Vaccination and trust

How concerns arise and the role of communication in mitigating crises

Individual decisions

Risk perception

Culture and social norms

Effect of building trust

PIP FRAMEWORK

World Health Organization


VACCINATION

Abstract

When situations occur in which unwanted events are rightly or wrongly connected with vaccination, they may erode confidence in vaccines and the authorities delivering them.

This document presents the scientific evidence behind WHO's recommendations on building and restoring confidence in vaccines and vaccination, both in ongoing work and during crises. The evidence draws on a vast reserve of laboratory research and fieldwork within psychology and communication. It examines how people make decisions about vaccination; why some people are hesitant about vaccination; and the factors that drive a crisis, covering how building trust, listening to and understanding people, building relations, communicating risk and shaping messages to the audiences may mitigate crises.

This document provides a knowledge base for stakeholders who develop communication strategies or facilitate workshops on communication and trust-building activities in relation to vaccines and immunization, such as immunization programme units, ministries of health, public relations and health promotion units, vaccine safety communication trainers and immunization advisory bodies.

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The current document is a further development of the guidance manual Vaccine safety events: managing the communications response, published by the WHO Regional Office for Europe in 2013.

Contents

Introduction

Vaccines are some of the most efficient public health tools for promoting health and reducing the burden of infectious diseases. They also translate into significant socioeconomic returns *(1)* not only in child health and lower child mortality but also in poverty reduction, equity, production, education and strengthening health systems as a whole.

Vaccines are very safe. Nevertheless, vaccine safety receives public scrutiny, and rightly so. When situations occur in which unwanted events are rightly or wrongly connected with vaccination, they may erode confidence in vaccines and the authorities delivering them, and may ultimately put public health at risk. WHO recommends that Member States should:

- build population resilience against vaccine rumours and scares through ongoing activities;
- ensure a strong programme, well prepared to respond to any event that may potentially erode confidence;
- respond immediately to any such event with appropriate actions based on an assessment of the situation.

Together, this may prevent a situation from escalating into a crisis, or minimize the damaging effects of a crisis.

Scope and purpose

This document was developed in response to a call from Member States for technical support and guidance in relation to building and maintaining confidence in vaccines and the authorities delivering them, both in ongoing work and during a crisis. Its development was guided by lessons learnt in countries and with the active engagement of national immunization managers and partners, primarily through subregional workshops held across the WHO European Region.

The purpose of this document is to present the scientific evidence behind WHO's recommendations on building and restoring confidence in vaccines and vaccination, both in the course of ongoing communication efforts and during a crisis.

The evidence draws on a vast reserve of laboratory research and fieldwork within psychology and communication, and covers the following areas:

- how people make decisions about vaccination – how they perceive risk, and how their decisions are affected by their attitudes, social norms and culture;
- why some people are hesitant about vaccination and how this may increase the risk of a crisis;
- what makes a crisis, and how building trust, listening to and understanding people, building relations, communicating risk and shaping messages to the audiences may mitigate crises.

WHO's practical guidance and recommendations in this field are set out in short form on pages 4-5 and are available in depth in the WHO online library *(2)*. This document contains frequent references to relevant supporting documents in the library. These library references are clearly marked in yellow "read more" boxes such as the one below.

READ MORE

This icon indicates that you may find practical guidance and advice in the WHO online library **euro.who.int/vaccinetrust**

Target audience

This document was developed for stakeholders who want to gain an in-depth understanding of the issues surrounding communication and confidence-building in relation to vaccines and vaccination. It provides a foundation and knowledge base for those who are in charge of developing communication strategies or who facilitate training workshops on communication and trust-building activities in this area. Users of this document may include:

- immunization programme managers and staff;
- managers and staff in ministries of health;
- regulatory authorities for medicines, drugs and biologicals
- public relations and health promotion units;
- trainers offering workshops on vaccine safety and vaccine safety communication;
- media trainers;
- national and regional immunization advisory bodies.

KEY POINT

Theory and practice – where to find guidance

This document presents the theoretical background to support and guide communication and confidence-building in relation to vaccines and vaccination, both in ongoing work and during a crisis.

It does not present the practical guidance in relation to these issues. Users seeking practical advice and guidance are referred to the WHO online library: **euro.who.int/vaccinetrust**

Supporting materials

This document is one of three complementary resources on this area available from the WHO Regional Office for Europe.

Vaccination and trust

This document defines and describes the key concepts and theoretical elements pertaining to communication and building confidence in vaccines and vaccination, both in ongoing work and during a crisis. It provides a foundation and knowledge base to prepare communication strategies and crisis plans, or to plan and conduct training workshops.

