

Canadian Guidance on Addressing Vaccine Hesitancy to Help Foster Vaccine Demand and Acceptance

Section 5. Strategies to Address Hesitancy and Help Foster Demand

Dr. Noni MacDonald & Dr. Eve Dubé

Building Resilient Pro-Vaccine Communities



Building the capacity to improve vaccine acceptance and uptake

The Canadian Vaccination Evidence Resource and Exchange Centre (CANVax) is an online database of curated resources to support immunization program planning and promotional activities to improve vaccine acceptance and uptake in Canada. As an online resource centre, CANVax aims to increase access to evidence-based products, resources, and tools to inform public health professionals in immunization program planning and promotion.

CANVax has been developed by the Canadian Public Health Association. Production of CANVax has been made possible through funding from the Public Health Agency of Canada. The views expressed herein do not necessarily represent the view of the Public Health Agency of Canada.

For more information, contact:

Canadian Public Health Association

404-1525 Carling Avenue, Ottawa, ON K1Z 8R9

T: 613-725-3769 | info@cpha.ca | www.cpha.ca

PREFACE

This document was adapted from the **Western Pacific Regional Guidance on Addressing Vaccine Hesitancy to Help Foster Vaccine Demand** document, drafted in 2017 in response to the recommendation at the meeting of the Technical Advisory Group (TAG) on Immunization and Vaccine-Preventable Diseases in the Western Pacific Region (WPR), in July 2016.

Purpose and Specific Objectives of the Guidance as per WPR

The main purpose of the regional guideline on vaccine hesitancy is to help Member States to:

1. Identify the extent of vaccine hesitancy in the country.
2. Identify vaccine-hesitant population subgroups.
3. Diagnose the demand- and supply-side immunization barriers and enablers.
4. Design evidence-informed strategies to address hesitancy appropriate for the subgroup setting, context and vaccine.
5. Receive and provide support for regional coordination to successfully address vaccine hesitancy in the country.

The initial WPR draft, including the two Aide Memoires, was written by Noni E MacDonald, Dalhousie University, Halifax Canada, with input from Eve Dubé, Institut national de santé publique du Québec, Québec, Canada, Lisa Menning and Melanie Marti, Immunization, Vaccines and Biologicals, World Health Organization (WHO), Geneva, Switzerland and Sarah Long, Dalhousie University.

Canadian Guidance

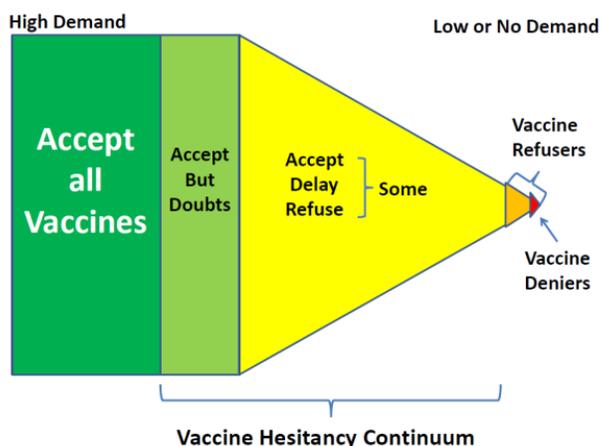
The WPR document was then re-crafted by Noni E MacDonald and Eve Dubé to address the Canadian context, and sections were updated.

Each section has been written to integrate with the other sections but also to be able to stand alone. The main emphasis is on the diagnosis of hesitancy and focuses on interventions that can increase vaccine uptake at the program and individual levels.

For the full report of the Canadian Guidance on Addressing Vaccine Hesitancy to Help Foster Vaccine Demand and Acceptance, please visit <https://canvax.ca/canadian-guidance-addressing-vaccine-hesitancy-help-foster-vaccine-demand-and-acceptance-full>.

Vaccination decisions are complex. Hence it is not surprising that there is no single strategy that has been shown to be effective in addressing vaccine hesitancy in all circumstances. Many studies have focused on vaccine uptake and/or refusal in order to evaluate interventions aimed at enhancing vaccine acceptance. These studies have not captured whether the interventions changed doubts about acceptance – as the vaccine-hesitants are an important part of the population along the continuum of hesitancy (see Figure 5.1).

Figure 5.1 Vaccine Hesitancy Continuum



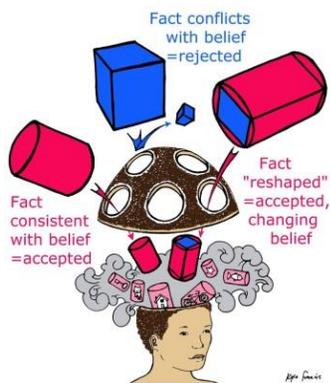
Some immunization programs have approached hesitancy as a “knowledge deficit” problem and responded with facts about vaccines and vaccine-preventable diseases. This has not worked well, as vaccine hesitancy is more complex. Facts alone rarely change behaviour, nor do they adequately address barriers and concerns, motivate the hesitant to accept vaccines and/or generate active demand for routine vaccines. Furthermore, in considering fostering of demand, even effective programs that lead to increased acceptance of vaccines (i.e. that overcome some hesitancy) may not generate demand for vaccines and immunization services. As noted in [Section 1 \(Vaccine Hesitancy and Vaccine Demand\)](#), a low level of hesitancy does not mean there is a demand – fostering demand goes beyond taking steps to address hesitancy.¹

In thinking about addressing hesitancy, an understanding of risk perception is important.

Risk perceptions are *intuitive, automatic and unconscious*, and *much influenced by beliefs*. If a fact agrees with the belief, than it is heard well; if not, it does not even register (see Figure 5.2). For misinformation to be corrected, the correct fact must be “reshaped” and packaged so it can be heard.²

Emotions influence how people make decisions and how numerical information is heard. Anecdotes are powerful. Many social, cultural, demographic and socio-psychological factors also influence perceptions and decisions.³ Furthermore, individuals only collect as much information as is needed to reach a decision in the given context; we are “cognitive misers.”⁴

Figure 5.2 Beliefs, Risk Perception and Decisions



- We are strongly influenced by ***what we think others around us are doing or expecting us to do.***
- We see ***causation in coincidences.***
- We see ***what we believe, rather than believing what we see.***
- We ***prefer stories and anecdotes*** to data and evidence.
- We are becoming ***increasingly hyper-vigilant to risk for children.***

A growing concern in the past decade and a half is that social media has now become a strong and extensive platform for strident anti-vaccine groups to promulgate their views and shape negative beliefs amongst the public.⁵⁻⁷

Addressing Hesitancy

At the program level, Leask and colleagues, from Australia,⁸ have proposed five major tasks to tackle vaccine hesitancy:

- greater government investment in the strategic direction, capacity building, research and evaluation of hesitancy in order to meaningfully address vaccine hesitancy;
- the importance of monitoring trends in the prevalence of vaccine hesitancy;
- community engagement and dialogue through local opinion leaders or peer groups;
- providers utilizing effective communication strategies with patients about immunization; and
- health care provider education.

While no one strategy can address all hesitancy – as it is a complex problem – there are evidence-based practical interventions that can lead to improved vaccine acceptance. Outlined below are six immunization program level strategies and six individual health care worker- /patient-level strategies (see Tables 5.1 and 5.2). In considering these strategies, immunization program managers and health care professionals must bear in mind that multi-pronged approaches are more effective in improving uptake than single-strategy approaches⁹⁻¹⁰ and the work on TIP¹¹ emphasizes the importance of tailoring strategies to fit the needs of the targeted subgroups (see [Section 4 – Recognize and Diagnose Underlying Factors in Refusal or Delay in Vaccine Acceptance](#)).

Addressing Hesitancy: At the Immunization Program Level

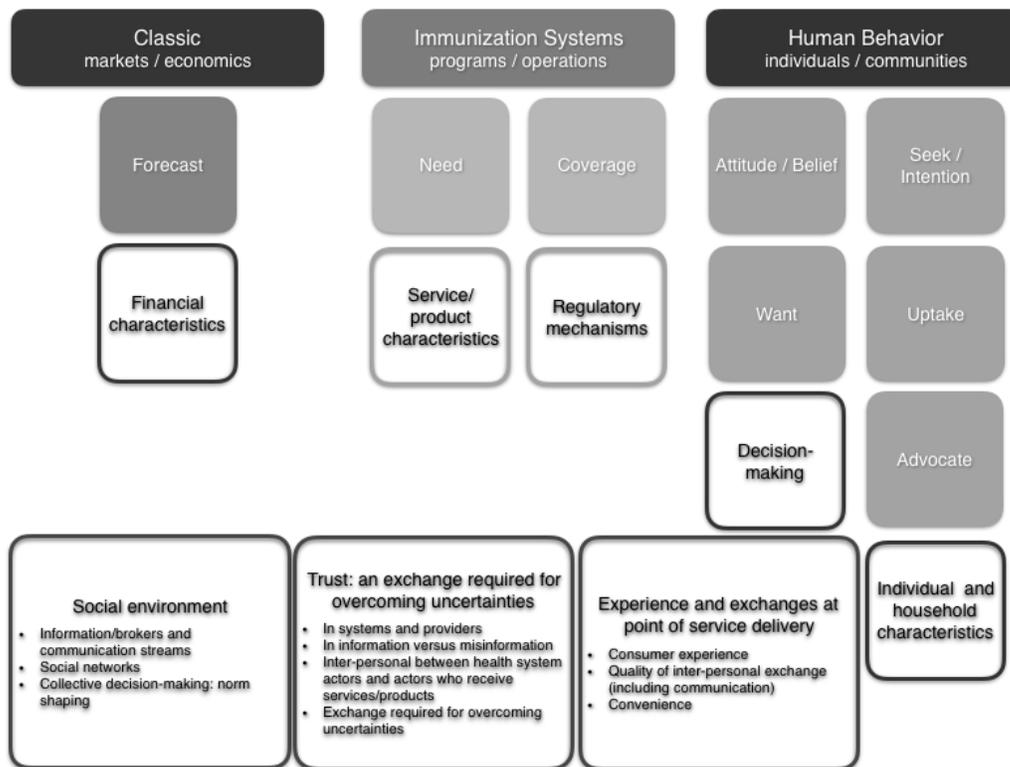
Six program level strategies to improve vaccine uptake and thus address hesitancy and in part nurture demand for vaccine and immunization services are summarized in Table 5.1, and expanded upon in subsections 5.1 to 5.6 below.

