Communicating about Vaccine Safety

Guidelines to help health workers communicate with parents, caregivers, and patients

PAHO

Pan American Health Organization

World Health Organization
Americas

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Moreover, this work is integrated into the activities carried out by the Comprehensive Family Immunization Unit to create a regional surveillance system for adverse events supposedly attributable to vaccination or immunization (ESAVI).

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Acronyms and Abbreviations

BCG	bacille Calmette-Guérin (tuberculosis vaccine)
CDC	Centers for Disease Control and Prevention (United States)
ESAVI	event supposedly attributable to vaccination or immunization
HPV	human papillomavirus
MMR	measles, mumps, and rubella vaccine
PAHO	Pan American Health Organization
SAGE	Strategic Advisory Group of Experts
WHO	World Health Organization

Introduction

Vaccines save between 2 million and 3 million lives each year and protect the entire population from more than a dozen life-threatening diseases. Thanks to vaccination, smallpox was eradicated in 1980, and we are on track to eradicate polio. However, despite great strides in the control of measles, one of the most contagious diseases known, the last few years have unfortunately seen an increase in cases. This is why high vaccination coverage—95% or more—is needed, posing a major technical and communication challenge for health workers.

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Given this context, the main objective of these guidelines is to provide tools for staff working in the field of immunization to support effective communication between health personnel and the general population. Evidence indicates that providing information and carrying out awareness campaigns, on their own, are not enough to increase acceptance of vaccines and demand for them *(1)*. Although immunization is based on a system of quality assurance, safety, efficiency, efficacy and supply, studies have shown that providing information on these guarantees is not enough to change people's behavior regarding the decision on whether to vaccinate, and does not generally increase vaccination coverage *(2)*. In this scenario, it is necessary to understand the reasons that lead people to decide not to get vaccinated or not to vaccinate their children, in order to tailor messages and initiate a two-way dialogue based on respect. Such a dialogue must incorporate emotional elements, enhance personal narratives, and use evidence-based communication techniques to achieve the goal of strengthening, maintaining, or regaining confidence in vaccines and immunization programs in the Region of the Americas.

How can we increase vaccine acceptance?

Efforts to increase vaccination coverage and build trust in immunizations require close collaboration among all key actors in the areas of immunization and communication. However, this document focuses on **interpersonal communication between health workers and individuals** (patients, parents, caregivers, or children). Many studies have shown that health personnel, as they interact with individuals regarding the decision to vaccinate, constitute the most reliable source of information *(3)*.

1 Factors that influence the decision to vaccinate

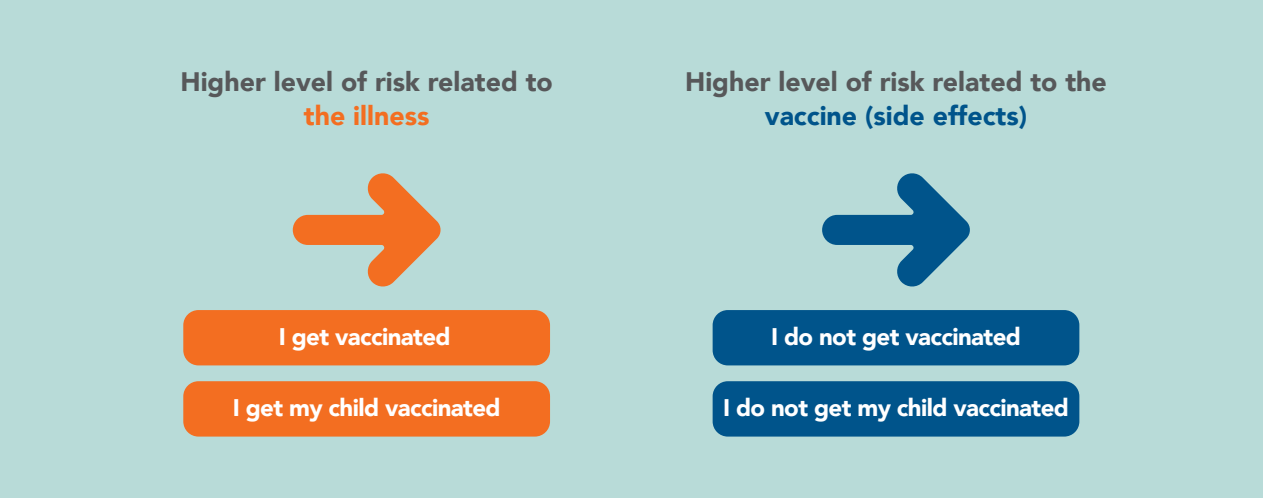
This chapter serves as an introduction to the many factors that influence the decision to vaccinate.

The objectives of this chapter are to:

- **Present the determinants and cognitive biases that influence the decision to vaccinate.**
- **Provide understanding of the gap in risk perception between the population and health authorities and health workers.**

There are many factors that influence the decision to vaccinate. A key factor in this context is the perception of risk, regarding both the disease and the vaccine itself. A person may believe that a disease is unlikely or not very serious and, at the same time, that the side effects of vaccines are probable or serious. The basic formula for assessing risk always comprises two factors: probability (for example, how likely is a side effect?) and severity (if it occurs, how serious will it be?). As a general rule, if a person perceives the risk of the disease to be high, they are more likely to be vaccinated or to vaccinate their child; however, a person who perceives the risk of vaccines to be high will be less likely to do this (Figure 1). Because vaccination is one of the most successful and effective health interventions, managing to control many diseases, the result is that people rarely become aware of cases of them. Therefore, for some people, fear of vaccines has replaced fear of a disease that they have never experienced *(4)*.

Figure 1. Perception of risk in the decision to vaccinate



Determinants that affect the decision to vaccinate

Scientific evidence *(4)* suggests that the following determinants may influence the decision to vaccinate: attitudes, identity, social (perceptions of what society and our environment expect us to do) and descriptive (perceptions of what most others do) norms, customs, and barriers to vaccination access (the need to devote resources, time or effort to getting vaccinated, or the existence of administrative barriers, e.g. opening hours of the vaccination center).

Cognitive biases

Throughout human evolution, constantly confronted with uncertainty, people have developed mechanisms to facilitate risk perception. These mechanisms are called heuristics or cognitive biases. Square 1 presents the main cognitive biases that may affect communication about vaccination.

Square 1. Main cognitive biases

AFFECTIVE BIASES

People tend to be guided by their emotions, such as fear, uncertainty, or affection, since these emotions can warn individuals about potential risks or, conversely, predispose them towards something.

Example: The use of photographs evoke emotions and can influence the decision to vaccinate. Therefore, in graphic communication it is important to choose images that elicit positive emotions and that do not depict vaccination as painful, such as a photo of children crying. Indeed, anti-vaccination movements exploit the mental model based on negative emotions. To counter this, you can show photos of smiling children in their parents' arms, to induce positive feelings towards vaccination. Depending on the context, for other purposes, immunization programs or awareness campaigns may work with negative emotions, and show images of children suffering from complications due to vaccine-preventable diseases, such as measles or polio. Because negative emotions can lead to conflict, it is important to assess the situation and the target audience, to avoid causing harm.

Not Recommended

©PAHO

Recommended

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LOSS AVERSION BIAS

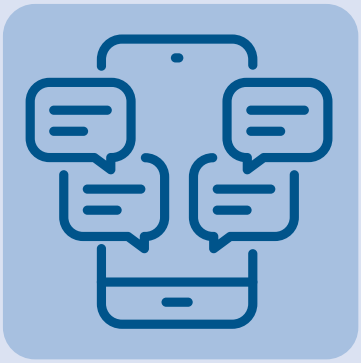
The mind tends to focus more on losses than on gains, i.e. it prioritizes avoiding harm over obtaining a benefit.

Example: In the area of immunization, this model means that people pay more attention to the risks associated with vaccines and vaccination, no matter how minimal, than to the gains and protection they provide. This is why it is essential to create a dialogue based on comparing the risks of diseases and of vaccines.

CONFIRMATION BIAS

Once someone has previously reached a conclusion, it is more likely that messages supporting this conclusion will be trusted later, even if they are not valid.

Example: If a person is convinced that there is a causal relationship between vaccines and autism (as some false information suggests), by engaging in conversations about vaccines, that person may become even more receptive to information confirming such a false belief or conviction.



AVAILABILITY BIAS

Decisions tend to be made based on events or examples that come to mind immediately, such as those that have recently appeared in the media. There is a natural tendency to forget distant events (whether in time or geographically), even if they are important.

Example: This mental model implies that we make decisions based on the behavior of our social environment, our family, friends, and the communities or societies to which we belong, as they are our most accessible examples. Thus, there is a tendency to behave like those around us, which can influence our decision to vaccinate or not vaccinate. Similarly, negative news about vaccination appearing at a given time may have more weight in the decision over subsequent days or weeks than many other positive news stories that appeared earlier.

ANCHORING BIAS

We base many of our decisions on familiar opinions (called anchors), making minor adjustments.

Example: In the area of immunization, much like the case of availability bias, this means that information about vaccines which we receive from reliable sources, such as our family members or friends, is set like an anchor in our minds. These anchors then serve as the basis for future decision-making about vaccination.

Source: Adapted from the World Health Organization. Vaccination and trust: How concerns arise and the role of communication in mitigating crises [Internet]. Copenhagen: WHO Regional Office for Europe, 2017 [accessed 11 May 2020]. Available at: http://www.euro.who.int/__data/assets/pdf_file/0004/329647/Vaccines-and-trust.PDF?ua=1

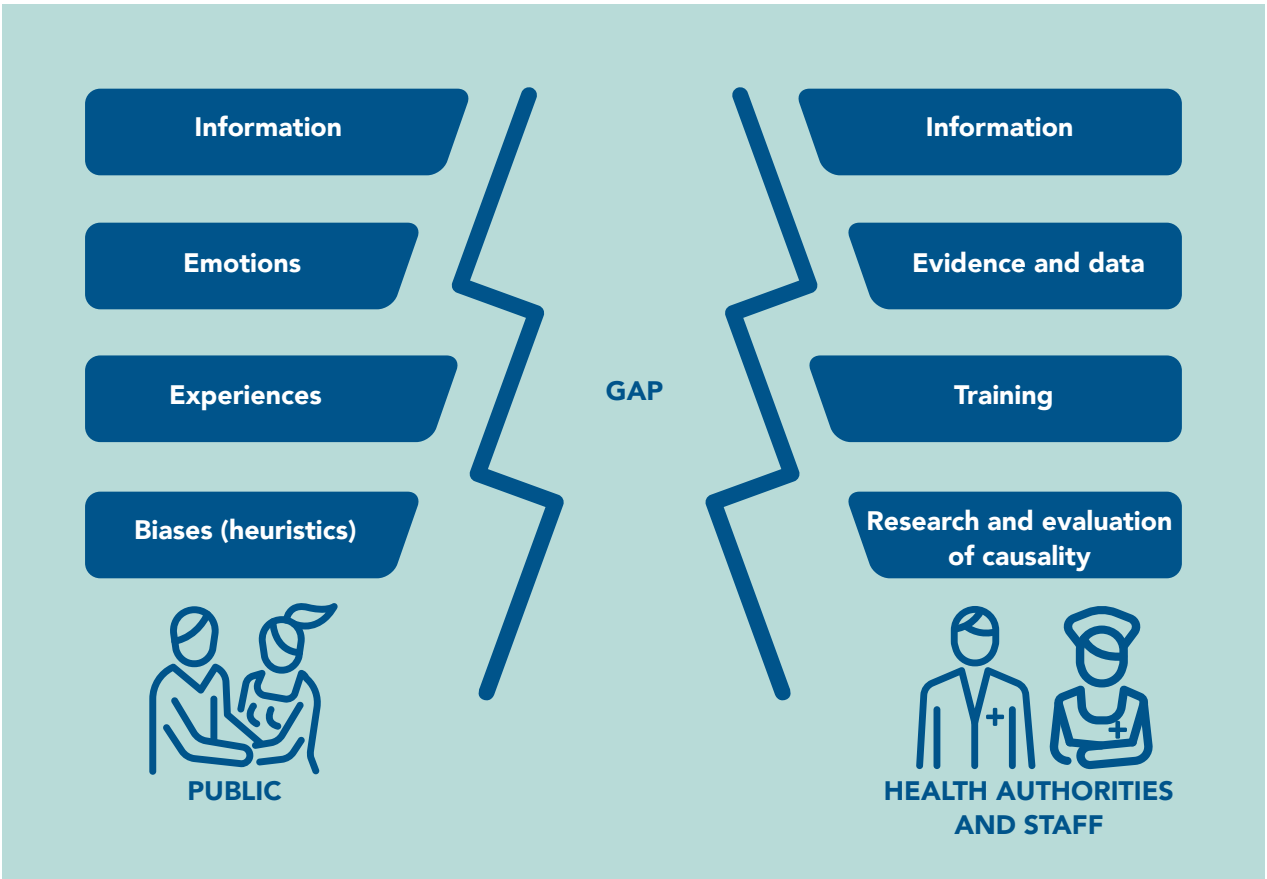
In sum, the full picture of a phenomenon is often hidden from individuals due to their biases, and people tend to only focus on certain aspects. Research indicates that this way of processing information is conscious *(4)*.