Online library of supporting documents

The online library *(2)* contains supporting documents, such as guidance on crisis preparedness and response, templates for strategies and message development, plans and much more. The current document contains references to relevant supporting documents throughout.

Training programme

The training programme includes modules and case examples for group work and a one-day simulation exercise. A planner and facilitator guide provides a simple process description of planning and conducting a training workshop on preparedness and response to events that may erode trust in vaccines and vaccination. It offers information about preparations, planning, content and evaluation of the workshop.

KEY POINT

Terminology – vaccine, vaccination, immunization

Understanding the differences between the concepts that relate to vaccination can be difficult. Below is some guidance.

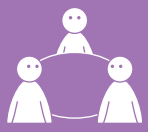
- A **vaccine** is a product that produces immunity from a disease.
- **Vaccination** is the action of giving the vaccine to someone.In this document, "vaccination" is used as an overall term referring to all factors that relate to the points above.
- **Immunization** is the process whereby a person becomes protected from a disease. Immunization can be caused by a vaccine or by a disease. Health authorities that work in this field are often referred to as immunization authorities or immunization programmes.
- **Vaccination services** refers to where, when, how and by whom vaccines are given in a particular country, including factors such as cost, accessibility and convenience.
- **Service providers** include doctors, nurses or other health workers providing the vaccine.
- A **vaccination/immunization schedule** is a list of recommended or compulsory vaccinations for a person, including the timing of each dose. Vaccination schedules vary from country to country and may vary by gender.

For example, "concerns about vaccination" may refer to concerns about the action of giving the vaccine, concerns about the effectiveness and safety of the vaccine itself, confidence in immunization authorities, trust in service providers and/or concerns about when and where vaccines are given, and how many at a time.

WHO guidance on building trust in vaccination

A brief overview of WHO guidance and recommendations on communication and confidence-building in relation to vaccines and vaccination is presented in Figs. 1 and 2. For detailed guidance, refer to the WHO online library *(2)*.

Fig. 1 **Ongoing work to build and maintain confidence in vaccines and vaccination**



Establish a coordination mechanism

A communication coordination mechanism (e.g. a communication working group) should be established to help plan communication on a routine basis. The group will also prove its worth in any emerging crisis, as it will facilitate a rapid and well-coordinated response.

Consider the following

- Work together in the group to ensure strong routine communication and aligned messaging.
- Share information regularly, via emails and face-to-face meetings.
- Agree on who will be involved in coordinating communications in case of a crisis, your roles and responsibilities and how you will coordinate and share information in a crisis.
- Share information regularly, via emails and/or face-to-face meetings.

Strengthen your organization

In building and maintaining trust in vaccination, you need to develop, implement and widely share communication strategies and plans and train your staff. A strong organization will also help you respond to any possible crisis.

Consider the following

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

Build relations

Good stakeholder relations are critical to building and maintaining trust. Stakeholders can become strong advocates and may have knowledge of and access to key population groups. Who they are depends on the context, but may include national authorities, experts, opinion leaders, health workers, professional associations, community leaders, the public and media.

Consider the following

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

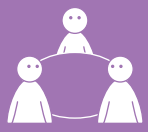
Build population resilience

To ensure public trust in vaccines and health authorities and resilience to vaccine safety scares, ongoing communications need to be implemented to build awareness and knowledge of risks and benefits of immunization and diseases.

Consider the following

- Conduct research to gain a deeper understanding of key population groups and to test communication products and messages.
- Monitor public opinion on immunization, e.g. through social media monitoring or feedback from frontline health workers.
- Ensure information for key public target groups and job aids for health workers based on the insights gained from your research and monitoring.

Fig. 2 **Four immediate steps when responding to an event that may erode trust**



Gather your inner circle

Coordination is critical during all phases of crisis response. If it is believed that the event may damage trust in vaccines and cause a negative media response, your inner circle of allies should be gathered immediately.

Consider the following

- Establish a coordination and working group (if not already established).
- Engage relevant partners across institutions, e.g. ministries of health, education and social affairs; regulatory authorities; centers for disease control, health promotion, communication, press and emergency response; vaccine experts; professional associations.
- Agree how you will continue to coordinate, communicate and share information within the group.
- Agree on roles and responsibilities.

Understand the problem

Not all events that may potentially erode confidence in vaccines and vaccination require a communications response. Not responding may impair trust in vaccines and health authorities. Over-communicating may cause unnecessary public concern. Thus, it is important – throughout the process – to analyse events and plan the communications response accordingly.