Table 5.1 Strategies to Increase Vaccine Uptake/Acceptance: at the Immunization Program Level
(For frontline health care worker/patient-level strategies see [Table 5.2](#))

- | | |
|--|--|
| 1. Foster trust | 4. Develop effective communication plans |
| 2. Ensure best immunization practices by health care workers | 5. Educate children, youth, and adults on the importance of immunization for health |
| 3. Utilize evidence-based strategies known to increase uptake <ul style="list-style-type: none">a. Engage community leaders, religious or other influential leaders to promote vaccination in the community.b. Reduce constraints and improve access to vaccination.c. Employ reminder and follow-up.d. Consider mandating vaccinations/sanctions for non-vaccination and financial incentives.e. Use multiple interventions. | 6. Work collaboratively within the country and across regions |

As noted, none of these should be done in isolation. Furthermore, the components of demand must be considered in thinking through the most appropriate strategies for a given situation (see Figure 5.3). The components under human behaviour are especially relevant in selecting intervention strategies to address hesitancy, improve vaccine acceptance and generate demand.¹

Figure 5.3 Three Major Categories for the Use of the Term “Demand” in Immunization Literature

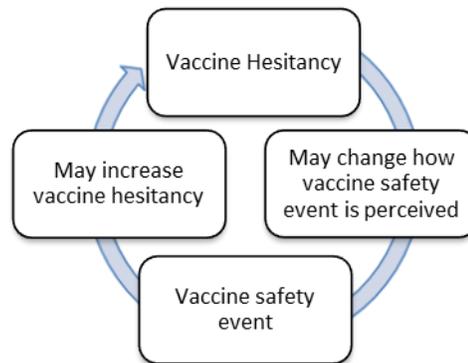


5.1 Foster trust

As discussed in [Section 1](#), in the definition of vaccine hesitancy, **confidence** in vaccines – in the delivery system, in the policy-makers who decide which vaccines for whom and when – is one of the 3C’s categories of determinants.¹² Nurturing trust in vaccines, in the health system and in the immunization program are important areas for immunization programs to focus on to minimize the development of hesitancy, to address those who are hesitant, and, to develop and foster demand for vaccines and immunization services.

Many elements can undermine trust, and these can vary across epidemiologic conditions, specific vaccines and cultural and sociopolitical settings.¹³ The importance of trust and confidence globally was reinforced from the JRF (Joint Reporting Form) findings as noted in [Section 2 \(Vaccine Hesitancy Globally and in Canada\)](#).¹⁴ In fostering trust, there is a significant link between vaccine hesitancy and the perception of vaccine safety events¹⁵ (see Figure 5.4).

Figure 5.4 Interrelationship between Vaccine Hesitancy and Safety Events



The WHO Regional Office in Europe released a guidance document on vaccination and trust in 2017.¹⁵ The Guide emphasizes the following four areas.

WHO Europe Vaccination and Trust Guide¹⁵

Ongoing work to build and maintain confidence in vaccines and vaccination:

1. Establish a coordination mechanism – A communication working group should be established to help plan communication on a routine basis and be ready for a crisis.

Routine:

- Work together as a group to ensure strong routine communication/aligned messaging.
- Share information regularly, via emails and face-to-face meetings.

Crisis:

- Agree on who will be involved in coordinating communications in the case of a crisis, the roles and responsibilities, and how information will be coordinated and shared in a crisis.
- Share information regularly, via emails and/or face-to-face meetings.

2. Strengthen the organization – In building and maintaining trust in vaccination, there is a need to develop, implement, share communication strategies and plans widely, and train staff.

- Develop communication and crisis communication plans.
- Ensure senior management engagement and approval of plans.
- Prepare holding statements for use in a crisis.
- Train spokespersons and establish relations with the media.
- Train frontline health workers in vaccination safety and interpersonal communication.

3. Build relations – Good stakeholder relations are critical to building and maintaining trust.

- Engage stakeholders in disseminating information and developing communication plans.
- Form strategic relationships with stakeholders with access to the organization's priority target groups.
- Work with the media to gain their trust and increase their knowledge of immunization.
- Be visible to increase public knowledge of immunization and trust in your spokespersons.

4. Build population resilience – To ensure public trust in vaccines and health authorities, and build resilience to vaccine safety scares, ongoing communications need to be implemented in order to build awareness, and knowledge of risks and benefits of immunization against vaccine-preventable diseases.

- Conduct research to gain a deeper understanding of key population groups and to test communication products and messages.
- Monitor public opinion on immunization (e.g., through social media monitoring or feedback from frontline health workers).
- Ensure information for key target groups and job aids for health workers is based on insights gained from the previous step on research and monitoring.
- There are many components that must be attended to in growing and maintaining trust. A crisis can destabilize trust by affecting risk perception.

When a crisis occurs or an event has the potential to escalate into a crisis, the WHO Europe Vaccination and Trust Guide outlines the following key steps to consider.

WHO Europe Vaccination and Trust Guide¹⁵

Four immediate steps when responding to an event/crisis that may erode trust:

1. Gather the inner circle of the team together – Establish a coordination and working group (if not already established). Engage relevant partners across institutions, e.g., ministries of health, education and social affairs; regulatory authorities; centres for disease control, health promotion, communication, press and emergency response; vaccine experts; and professional associations. Have an agreement on how members will continue to coordinate, communicate and share information within the group. Establish agreements on roles and responsibilities.

2. Understand the problem – Obtain as much information as possible about the event(s) that took place. Analyze the situation: what is the potential level of impact on trust in vaccines and the immunization program? Shape your communication responses according to your conclusions.

Bear in mind – Not all events that may potentially erode confidence in vaccines and vaccination require a communication response. Not responding may impair trust in vaccines and health authorities. Over-communicating may cause unnecessary public concern. Carefully consider your communication strategy.

3. Liaise with key stakeholders (critical in a crisis) – Consult your list of key stakeholders. Liaise with stakeholders to benefit from the support of advocates. Share information with stakeholders to avoid confusion and distrust, and to avoid any negative interference from adversaries.

Many voices with same/similar messages to yours during a crisis from stakeholders held in high esteem in the community help support trust.

4. Communicate externally – Decide whether the event warrants an external communication and plan your response based on your analysis of the event. Revisit your crisis communication plan and prepare a plan for external communication. Communicate broadly and to selected target groups; communicate often using consistent messages through many channels. Communicate where there are uncertainties and what you are doing to reduce them.

Remember – the right response may limit the negative consequences of the crisis or even prevent the situation from escalating into a crisis. Honest and open communication is crucial for maintaining and building trust.

The WHO Regional Office in Europe developed an online library - [Vaccination and trust library](#),¹⁶ offering 17 helpful tools (see below). These are potentially useful to provinces and territories, although some may need to be adapted for culture and context differences:

1. Vaccination and trust (2017)

<http://www.euro.who.int/en/health-topics/disease-prevention/vaccines-and-immunization/publications/2017/vaccination-and-trust-2017>

3. Four immediate steps when responding to an event that may erode trust (2017)

http://www.euro.who.int/__data/assets/pdf_file/0018/333135/VSS-4-steps-trust.PDF

5. How to prepare a press release (2017)

http://www.euro.who.int/__data/assets/pdf_file/0020/333137/VSS-press-release.pdf

7. Tips for spokespersons (2017)

http://www.euro.who.int/__data/assets/pdf_file/0004/333139/VSS-tips-spokepersons.pdf

9. How to ensure a context-specific response to events that may erode trust (2017)

http://www.euro.who.int/__data/assets/pdf_file/0009/337473/02_WHO_VaccineSafety_SupportDoc_AnalysingEvents_Proof7.pdf

11. Safety events: planning the immediate media response

http://www.euro.who.int/__data/assets/pdf_file/0004/337486/02_WHO_VaccineSafety_SupportDoc_MediaResponse_Proof11.pdf

13. New vaccine introduction checklist for planning communication and advocacy (2017)

http://www.euro.who.int/__data/assets/pdf_file/0008/337490/02_WHO_VaccineSafety_SupportDoc_NewVacIntro_Proof8.pdf

15. How to monitor public opinion (2017)

http://www.euro.who.int/__data/assets/pdf_file/0011/337493/02_WHO_VaccineSafety_SupportDoc_PublicOpinion_Proof4.pdf

17. Template Terms of Reference for a vaccine communication working group (2017)

http://www.euro.who.int/__data/assets/pdf_file/0005/337496/02_WHO_VaccineSafety_SupportDoc_TOR_Proo

2. The questions journalists always ask in a crisis (2017)

http://www.euro.who.int/__data/assets/pdf_file/0017/333134/VSS-journalists-questions.PDF

4. Four critical elements in the ongoing work to build and maintain confidence (2017)

http://www.euro.who.int/__data/assets/pdf_file/0019/333136/VSS-4-elements-confidence.pdf

6. Strategies used by journalists during an interview or press conference (2017)

http://www.euro.who.int/__data/assets/pdf_file/0003/333138/VSS-journalists-strategies.pdf

8. Crisis communications plan template (2017)

http://www.euro.who.int/__data/assets/pdf_file/0014/333140/VSS-crisis-comms-plan.pdf

10. Checklist for preparedness Are you prepared for an event that may erode public trust in immunization? (2017)

http://www.euro.who.int/__data/assets/pdf_file/0010/337474/02_WHO_VaccineSafety_SupportDoc_ChecklistForPreparedness_FINAL.pdf

12. How to prepare a message map (2017)

http://www.euro.who.int/__data/assets/pdf_file/0007/337489/02_WHO_VaccineSafety_SupportDoc_MessageMap_FINAL.pdf