Differences in risk perception between health workers and the public

While health authorities and health workers assess risks and make decisions based on the latest evidence, the assessments and responses of individuals are based more on emotions, cognitive biases or heuristics, and information available to the public. This creates differences in risk perception—i.e., a gap—between some groups and others, which must be understood, respected, and addressed in order to build a constructive dialogue (Figure 2).

To bridge this gap, it is essential that risk communication be done in a way that the target audience understands and finds appealing, tailoring the message to each specific group. In this case, the sender of the message—not the recipient—is responsible for it being understood. It is very important to keep in mind that communication by health authorities and health workers must not include judgements or moral assessments, and that public concerns should not be discredited.

Figure 2. The risk perception gap



Source: Adapted from the World Health Organization. Vaccination and trust: How concerns arise and the role of communication in mitigating crises [Internet]. Copenhagen: WHO Regional Office for Europe, 2017 [accessed 11 May 2020]. Available at: http://www.euro.who.int/__data/assets/pdf_file/0004/329647/Vaccines-and-trust.PDF?ua=1

2 The spectrum of vaccine hesitancy

This chapter discusses the spectrum of vaccine hesitancy, its definition, and the factors that can contribute to hesitancy.

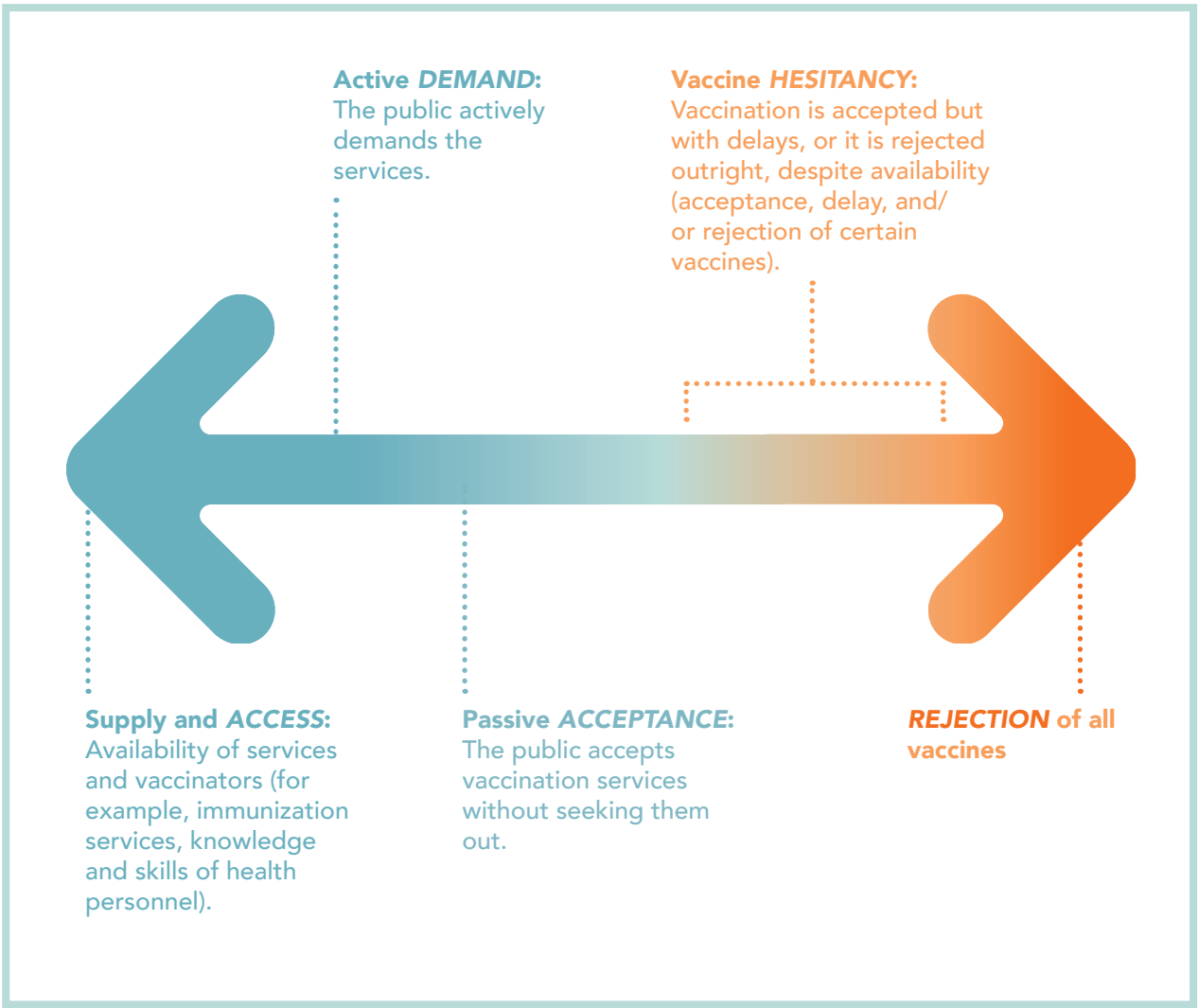
The objectives of this chapter are to:

- **Provide understanding of the very broad spectrum of vaccination-related behavior, which ranges from total acceptance to rejection of all vaccines.**
- **Present the three major determinants of vaccine hesitancy: contextual factors, individual or group factors, and vaccine-dependent factors.**

Identifying a person's knowledge, attitudes and practices with regard to vaccination is a difficult and complex task, due to the multiple factors that influence the decision to be vaccinated or to vaccinate a child. It is essential to analyze each case individually and to develop an appropriate communication strategy based on context, vaccine involved, specific concerns and fears, setting, and amount of time available for dialogue *(3,5)*.

It is important to remember that the spectrum of behavior and decisions with regard to vaccination is very broad and varies from total acceptance to rejection of all vaccines. Figure 3 illustrates this spectrum in detail. It is important to note that although groups that reject all vaccines are more visible and active, the majority of parents decide to vaccinate their children. In order to develop an appropriate communication strategy, it is essential for the dialogue with the parents or the person who will receive the vaccine to be situated on the spectrum of vaccine hesitancy. This approach also helps us to understand that people may have valid concerns or questions that do not result in outright rejection.

Figure 3. The spectrum of vaccine hesitancy

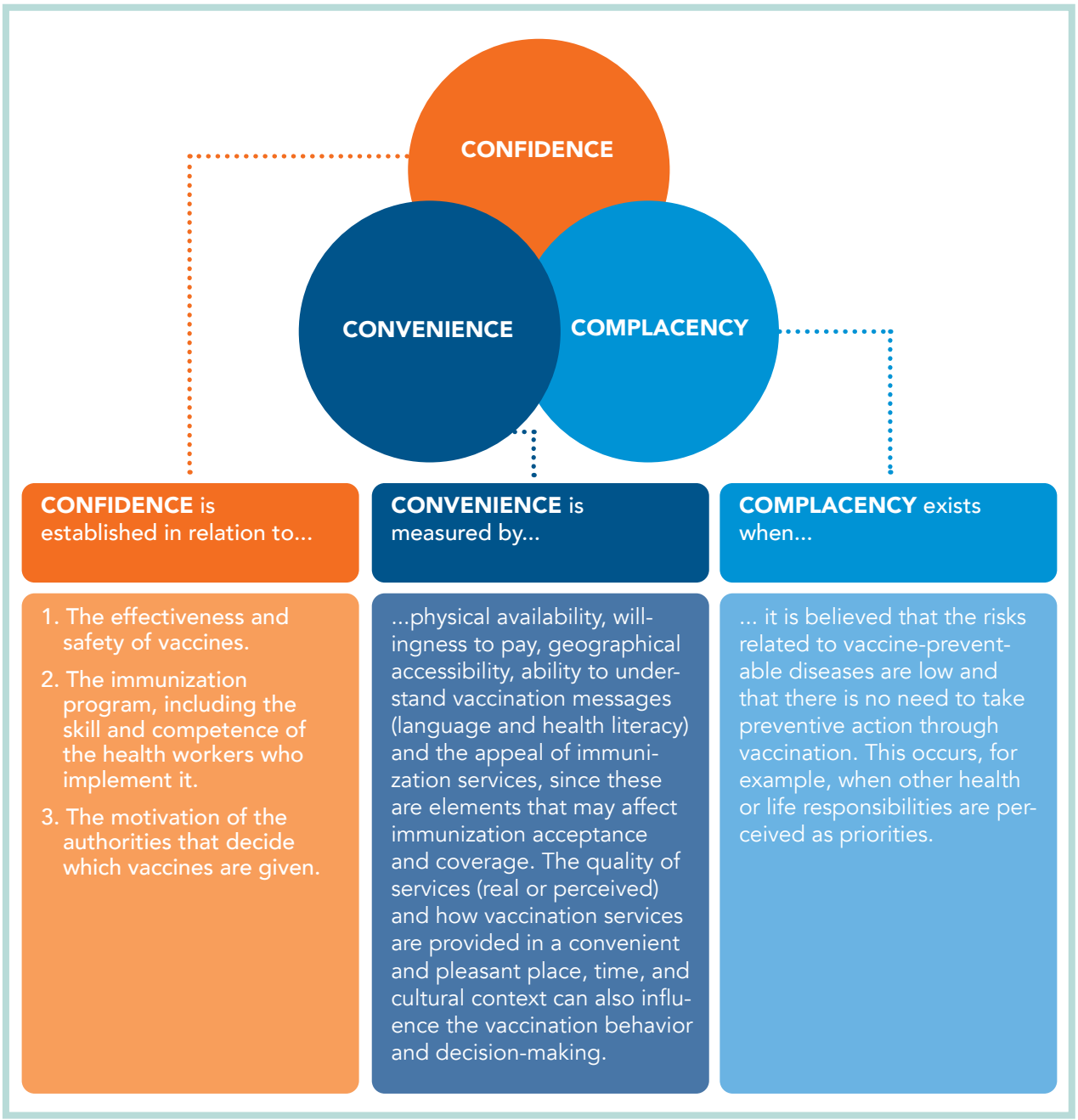


Source: Adapted from SAGE Group on Vaccine Hesitancy. Report of the SAGE Working Group on Vaccine Hesitancy [Internet]. 2014 [accessed 11 May 2020]. Available at: https://www.who.int/immunization/sage/meetings/2014/october/1_Report_WORKING_GROUP_vaccine_hesitancy_final.pdf

WHO's Strategic Advisory Group of Experts (SAGE) on immunization defines vaccine hesitancy as the "delay in acceptance or refusal of vaccines despite the availability of vaccination services. Vaccine hesitancy is complex and context specific, varying across time, place and vaccines" *(5)*.

Vaccine hesitancy can be described using the model presented in Figure 4.

Figure 4. Components of the vaccine hesitancy model



Source: Adapted from SAGE Group on Vaccine Hesitancy. Report of the SAGE Working Group on Vaccine Hesitancy [Internet]. 2014 [accessed 11 May 2020]. Available at: https://www.who.int/immunization/sage/meetings/2014/october/1_Report_WORKING_GROUP_vaccine_hesitancy_final.pdf

The factors that affect vaccine hesitancy identified by the WHO expert group are described below, as well as the determinants of each factor, explaining in more detail the key elements that need to be analyzed to fully understand vaccine hesitancy.

