provide vaccine supportive information, address misinformation published online and correspond to parents’ needs and interests (29).

Finally, Canadian parents still consider health care providers their most trusted sources of information and advice about vaccination (11,18). Health care providers’ recommendations are a major driver of vaccine acceptance (52-54). Risk communication about vaccines can be emotional for both parents and health care providers, especially when ideological positions are not compatible (55). To decrease vaccine hesitancy, health care providers should be well informed and address parents’ questions clearly (56). Health care providers should make clear recommendations to vaccinate, but should avoid “overselling” vaccination, as this can also increase hesitancy (57). Research has shown that people are more drawn toward, and are accepting of, information that shares their worldview (58,59). In contrast, when faced with information that contradicts their values, individuals can feel threatened, react defensively and their initial beliefs may become even more strongly held. Messaging that advocates vaccination too strongly may be counterproductive for those who are already hesitant (60,61). Many tools and tips exist to help providers in their discussions with vaccine hesitant or vaccine refusing patients (62-65). While approaches vary, they share common characteristics, such as the importance of maintaining a trustworthy patient provider relationship, as well as tailoring communication to patients’ specific concerns and doubts (Table 1).

**Table 1: Attitudes toward vaccination, with proposed counseling strategies<sup>1</sup>**

Vaccine position	Counseling strategies <sup>2</sup>
Vaccine acceptors	<ul style="list-style-type: none"> <li>• Encourage / promote resiliency.</li> <li>• Explain common side effects and rare adverse events.</li> <li>• Use verbal and numeric descriptions of vaccine and disease risks.</li> </ul>
Vaccine hesitant	<ul style="list-style-type: none"> <li>• Build rapport, accept questions and concerns.</li> <li>• Establish honest dialogue, provide risk and benefit information about vaccines and diseases.</li> <li>• Use decision aids and other quality information tools.</li> <li>• Book another appointment to re-visit discussion, if needed.</li> </ul>
Vaccine refusers	<ul style="list-style-type: none"> <li>• Avoid debating back and forth about vaccination.</li> <li>• Aim to keep discussion brief, but leaving door open to further discussion.</li> <li>• Inform about risks of non vaccination.</li> <li>• Offer attendance at a special clinic<sup>3</sup>.</li> </ul>

<sup>1</sup> Adapted from Leask (65) and Healy & Pickering (63)

<sup>2</sup> Most strategies are applicable to all groups

<sup>3</sup> Specialists in some countries offer clinics for children who have experienced an adverse event following immunization (66)

## Conclusions

Choosing to vaccinate one’s child remains the norm in Canada and most parents continue to vaccinate their children. However, clusters of un- or under-vaccinated individuals exist and Canadians are at risk of vaccine preventable diseases, as illustrated by recent outbreaks of measles, mumps and pertussis (67,68). Vaccine hesitancy is an important issue that must be addressed to maintain high vaccine coverage uniformly through the country and lower the incidence and consequences of vaccine preventable diseases.

Understanding the complex mix of factors that determine individual and collective vaccination behaviour is key to designing effective vaccination policies, programs and targeted interventions. Systematic theory-driven research on the determinants of vaccine acceptance and uptake, overall and by vaccine type at the public, provider and system levels are needed to inform policy and interventions. Evaluation research and randomized trials are also needed to assess the effectiveness of interventions, acquire insights on how they work and identify which approaches are most effective for different groups and populations.

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