14. Key principles for presenting data (2017)

http://www.euro.who.int/__data/assets/pdf_file/0010/337492/02_WHO_VaccineSafety_SupportDoc_PresentingData_Proof5.pdf

16. Stakeholder management (2017)

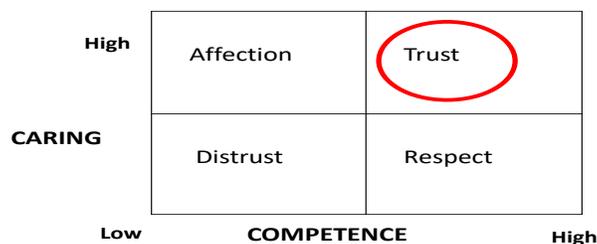
http://www.euro.who.int/__data/assets/pdf_file/0004/337495/02_WHO_VaccineSafety_SupportDoc_StakeholderManagement_Proof8-3.pdf

5.2 Ensure best immunization practices by health care workers

Health care providers play an important role in patient/parental decision-making about accepting vaccines regardless of the income settings (see [Section 5.7](#)).¹⁷⁻¹⁹ However, health care workers themselves may be vaccine-hesitant, and can negatively impact vaccine acceptance with their comments and demeanor.²⁰⁻²¹ Hesitancy may not be as insignificant amongst health care workers as many might assume. For example, among pediatricians attending an American Academy of Pediatrics meeting, 5% did not routinely recommend the influenza vaccine or the HPV vaccine,²² and hesitancy is even more common among French family physicians in France.²³ Health care workers need to be well versed about vaccines, non-hesitant themselves, and are knowledgeable about best immunization practices. To date, there is no quick fix for addressing vaccine hesitancy amongst health care workers.

Knowledge about vaccines and about vaccine hesitancy can better prepare health care workers to address parental and patient vaccine and vaccine program concerns. Demonstrating competency is an important component in building trust between the health care worker and the parent/patient.²⁴ While correct and transparent information for parents and patients plays a key role in parental/patient decisions on whether to have their children or themselves vaccinated, the information must be delivered in a caring manner to increase the likelihood of it being heard (see Figure 5.5).

Figure 5.5 Trust = Caring + Confidence



For example, if parental concerns about multiple injections for infants are not addressed with both competence (good injection technique, using evidence that supports multiple injections at the same visit, acknowledgment of and taking steps to mitigate pain during immunization) as well as with compassion (presenting a caring persona), parental trust in the immunization program can be undermined. Knowledge about best immunization practices can also help minimize vaccine program errors by frontline workers that can lead

to serious adverse events, which can contribute to hesitancy, as noted above (see [Section 5.1](#)).

For an optimal outcome, patients and parents need to hear – *from all* health care professionals and workers, not just those in immunization – consistent and accurate information on vaccine-preventable disease risks, vaccine safety and benefits, given in a respectful, positive manner.

Ensuring that undergraduate health care professional training programs pay sufficient attention to immunization so that graduates are well prepared and knowledgeable about vaccines, vaccine-preventable diseases, and best immunization practices (including communication strategies) may help to decrease vaccine hesitancy among health care workers. For health care workers already in practice, regular updates with emphasis on the value and importance of vaccination and on dispelling misinformation may also help. In some countries, regular immunization competency testing is part of health care professional requirements for practice. For these to be of value, there must be regular updates to the competency standards based on evidence.

5.3. Utilize evidence-based strategies known to increase vaccine uptake

There are a number of evidence-based strategies known to increase vaccine uptake.⁹

- Targeting subgroups that are under-immunized (see [Section 4](#))
- Increasing knowledge about vaccines and vaccination programs (see [Section 5.4](#) below)
- Engaging community leaders, religious or other influential leaders to promote vaccination in the community (see below)
- Improving convenience and access to vaccination (see below)

- Employing reminders and following-up (see below)
- Mandating vaccinations/sanctions for non-vaccination and financial incentives (see below)
- Multi-pronged strategies, not single intervention strategies – given the complexity of hesitancy

Engaging religious and community leaders:

While religious concerns were not among the top three reasons for hesitancy amongst the 18 WPR countries who answered the hesitancy questions in the 2014 Joint Reporting Form survey, this was the top reason in three of the countries (Cook Islands, Fiji, Malaysia, Vanuatu). A review of major religions of world by Grabenstein in 2013,²⁵ revealed that the religious doctrines of all but the Christian Scientists support vaccination.

<p>Hinduism Buddhism Jainism Christianity Judaism Islam</p>	<p>All support:</p> <ul style="list-style-type: none"> • caring for others, • having a duty to the community (family, neighbours, each other) • preserving life • support vaccination
---	---

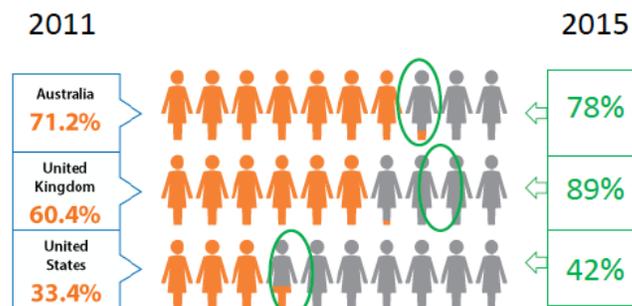
Anthroposophy was not included in this review, as it is not a formal “religion.” However, a recent commentary on the interpretation of anthroposophical doctrines indicates that "[vaccination will not be harmful if, subsequent to vaccination, a person receives a spiritual education.](#)"²⁶ There are some Christian Science followers who, while they do not accept other medical interventions, will accept immunization.²⁷

The Grabenstein review provides evidence on how to form alliances with local religious leaders to discuss encouragement of vaccine acceptance amongst their adherents. For example, many imams and other Islamic leaders have issued clear statements and fatwas describing how immunization is consistent with Islamic principles. Halal concerns are not supported by Islamic religious leaders or by the Islamic Organization for Medical Sciences. UNICEF has a [number of helpful resources](#) that provide guidance on partnering with religious communities in support of children for immunization,²⁸ including a document on [building trust in immunization with religious leaders and groups.](#)²⁹

Improving convenience and access to vaccination:

Ease of access to immunization services is a major factor in acceptance. Both the 3C’s and the 5A’s models for determinants emphasize constraints and access (see [Section 1](#)). School-based HPV vaccine programs in the United Kingdom and Australia have been much more successful than office-based programs in the United States (see Figure 5.6). Ease of access matters.³⁰

Figure 5.6 HPV Full-Dose Coverage among Girls in High-income Countries: 2011 vs 2015



Ease of access also matters in Canada. Distance is not always the impediment. Parents who had difficulties accessing immunization for their child were less likely to have a strong intention to come forward for the next immunization.³¹ For adults, the delivery of influenza vaccine in non-traditional sites such as pharmacies –not just public health clinics

or physicians' offices – appears to improve uptake.³² Hence, care must be taken by immunization programs to examine if there are barriers to access such as clinic hours, locations, etc. and then develop strategies to maximize the ease of access.

Employing reminders and following-up:

Along with addressing constraints, employing reminders and follow-ups has been shown in high-, middle- and low-income countries to be a useful tool to increase vaccine uptake.³³ The reminders used have included letters, phone calls and text messages, and have involved infant, adolescent and adult vaccines. See below for comments on how to frame text message reminders to maximize their impact.

Mandating vaccinations / sanctions for non-vaccination and financial incentives:

Mandatory immunization is controversial in many countries. Legal and ethical issues around mandates have also raised concerns.³⁴ A systematic review of the effect of mandates on immunization uptake revealed that these usually led to increased short-term and long-term uptake in the group to whom the mandate applied.³⁵ Many of these studies examined school-entry mandates for immunization, and most were in high-income countries. There are a few studies in countries that already have high rates of uptake. Due to concerns about recent vaccine-preventable disease outbreaks, especially measles, in 2017, Italy passed legislation making it mandatory for children aged 0 to 16 years and for unaccompanied foreign minors to receive vaccines recommended by the immunization program. Proof of immunization must be shown for enrolling children in kindergartens and schools, otherwise the parents must pay a fine.³⁶ France, which has one of the highest rates of vaccine hesitancy in Europe and a significant problem with vaccine-preventable diseases, expanded the number of vaccines covered in their mandatory law.³⁷ Parents had argued therefore they should not be required to accept the multivalent infant vaccine for their children. The court ruled in their favour. The problem was that there was no source of trivalent vaccine with low side effects similar to those in the multivalent vaccines. The manufacturer said that it would take years to design a new vaccine that would conform to today's standards. The French Public Health Authority held a "citizen consultation," a new type of institutional device grounded in the ideal of democracy and public participation in political decision-making. The law was broadened to add eight more vaccines. Time will tell if this will work or backfire. Mandatory immunization has backfired in the past in both in the United States and in the United Kingdom (where legislation led to huge protests that brought a government down).³⁸ Given the history of lack of support for immunization among French family physicians,²³ there are concerns especially with how easily and widely concerns and misinformation can be shared on social media.⁶⁻⁷ Mandates also appear to work better for some vaccines than for others.³⁹

If trust in the government and/or in the system is low, mandates need to be approached with caution, as they may backfire, resulting in decreased trust and increased anger.^{38, 40}

In Canada, Ontario and New Brunswick have had mandatory laws for school entry for many years; Manitoba also has mandatory laws for school entry, but only for measles vaccination. Of note: in the past decade, the vaccine uptake rates in these provinces with mandatory requirements (albeit with limited application) did not differ from provinces without the requirements.