Table 1. Factors and determinants of vaccine hesitancy

Factors	Determinants
Contextual Influences arising due to historic, socio-cultural, economic, political, environmental, or health system/institutional factors	• Communication and media • Leaders, national immunization program advocates, and activists (pro- or anti-vaccination lobbies) • Historical trends or developments • Religious, cultural, gender, and socioeconomic factors • Political or public policy factors • Geographical barriers • Perception of the pharmaceutical industry
Individual and group Influences arising from personal perception of the vaccine or related to the social or peer environment	• Personal, family, or community experience with vaccination, including pain during vaccination • Beliefs and attitudes about health and prevention • Knowledge and awareness of immunization • Health system, trust in care providers, and personal experiences in this area • Risk-benefit assessment (perception, heuristics or biases) • Idea of immunization as a social norm vs. immunization as unnecessary
Vaccine/vaccination-specific Influences that arise directly related to the characteristics of the vaccine or of vaccination	• Risk-benefit ratio (epidemiological, scientific evidence) • Introduction of a new vaccine, a new formulation, or a new recommendation for an existing vaccine • Route of administration • Design of the immunization program or mode of delivery (e.g., routine program or mass vaccination campaign) • Reliability, source of supply of the vaccine or vaccination equipment • Vaccination schedule • Costs • Strength of recommendation, knowledge base, or attitudes of health workers

Source: Adapted from SAGE Group on Vaccine Hesitancy. Report of the SAGE Working Group on Vaccine Hesitancy [Internet]. 2014 [accessed 11 May 2020]. Available at: https://www.who.int/immunization/sage/meetings/2014/october/1_Report_WORKING_GROUP_vaccine_hesitancy_final.pdf

For more information on the different profiles of caregivers of children who are to be vaccinated (ranging from acceptance to rejection) and communication recommendations targeting each one, see the *Participant's Manual: UNICEF Interpersonal Communication Package for Immunization (3,5).*

3 Communication strategies for interaction with parents, caregivers, and patients

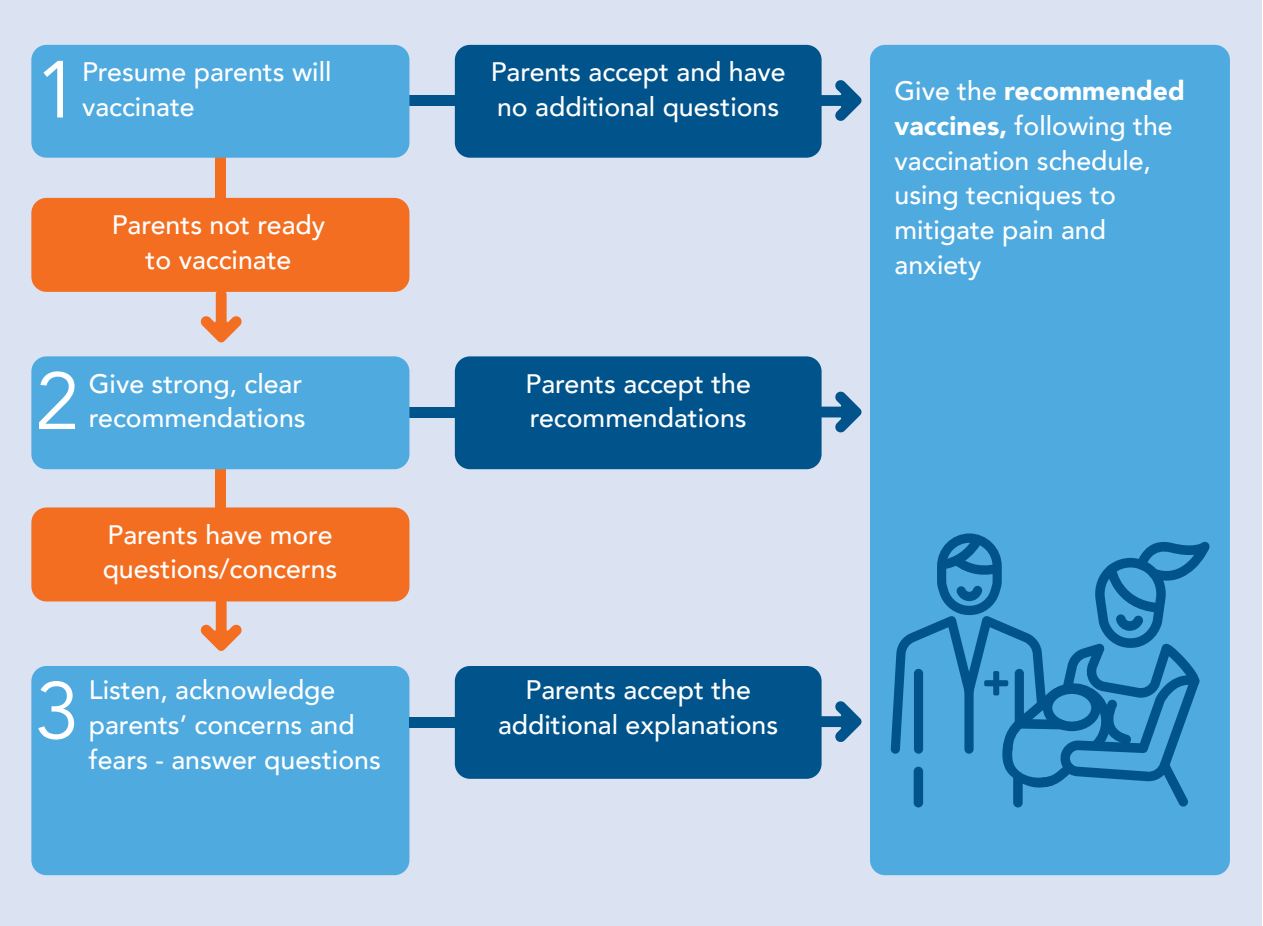
This chapter introduces concepts and methods of interpersonal communication that can guide and support health workers during a vaccination procedure, and in their dialogue with parents, caregivers, and patients.

The objectives of this chapter are to:

- **Present the best communication strategies for initiating vaccination dialogue.**
- **Provide information about the six principles that help strengthen trust between the population and health workers.**
- **Increase understanding of how to communicate about individual and collective benefits.**

There are several recommendations that have proven effective in communication between health workers and the general population to increase acceptance of and confidence in vaccines. In such a situation, the steps shown in Figure 5, and explained in more detail below, are recommended during vaccination.

Figure 5. Basic communication recommendations for vaccination



Source: Adapted from Centers for Disease Prevention and Control (CDC). Talking with Parents about Vaccines for Infants [Internet]. Atlanta: CDC; 2018 [accessed 11 May 2020]. Available at: https://www.cdc.gov/vaccines/hcp/conversations/downloads/talk-infants-508.pdf

1. **Presume parents will vaccinate.** Start the dialogue presuming that the parent or caregiver wants to vaccinate their child (presumptive approach). Another way to do this is to take into account potential concerns, and start the dialogue about vaccination with questions about the parents' attitude to vaccines, involving them in a more participatory way (participatory approach) (see Table 2). A study *(6)* has shown that initiating communication about vaccines using a presumptive approach is recommended with parents who seem to accept vaccines or are slightly hesitant; it should be remembered that most parents accept vaccination. However, it is important to situate the person on the spectrum of vaccine hesitancy, and choose the most appropriate approach, taking into account the knowledge, attitudes, and practices of this individual regarding vaccination, since for some people it will be more appropriate to initiate dialogue with a participatory model. A key element in communication between health workers and individuals is that each case is different, and requires a personalized evaluation so that the communication strategy can best respond to the needs of the person who will receive the vaccine.

Table 2. Examples of presumptive and participatory approaches when initiating vaccination communication

Presumptive approach	Participatory approach
"Today we are going to give your child the pentavalent vaccine to protect them against five serious diseases: diphtheria, tetanus, whooping cough, *Haemophilus influenzae* type b infection, and hepatitis B."	"Have you thought about what vaccines your baby needs today to be protected from illness?"
"Your child needs a shot today. At the end of our appointment, I will give you a vaccination schedule and review when you will need the next one to keep your child protected."	"What do you think about vaccines? Is it all right with you for us to vaccinate your baby today?"

Source: Adapted from Centers for Disease Prevention and Control (CDC). Talking with Parents about Vaccines for Infants [Internet]. Atlanta: CDC; 2018 [accessed 11 May 2020]. Available at: https://www.cdc.gov/vaccines/hcp/conversations/downloads/talk-infants-508.pdf

2. **Give strong, clear recommendations.** The same study cited above *(6)* showed that parents who did not respond positively to the presumptive approach were more inclined to vaccinate their child if health workers continued to promote dialogue based on the safety, importance, and benefits of vaccination. This second stage presents an opportunity to listen to parents and to better understand the reasons why they are undecided. Depending on the reasons given, health workers have the opportunity to correct misperceptions, respond to rumors, and stress the facts and evidence in favor of vaccination.

3. **Use two-way communication (listening and encouraging feedback, acknowledging concerns and fears).** If, after receiving strong, clear recommendations, parents remain undecided, more time is needed for listening to them and exploring their concerns or fears. During this stage, the concept of two-way communication and empathy (Figure 6) plays a very important role in maintaining a high level of confidence *(7)*.

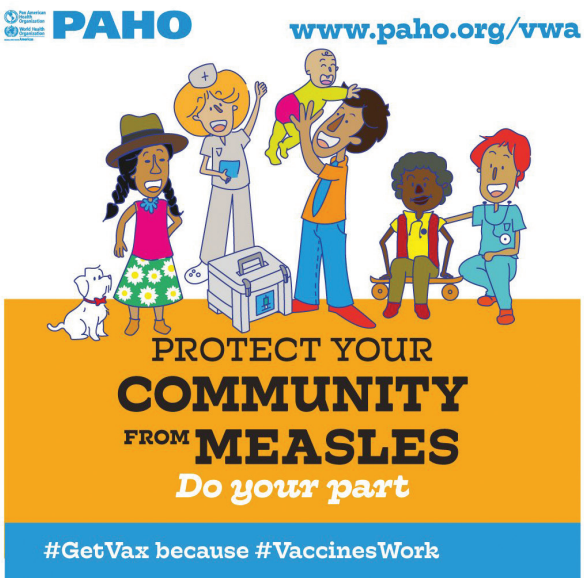
Figure 6. The six core principles for building trust (COTICE)

Competence	Show that you have the necessary competence in the field of immunization, and the interpersonal skills to answer common questions.
Objectivity	Make it clear that you have no conflict of interest with regard to the pharmaceutical industry.
Transparency	It is essential to communicate with patients transparently, honestly, and openly, without trying to hide any information from them.
Inclusiveness	Acknowledge the relevance of all points of view.
Consistency	It is important to be consistent in the messages on vaccination you provide to every patient, during every visit.
Empathy	Engage in a two-way dialogue, taking into account other people's concerns regarding vaccination safety.

Source: Adapted from Renn O. Risk communication: Insights and requirements for designing successful communication programs on health and environmental hazards. In: Heath RL, O'Hair HD, eds. Handbook of Risk and Crisis Communication. New York: Routledge; 2008 [consulted 21 January 2020]. pp. 81-99. Available in: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.475.9497&rep=rep1&type=pdf

4. Communicate individual and collective benefits. Scientific studies *(8)* suggest that it is not enough to emphasize population benefits alone (such as collective protection, in the case of the measles virus, for example) when communicating with parents and caregivers; it is also necessary to focus on individual benefits to the child (Figure 7). It has been observed that this method can be very important for effectively engaging with parents who have not yet decided whether to vaccinate their child.

Figure 7. Messages focusing on benefits to the population (left) and the individual (right)



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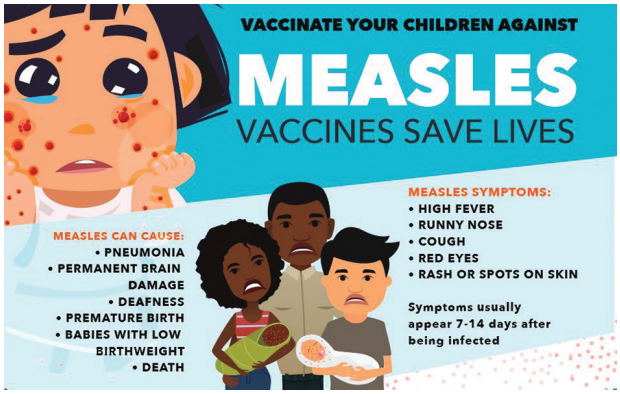

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Communication on social media

Today, much of human health-related communication occurs on digital media, mainly social media. In Mexico, 85.5% of people use the internet every day, and 44% of them look for vaccine information there *(9)*. In Chile, 85% of users connect daily, and 26% of all searches are on health issues *(10)*. Moreover, many health professionals are on social media, where they can interact with others to help them resolve vaccine concerns to strengthen confidence and contribute to mitigating rumors or false information on this topic.

Some social media communication strategies have been shown to be very successful in improving attitudes towards vaccines *(11)*, addressing the public's concerns *(12)*, and even achieving increased vaccination coverage against human papillomavirus *(13)*.

The general recommendations for interacting on social media are as follows:

- Address fears and doubts through dialogue and by disseminating scientific evidence.
- Understand that providing data and evidence is not enough by itself; messaging must also include the emotional aspect of communication (see the section on cognitive biases in the previous chapter).
- If possible, share personal stories (for example, talk about when you were vaccinated, or when you vaccinated your own children or family members).

- Share professional accounts (e.g. scientific associations, official university accounts, identify yourself with other health professionals). In this way, people will be able to recognize that the information comes from a reliable source.
- Combine information and scientific evidence with entertaining messages that facilitate interaction and understanding (e.g. sharing videos or infographics).
- Even if you maintain a professional tone, some users may post negative comments. If you choose to engage with them, remember that these platforms are public and your responses are visible to the entire user community. Keep in mind that even though you will often not be able to convince any given person, constructive dialogue can be useful for others who have reasonable doubts and are observing the exchange of views.
- Information about patients is confidential, and should never be shared on social media.

Social media

Each social network has different corporate and public communication codes. To tailor messages effectively, it is important to know the target audience. It is also advisable to develop a basic communication plan for social networks, with clear objectives, and to have tools to optimize communication and dialogue.

The decision regarding which social network is appropriate for communication *(14)* will depend mainly on the objectives that are defined and the desired target audience (some demographic groups prefer certain social networks over others; for example, parents prefer to use Facebook, but journalists are mainly on Twitter). The time available for this work is also a factor that should be taken into consideration.

In addition to Facebook and Twitter, there are many other social networks that can be used to communicate the benefits of vaccination, such as Instagram, Pinterest, and LinkedIn *(15)*.

Regardless of the social network you choose for communication, it is advisable to be clear about your objectives and communication strategy to get the most out of interactions.

Check it out:

The World Health Organization has created a repository of validated internet sites containing reliable information on vaccine safety, in different languages, to share with users:

www.vaccinesafetynet.org.

