

What do we know about how to improve vaccine uptake?

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Abstract

Over the past 100 years, an increasing array of vaccines has been introduced into the Canadian market and yet optimal use depends on public demand and acceptance of these products. In the 1990s, research focused on key barriers to vaccine uptake, highlighting the importance of barriers to access and “missed opportunities” for vaccination. In this century the focus is on vaccine hesitancy, which is influenced by factors such as complacency, convenience and confidence. This phenomenon is not new but some of its drivers include an increasingly crowded immunization schedule, heightened societal concerns about risk over benefit, and a rise in health consumerism. Understanding and addressing vaccine hesitancy will be critical to preventing it from undermining the success of immunization in the future. While more research is needed, there are both practitioner-based resources to optimize dialogue with vaccine-hesitant parents and program-based resources to address vaccine hesitancy at a population-based and societal level.

Introduction

Parental decisions to not vaccinate their children are recognized as an increasing barrier to the success of immunization programs in Canada. On the heels of successful elimination of measles and rubella in Canada (1) have come the challenges of introduction of HPV vaccine (2), an unflattering report card on vaccine coverage rates for Canada from UNICEF (3), provincial monitoring indicative of a growing trend in vaccine refusal (4), and re-emergence of measles (5). All of these have shed light on an important contributor to vaccine uptake, now termed “vaccine hesitancy.” This phenomenon is not new but some of its drivers include an increasingly crowded immunization schedule, heightened societal concerns about risk over benefit, and a rise in health consumerism. Understanding and addressing vaccine hesitancy is critical to prevent it from undermining the success of immunization in the future. The objective of this article is to summarize the available literature on strategies for addressing vaccine hesitancy in an effort to improve public confidence and, correspondingly, vaccine acceptance.

In the past 100 years, scientists and academics, the vaccine industry, and regulatory agencies have brought an array of vaccines for primary prevention of serious diseases to the Canadian market. Since the 1960s, the National Advisory Committee on Immunization (NACI) has made recommendations for their use (6). Provincial/territorial ministries of health adopt these into publicly-funded immunization programs. Thereafter it is the primary objective of public health immunization programs to achieve high targeted levels of vaccine uptake in the population in order to maximize the benefits of this preventive measure (7).

In the 1990s, the large outbreaks of measles which occurred prior to introduction of the second dose of measles vaccine into routine childhood immunization led to program-based research focusing on key barriers to vaccine uptake. Emerging especially from the U.S.-based studies was a body of work addressing the importance of “missed opportunities” for vaccination. This highlighted that a significant contribution to ongoing outbreaks was under-vaccination among children who had encountered a health care provider who failed to use the visit as an opportunity to offer vaccine. Recommendations to improve provider-driven interventions were developed, and several systematic reviews were conducted in the United States and Canada to guide incorporation of strategies with demonstrated effectiveness into guidelines for provider practice (8, 9, 10, 11). These are well summarized by the Community Preventive Services Task Force and include reminder/recall systems, vaccination requirements and programs for day care centres and schools/colleges, home visits, immunization information systems, client and family incentives, and provider assessment and feedback (12). In a more recent development, evidence-

based pain reduction techniques have been incorporated into immunization practice guidelines to reduce reasons why people may choose not to immunize (13).

Analysis

The literature on parental factors associated with vaccine uptake contains many studies of immunization-related knowledge, attitudes and behaviours, and attempts have been made to identify characteristics of individuals and populations objecting to vaccination (14). The term “vaccine hesitancy” has come into use to describe attitudes and beliefs that may interfere with acceptance of one or more vaccines, including parental requests for alternate immunization schedules. Vaccine hesitancy is associated with a spectrum of vaccine uptake, from acceptance of vaccines despite doubts, to selective vaccination, delayed vaccination, and outright refusal of all vaccines. It has been defined by the Strategic Advisory Group of Experts (SAGE) on Immunization as “...delay in acceptance or refusal of vaccines despite availability of vaccination services. Vaccine hesitancy is complex and context specific, varying across time, place and vaccines. It is influenced by factors such as complacency, convenience and confidence.” (15)