Both Ontario and Manitoba are moving/have moved to strengthen their laws. In Ontario, until recently, there was no significant penalty and philosophical/personal exemptions were relatively easy to obtain. This has changed. The process for non-medical exemptions is now more cumbersome. Parents must complete a [Statement of Conscience or Religious Belief form](#) that then must be signed by a [commissioner for taking affidavits in Ontario](#). Parents must now also participate in an education session that covers basic information about immunization, vaccine safety, immunization and community health and the immunization law in Ontario.⁴¹ Experiences from United States suggests that these steps may increase acceptance.⁴²

Financial incentives to improve uptake have been used in different ways. The impact of incentives for health care workers, either financial or in the form of increased learning opportunities have been mixed. In the United Kingdom, educational and financial incentives in general practice increased uptake,⁴³ but a randomized cluster trial in US

pediatric practices did not see an effect.⁴⁴ The culture and context may matter. Parental financial incentives have also had mixed effect; there is insufficient evidence to conclude if these interventions are universally effective.⁴⁵ In Australia, the parental incentives [No Jab, No Pay – no child benefit legislation, and No Jab No Play – no daycare attendance legislation](#), appear to have been more successful both in the views of health practitioners and the public.⁴⁶ In contrast to mandates, which may be seen as punishments, parental incentives reward positive behaviour and could help build trust.

Multi-pronged strategies:

While a review of the literature has shown that a multi-pronged approach is more effective than single strategies,⁹ there are still very few multi-pronged strategies that have utilized known effective strategies concurrently, and of which have been tested. Using an ecological model, influenza immunization rates for long-term care facility workers and families were substantially increased.⁴⁷ This multi-component program included policy development, kick-off events, educational programs, goal-setting worksheets, incentives, a vaccination tracking roster, and facility-wide communication about vaccine uptake among the facility's health care workers. While it is not clear which element was the critical element, this intervention emphasizes that changing behaviour (i.e. increasing vaccine acceptance) is complex. The important 'nudge' component for one health care worker to accept vaccines was likely not the same for others. Interestingly, communicating back to the health care workers on the tracking of uptake can draw attention to the acceptance of influenza vaccine as the social norm. This is a known factor influencing decision-making.⁴⁸ Another successful program in the US examined a quality improvement exercise that bundled evidence-based and practice-based interventions to improve HPV acceptance in pediatric residents' continuity practice. The intervention included clinic reminders to families, coaching and communication skills training for the residents, as well as performance feedback and tracking of outcomes.⁴⁹

5.4 Develop effective communication plans

As noted above in Section 5.1 on Trust, communication is a key element in addressing hesitancy and in improving vaccine uptake.

Hesitancy is never simply a "knowledge-deficit" gap; facts alone are not convincing and do not change behaviour. There is growing evidence that communication can be an effective tool to improve vaccine acceptance, if utilized in a carefully planned and integrated fashion. While there is no agreement on how best to use communication to respond to vaccine hesitancy, there are some key elements to be considered in devising and implementing a communication plan, including⁵⁰ :

- be proactive, not just reactive
- understand that communication is a two-way process – listening is important (what are the concerns in the target group?)
- knowledge, while important, is not enough to change behaviour
- target the message to fit the subgroup, and pre-test it locally to ensure that it works as intended
- know that a wide range of communication tools are available, and then use the ones that will reach the target audience in the most effective way to promote vaccine uptake.
- carry out an evaluation to ascertain if the target audience was reached and if change occurred, and if not, reshape the communication program targeted at this subgroup

When done well, this can lead to improved vaccine acceptance in groups who were previously hesitant as shown in the targeted program in Freemantle, Western Australia.⁵¹ This "I immunize" campaign was multi-pronged and designed explicitly to appeal to the local values of a subgroup of well-educated parents who shared interests in social justice, parenting and alternative lifestyles. The campaign employed a number of social marketing principles. Having an immunization program look through the social marketing lens can stimulate new thinking. What is "your brand"? How is it perceived? The 4 "P's" of social marketing: *product, price, place and promotion*, are then used to create, communicate and deliver value to the targeted group. These principles have been used for marketing of a number of vaccines with good success in different settings.⁵²

A 2015 systematic review of new media concluded that, while there is great potential for improving vaccine uptake with new media programs, there is as yet still little data to conclude how effective and cost-effective new media strategies are in practice.⁵³ Traditional media and government websites should not be forgotten, as many parents/patients still rely on them for their immunization information.⁵⁴

An example of a newer media tool that provides tailored information is “ReadyVax,”⁵⁵ a smartphone app that presents trustworthy, evidence-based vaccine information in four different areas: vaccines, diseases, answers to common questions, and resources, designed for the target audiences of healthcare providers, pharmacists, parents and patients. Although the app was designed in America and based on US government and professional society materials, and given that it is still a relatively new app, users have already come from over 100 countries, though not in large numbers yet. Given the plethora of smartphones across Canada, such tools may prove to be helpful, especially if adapted to include Canadian recommendations.

Target and tailor the message; amount and type of information matters:

Messages must be tailored to fit the population targeted – one size does not fit all – see note above about “I immunize” campaign in Australia.⁵¹ When partisans see messages that disagree with their beliefs as unfavourably slanted content, they may become even more polarized in their beliefs.⁵⁶ Too much information, for example on adverse event cases, can confuse and overwhelm people, and increase hesitancy. Tailoring and testing the message is key. Thus, messages need to be tailored and tested in advance to ensure that they fit the intended target audience.

Emphasize scientific consensus; inoculate against misinformation:

Research has shown that perceived scientific consensus plays a critical role in belief about science. For childhood vaccines, emphasizing the medical/scientific consensus on the need for, and the benefits and safety of, vaccines can reduce concerns about childhood immunizations.⁵⁷ For climate change, there is evidence that the public can be successfully pre-emptively inoculated against the impact of misinformation⁵⁸; it is likely that similar effects could occur with immunization information as inoculation against misinformation, and this might help increase resistance to anti-vaccine messages. In addressing vocal vaccine deniers in public, “inoculation” tactics are suggested (see [Section 7 – Monitoring and Evaluation of Programs Addressing Vaccine Hesitancy](#)). Correction of anti-vaccine misinformation and highlighting the tactics being used, all done in a non-combative manner, can help to shape the beliefs of the listening audience.

5.5 Shape beliefs

Given the impact of beliefs about vaccines on decisions and risk perceptions (noted above), attention needs to be given to when and how beliefs can be shaped. Immunization program planners need to rethink when, what and how to give people information. Historically, in most countries, children have not been systematically educated in schools about vaccines, leaving parents and adults with doubts about vaccines and immunization programs. Shaping children’s and adolescents’ beliefs about the importance and value of vaccines, the risks of vaccine-preventable diseases, and the benefit and safety of vaccines is a key opportunity. Both Canada (in the Province of Ontario) and Denmark are taking steps to weave vaccines and immunization into the primary- and secondary- school curricula. Such programs may also lead to changes in parental vaccine beliefs and decisions indirectly through sharing of school lessons.

The “I Boost Immunity” website – <https://iboostimmunity.com/>, developed by the Public Health Association of British Columbia, Canada, has recently pilot tested a version of their quizzes for use in schools.⁵⁹ Correctly answering five questions about vaccines and immunization on this website leads to a dose of vaccine being donated to UNICEF. The school trial was a big success, students’ high interest in vaccines and immunization when presented in an engaging fashion appealing to this age group.

The BBC has developed an [online program](#) to help school students learn to differentiate fake news from real news.⁶⁰ In a similar vein, the Cambridge University research team who demonstrated that the public can be inoculated against misinformation have developed a [“Bad News” game](#) that they hope will ‘vaccinate’ the public against fake news.⁶¹ Evaluation of both interventions is pending but the techniques should be of interest to those developing school curricula.

5.6 Work collaboratively – develop partnerships

Given the complexity of addressing vaccine hesitancy, there is value in the immunization program collaborating with a wide range of partners. Quality partnerships can save time and resources and add to the voices emphasizing the importance of vaccines. Given that the public is more drawn towards, and accepting of, information and sources of information that share their worldview,⁶² having a consensus on immunization amongst many partners interacting with the public can help shape people’s worldview and nudge people towards acceptance of vaccines. Having many voices also enhance the credibility of health worker’s vaccine messages.

In Canada, this is more complicated, given that immunization programs are the responsibility of the provinces and territories. In some instances, national messages from national partners may add needed critical credibility to local messages. Partners that can help in addressing hesitancy might include community and religious leaders (see above), civil society organizations, academia, health care professional organizations and societies, global agencies, non-governmental organizations and even the private sector. Partnership with manufacturers, however, needs to be approached with caution, as this may be perceived by the public as a conflict of interest and lend support to “conspiracy” concerns raised by anti-vaccine supporters (see [Section 8 – Strategies to support Vaccination Demand and Grow Resiliency](#)).

Addressing Hesitancy: At the Health Care Worker/Individual Patient Level

As noted above, few multi-pronged strategies that directly address the many determinants along the continuum of vaccine hesitancy have been examined. However, there are strategies at the health care worker/individual patient level known to be effective in increasing uptake. Six are listed in Table 5.2. As with program level strategies, multi-component strategies are more effective than single-component strategies.

Table 5.2 Strategies to Increase Vaccine Uptake/Acceptance: at the Frontline Health Care Worker /Individual Patient Level

(For program-level strategies, see [Table 5.1](#))

- | | |
|--|---|
| <ul style="list-style-type: none">7. Key role health care worker in parental/patient vaccine acceptance decisions8. Vaccine Refusers: Do not dismiss from practice; ensure refusers know their responsibilities if choose not to immunize9. Use effective discussion techniques to introduce immunization and to address concerns | <ul style="list-style-type: none">10. Use effective information exchange strategies – language, numbers, stories, framing, nudge, jargon and gist11. Reinforce role community immunity/protection12. Mitigate pain at immunization |
|--|---|

5.7 Key role of health care worker in parental/patient vaccine acceptance decisions

Given the important role health care workers play in vaccine acceptance by their patients (noted above), not only must do they have to be knowledgeable about vaccines, vaccine-preventable diseases and immunization best practices, but they must be able to present the information in a compassionate manner (see [Section 5.1 – Trust](#) above). Having a health care worker provide information or assurances to parents is one of the main reasons why parents who had planned to delay or refuse a vaccine for their child change their mind.^{18, 63} Speaking up for vaccines counts. Furthermore, parents who receive vaccine information from a physician have fewer concerns than those informed by friends, family, or from books and the internet.⁶⁴



To be competent, the health care worker needs to be able to answer queries and concerns raised by parents, adolescents, adults and seniors. Useful resources can be found at many evidence-based sites, such as the Canadian Immunization Guide, Canadian Paediatric Society (CPS), and Immunize Canada.