Facebook

With more than one billion active users, including many parents seeking information on vaccines or vaccination-related topics, Facebook is an attractive space for communication and dialogue. This social networking site frequently updates its algorithms to determine what content to display to users.

Recommendations for communicating on Facebook are as follows:

- Be consistent; that is, post frequently to keep followers interested (one or two posts daily). This will not only gain followers, but also promote the creation of an active community.
- Be brief.
- Embed images or videos.

Figure 8 shows an example of a message posted on Facebook.

Figure 8. Post on a vaccine-preventable disease, from PAHO's Facebook page

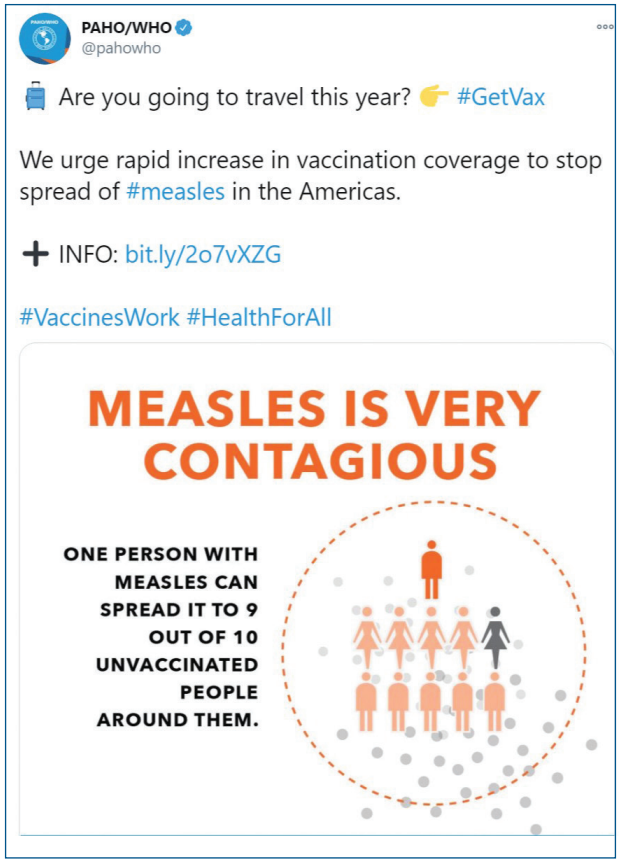
Twitter

Twitter is a "real-time" social network that enables the exchange of information through short posts, called tweets. It has more than 300 million active users, with over 500 million tweets being posted every day.

- Post frequently (at least three times a day). The content can be repeated at different times, modifying some details (these repostings can be scheduled daily or weekly).
- Be careful with spelling and grammar, despite the limited length of messages; this will help maintain account credibility.
- Promote dialogue. Successful accounts facilitate conversations and interaction, customizing messages to build community. Consider sharing personal anecdotes related to content, always maintaining professionalism and respect during exchanges.
- Embed images or videos, as this can increase user engagement by up to 35%.
- Use hashtags (keywords preceded by the # symbol) to participate in relevant conversations on the topics you want to engage with.

Figure 9 shows different examples of tweets on Twitter.

Figure 9. Tweets on vaccination from accounts of international organizations (below: PAHO, next page [left to right]: UNICEF and PAHO Representation in Argentina)



UNICEF
@UNICEF

When parents don't vaccinate their children, outbreaks happen.

'Old' diseases, long gone, may worm their way back into communities.

#VaccinesWork

PAHO/WHO
@pahowho

👉 Join the global effort to #EndHPVCancers and take action ❗

👉 #GetVax

➕ INFO: bit.ly/2HG397t

#EndCervicalCancer
#HealthForAll #EndHPV

4 Strategies to improve the vaccination experience

This chapter discusses the strategies and techniques recommended by the World Health Organization to improve the experience of vaccine delivery, through mitigating pain and anxiety.

The objectives of this chapter are to:

- **Present general measures to improve the experience of people involved in vaccination.**
- **Provide information about specific pain mitigation methods, such as breastfeeding and holding techniques.**
- **Indicate which strategies are not recommended, because they can cause discomfort or harm.**

Pain is a relevant problem in vaccination, as illustrated by the following data *(16,17)*:

- Between 24% and 40% of parents worry about the pain associated with vaccinating their children.
- Vaccination is the most common potentially painful health procedure for asymptomatic children and adults.
- The vast majority of vaccines incorporated into vaccination schedules are injectable.
- If pain management techniques are not used during vaccination, children can be exposed to unnecessary suffering, which is related to vaccine hesitancy or rejection.

The main objectives of a pain mitigation strategy in the context of vaccination are:

- Reduce the pain of vaccination through techniques adapted to each situation and context.
- Reduce the stress of the immunization experience using low-cost techniques that can be implemented in low-, middle-, and high-income countries.
- Increase compliance with vaccination schedules and campaigns.

Pain mitigation strategies

There are a number of evidence-based strategies for pain mitigation *(16)*. The following general measures should be considered:

- Health personnel administering vaccinations should remain calm and allow children and their parents to collaborate.
- Neutral language should be used in referring to potentially negative elements: "Here I go" instead of "Here comes the needle," for example.
- Avoid phrases that could increase anxiety or distrust or that may not be true, such as "This won't hurt."
- In the case of intramuscular vaccines, aspiration should be avoided because it increases pain.
- When multiple vaccines are scheduled to be injected in the same session, they should always be given in order of painfulness, ending with the most painful.
- If possible, privacy should be respected, avoiding vaccination in group scenarios.

Other more specific strategies are described below.

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Breastfeeding

Infants who are breastfed during vaccination have a lower heart rate and cry less, compared with other techniques or with infants who do not receive any intervention to minimize pain, according to some studies *(16,18)*. This is a strong recommendation in favor of the method, especially since no adverse effects have been reported (only some positioning inconveniences).

Recommendations for the implementation of this strategy include:

- Suggest that the mother breastfeed (or give a bottle) a few minutes before, during, and after vaccination.

- If oral vaccines are given together with injectables in the same session, the suggestion is to start with the oral rotavirus vaccine, continue with the oral poliovirus vaccine, and finally, begin breastfeeding for the administration of the rest of the vaccines (injectables).

Sugar solution

Oral administration of a sucrose (common sugar) solution is effective as an analgesic technique, and has been shown to reduce total crying time compared with children who received other solutions, such as sterile saline solution *(17,19)*. However, this should be considered a limited favorable recommendation, to be resorted to when breastfeeding is not possible.

General recommendations for using this technique:

- The feasibility of this intervention should be assessed, given the time and resources (drinking water, sugar) that are necessary to carry it out.

- Sugar solutions of between 20% and 50% are suggested (e.g. 1 teaspoon of sugar dissolved in 10 ml of drinking water).

Holding

Children should be held or accompanied by their parents, depending on age. Parents can hold the children in their arms or on their lap. Having small children lie down, without allowing parents to hold them, is not recommended, as the supine position without being held increases anxiety *(16,20)*. Holding is strongly recommended.

Older children should be seated, except for those who have a history or could be at risk of fainting during vaccination; in that case, it is preferable to them to be vaccinated lying down. It is not advisable to hold children with excessive force.

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Distraction techniques

In children under the age of 14, studies show that distraction techniques are effective in regulating and reducing pain by making them focus on something other than the shot *(17)*. This is a strongly favorable recommendation.

It is advisable to distract these children with toys, by showing a video or playing music, or by encouraging conversation with an adult.

Strategies for adults

For adults, breathing techniques that do not lead to accidently moving the fixed arm *(16)* should be used.

Strategies that are not recommended

The following strategies are not recommended for pain mitigation during vaccination *(16)*:

- **Topical anesthetics:** Their systematic use is not recommended for national immunization programs. Such a strategy is difficult to implement, because the anesthetic must be applied 1 hour before injection, and involves high costs and lack of availability.

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- **Warming up the vaccine, manual stimulation at the injection site, and prior administration of oral analgesics:** There is a lack of evidence regarding the effectiveness of these interventions in reducing pain. There is also a risk that the effectiveness of the vaccine will be affected. If pain occurs in the days after vaccination, oral analgesics may be administered to mitigate pain or fever linked to reactogenicity.

5 Frequently asked questions about vaccination

This chapter addresses frequently asked questions (FAQs) regarding vaccination in general and provides key messages for each one.

This chapter addresses FAQs regarding vaccination in general and provides key messages for each one.

The objectives of this chapter are to:

- **Present common questions, concerns, and fears that health workers must address.**
- **Provide examples of key messages and answers to FAQs, incorporating evidence-based communication techniques and strategies.**

Regardless of whether they are directly involved in vaccination or in other services, health workers are constantly fielding questions or comments regarding vaccines from patients, or parents or caregivers of children. Therefore, it is useful to have a list of FAQs and their answers enabling health workers to resolve some of these doubts. The following were adapted from several references *(21-26)*.

Why should people be vaccinated?

Children and adults need vaccines to protect themselves from vaccine-preventable diseases. These diseases can lead to serious complications, and even cause death. Moreover, unvaccinated people can pass these diseases on to other unvaccinated people.

Are vaccines really necessary?

Vaccine-preventable diseases are still spreading around the world. Thus, even though vaccines have been very effective in keeping many diseases under control, if people are not protected by immunization, the risk of acquiring a serious disease, with the possibility of complications and death, is real. In addition to protecting vaccinated children and adults, vaccines also prevent the spread of disease to others. If many people are vaccinated in a given population, the number of individuals at risk of transmission is reduced, which also protects some people who, for medical reasons, cannot be vaccinated (e.g. children who have received a transplant), people who are allergic to vaccine components, or newborn babies who are too young to be vaccinated. This is known as collective or herd immunity.

How do vaccines work?

Vaccination prepares a person's body to fight the disease. Each vaccine contains a live (attenuated or inactivated) or dead virus or bacterium (or segments of the microorganism) that causes a particular disease. When a child or adult receives the recommended vaccines for certain diseases, they are considered immunized, and therefore protected against these diseases.

What are vaccines made of?

In addition to the virus or bacterium against which immunity is sought (or segments of it), some vaccines include small amounts of inactive ingredients to ensure their effectiveness and prevent them from becoming contaminated with other harmful microorganisms. These ingredients include the following, none of which have been shown to cause harm (except in people allergic to these components, for whom some vaccines are not advisable for medical reasons)

- Preservatives to prevent contamination of the vaccine with microorganisms (e.g. phenol).
- Adjuvants to boost the effectiveness of the vaccine (e.g. aluminum salts).
- Stabilizers to preserve the effectiveness of the vaccine, even when exposed to extreme environmental conditions (e.g. gelatin).
- Possible residual ingredients from the manufacturing process (e.g. egg protein).

Are vaccines safe?

Yes, vaccines are very safe. Before a vaccine is approved, there must be clinical trials showing that it does not produce serious side effects in people, and that it is effective in protecting against the specific disease or diseases for which it is indicated. In addition to very strict safety standards in the production of vaccines, there are regulations on their transport, storage, and administration that function as a quality assurance system to make vaccines as safe as possible; moreover, they are monitored by pharmacovigilance systems in each country.

What are the risks associated with vaccination?

Vaccines, like any health intervention, can cause side effects. Most of them are very mild, such as soreness at the injection site, general discomfort, or low-grade fever. These side effects usually go away within one or two days. There are several strategies for improving the vaccination experience, such as breastfeeding and holding (see examples in the previous chapter). Additionally, the health workers who administer vaccines ask those who have just been vaccinated to wait at least 15 minutes before leaving the vaccination center to make sure that they are all right and do not have an allergic reaction. In the rare event of a severe allergic reaction (called anaphylaxis), health staff are trained to react immediately and avoid harm.

Is natural immunity better than immunity acquired through vaccination?

By getting a disease and surviving it, people can develop immunity to that disease. However, this process has high risks, since vaccine-preventable diseases can lead to serious complications, such as pneumonia, brain damage, cancer, deafness, blindness, or even death.

Is it safe to give so many vaccines to such a small baby?

Vaccination schedules in each country are designed to protect infants and children by developing immunity in the first months and years of life, before they are exposed to life-threatening diseases, and when the immune system is most sensitive. Each vaccine is indicated at a specific age to provide the greatest protection.

Children are immunized at an early age because they would not otherwise be protected from disease, and the consequences of these diseases can be very serious, even life-threatening.

Frequently asked questions

Is it advisable to space out vaccines, to avoid getting so many in a single session?

It is not advisable to modify the vaccination schedule to space vaccines. Fewer vaccinations sessions are more comfortable for the baby and more convenient for the parent. Following the recommended schedule helps protect them against exposure to potentially life-threatening diseases.

Vaccination schedules are designed to provide maximum vaccine benefit. Young children are more vulnerable than older children or adults to many diseases. Therefore, the sooner they are immunized, the better.

Is it safe to give so many vaccines in a single session? Couldn't they overload the immune system?

The immune system is ready to receive the vaccines listed on the immunization schedule. It is important to remember that the large number of viruses and bacteria to which a baby may be exposed could put the baby's health at more risk than the number of vaccines that are given in a session.

Vaccines only contain dead or weakened versions of viruses and bacteria, so they cannot cause disease. This is done to train the body so that it can defend itself from the actual disease if it appears. Spacing or delaying vaccines involves risk, because during the period when the vaccine has not been received, children will be at risk of getting the disease and will not have developed defenses against it.