Consider the following

- Obtain as much information as possible about the event(s) that took place.
- Analyse the situation: what is the potential level of impact on trust in vaccines and the immunization programme?
- Shape your communications response according to your conclusions.

Liase with key stakeholders

A critical first step in such events is to liaise with key stakeholders. Good stakeholder relations are critical to ensuring trust during a crisis.

Consider the following

- Consult your list of key stakeholders.
- Liaise with stakeholders to benefit from the support of advocates.
- Share information with stakeholders to avoid confusion and distrust and to avoid any negative interference from adversaries.

Communicate externally

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

Consider the following

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

Events that may erode trust in vaccines and vaccination

Many events have the potential to erode confidence in vaccines and in the authorities delivering them. Some are related to vaccine safety and adverse events following immunization; some to changes in the immunization programme, which may create uncertainty in the public; others to the public and media debate on vaccination.

Types of event that may erode trust

- vaccine reactions;
- events that are not causally linked with vaccination but are believed to be so (by the public, media or health workers);
- critical media reports;
- social media stories or rumours;
- new critical studies;
- vaccine recalls or temporary suspensions of a vaccine;
- replacements of one vaccination product (producer) with another.

Factors that may intensify negative impact

- uncertainty (about the cause of events);
- emotions and fears;
- extensive media attention;
- size of event (affecting a large number of individuals);
- the involvement of children and/or pregnant women;
- the credibility of the story and its source;
- similarities to past events that caused a crisis;
- political misuse of the event to strengthen political profiles;
- occurrence during sensitive times, such as:
  - a pandemic or outbreak situation;
  - a mass immunization campaign;
  - the introduction of a new or novel vaccine;
  - a political crisis, civil unrest or otherwise unstable situation.

Large-scale response not required for all events

As some of these events occur frequently, any response must depend entirely on the event and its context. The dilemma is twofold.

- Informing the public allows authorities to convey their messages early on, which may prevent a situation from escalating.
- Over-communicating about events that are minor or might not be related to vaccination may create unnecessary public concern and needlessly damage public confidence.

To know when to communicate, and what level of communication is necessary, refer to the WHO algorithm to define the communication response, available in the online library *(2)*.

KEY POINT

A strong response is not required for all events

- Not all of these events escalate into a crisis.
- Not all require a strong communications response.

READ MORE

Refer to the document "How to ensure a context-specific response to events that may erode trust in vaccination" **euro.who.int/vaccinetrust**

CASE EXAMPLE

Critical study had devastating impact

Shortly after the German Standing Committee on Vaccination (STIKO) recommended that girls aged 12–17 years should be vaccinated against human papillomavirus (HPV) in 2007, a group of 13 scientists published a document on a university website claiming that the efficacy of the HPV vaccine had not been sufficiently verified and that published results served the pharmaceutical industry *(3)*. Even though STIKO later refuted these concerns *(4)*, the impact of the document was devastating. It led to an emotional debate, which overshadowed the breakthrough of the introduction of the HPV vaccine.

The emotional aspects of the debate, rather than the facts, caught the attention of the media. Only 10% of German websites and 6% of German newspaper reports presented the correct information about the effectiveness of the HPV vaccine *(5)*. A survey conducted shortly after the debate revealed that populations with low education levels did not perceive the vaccine to be useful, and coverage rates of the HPV vaccine were as low as 25% *(6)*.

The German Health Interview and Examination Survey for Children and Adolescents (KiGGS, wave 1), conducted between 2009 and 2012, looked specifically at determinants for HPV uptake. HPV coverage remained low after the introduction of the vaccine. Although some knowledge gaps were identified, the findings suggested that early media coverage on the HPV vaccine, as well as the public debate around the vaccination recommendations among professionals and safety concerns, contributed to parental reluctance to immunize their daughters *(7)*.