The [World Health Organization Vaccine Safety Net Portal](#) presents evidence-based sites that meet the criteria set by the Global Advisory Committee on Vaccine Safety for having credible vaccine and immunization information.⁶⁵ The three sites listed above have been approved by the Vaccine Safety Net (VSN). Some of the websites listed on the VSN are directed at health care workers, while others are for parents. For example, the Caring for Kids (CPS) site is listed, and is directed to parents. Caring for Kids and BC Centre for Disease Control (BCCDC)'s [Immunization Communication Tool for Immunizers](#),⁶⁶ may be especially helpful to health care workers trying to explain more complex concepts, as the resources from these two sites use language parents are more likely to understand. These websites are regularly updated. The ReadyVax app⁵⁵ described above uses data from several of these approved sites for quick access on a smart phone.

5.8 Vaccine Refusers: Do not dismiss from practice; ensure refusers know their responsibilities if they choose not to immunize

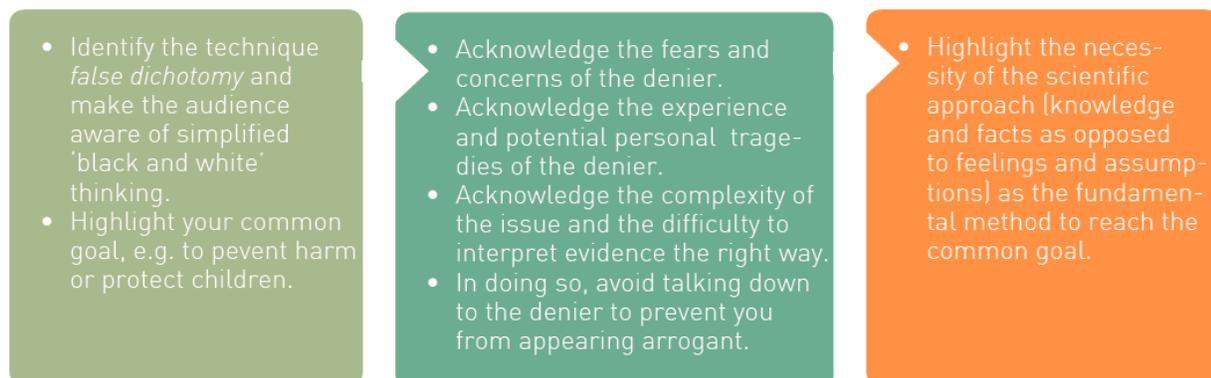
While health care workers who are strong vaccine advocates may be able to tolerate when people in their practice who refuse immunization are blamed and shamed and/or dismissed from the practice, this is unlikely to change peoples' decisions,⁶⁷ and may have legal and ethical implications.⁶⁸⁻⁶⁹

Strident, hard-core vaccine deniers make up much less than 1% of most populations, they seldom attend immunization clinics, and may even eschew all traditional medical care. It is very difficult to shift them to vaccine acceptance. In contrast, most refusers are neither especially vocal nor hard-core. Often, these vaccine-refusing parents/patients unconsciously does not see making a decision on immunization as easier than making one, and do not comprehend that not accepting vaccine(s) is, in fact, a decision. While it can be very frustrating to deal with them in a clinic or in a practice, it is important for the health care worker to remember that building trust – demonstrating both competency and caring – is needed here. At the very least, the health care worker should try to have the patient/parent return for further discussions. The health care worker should never guess why the patient/parent is refusing but may be able to elicit important underlying vaccine and immunization concerns and get a dialogue going by asking, “*What would it take to move you to a yes to accept vaccines?*” Answers to this open-ended question can be a starting point for motivational interviewing (see below).

Having a “debate” with refusers (or deniers) is not helpful and may only serve to further entrench the parent's/patient's negative vaccine views, as the refuser is unlikely to “hear” the health care worker's arguments (see above, Figure 5.2 Beliefs, Risk Perception and Decisions). In working with these groups of patients/parents, health care workers should listen carefully to the arguments being put forward, then consider using the “embracing” technique (see Figure 5.7 and World Health Organization Regional Office for Europe's "[Best practice guidance: How to respond to vocal vaccine deniers in public](#)" - Chapter 6⁷⁰). Also, see [Section 6](#) on addressing vocal vaccine deniers in public.

Figure 5.7 The Embracing Technique for working with science/evidence deniers⁷⁰

See reference for more details



A fairly common category of refuser are parents and patients who rely on complementary and alternative medicine (CAM) keep to themselves, and see themselves as experts in “making a rational decision” not to immunize.⁷¹ CAM is seen as not poisoned by avarice, not done for profit, and based upon experience and history; in contrast, science is seen as arrogant, rigid, and impersonal with a big profit motive coming from the pharmaceutical industry. It is imperative when working with CAM followers to avoid getting into a debate, refrain from “talking down,” and not to belittle these beliefs. Motivational interviewing may be a helpful approach (see below). Keeping the door open for future conversation is key.

Of note, the Canadian Medical Protective Association has a 2017 document on “[How to address vaccine hesitancy and refusal by patients or their legal guardians](#)”⁷² that emphasizes not dismissing, as well as documenting the refusal.

Beyond trying to ascertain the reasons for refusing vaccines, these patients/parents need to be informed about the risks and responsibilities that come with this choice. The Canadian Paediatric Society has adapted the WHO Europe Region fact sheet for parents who refuse vaccines for their children that cover this topic – “[When parents choose not to vaccinate: Risks and responsibilities](#).”⁷³

Reviewing these points may also open opportunities for further discussions. If the option is available, referral to a local vaccine expert experienced in working with refusers to move them to a yes may also be helpful. Leaving the door open for future discussion keeps the possibility of immunization an option for the future.

5.9 Use effective discussion techniques to introduce immunization and to address concerns

Talking to parents and patients who are hesitant about vaccines can be emotional for both the individual and the health care worker when their immunization views are not in sync.⁷⁴

Health care workers need to be careful:

- Introduce immunization in a **presumptive** not a participatory manner (see box).
- Do not **over-estimate** parental/patient vaccine hesitancy concerns.
- Follow presumptive introduction with participatory discussion – see **motivational interviewing** below.
- Be **truthful**. Vaccination does have risks – but there are risks in everyday life, getting out of bed in the morning, walking to school, etc.
- **Beware of debunking myths**, as restating the myth may reinforce it and the patient/parental negative vaccine belief may become more polarized.
- Obtain informed consent – see below.

How immunization is introduced at the clinic or practice visit makes a difference. *Presumptive* rather than participatory initiation of vaccine recommendations is more effective in garnering vaccine acceptance if the parent/patient is hesitant.⁷⁵ This may be because the unspoken message from the health care worker with the presumptive approach is endorsement of immunization; while the participatory approach leaves it open for conjecture by the parent/patient on whether the health care worker does or does not support immunization.

Presumptive: “Ben is due for his shots today.”

Participatory: “What would you like to do about shots?”

The presumptive introduction is best followed by participatory discussion,⁷⁶ “What are the concerns?”

Motivational interviewing for hesitant parents/patients is a helpful technique for finding out and exploring concerns.⁷⁷ This technique is client-centred, semi-directive, a shift from talking to the parent/patient to working with the parent/patient. The patient/parent’s own motivations to vaccinate are solicited. Excessive persuasion and adversarial stances are avoided or minimized,⁷⁸ and the process can be woven into a routine visit, i.e., an effective use of a short amount of time.

This dialogue might follow this path:

- *Open ended question – What do you think about vaccines?*
- *Affirmation: I understand...*
- *Reflective listening: You are concerned by...*
- *Summarize: Let me summarize...*

Further discussion then ensues as a plan to move forward is developed. Such tailored dialogue will not take much time and is seen as affirming and valuing by the patient/parent. For some, this may lead to a change from hesitant to accepting of the vaccination being offered. Others may be open to a follow up visit.

For **informed consent**, the known risks of vaccination need to be described as well as the risks of the vaccine-preventable diseases. Minor adverse reactions to vaccines need to be distinguished from severe reactions. The importance of how this is done in terms of language and other components is briefly discussed below.

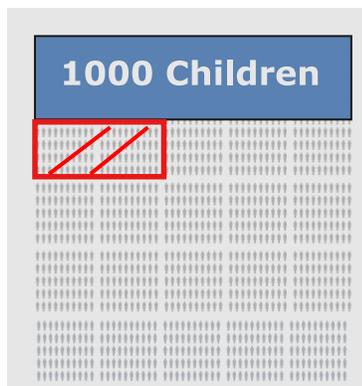
5.10 Use effective information exchange strategies – language, numbers, stories, framing, nudge, jargon and gist

Beyond the presumptive introduction of vaccination and motivational interviewing, a number of other factors impact on what parents/patients “hear and understand.” As noted by Parrish-Sprowl “*Well-conceived messages, delivered poorly, may not have as much impact as poorly constructed messages delivered well.*”⁷⁹

Use clear language:

- **Avoid jargon.** Parents and patients can get confused when technical and medical jargons are used. For example, some parents and patients are put off by the term “herd immunity,” as they do not see themselves or members of their family as “cows or goats.” Community protection may better convey the concept.
- **Avoid being overly technically precise.** Epidemiology studies can never prove that an adverse event could never happen. One cannot prove the null hypothesis, i.e., prove that there is no relation. Better to simplify than over qualify such comments.⁸⁰
- **Fit the level of language and content to the patient/parent.** For example – terms like “rare” and “common” when discussing the complications of vaccine-preventable diseases or an adverse event following immunization may not be understood by parents or patients. What does rare mean? What is common? Patients and parents may have a concept very different from the technical definition of rare in immunization – 1/1000 to 1/10,000. Hence, using such words may confuse or mislead.
- **Use common denominators when comparing rates of events.** Many members of the general public are not quick to translate denominators so that rates can be compared. For example, measles encephalitis occurs in approximately 1/1000 cases of measles, and post-MMR vaccine encephalitis have occurs in 1/1,000,000. Many people cannot immediately assess that the latter is 1000 times less likely.
- **Explain single event probability.** Some people assume that the probability of complication occurs on a spectrum of mild to extreme forms of complication. Many do not understand the concept of “all” or “none” concept. The meaning of a single event probability of a complication can be explained by the following analogies. One wins the lottery or one does not. It is raining or it is not. One is pregnant or is not. Ten percent of those who develop tetanus die despite the best intensive care.
- **Visual depictions can help.**

Figure 5.8 - 10% of Children with Tetanus Dies despite the Best Intensive Care



The website "[information is beautiful](#)"⁸¹ has a helpful visual depiction of doses of HPV vaccine given in the United States as of 2011 (>35,000,000) with the rate of side effects: 18,727; rate of serious side effects: 1498; people said to have died within 1 year of HPV immunization: 68; deaths confirmed by a doctor: 32; and the number of deaths due to HPV vaccine: 0.