If my child is behind on their vaccinations, can they be brought up to date?

Although it is important to be vaccinated on time, it is never too late to start receiving vaccines or to bring the child's vaccination schedule up to date. If your child received some of their shots, but then fell behind schedule, they do not have to start over. The vaccines that were already given are important, and are taken into account. You should continue with the vaccination schedule based on the vaccines your child still needs. To do this, you should go to a health facility that has a vaccination center.

Can children be vaccinated when they are sick?

Children can be vaccinated safely even when they have a cold or a runny nose, an upset stomach, or other mild illnesses. There is no higher risk involved when vaccines are given during a mild illness.

However, if the child has a fever or other symptoms that suggest a moderate or severe illness, health staff should evaluate whether vaccination should be deferred until the symptoms resolve.

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Is it possible for any vaccine to cause the same disease it is meant to prevent?

Vaccines that are made with inactivated (dead) viruses or bacteria or only parts of viruses or bacteria cannot cause the disease. Examples include the injectable polio vaccine, polio, the flu vaccine, and the human papillomavirus (HPV) vaccine.

Only in the case of vaccines containing live or weakened (attenuated) viruses or bacteria is there a slight chance of the child coming down with a mild version of the disease, almost always much less serious than the disease the child would have gotten from the actual virus or bacteria. Examples of live attenuated vaccines include the oral polio vaccine, TB vaccine (BCG), and the measles, mumps, and rubella (MMR) vaccine.

Serious side effects are possible in people who receive a vaccine with live attenuated viruses, even if contraindicated; this usually occurs in people who have weakened immune systems. Therefore, these individuals are not vaccinated, and depend on the rest of the people in their community being immunized through vaccination for their protection through collective immunity.

Another special situation can occur in countries where vaccine coverage has declined significantly; for example, the use of oral polio vaccines can lead to the emergence of new vaccine-associated cases of polio. This situation does not occur in places where there is high polio vaccine coverage, which is why it is so important for all countries to maintain high vaccination coverage in order to eradicate polio.

6 Frequently asked questions and key messages about vaccines against influenza, human papilloma virus, and measles, and vaccines in development against COVID-19

This chapter discusses common concerns related to certain specific vaccines that lead to hesitancy, concerns, and misperceptions. In particular, vaccines against influenza, HPV, measles, mumps, and rubella, as well as vaccines currently in development against COVID-19.

The objectives of this chapter are to:

- **Present the most widespread myths and misconceptions regarding these vaccines.**
- **Provide examples of key messages and answers to FAQs, incorporating evidence-based communication techniques and strategies.**

As in the previous chapter, some key messages are provided below, based on available evidence on diseases and their vaccines, including influenza *(27-29)*, HPV *(25, 30-32)*, measles, rubella and mumps *(3, 23, 33-35)* and COVID-19 *(36-42)*.

Influenza and flu vaccines

What is influenza?

Influenza, or the flu, is a respiratory disease caused by disease-specific viruses that infect the nose, throat, and sometimes lungs. Cases can be mild or severe, even resulting in death. The best way to prevent this disease is through vaccination; other measures that limit contagion include frequent hand washing, respiratory hygiene (e.g. coughing or sneezing into a disposable tissue or the inside of the elbow), limiting contact with sick people, and avoiding sharing utensils with others.

Flu symptoms include fever, cough, sore throat, stuffy nose or rhinitis, muscle aches, headache, and fatigue. In some people, it also occurs with vomiting and diarrhea. It is important to know that not everyone with the flu has a fever.

When does the influenza virus circulate?

Although seasonal influenza viruses are detected year-round, they are more common during the autumn and winter in each country. Therefore, mass vaccination campaigns against this virus are launched at the beginning of that season.

How does influenza spread?

Experts say that the influenza virus is transmitted through tiny droplets that are emitted when people cough, sneeze, or talk, which can go into other people's faces. Less frequently, a person may become infected by touching a surface or object contaminated by the virus, and then touching their own mouth, nose, or eyes. Before becoming symptomatic, it is possible for people to transmit the influenza virus to others.

Is influenza dangerous?

Yes. The influenza virus can cause moderate complications, such as ear or sinus infections, or such severe complications as pneumonia, heart inflammation, encephalitis, multiorgan failure, sepsis, and even death. This virus can also worsen preexisting chronic diseases, such as some forms of heart disease, asthma, or diabetes. Thousands of people die each year from complications caused by the influenza virus.

Studies show that hospitalized influenza patients who have not been vaccinated are two to five times more at risk of dying than those who have previously been vaccinated.

Who is most at risk for flu complications?

Anyone can get influenza, and serious complications can occur at any age; however, some people are at a higher risk of developing these serious complications. They include older people, people with chronic diseases, pregnant women, and children under the age of 5, especially those under the age of 2.

Is influenza the same as the common cold?

No, they are different diseases. The common cold is also caused by respiratory viruses, but they are different from the influenza virus; moreover, it has a different clinical presentation (Table 3).

Table 3. Differences in the clinical presentation of the common cold and influenza

Signs and symptoms	Common cold	Influenza
Symptom onset	Gradual	Sudden
Fever	Rare	Common, lasting 3-4 days
Muscle aches	Mild	Common, often severe
Chills	Rare	Common
Fatigue, weakness	Sometimes	Common
Sneezing	Common	Sometimes
Difficulty breathing	Mild to moderate	Can be severe
Cough	Mild to moderate	Can be severe
Stuffy nose	Common	Sometimes
Sore throat	Common	Sometimes
Headache	Rare	Common

What are the benefits of the flu vaccine?

There are many reasons to get a flu shot every year:

- First, the vaccine can prevent you from getting the disease, as is the case with any other vaccine.
- In the case of the flu vaccine, if someone gets influenza, having been vaccinated reduces their chances of developing any complications that could require hospitalization, or decreases the length of their time in hospital. Similarly, having been vaccinated reduces the chance of death from influenza.
- For those with a chronic illness, the flu vaccine has been associated with fewer cardiac events and fewer complications from chronic respiratory diseases. Other studies have also shown that the vaccine reduces hospitalization in people with diabetes.
- This vaccine also protects women during pregnancy and after childbirth by reducing their risk of respiratory infections or hospitalization. Moreover, it has been shown that vaccinating pregnant women also protects their babies during the first months of life, when the babies are still unable to receive the vaccine.
- The vaccine can save children's lives by preventing serious complications that are potentially fatal.
- In addition to protecting the adults and children who receive it, the flu vaccine also protects those around them, who may be vulnerable to complications from the disease (e.g. infants, older people, and people with chronic diseases).

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- Health workers, given their exposure to patients, are at a higher risk of becoming infected and of transmitting the disease, and so their vaccination is crucial.

Who recommends the composition of the flu vaccine each year?

Every year, the World Health Organization studies the influenza viruses circulating in each hemisphere, and determines the types of viruses that are expected to circulate in the following season. Based on this study, it provides recommendations for the composition of vaccines to be produced and used in immunization campaigns. Vaccines undergo strict control processes before being distributed to health centers.

How long after vaccination are we protected?

Our bodies need approximately two weeks from the administration of the vaccine to develop protection, through the production of antibodies. This protection has a limited duration, which is why it is necessary to be vaccinated each year.

It should also be borne in mind that this vaccine only protects against the influenza virus, and not against other viruses that may also circulate during the autumn-winter season.

Can the vaccine cause influenza?

Flu vaccines have been used for decades, are safe, and do not cause the disease. The most commonly used flu vaccine is inactivated and comprises parts of the influenza virus, meaning that there is no chance of the vaccine causing a case of the flu.

After being vaccinated, the body needs about two weeks to be protected. During that period, vaccinated people may get the flu or other respiratory viruses with similar symptoms, and mistakenly believe that they caught the flu due to the vaccine.

Is the flu vaccine effective?

The effectiveness of the vaccine, i.e. the protection it provides, is usually moderate (40% to 60%), and varies every year. Its effectiveness also varies according to individuals' age and health status, and to whether circulating viruses are similar to those against which the vaccine provides protection. Vaccination of pregnant women is key to protecting their babies, as the vaccine is not recommended in children under 6 months of age.

During the 2017-2018 flu season in the United States of America, the vaccine was estimated to have prevented 7 million cases, 109,000 hospitalizations, and 8,000 flu-related deaths. Also, evidence suggests that if a person gets a flu shot and then contracts the disease, their case will be less severe than if they had not been vaccinated, which can prevent complications, hospitalization, and even death.

Human papillomavirus (HPV) and HPV vaccine

What is the human papillomavirus (HPV)?

HPV infection is one of the most common infections in the reproductive tract and can cause cervical, anal, penile, and oral cancer, among other conditions, in men and women. HPV is an important source of morbidity and mortality in women, and an essential public health priority globally, as it is the leading cause of cervical cancer, which is the third most common cancer among women in Latin America and the Caribbean. It is also responsible for 90% of anal cancers, 70% of vulvar and vaginal cancers, and 60% of penile cancers. Recent research indicates that high-risk HPV types are linked to 60-70% cases of oropharyngeal cancer. There are more than 100 types of HPV: some are considered "low risk" (non-carcinogenic), such as those that cause anogenital warts, but 13 types are associated with an increased risk of cancer.

How is HPV transmitted?

HPV is an extremely common virus, and almost everyone in the world becomes infected with it at least once in their lifetime. HPV infects the skin and mucous membranes, and is transmitted through sexual contact or skin-to-skin contact, including any type of intimate contact, not just penetrative sex.

Are the diseases caused by HPV serious?

Cervical cancer caused by HPV is responsible for more than 34,000 deaths of women in the Region of the Americas each year. In addition to cervical cancer, HPV can cause penile, anal, and oropharyngeal cancer. HPV can also cause genital warts, which, although not as severe, cause discomfort and require specialized medical treatment.

Why does my child need the HPV vaccine at such a young age?

The HPV vaccine protects children before they are exposed to these viruses, which can cause serious illness. This is why the vaccine is indicated at a young age, in preadolescence rather than later, to protect children long before they are exposed to the risk of acquiring these viruses.

Is the HPV vaccine safe?

Yes, the HPV vaccine is extremely safe.

What reactions can the HPV vaccine cause?

Like any health intervention, vaccines can cause side effects. The most common are pain, swelling and redness at the injection site, headache, and fever. All of these symptoms resolve spontaneously. Less often, dizziness and nausea may occur, which is why vaccination in a seated position is recommended.

To date, more than 300 million doses of the vaccine have been administered worldwide (43 countries in the Americas have introduced the HPV vaccine into their national immunization programs). The results of post-marketing surveillance and analysis of data from studies conducted in several countries that introduced the vaccine confirm that it is well tolerated and there is no reason to be concerned about its safety.

If my child has a cold or a fever, can they be vaccinated against HPV?

If your child has a cold or low-grade fever (temperature less than 38 °C or 101 °F) at the time of vaccination, they can receive the HPV vaccine, since these symptoms are not contraindications for vaccination.

How is screening for HPV and pre-cancerous cervical lesions performed?

HPV tests, cytology (Papanicolaou, or Pap, test), and visual inspection with acetic acid (VIA) are all recommended screening tests for cervical cancer. Screening is not done to diagnose the disease, but to identify whether

a person is at increased risk or if they have a precursor to the disease.

a) The HPV test detects the virus, and is the most effective tool for detecting the risk of cervical cancer.

b) Cytological screening, known as the Papanicolaou, or Pap, test, is based on the analysis of a cervico-vaginal sample. Although this is the most widely used screening method, the test's main problem is that it often provides low-quality results.

c) VIA uses visual examination with the naked eye to identify lesions, and can be used alone or after an HPV test. VIA is often used in conjunction with early treatment.

If my daughter has already been vaccinated against HPV, should she have a Pap test when she is an adult?

The HPV vaccine does not provide full protection against all types of HPV that can cause cervical cancer. It is therefore very important that women continue to have screening tests, even after they have been vaccinated.

Does the HPV vaccine protect against all sexually transmitted diseases?

No. In addition to receiving an HPV vaccine, men and women should adopt the recommended measures to prevent sexually transmitted infections.

I don't want to vaccinate my child against HPV. What is the real risk of not being vaccinated?

There is a real risk to your child, because they will not be protected against various cancers that may result in death, or against genital warts, which are troublesome and require treatment.

Measles, mumps, and rubella, and the MMR vaccine

Key messages about measles, mumps, and rubella

The following ideas and facts highlight the importance of preventing **measles** through vaccination:

- The number of children who have caught measles has risen worldwide, despite the huge efforts made by health teams to eliminate and eventually eradicate the disease.
- Measles is one of the most contagious diseases known.
- To be protected, children should receive two doses of the measles, mumps, and rubella (MMR) vaccine.
- In outbreak situations, a so-called zero dose may be necessary, given prior to the first dose on the regular vaccination schedule, to protect babies from infection.
- An unvaccinated person exposed to someone who has measles will almost certainly get the disease.
- Children with measles may experience serious complications, such as pneumonia, seizures, encephalitis, brain damage, blindness, or a fatal syndrome that can occur years after infection (subacute sclerosing panencephalitis).
- It is never too late to be vaccinated against measles.