Vaccine hesitancy is recognized as a problem globally and has reached the attention of the World Health Organization to stimulate a more organized approach to this phenomenon (16, 17). Hesitancy is closely aligned with public trust in vaccines. It is not solely related to scientific issues but influenced by psychological factors, the sociocultural milieu, philosophical inclination such as preference for “natural” alternatives, and religious and political factors, including distrust of government and the pharmaceutical industry. While new immunization program introduction is traditionally concerned with the science of the vaccine and the infrastructure for its delivery, there has been insufficient attention to the many factors that influence public acceptance of vaccines (18).

Several reviews of the vaccine hesitancy literature have been published and a report outlining an evidence-based strategy was issued by SAGE following its October 2014 meeting (15, 19, 20, 21, 22). While the literature contains a heterogeneous group of approaches, populations and results, SAGE supports delivery of multi-component but integrated interventions that include mass media, social mobilization at multiple levels and dialogue-based interventions, in addition to previously identified effective strategies (e.g., reminder/recall). SAGE also concluded that more research is needed that is formative in nature and designed to obtain evidence rather than test pre-formed assumptions.

Practitioner-based strategies

Resources are available to help practitioners with the difficult dialogue with vaccine-hesitant parents. Emerging evidence supports starting the conversation with a statement assuming that the child will be immunized (an “opt-in” approach), which recognizes that parents perceive the decision as complex and emotional, and based on “choice architecture” observations that in such situations humans will choose a decision that has already been made by the majority (23). Available guidance advises listening to the parent’s perspective and concerns in a non-judgmental manner, and the importance of establishing trust. Motivational interviewing with open questions and a guiding style is recommended to identify whether the parent is responsive to change and their motivations, and to establish where they sit in the five-stage spectrum based on the transtheoretical model of behaviour change (pre-contemplation, contemplation, preparation, action, maintenance) (24).

Clinical practice guidelines from experts in the field advise that the dialogue should also elicit specific worries about information the parent has read or been told (25, 26, 27). The literature suggests that standard written vaccine information and refuting misconceptions may further entrench parents most strongly opposed to vaccination (28). Evidence supports emphasizing the benefit to the child of being vaccinated instead of emphasizing benefits to society as a whole (29). Illustration through use of stories about cases of vaccine-preventable disease is more helpful than providing statistics, but it is important to define numerically terminology (e.g., “common” or “rare”) that may be used to describe both the risk of disease and its complications and frequency of an adverse event.

The encounter is more effective when the information provided to the parent is tailored to their concerns. Providers should be well informed to address parents’ questions, as research indicates that vague responses do

not engender confidence; an excellent series of public domain articles is available in *Pediatrics* (30, 31, 32, 33). Providers should also be careful not to “oversell” immunization, to outline expectations and management of common adverse events, including local injection site reactions and fever in infants and young children, and to address parents’ fear of their child’s pain associated with injectable vaccines and to offer methods to reduce it (13). However, the provider should provide a clear recommendation, as this has been repeatedly recognized as highly associated with parental acceptance of vaccines. Much of this information has been summarized into online resources that can be readily accessed and also provided to parents (34, 35, 36).

Program strategies

On a broader scale, other strategies are also worth exploring. These include use of trained lay people alongside a trained provider in group sessions with parents prior to commencing an immunization series (37), and timely public health response to negative media reports or shoddy science (38,39). Engagement of the larger community supportive of vaccination in advocacy is also an emerging strategy that lends promise and will require evaluation (40, 41).

Conclusion

Despite the fact that vaccines are second only to clean water in saving lives across the globe, there is no magic bullet to address their acceptance (42). To ensure continued success of these programs, it is important to focus on population, community and individual concerns, to better understand where these lie on the continuum from acceptance to rejection. This knowledge and evidence-based multi-component approaches tailored to specific communities and vaccines are required to improve public acceptance of vaccines and achieve not only improved uptake but also increased trust and confidence.

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