How vaccine-preventable disease data is presented in an outbreak can also influence how the information is perceived. For example, "heat" maps of diseases are better understood than dot maps.⁸²

- **Present absolute numbers not relative risk.** The majority of the general public and even many health care workers do not understand relative risk. Furthermore as noted above in Figure 5.2 (Beliefs, Risk Perception and Decisions), emotions influence how numerical information is heard. Saying one child in 10 will die if they get tetanus is likely to be heard more readily than saying that 10% will die.
- **Frame the message.** In general, the public are more anxious about negatives; i.e. loss frames are more concerning than gain frames.⁸³ Framing affects vaccination acceptance, although this can be modified by pre-existent patient characteristics, perceived risk, or situational factors. In general, it is more effective to say a vaccine such as HPV is 99.9% safe, than to say that the HPV vaccine has less than 0.1% side effects. Similarly, saying "If you decide not to be immunized against flu, you may increase your chances of getting the flu and being sick" is more effective than saying "if you receive flu vaccine you are less likely to get sick."

Framing also has effects at the population level. For example, Australia and Sweden have similar routine immunization rates. However, during the 2009 H1N1 pandemic, the uptake of influenza immunisation was 60% in Sweden and 18% in Australia. The key message about the H1N1 vaccine was predominately positively framed in Sweden and negatively in Australia.⁸⁴

How clinic reminder messages are framed can also influence acceptance decisions. For example, texting that "HPV can infect your daughter and seriously harm her health. You can protect her by getting her vaccinated. Call the clinic at..." is more effective than "Your daughter can get HPV and seriously harm her health. The HPV vaccine can protect her. Call the clinic at..."⁸⁵

- **Stories can be powerful.** Stories exploit our cognitive shortcuts to shape beliefs and decision-making. This is why anecdotes and stories are such a common part of anti-vaccine strategies. Telling stories, especially if they are the health care workers' own experience with a vaccine-preventable disease case – while not effective on its own – can help the vaccination information being presented to be heard.⁸⁶

- **Nudge.** Beyond the health care worker recommending vaccine, which can nudge a patient/parent to accept vaccine (see above), parents /patients maybe nudged by how conversation is presented, using presumptive language, as noted above. Similarly, sometimes by noting that the majority of parents are accepting the routine vaccines because they want their child to be as safe as possible can nudge a parent.⁸⁷ However, beware of planting fear, as this can backfire. Be careful not to plant concerns that were not there before.
- **Gist.** Health care workers can help their message to be heard and remembered by summing up, i.e., emphasizing the bottom line or gist of their message with scripted gist phrases such as:
 - *And the reason that’s important is...*
 - *What that means to you is...*
 - *So the thing to remember is...*
 - *The bottom line – what I tell patients is...*

Summarizing helps patients/parents consolidate what they have heard and make it more memorable.⁸⁸ Children less than five years old remember verbatim; older children, adolescent and adults remember the gist. So it is very important to summarize.

Table 5.3 Summary of Communication Advice for Health Care Workers

<ul style="list-style-type: none"> • Remember importance of your recommendation and example 	<ul style="list-style-type: none"> • Beware of debunking myths as this may increase belief in the myth 	<ul style="list-style-type: none"> • Have your own vaccination story
<ul style="list-style-type: none"> • Present vaccination as the default position, i.e., presumptive 	<ul style="list-style-type: none"> • Use facts sparingly – too many can confuse – remember the gist 	<ul style="list-style-type: none"> • Motivational interviewing can help
<ul style="list-style-type: none"> • Use clear language, avoid jargon and overly technical discussions 	<ul style="list-style-type: none"> • Be careful with fear –may make patients/parents more anxious about vaccines 	<ul style="list-style-type: none"> • Frame your message
<ul style="list-style-type: none"> • Address one concern but listen first; if addressing multiple concerns, explore underlying beliefs 	<ul style="list-style-type: none"> • Pictorial presentation of numbers may help, as can disease heat maps 	<ul style="list-style-type: none"> • Build trust, use the nudge technique

5.11 Reinforce role community immunity/protection

Care must be taken if the concept of community immunity and protection is raised. As noted above, the term “herd immunity” is a medical jargon. Some people may be upset to be described in these terms, as the word “herd” is more commonly used to describe groups of cows. Explaining community protection to parents/patients may be helpful for those who want to “freeload,” i.e., rely on others to be immunized instead of having themselves or their children immunized. However, this is a complex concept that is often incompletely understood by parents/patients.⁸⁷⁻⁸⁸ Many think that community protection is possible for all vaccine-preventable diseases and do not know that for tetanus, community protection is not possible – only the individuals who are immunized are protected.

Reinforcing the added value of community protection with many vaccines can be helpful, but not at the expense of noting the value to the individual patient of their own protection through immunization.

5.12 Mitigate pain at immunization

Fear of pain on immunization is common among children, adolescents and adults.⁸⁹ The fear can make patients and parents anxious and hesitant about immunization.

What does vaccination really look like?



What could vaccination look like?



If used evidence based strategies to mitigate pain at time of vaccination

Parents and patients are keen to learn how to decrease pain on immunization. Evidence-based strategies – physical, psychological and pharmacological – are available to address pain on immunization across the age range from infants to adults are available⁸⁹ and have been endorsed by SAGE,⁹⁰ see Table 5.4.

Table 5.4 Evidence-based Strategies to Decrease Pain on Immunization

GLOBALLY – ALL AGES	
Recommended	NOT Recommended
<ul style="list-style-type: none"> No aspiration Administer vaccines in order of increasing painfulness Proper positioning Use of neutral words; avoiding language that increases anxiety and/or promotes distrust 	<p><u>Effective but not practical</u></p> <ul style="list-style-type: none"> Topical anaesthetic <p><u>Unknown effectiveness:</u></p> <ul style="list-style-type: none"> Changing the needle Looking at vs. away from needle Organizational aspects of the setting: privacy, environment <p><u>Ineffective:</u></p> <ul style="list-style-type: none"> Manual tactile stimulation <p><u>Ineffective with potential harms:</u></p> <ul style="list-style-type: none"> Oral analgesics Warming the vaccine
INFANTS	
Recommended	NOT Recommended
<ul style="list-style-type: none"> Caregiver presence <p><u>Conditional recommendations:</u></p> <ul style="list-style-type: none"> Breastfeeding Administration of sweet solutions if breastfeeding not acceptable during the vaccination session or shortly before (including rotavirus vaccine) 	<p><u>Effective but not practical:</u></p> <ul style="list-style-type: none"> Pacifiers and finger/thumb sucking Simultaneous injections <p><u>Equivocal effectiveness and impractical:</u></p> <ul style="list-style-type: none"> Distraction <p><u>Ineffective:</u></p> <ul style="list-style-type: none"> Vapocoolants
CHILDREN	
Recommended	NOT Recommended
<ul style="list-style-type: none"> Caregiver presence <p><u>Conditional recommendations:</u></p> <ul style="list-style-type: none"> Distraction (e.g. Music) 	<p><u>Ineffective:</u></p> <ul style="list-style-type: none"> <u>Vapocoolants</u>

ADOLESCENTS AND ADULTS

Recommended	NOT Recommended
<p><u>Conditional recommendations:</u></p> <ul style="list-style-type: none"> Distraction (no evidence of effectiveness in adolescents) e.g. Breathing interventions (cough, breath-hold) 	<p><u>Equivocal effectiveness and not practical:</u></p> <ul style="list-style-type: none"> Vapocoolants (no evidence of effectiveness in adolescents) <p><u>Ineffective:</u></p> <ul style="list-style-type: none"> Visual distraction Music distraction

These recommended steps to mitigate pain at the time of vaccination are generally effective, feasible, not costly, and culturally acceptable. WHO emphasizes the importance of:

- Ensuring the health care personnel carrying out vaccination remain calm, collaborative, well-informed and avoid using language that increases anxiety and promotes distrust;
- Ensuring proper positioning of the vaccine recipient according to age. For example, infants and young children should be held by the caregiver, and older children and adults should sit upright;
- When multiple vaccines are injected sequentially in the same session, they should be administered in order of increasing painfulness.

KEY POINTS

In addressing hesitancy, multiple strategies work better than single strategies, and these interventions need to be tailored to fit the subgroup at the immunization program level (1-6) and the patient/parent at the health care worker level (7-12).