Regarding **mumps**, the following key messages can be highlighted:

- To be protected, children should receive two doses of the MMR vaccine.
- Unvaccinated children exposed to someone who has mumps may become infected.

Regarding **rubella**, the following ideas must be kept in in mind:

- Rubella is highly contagious, and can put children still in the womb at high risk.
- If a pregnant woman is exposed to someone infected with rubella during the first 20 weeks of pregnancy, the baby is at risk of being born with some kind of disability. In 20% of cases, rubella infection causes a miscarriage.
- Anyone who has not been immunized against rubella can spread the virus. It is better to be vaccinated rather than to wait for a woman with whom you are in close or habitual contact to become pregnant.

Complications of measles, mumps, and rubella

Measles can lead to complications in up to 20% of cases, with an increased risk in adults. It can cause respiratory infections, such as pneumonia, seizures, encephalitis (inflammation of the brain) and brain damage, and can sometimes even cause death. Nearly 1 in 1,000 patients can develop encephalitis; 25% of these cases result in disabilities that do not allow them to return to school or to work. Between 1 in 1,000 and 1 in 3,000 infected people can die from measles.

Mumps can cause viral meningitis, permanent deafness, and encephalitis. Other, although rarer, complications may include inflammation of the pancreas, ovaries, or testicles. Pregnant women who are infected during the first trimester run the risk of miscarriage.

Rubella can cause congenital rubella syndrome, which occurs when a pregnant woman acquires the infection during the first trimester. The disease can cause stillbirth, premature birth, and severe birth defects. Rubella can also cause encephalitis in 1 in 6,000 cases. Other complications include low platelet levels, bleeding, and joint pain or inflammation.

The measles vaccine and autism

Autism spectrum disorder is a matter of the utmost interest. However, there is no association between the MMR vaccine and autism. A single study, which was poorly designed and already discredited, reported such an association in 1998. Since then, hundreds of well-designed studies have confirmed that there is no risk of autism from vaccination.

Frequently asked questions about measles, mumps, and rubella, and the MMR vaccine

What is measles?

Measles is a disease caused by a virus that is transmitted from person to person by droplets emitted when someone who is infected coughs, sneezes, or talks. It is also

possible to become infected with the virus by touching a contaminated surface and then touching one's face. Measles is so contagious that an unvaccinated person exposed to someone who is infected will almost certainly catch the disease.

What are the symptoms of measles?

The first symptoms of measles are fever and cough, runny nose, and redness of the eyes. After several days, red spots appear, first on the head and then spreading to the rest of the body.

Why is it important to prevent measles?

This disease may lead to serious complications, such as pneumonia and encephalitis, which can be fatal (more information is available in the previous section). Moreover, measles causes an "amnesia" of the immune system, which weakens people's ability to fight other diseases and increases the risk of serious complications in the future.

What are the side effects of the MMR vaccine?

The effects that can be expected after vaccination are fever, soreness or inflammation at the injection site, and a slight rash.

What is mumps?

Mumps is a contagious viral infection of the salivary glands that is transmitted from person to person through droplets emitted by infected people when they cough, sneeze, or talk. It is also possible for people to become infected by touching surfaces contaminated with the virus and then touching their face without washing their hands.

What are the symptoms of mumps?

At the onset of the disease, people feel general malaise, headache, loss of appetite, and low-grade fever. The characteristic sign of the disease is inflammation of the salivary glands under the ears. Mild respiratory symptoms may also occur, although some people may not develop any symptoms.

Why is it important to prevent mumps?

The disease can be easily spread from person to person, and can cause serious complications, such as deafness (more information is available in the previous section).

It is critical to identify misconceptions in a timely manner, before they undermine trust in vaccines and the immunization program.

What is rubella?

Rubella is a contagious viral disease, known for its characteristic red rash. The infection is usually accompanied by fever.

What are the symptoms of rubella?

In children it occurs with a low-grade fever (less than 38 °C/101 °F) and a rash that begins on the face and then extends to the rest of the body. Before the onset of rash, other possible symptoms in older children and adults include inflammation of the salivary glands, cough, nasal discharge, and sore joints (especially in young women).

Why is it important to prevent rubella?

Rubella infection during pregnancy can cause birth defects in the baby, such as deafness, blindness, intellectual disability, heart problems, and liver or spleen damage. It can also cause miscarriage.

Vaccines being developed against COVID-19

The information below reflects the evidence available as of August 2020. For updated information, please visit the PAHO website: www.paho.org/coronavirus.

What is SARS-CoV-2?

SARS-CoV-2 is a new virus that belongs to the coronavirus family. There are several types of coronavirus that can affect people, including some that cause mild respiratory diseases and others that cause serious diseases, such as MERS-CoV, SARS-CoV, and recently, SARS-CoV-2.

At the end of 2019, cases of pneumonia related to SARS-CoV-2 infection were reported. On 30 January 2020, the World Health Organization declared the new outbreak a Public Health Emergency of International Concern (PHEIC). On 11 February 2020, WHO named the disease "coronavirus disease 2019 (COVID-19)." COVID-19 was declared a pandemic by the Director General of the WHO on 11 March 2020.

What are the symptoms of COVID-19?

People with COVID-19 may have no symptoms or mild symptoms, but there are also possible complications that can require hospitalization and even cause death. The incubation period for COVID-19, which is the time between exposure to the virus and symptom onset, is on average 5-6 days, but can be as long as 14 days. Symptoms can be cough, shortness of breath, fever, chills, muscle pain, sore throat, and loss of taste or smell. Other less common symptoms are gastrointestinal, such as nausea, vomiting, or diarrhea.

How can COVID-19 be prevented?

The best way to prevent the disease is to avoid exposure to the virus, which is mainly transmitted between people who are in close contact (less than 1 meter away), through respiratory droplets emitted by coughing, sneezing, or talking. These droplets can also land on objects and surfaces, such as tables, doorknobs, railings, etc., and other people can then become infected by touching these objects or surfaces, and then touching their eyes, nose, or mouth, which serve as the virus´s gateway to the body.

The most effective ways to protect yourself and others from COVID-19 are to consistently follow these measures:

- Disinfect your hands with soap and water or with an alcohol-based solution.
- Use masks in accordance with recommendations from local authorities. WHO recommends that if there is widespread community transmission, and especially in settings where physical distancing cannot be maintained, governments should encourage the general public to wear a fabric mask. Health care workers, people who are sick and exhibiting symptoms of COVID-19, who are taking care of someone at home who is sick with COVID-19, or who are 60 years or older or who have pre-existing medical conditions should use medical masks.
- Keep a distance of 2 meters from other people.

Can children and adolescents get COVID-19?

Yes. Children and adolescents can become infected and can spread the disease. Studies to date show that although the majority of children and young adults have mild cases, some cases are severe and even lead to death. Additionally, some individuals seem to have long-term effects even after recovering.

Children and adolescents, as well as adults, should follow quarantine and isolation recommendations if there is a risk of having been exposed to the virus or if they develop symptoms of the disease, respectively. They should also follow local masking guidance. It is particularly important for children to avoid contact with older people and with others who are at risk of a more serious illness.

Is there a vaccine against COVID-19?

As of August 2020, no vaccine was available against COVID-19. However, there are more than 170 candidate vaccines in development, of which 30 are in clinical trials with humans. The results of these trials are being publicly released.

How long does it take to develop a new vaccine? When will the COVID-19 vaccines be available?

Developing a vaccine is a long and complicated process. The evaluation of a vaccine candidate includes different preclinical and clinical phases until the vaccine receives regulatory approval. The objective of this whole process is to guarantee that the vaccine is safe and effective (in addition to responding to other questions related to the number of and schedule of doses).

In early preclinical phases, the vaccine candidates must demonstrate that they are safe and able to produce an immune response in animals. Only then can studies begin in people. Three phases of human clinical trials must be completed before the vaccine can be approved for use in the population. Phase 1 evaluates the safety of doses in a small group of people (approximately 100). If a high safety profile is confirmed, the vaccine can move to phase 2, which continues to evaluate safety, as well as whether immunity is achieved in vaccinated individuals. This phase is also performed in a small group of people (usually between 200 and 500). If success is confirmed at that stage, phase 3 can begin, in which the vaccine is tested generally, in thousands of people at various health centers and sometimes in different countries, to confirm both its safety and efficacy in preventing the disease.

On average, it usually takes 10 years to develop a vaccine. However, in the current COVID-19 pandemic situation, many research teams are working around the world to develop safe and effective vaccines against COVID-19 in approximately 12 to 18 months.

WHO recommends that if there is widespread community transmission, and especially in settings where physical distancing cannot be maintained, governments should encourage the general public to wear a fabric mask

7 Debunking false information and misconceptions about vaccines

This chapter discusses mental model-based techniques and strategies for debunking false information about vaccines.

The objectives of this chapter are to:

- **Examine how false information gets into our minds.**
- **Explore the reasons why it is so difficult to remove false information once it takes root.**
- **Present basic strategies for replacing false information with evidence.**
- **Provide information on how to address false information and misconceptions that establish a relationship between vaccines and autism.**

Because of the speed with which information circulates on the internet and social networks, it is very likely that you will find myths, rumors, and misconceptions about vaccines there. It is a critical task to identify them in a timely manner, before they undermine trust in vaccines and immunization programs, and, especially, in health professionals. This chapter presents some recommendations on evidence-based communication from the field of psychology and behavioral change to address false information, myths, and rumors *(44)*. The myth of the false causal association between vaccines and autism is used as the main example to illustrate these recommendations

Debunking false information is a difficult task. A great deal of caution is required when communicating someone who believes it is true. There are basic rules for addressing this situation. If they are not followed, it could reinforce false beliefs and contribute to spreading misinformation further.

The three basic rules for debunking false information are (see Square 2 for a practical example):

1. **Focus on the evidence** and do not repeat the false information, so that the correct information becomes more prominent than the myth.
2. **Issue a warning** before communicating about false information, to make it clear from the outset that this information is false.
3. **Replace the myth with concrete evidence** regarding the benefits of vaccination, and the risks associated with vaccine-preventable diseases.

Square 2. Example of applying the three basic rules for debunking misinformation

Question: ➜ ***"I read online that vaccines cause autism. Is this true?"***

Answer: ➜

1. **Focus on the evidence:** "We are going to resolve this doubt by reviewing the evidence confirming the safety of the measles vaccine."
2. **Warn about false information:** "Many studies have been conducted that rule out this myth or false information, and they have confirmed that the alleged association is false. The measles vaccine is the best way to protect your child from a life-threatening disease, and it has been shown that it does not cause autism."
3. **Replace misinformation with accurate, concrete information:** "The measles vaccine protects your child from serious complications, such as pneumonia, brain inflammation, brain damage, deafness, and even death. In addition to protecting your child, this vaccine protects those who cannot be vaccinated, such as children who have received transplants, and very young babies."

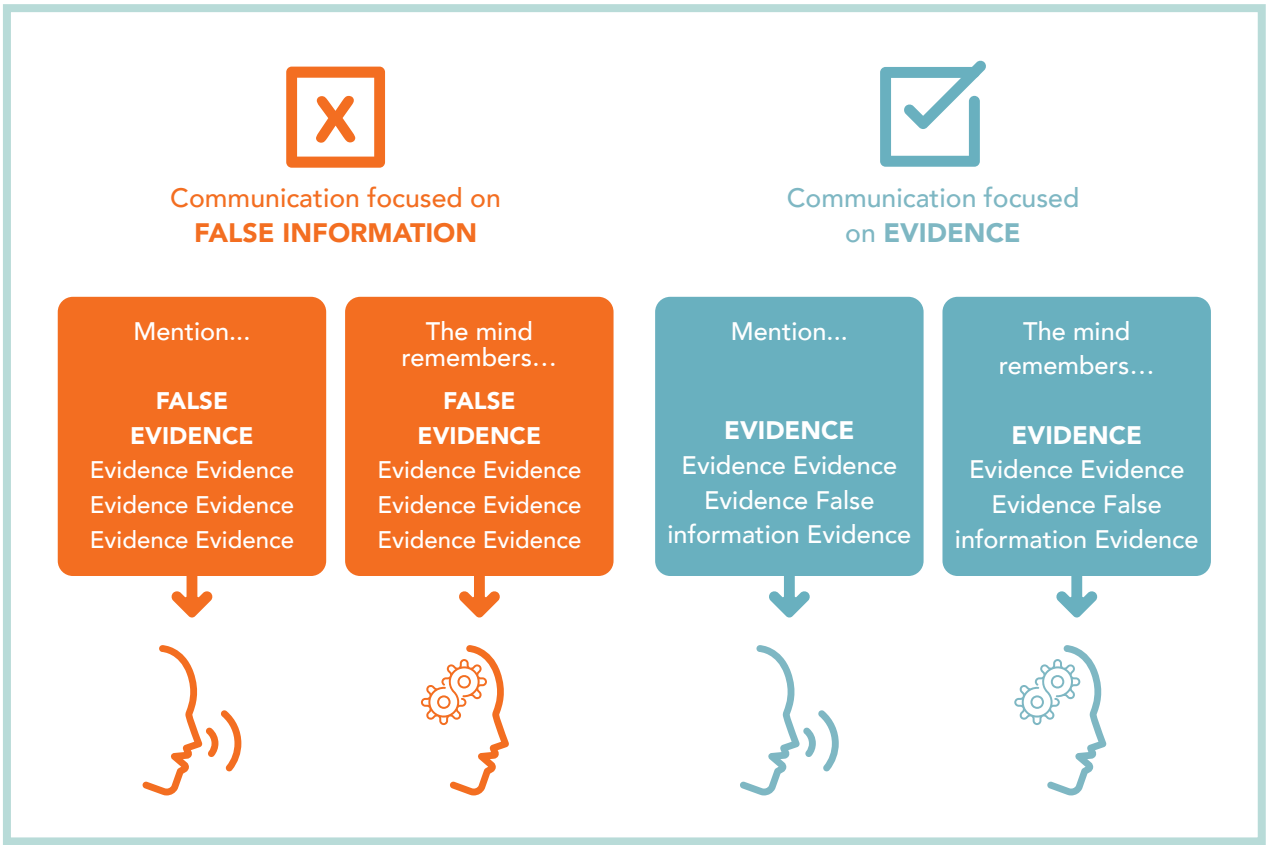
Communicating the evidence

The fundamental idea is, whenever possible, to focus on communicating the evidence and to avoid repeating the false information. Sometimes, when trying to debunk or clarify false information—for example, when trying to convey the fact that vaccines do not cause autism— there is a tendency to repeat the myth. Instead, one has to ask which key messages need to be anchored in the public's mind and to focus on those.