Immunization Program Level

1. Foster trust	2. Ensure best immunization practices by health care workers
3. Utilize evidence-based strategies known to increase uptake <ol style="list-style-type: none"> a. engage community leaders, religious or other influential leaders to promote vaccination in the community. b. reduce constraints and improve access to vaccination; c. employ reminder and follow-up; d. consider mandate vaccinations/sanctions for non-vaccination, financial incentives 	4. Develop effective communication plans 5. Educate children, youth, adults on the importance immunization for health 6. Work collaboratively within country and across the region

Health Care Worker Level (Patient/Parent)

7. Key role health care worker in parental/patient vaccine acceptance decisions	8. Vaccine Refusers: Do not dismiss from practice; ensure refusers know their responsibilities if choose not to immunize
9. Use effective discussion techniques to introduce immunization and to address concerns	10. Use effective information exchange strategies – language, numbers, stories, framing, nudge, jargon and gist
11. Reinforce role community immunity/protection	12. Mitigate pain at immunization

References

1. Hickler B, MacDonald NE, Senouci K, Schuh HB, the informal Working Group on Vaccine Demand (iWGVD) for the Strategic Advisory Group of Experts on immunization (SAGE). Efforts to monitor Global progress on individual and community demand for immunization: Development of definitions and indicators for the Global Vaccine Action Plan Strategic Objective 2. *Vaccine*. 2017; 35(28): p. 3515-3519.
2. MacDonald NE, Smith J, Appleton M. Risk perception, risk management and safety assessment: what can governments do to increase public confidence in their vaccine system? *Biologicals*. 2012; 40(5): p. 384-388.
3. Dubé E, MacDonald NE. Managing the risks of vaccine hesitancy and refusals. *Lancet Infect Dis*. 2016; 16(5): p. 518-9.
4. Esterman M, Poole V, Liu G, DeGutis J. Modulating Reward Induces Differential Neurocognitive Approaches to Sustained Attention. *Cereb Cortex*. 2016; 27(8): p. 4022-4032.
5. Nan X, Madden K. HPV Vaccine Information in the Blogosphere: How Positive and Negative Blogs Influence Vaccine-Related Risk Perceptions, Attitudes, and Behavioral Intentions. *Health Communication*. 2012; 27(8): p. 829-836.
6. Bauch CT, Galvani AP. Social Factors in Epidemiology. *Science*. 2013 Oct 4; 342: p. 47-49.
7. Vosoughi S, Roy D, Aral S. The spread of true and false news online. *Science*. 2018 March 9; 359: p. 1146–1151.
8. Leask J, Willaby HW, Kaufman J. The Big Picture in Addressing Vaccine Hesitancy. *Hum Vaccin Immunother*. 2014; 10: p. 2600-2.
9. Dubé E, Gagnon D, MacDonald NE, SAGE Working Group on Vaccine Hesitancy. Strategies intended to address vaccine hesitancy: Review of published reviews. *Vaccine*. 2015; 33(34): p. 4191-4203.
10. Jarrett C, Wilson R, O'Leary M, Eckersberger E, Larson HJ, SAGE Working Group on Vaccine Hesitancy. Strategies for addressing vaccine hesitancy - A systematic review. *Vaccine*. 2015; 33(34): p. 4180-90.

11. World Health Organization Regional Office for Europe. The Guide to Tailoring Immunization Programmes. [Online]. 2013. Available from: <http://www.euro.who.int/en/health-topics/communicable-diseases/poliomyelitis/publications/2013/guide-to-tailoring-immunization-programmes>.
12. MacDonald NE, SAGE Working Group on Vaccine Hesitancy. Vaccine Hesitancy: Definition, scope and determinants. *Vaccine*. 2015; 33: p. 4161-4.
13. Osawa S, Slack ML. Public trust and vaccine acceptance--international perspectives. *Hum Vaccin Immunother*. 2013; 9: p. 1774-8.
14. Lane S, MacDonald NE, Marti M, Dumolard L. Vaccine hesitancy around the globe: a three year assessment of data from the annual WHO/UNICEF Joint Reporting Form. *Vaccine*. 2018 (in press).
15. World Health Organization Regional Office for Europe. Vaccination and Trust. How concerns arise and the role of communication and the role of communications in mitigating crises. [Online]. 2017. Available from: http://www.euro.who.int/_data/assets/pdf_file/0004/329647/Vaccines-and-trust.PDF.
16. World Health Organization Regional Office for Europe. Vaccination and trust library. [Online]. 2017. Available from: <http://www.euro.who.int/en/health-topics/disease-prevention/vaccines-and-immunization/publications/vaccination-and-trust-library>.
17. Ansari AM, Khan Z, Khan IM. Reducing resistance against polio drops. *JRSJ*. 2007; 127: p. 276-9.
18. Favin M, Steinglass R, Fields R, Banerjee K, Sawhney M. Why children are not vaccinated: a review of the grey literature. *International Health*. 2012; 4: p. 229-238.
19. Dawson R, Lemmon K, Trivedi NJ, Hansen S. Improving human papilloma virus vaccination rates throughout military treatment facilities. *Vaccine*. 2018; 36(11): p. 1361-1367.
20. Herzog R, Álvarez-Pasquin MJ, Díaz C, Del Barrio JL, Estrada JM, Gil Á. Are healthcare workers' intentions to vaccinate related to their knowledge, beliefs and attitudes? A systematic review. *BMC Public Health*. 2013 Feb 19; 13: p. 154.
21. Rutten LJ, St Sauver JL, Beebe TJ, Wilson PM, Jacobson DJ, Fan C, et al. Clinician knowledge, clinician barriers, and perceived parental barriers regarding human papillomavirus vaccination: Association with initiation and completion rates. *Vaccine*. 2017; 35(1): p. 164-16.
22. Suryadevara M, Handel A, Bonville CA, Cibula DA, Domachowske JB. Pediatric provider vaccine hesitancy: An under-recognized obstacle to immunizing children. *Vaccine*. 2015; 33(48): p. 6629-34.
23. Verger P, Fressard L, Collange F, Gautier A, Jestin C, Launay O, et al. Vaccine Hesitancy Among General Practitioners and Its Determinants During Controversies: A National Cross-sectional Survey in France. *EBioMedicine*. 2015; 2(8): p. 891-7.
24. Macdonald NE, Finley J. Working with vaccine-hesitant parents. *Paediatrics & Child Health*. 2013; 18(5): p. 265-7.
25. Grabenstein JD. What the world's religions teach, applied to vaccines and immune globulins. *Vaccine*. 2013; 31(16): p. 2011-23.

26. Ernst E. Are anthroposophy-enthusiasts for or against vaccinations? [Online]. 2019. Available from: <https://edzardernst.com/2019/04/are-anthroposophy-enthusiasts-for-or-against-vaccinations/>.
27. Health 4 Thinkers. Christian Scientists and public health. [Online]. 2017. Available from: <https://www.health4thinkers.com/4663/christian-scientists-and-public-health/>.
28. UNICEF. Resources on Partnering with Religious communities. [Online]. 2016. Available from: https://www.unicef.org/about/partnerships/index_60543.html.
29. UNICEF. Building Trust in Immunization: Partnering with Religious Leaders and Groups. [Online]. 2004. Available from: https://www.unicef.org/immunization/index_20944.html.
30. The President's Cancer Panel. Accelerating HPV Vaccine Uptake: Urgency for Action to Prevent Cancer. [Online]. 2014. Available from: <https://deainfo.nci.nih.gov/advisory/pcp/annualReports/HPV/Part4.htm>.
31. Dubé E, Gagnon D, Ouakki M, Bettinger JA, Witteman HO, MacDonald S, et al. Measuring vaccine acceptance among Canadian parents: A survey of the Canadian Immunization Research Network. *Vaccine*. 2018; 36(4): p. 545-552.
32. Kim N, Mountain TP. Role of non-traditional locations for seasonal flu vaccination: Empirical evidence and evaluation. *Vaccine*. 2017; 35: p. 2943-2948.
33. Harvey H, Reissland N, Mason J. Parental reminder, recall and educational interventions to improve early childhood immunisation uptake: A systematic review and meta-analysis. *Vaccine*. 2015; 33(25): p. 2862-80.
34. Clarke S, Giubilini A, Walker MJ. Conscientious objection to vaccination. *Bioethics*. 2017; 31: p. 155-161.
35. Lee C, Robinson JL. Systematic review of the effect of immunization mandates on uptake of routine childhood immunizations. *Journal of Infection*. 2016; 72: p. 659e-666e.
36. Ricciardi W, Boccia S, Siliquini R. Moving towards compulsory vaccination: the Italian experience. *Eur J Public Health*. 2018 Feb 1; 28(1): p. 2-3.
37. Ward JK, Colgrove J, Verger P. Why France is making eight new vaccines mandatory. *Vaccine*. 2018; 36: p. 1801-03.
38. Salmon DA, MacIntyre CR, Omer SB. Making mandatory vaccination truly compulsory: well intentioned but ill conceived. *Lancet Infect Dis*. 2015; 15(8): p. 872-3.
39. Moss JL, Reiter PL, Truong YK, Rimer BK, Brewer NT. School Entry Requirements and Coverage of Nontargeted Adolescent Vaccines. *Pediatrics*. 2016; 138(6): p. e20161414.
40. Betsch C, Bohm R. Detrimental effects of introducing partial compulsory vaccination: experimental evidence. *Eur J Public Health*. 2016; 26(3): p. 378-81.
41. Government of Ontario. Vaccines for children at school. [Online]. 2019. Available from: <https://www.ontario.ca/page/vaccines-children-school>.
42. Omer SB, Allen K, Chang DH, Guterman LB, Bednarczyk RA, Jordan A, et al. Exemptions From Mandatory Immunization After Legally Mandated Parental Counseling. *Pediatrics*. 2018; 141(1): p. e20172364.