There are many problems associated with repeating false information or myths. A number of studies have shown that repetition of any information, regardless of whether it is true or false, increases knowledge about the idea, anchors it, and strengthens the presumption that it is true. In other words, repeating any information increases an individual's tendency to perceive it as true (Figure 10). Secondly, our minds tend to delete some information, which results in misconceptions. Figure 11 shows an attempt to correct false information through denial: even though we repeat that vaccines do not cause autism, our minds tend to delete certain information in that message; we remember only the misinformation that establishes a supposed relationship between vaccines and autism. This is why this way of correcting misinformation can backfire, and can contribute to further spreading the wrong message. Therefore, it is essential for any communication strategy to focus primarily on the evidence.

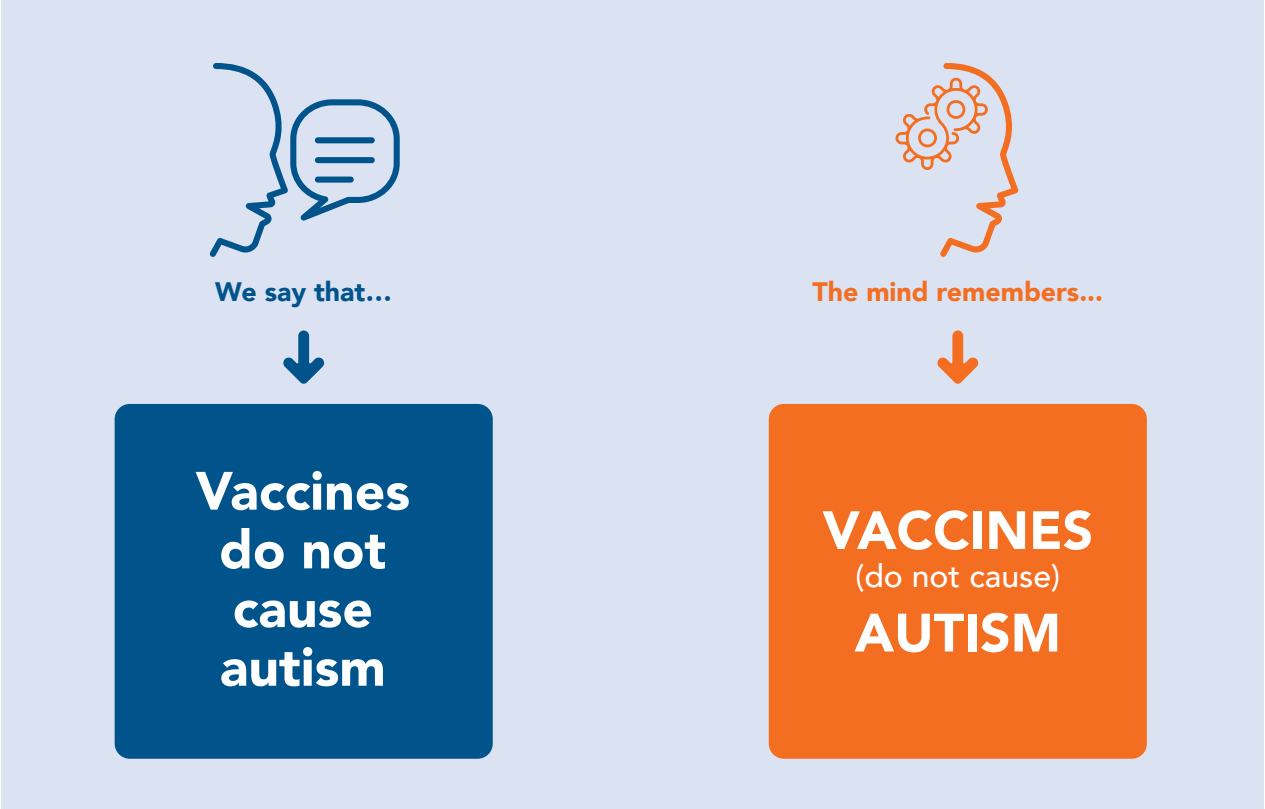
An example of the desired anchoring for the previous example might be: "The measles vaccine protects your child against one of the most contagious diseases known, which can cause serious complications and even death." An unwanted anchor would be false information that establishes a causal relationship between vaccines and autism.

Figure 10. Communicating evidence based on the mental model of anchoring ideas



Source: Adapted from Cook J, Lewandowsky S. The Debunking Handbook. 2012 [consulted 11 May 2020]. Available at: http://www.skepticalscience.com/docs/Debunking_Handbook.pdf

Figure 11. Example of unwanted associations when trying to correct false information by denying it

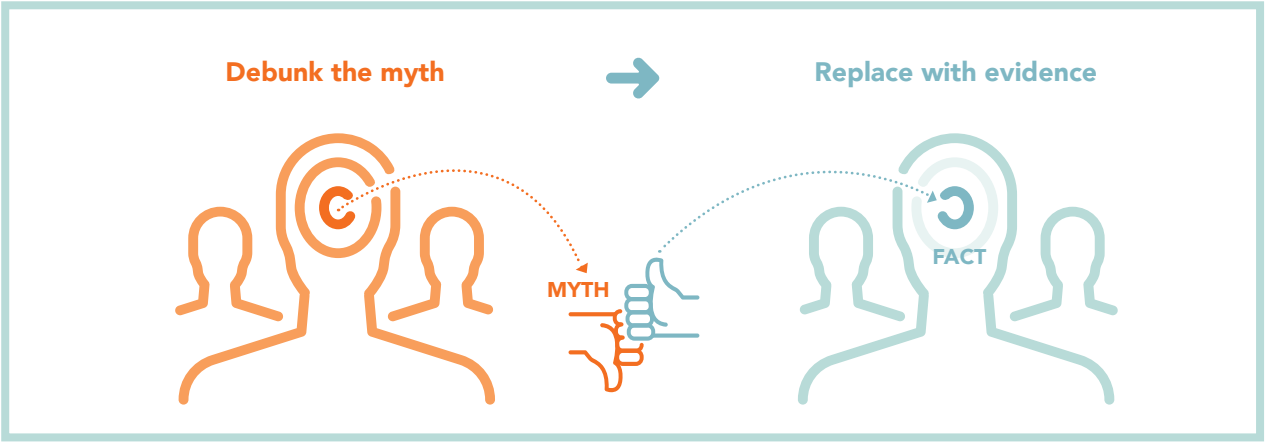


Bridging the mental gap

It is necessary to bear in mind that the goal is not only to debunk false information and misconceptions, but also to communicate the evidence and increase the public's knowledge about accurate information. Debunking false information creates a mental gap. This is why the next key step in debunking false information is to bridge the gap with accurate information—which in our case is the evidence supporting vaccination (Figure 12).

The major challenge in correcting false information is that it is very difficult to delete this information from the memory once it has settled there. By listening to false information, the brain builds a mental model around these ideas, which can anchor in the mind and remain there even if individuals accept the correct information.

Figure 12. Replacing a myth with evidence



Source: Adapted from Cook J, Lewandowsky S. The Debunking Handbook. 2012 [consulted 11 May 2020]. Available at: http://www.skepticalscience.com/docs/Debunking_Handbook.pdf

These recommendations for communication focus on replacing false information with evidence:

- The intention of debunking false information should focus on replacing it with evidence, highlighting the individual and collective benefits of vaccination.
- Where false information is involved, it can be useful to reveal any known motives of those who are spreading the misinformation; i.e., reveal the source or interests hidden behind the false information. In this context, studies have shown that discussing the true motivations of the sources of false information or rumors helps to reduce their impact. For example: "Did you know that the doctor who published the fake study did it for financial reasons, as he sought to make money by promoting unfounded fears?"
- According to a number of studies *(44)*, the most effective technique for debunking false information is a **combination of providing an alternative explanation** (replacing false information with evidence) and a **warning before mentioning the myth**, as explained above (see previous examples). The latter can be highly valuable in the context of the MMR vaccine and the false relationship with autism created by Andrew Wakefield, who lost his license to practice medicine by publishing a fake study. It is not an easy task to debunk this false information, because although many studies (45, 46) have ruled out any causal relationship between autism and the MMR vaccine, scientists have yet to fully determine the specific cause of autism itself, despite having found certain factors that may condition its onset—for example, environmental pollution (47) and the role of the gut microbiota (48). In this case, since the myth cannot be replaced by evidence about the true cause of autism, it is necessary to discuss studies that have not found any causal link between vaccines and autism spectrum disorder. Moreover, the recommended communication strategy here is to warn the person that false information is going to be discussed, before mentioning it (see examples above).

In summary, it should be clear that it is not enough to tell a person who believes in false information that it is incorrect, or that they are not well informed. When false information is not replaced by evidence and an alternative mental model is not presented, this leaves a mental gap that does not help to achieve a change in behavior and beliefs.

8 How to communicate about adverse events supposedly attributable to vaccination or immunization (ESAVIs)

This chapter discusses the complex topic of communication about events allegedly attributable to vaccination (ESAVIs) and vaccination-related risks.

The objectives of this chapter are to:

- **Present the definition and categories of ESAVIs.**
- **Provide information on communication strategies to support dialogue on ESAVIs in order to build trust.**

An adverse event supposedly attributable to vaccination or immunization (ESAVI) is any unexpected health effect (whether an unfavorable or unintended sign, abnormal laboratory finding, symptom, or disease) that occurs after vaccination and does not necessarily have a causal relationship to the vaccination or the vaccine.[1]

If an ESAVI occurs, it is very important to communicate correct information that provides peace of mind as soon as possible. The public should be aware that the health authorities and health workers share their concerns, that the situation is being investigated, that control strategies are being developed, and that the community will be kept informed.

The recommendations for communication after an ESAVI are based on the following key attitudes and messages:

- Recognition of the public's concerns, as well as the fear and anxiety related to the event.
- Because any health intervention can pose risks, even if they are minimal, there is a surveillance system in the country that monitors adverse events associated with vaccines and other medicines to implement mitigation and control strategies.
- Serious post-vaccination side effects are very rare events.
- The fact that adverse events can occur does not mean that vaccines are unsafe.
- If a child develops a high fever or other serious symptoms after receiving a vaccine, they should see a healthcare professional for evaluation and treatment.
- To avoid post-ESAVI rumors, educational sessions should be held at health centers and in the community, stressing the importance of vaccines and their safety and effectiveness. During the ESAVI investigation phase, examples should be provided for health workers to use. If they are asked "Did the vaccine cause the child's death?" they can answer: "We are very concerned about what happened, and a team of experts is making every effort to determine the cause of death. What we can say for the time being is that the vaccine in question has undergone all of the quality and safety studies and has been used for decades with great success in protecting children's health."

Strategies not recommended if an ESAVI occurs include the following:

- Issuing messages that are not aligned with the authorities' communication strategy.
- Getting ahead of the ESAVI investigation's conclusions (e.g., suggesting a causal link between the event and the vaccine, when it is still under investigation).
- Discrediting the official messages of the competent authorities.
- Lying, or not taking concerns seriously.

1 Definition of ESAVI according to the Handbook for the Surveillance of Events Supposedly Attributable to Vaccination or Immunization (ESAVI) in the Region of the Americas, which is in preparation by the Pan American Health Organization.

9 Communicating with vaccine-hesitant colleagues

This chapter presents communication strategies to support health workers in dialogue with vaccine-hesitant colleagues.

The main objective of this chapter is to:

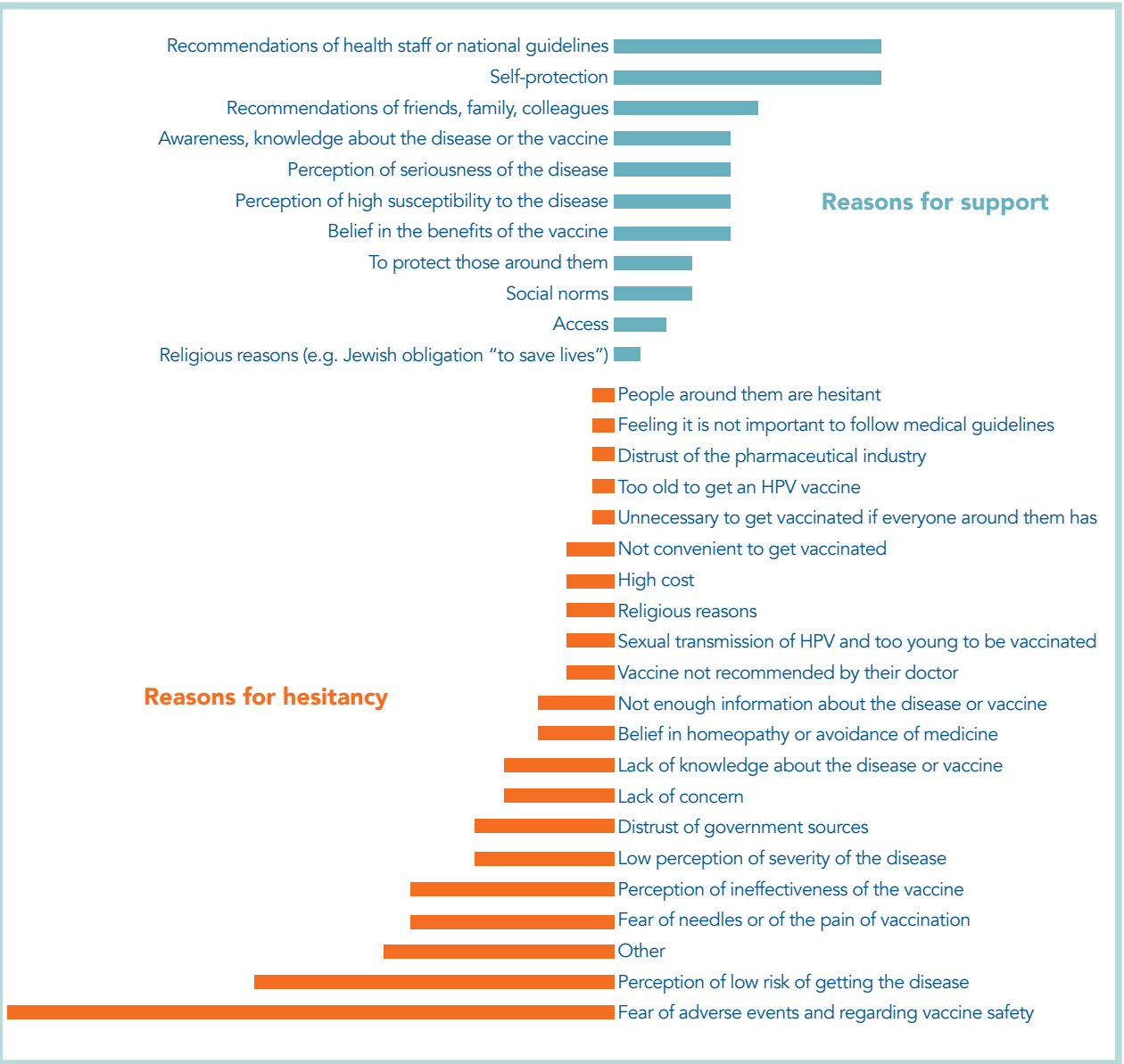
- **Present the recommended communication strategies for dialogue with vaccine-hesitant colleagues.**

Health workers are the most trusted source of vaccine-related information. In addition to their technical knowledge, which enables them to answer questions, they are in a privileged position to understand the public's concerns and use different communication formats to explain the benefits of vaccination. However, some studies have shown that these same health workers, including those who administer vaccines, may themselves be vaccine-hesitant, whether regarding their own vaccination or vaccinating their children or their patients.

Examples include several studies that focus on health workers' hesitancy with regard to flu shots. These studies explore their reasons for not being vaccinated, which included not finding the time, believing that they were not at risk of getting sick, feeling healthy, not having been told to get vaccinated, or having their own concerns about the safety and efficacy of this vaccine *(49)*. Moreover, in one study in France, between 16% and 43% of family doctors admitted that they had not recommended a particular vaccine to their patients, or that they had only recommended it on a few occasions, mainly when they felt that there was a high chance of side effects or they doubted the vaccine's usefulness *(50)*.

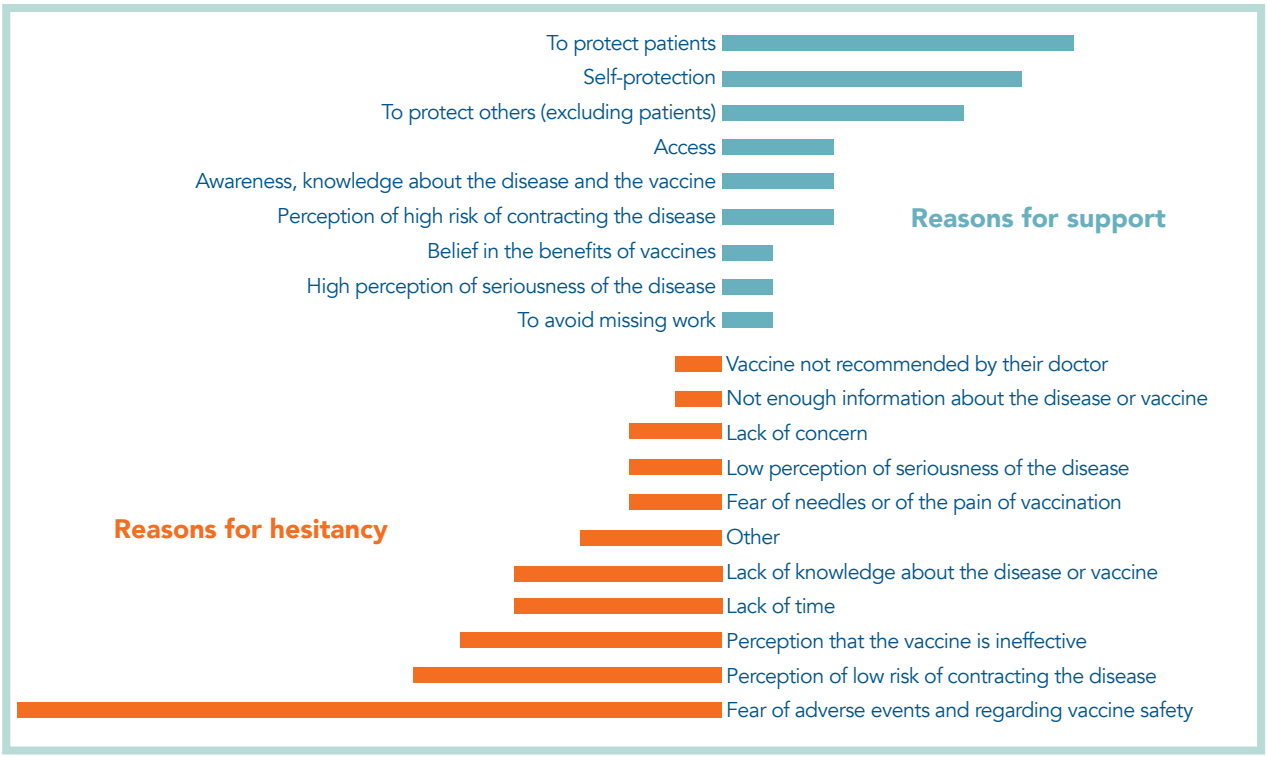
In analyzing the reasons for vaccine hesitancy in health workers, we find that they are not very different from the general population's reasons *(51)*, as shown in Figures 13 and 14.

Figure 13. Reasons to vaccinate or not vaccinate in the general population



Source: Adapted from Yaqub O, Castle-Clarke S, Sevdalis N, Chataway J. Attitudes to vaccination: A critical review. Soc Sci Med. July 1, 2014;112:1-11.

Figure 14. Reasons to vaccinate or not vaccinate in health workers



Source: Adapted from Yaqub O, Castle-Clarke S, Sevdalis N, Chataway J. Attitudes to vaccination: A critical review. Soc Sci Med. July 1, 2014;112:1-11.

The results of a study conducted in Europe to better understand the main reasons for vaccine hesitancy among health workers suggest that these reasons are similar to those given by the general population: concern about side effects or new vaccines, doubts about their effectiveness, low perception of disease risk, perception of excess vaccines in schedules, and conflicts of interest between authorities and the pharmaceutical industry, among other concerns *(49)*.

In this same study, when health professionals were asked for suggestions to build trust in vaccination, four recommendations were mentioned:

- Improve the availability of quality information on vaccines.
- Involve health authorities and develop regulations (e.g. awareness-raising in health authorities to ensure timely availability of vaccines).
- Ensure effective communication between health workers and patients.
- Train health workers to address patients' vaccine hesitancy.

Vaccination recommendations for health workers

Health workers should be reminded that demographic and epidemiological changes make the adult population a risk group. This is why priority measures are being taken to ensure the right to health *(52)*, and one of these is the vaccination of health workers:

- Diseases acquired while providing health care are considered occupational risks. Evidence-based strategies should be implemented to prevent them, including vaccination of health staff.
- Vaccination has been shown to be a cost-effective measure to prevent communicable diseases. In the case of health workers, another objective is to avoid the absence of critical staff due to sickness.
- Health workers should avoid spreading infectious diseases to their patients or co-workers.
- Health workers may also have a chronic disease that makes them more susceptible or exposes them to a higher risk of developing complications from vaccine-preventable diseases.
- The behavior or comments of health workers can influence vaccination compliance in the general population. If health workers are not vaccinated or make negative comments about vaccines, these attitudes can be imitated by the public.

Recommendations for communicating about vaccination with health workers

It is important to specifically address communication with health workers in order to resolve issues with vaccine hesitancy that may arise in this group. Recommendations in this regard are summarized as follows *(26)*:

1. Provide transparency and ensure that information is available on policies regarding vaccination and the approval and quality control of vaccines. Maintain a fluid dialogue between health workers, health authorities, and regulatory agencies.
2. Support health workers with tools and training specifically designed to address vaccine hesitancy.

Square 3 sets out some specific strategies in more detail.

Square 3. How to optimize communication with health workers

Empower individuals in decision-making
Focus communication interventions on empowerment: avoid criticizing hesitancy and focus efforts on empowering health workers with knowledge, providing them with tools for them to answer their patients' questions.

Talk about collective benefits
Provide information on the right to be protected against preventable diseases and on the collective duty to prevent suffering and disease in others, especially in patients who are cared for by health staff (collective immunity).

Highlight the risks associated with vaccine rejection
Communicate the importance of differentiating relative risks, i.e. the major risks of disease versus the minor risks of vaccines or vaccination.

Talk about the minimal risks associated with vaccination
It is important to be transparent and appropriate in acknowledging adverse events, and to report on the evidence with proper perspective. In order to maintain and build trust, mistakes that may have been made in the past (even if they are mistakes made many years ago in other countries) must be acknowledged, as well as the slight but real possibility of adverse events in the present. Current successes should also be mentioned, such as the eradication of smallpox or the elimination and control of other diseases such as polio.

Talk about the evidence
Show commitment to vaccination: Evidence confirms that those who administer vaccines communicate more successfully when they use the presumptive approach (i.e., presuming that health workers will receive the vaccine) rather than the participatory model (asking health workers their opinion about being vaccinated).

Develop assessment tools
Using screening tools to detect vaccine hesitancy helps tailor messages and communication strategies to address concerns that are specific to health workers and provide information on areas where concerns or misconceptions exist.

Offer positive messages
There are positive messages specifically targeting health workers which can improve their attitude towards vaccines. For example: "Vaccines protect not only the health workers who receive them, but also other vulnerable groups, such as patients with cancer or immunodeficiencies."

Source: Adapted from the European Centre for Disease Prevention and Control. Let's Talk about Protection. Enhancing childhood vaccination uptake: Communication guide for healthcare providers. Luxembourg: ECDC; 2016.

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Vaccines save between 2 million and 3 million lives each year and protect the entire population from more than a dozen life-threatening diseases. Thanks to vaccination, smallpox was eradicated in 1980, and we are on track to eradicate polio. However, despite great strides in the control of measles, one of the most contagious diseases known, the last few years have unfortunately seen an increase in cases. This is why high vaccination coverage—95% or more—is needed, posing a major technical and communication challenge for health workers.

Studies show that telling people about the quality, safety, effectiveness and availability of vaccines is not enough to influence behavior change related to immunization, and in general, doesn´t increase coverage. For this reason, it´s necessary to understand the reasons why people choose not to get vaccinated or not get their children vaccinated, in order to begin a two-way respectful dialogue using the best, most effective messages.

Given this context, the main objective of these guidelines is to provide tools for staff working in the field of immunization to support effective communication between health personnel and the general population, with the aim of strengthening, maintaining or recovering trust in vaccines and the immunization programs in the Region of the Americas.

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