43. Hull SA, Tissier J, Moser K, Derrett CJ, Carter YH, Eldridge S. Lessons from the London Initiative Zone Educational Incentives funding: associations between practice characteristics, funding, and courses undertaken. *Br J Gen Pract.* 2000; 50(452): p. 183-7.
44. Fu LY, Zook K, Gingold JA, Gillespie CW, Briccetti C, Cora-Bramble D, et al. Strategies for Improving Vaccine Delivery: A Cluster-Randomized Trial. *Pediatrics.* 2016; 137(6): p. e20154603.
45. Wigham S, Ternent L, Bryant A, Robalino S, Sniehotta FF, Adams J. Parental financial incentives for increasing preschool vaccination uptake: systematic review. *Pediatrics.* 2014. 2014; 134(4): p. e1117-28.
46. BMJ Opinion. Financial incentives for childhood immunisation in Australia. [Online]. 2015. Available from: <https://blogs.bmj.com/bmj/2015/05/07/financial-incentives-for-childhood-immunisation-in-australia/>.
47. Ofstead CL, Amelang MR, Wetzler HP, Tan L. Moving the needle on nursing staff influenza vaccination in long-term care: Results of an evidence-based intervention. *Vaccine.* 2017; 35(18): p. 2390-2395.
48. Allison MA, Reyes M, Young P, Calame L, Sheng X, Weng HY, et al. Parental attitudes about influenza immunization and school-based immunization for school-aged children. *Pediatr Infect Dis J.* 2010; 29(8): p. 751-5.
49. Rand CM, Schaffer SJ, Dhepyasuwan N, Blumkin A, Albertin C, Serwint JR, et al. Provider Communication, Prompts, and Feedback to Improve HPV Vaccination Rates in Resident Clinics. *Pediatrics.* 2018 Mar 14;; p. e20170498.
50. Goldstein S, MacDonald NE, Guirguis S, SAGE Working Group on Vaccine Hesitancy. Health communication and vaccine hesitancy. *Vaccine.* 2015; 33(34): p. 4212-14.
51. Attwell K, Freeman M. I Immunise: An evaluation of a values-based campaign to change attitudes and beliefs. *Vaccine.* 2015; 33: p. 6235–6240.
52. Nowak GJ, Gellin BG, MacDonald NE, Butler R, the SAGE Working Group on Vaccine Hesitancy. Addressing vaccine hesitancy: The potential value of commercial and social marketing principles and practices. *Vaccine* 2015;33: 4204-4211. *Vaccine.* 2015; 33: p. 4204-4211.
53. Odone A, Ferrari A, Spagnoli F, Visciarelli S, Shefer A, Pasquarella C, et al. Effectiveness of interventions that apply new media to improve vaccine uptake and vaccine coverage. *Hum Vaccin Immunother.* 2015; 11(1): p. 72-82.
54. Greenberg J, Dubé E, Driedger M. Vaccine Hesitancy: In Search of the Risk Communication Comfort Zone. *PLoS Curr.* 2017 Mar 3;; p. 9.
55. Bednarczyk RA, Frew PM, Salmon DA, Whitney E, Omer SB. ReadyVax: A new mobile vaccine information app. *Hum Vac & Immuno.* 2017; 13: p. 1149-1154.
56. Nyhan B, Reifler J, Richey S, Freed GL. Effective messages in vaccine promotion: a randomized trial. *Pediatrics.* 2014; 133(4): p. e835-42.
57. van der Linden SL, Clarke CE, Maibach EW. Highlighting consensus among medical scientists increases public support for vaccines: evidence from a randomized experiment. *BMC Public Health.* 2015 Dec 2; 15: p. 1207.

58. van der Linden S, Maibach E, Cook J, Leiserowitz A, Lewandowsky S. Inoculating against misinformation. *Science*. 2017 Dec 1; 358(6367): p. 1141-1142.
59. I Boost Immunity. Tag: School. [Online]. Available from: <https://iboostimmunity.com/topics/school>.
60. BBC. BBC iReporter Get Ready to Make The Headlines. [Online]. Available from: <https://www.bbc.co.uk/news/resources/idt-8760dd58-84f9-4c98-ade2-590562670096>.
61. DROG. Bad News. [Online]. Available from: <https://getbadnews.com/#intro>.
62. Kahan DM, Jenkins-Smith H, Braman D. Cultural cognition of scientific consensus. *J Risk Res*. 2011; 14(2): p. 147-174.
63. Gust DA, Darling N, Kennedy A, Schwartz B. Parents with doubts about vaccines: which vaccines and reasons why. *Pediatrics*. 2008; 122(4): p. 718-25.
64. Wheeler M, Buttenheim AM. Parental vaccine concerns, information source, and choice of alternative immunization schedules. *Hum Vaccin Immunother*. 2013; 9(8): p. 1782-9.
65. World Health Organization. Vaccine Safety Net. [Online]. 2019. Available from: https://www.who.int/vaccine_safety/initiative/communication/network/vaccine_safety_websites/en/.
66. Immunize BC. Immunization Communication Tool for Immunizers. [Online]. 2013. Available from: https://immunizebc.ca/sites/default/files/docs/ict_final.pdf.
67. Witteman HO. Addressing Vaccine Hesitancy With Values. *Pediatrics*. 2015; 136(2): p. 215-217.
68. Halperin B, Melnychuk R, Downie J, MacDonald NE. When is it permissible to dismiss a family who refuses vaccines? Legal, ethical and public health perspectives. *Paediatr Child Health*. 2007; 12(10): p. 843-845.
69. MacDonald NE, Harmon S, Dubé E, Taylor B, Steenbeek A, Crowcroft N, et al. Is physician dismissal of vaccine refusers an acceptable practice in Canada in 2018? An overview. *Paediatrics & Child Health*. 2019 May; 24(2): p. 92-97.
70. World Health Organization Regional Office for Europe. Best practice guidance: How to respond to vocal vaccine deniers in public. [Online]. 2016. Available from: http://www.euro.who.int/_data/assets/pdf_file/0005/315761/Best-practice-guidance-respond-vocal-vaccine-deniers-public.pdf?ua=1.
71. Attwell K, Ward PR, Meyer SB, Rokkas PJ, Leask J. "Do-it-yourself": Vaccine rejection and complementary and alternative medicine (CAM). *Soc Sci Med*. 2018; 196: p. 106-114.
72. Canadian Medical Protective Association. How to address vaccine hesitancy and refusal by patients or their legal guardians. [Online]. 2017. Available from: <https://www.cmpa-acpm.ca/en/advice-publications/browse-articles/2017/how-to-address-vaccine-hesitancy-and-refusal-by-patients-or-their-legal-guardians>.

73. Caring for Kids. When parents choose not to vaccinate: Risks and responsibilities. [Online]. 2016. Available from: <https://www.caringforkids.cps.ca/handouts/when-parents-choose-not-to-vaccinate-risks-and-responsibilities>.
74. Berry NJ, Henry A, Danchin M, Trevena LJ, Willaby HW, Leask J. When parents won't vaccinate their children: a qualitative investigation of Australian primary care providers' experiences. *BMC Pediatr*. 2017 Jan 17; 17(1): p. 19.
75. Hofstetter AM, Robinson JD, Lepere K, Cunningham M, Etsekson N, Opel DJ. Clinician-parent discussions about influenza vaccination of children and their association with vaccine acceptance. *Vaccine*. 2017. 2017; 35(20): p. 2709-2715.
76. Connors JT, Slotwinski KL, Hodges EA. Provider-parent Communication When Discussing Vaccines: A Systematic Review. *J Pediatr Nurs*. 2017; 33: p. 10-15.
77. Reno JE, O'Leary S, Garrett K, Pyrzanowski J, Lockhart S, Campagna E, et al. Improving Provider Communication about HPV Vaccines for Vaccine-Hesitant Parents Through the Use of Motivational Interviewing. *J Health Commun*. 2018 online ahead of print Feb 23;: p. 1-8.
78. Leask J, Kinnersley P, Jackson C, Cheater F, Bedford H, Rowles G. Communicating with parents about vaccination: a framework for health professionals. *BMC Pediatr*. 2012 Sep 21;: p. 154.
79. Parrish-Sprowl J. Vaccine hesitancy communication: What counts as evidence. *Vaccine*. 2018; 36(4): p. 6529-6530.
80. MacDonald NE, Picard A. A plea for clear language on vaccine safety. *CMAJ*. 2009; 180(7): p. 697-698.
81. Information is beautiful. Is The HPV Vaccine Safe? v2.0. [Online]. 2011. Available from: <https://informationisbeautiful.net/2011/is-the-hpv-vaccine-safe-v-2-0/>.
82. Fagerlin A, Valley TS, Scherer AM, Knaus M, Das E, Zikmund-Fisher BJ. Communicating infectious disease prevalence through graphics: Results from an international survey. *Vaccine*. 2017; 35(32): p. 4041-4047.
83. Penta MA, Baban A. Message Framing in Vaccine Communication: A Systematic Review of Published Literature. *Health Commun*. 2018; 33(3): p. 299-314.
84. Sandell T, Sebar B, Harris N. Framing risk: Communication messages in the Australian and Swedish print media surrounding the 2009 H1N1 pandemic. *Scand J Public Health*. 2013; 41: p. 860-865.
85. McGlone MS, Stephens KK, Rodriguez SA, Fernandez ME. Persuasive texts for prompting action: Agency assignment in HPV vaccination reminders. *Vaccine*. 2017; 35(34): p. 4295-4297.
86. Shelby A, Ernst K. Story and Science. How providers and parents can utilize storytelling to combat anti-vaccine movement. *Hum Vac and Immuno*. 2013; 9: p. 1795-1801.
87. Attwell K, Smith DT. Hearts, minds, nudges and shoves: (How) can we mobilise communities for vaccination in a marketised society? *Vaccine*. 2018 Aug 19; 36(44): p. 6506-6508.
88. Broniatowski DA, Hilyard KM, Dredze M. Effective vaccine communication during the Disneyland measles outbreak. *Vaccine*. 2016; 34(28): p. 3225-8.

89. Taddio A, McMurtry CM, Shah V, Pillai Riddell P, Chambers CT, Noel M, et al. Reducing pain during vaccine injections: clinical practice guideline. *CMAJ*. 2015; 187: p. 975-982.
90. World Health Organization. Reducing pain at the time of vaccination: WHO position paper. *Weekly Epidemiology Record*. 2015 Sept; 90: p. 505-510.