What research shows about

how people make decisions about vaccination

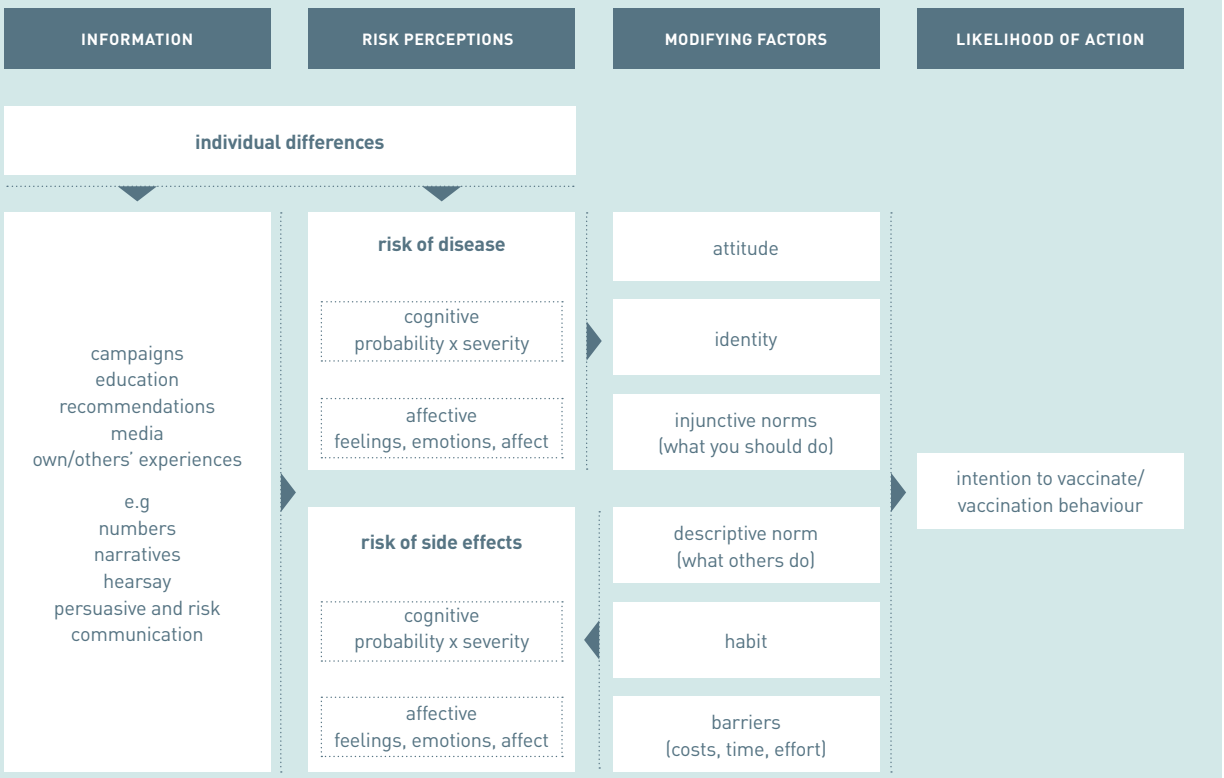
This section describes how people make decisions about vaccination – how they perceive risk, and how their decisions are affected by their attitudes, social norms and culture.

There are many factors that influence vaccine decision-making, including individual risk perception, attitudes, self-efficacy, barriers and motivators as well as social and cultural values, norms and traditions. These factors are summarized in Fig. 3 and are described in more detail in the following sections (for more detailed explanations see Betsch, Böhm & Chapman *(8)*).

Communicating about vaccination, which is necessary during vaccine-related crises, must be based on an understanding of these factors. How this understanding can shape communication and messaging is described in the final section of this document.

Fig. 3 **Determinants of vaccine decision-making**

Described in more detail in the following sections



Note: the summary of determinants follows theoretical and empirical work by Rosenstock *(9)*; Janz & Becker *(10)*; Ajzen *(11)*; Milne, Sheeran & Orbell *(12)*; Roberto et al. *(13)*; Payaprom et al. *(14)*; Betsch & Wicker *(15)*; Gerend & Shepherd *(16)*; Betsch, Böhm & Korn *(17)*.

Source: Betsch, Böhm & Chapman *(9)*. Reproduced with permission

Risk perception and decision-making

A key factor in vaccination decision-making is how people perceive risk.

KEY POINT

Definition of risk perception

Risk is the possibility of a negative future outcome *(18, 19)*. Individuals perceive risk according to how probable they believe it is that a specific type of event will take place (probability), and how concerned they are with the consequences of such an event (severity) *(20)*. Risk can also be a feeling. Feelings about risk have a stronger impact on behaviour than knowledge about risk *(21)*.

Both disease and vaccination may be associated with risk. A person may think that the disease is likely and/or severe, and he or she may feel that vaccine side-effects are likely and/or severe. The general rule that applies is:

- if people perceive high levels of risk of disease they will be more likely to vaccinate; whereas
- if people perceive high levels of risk of vaccination they will become less likely to vaccinate.

In absence of disease, fear of disease has been replaced by fear of vaccines for some people.

CASE EXAMPLE

Social media campaign #FokusImpfen by the German Ministry of Health strengthens routine communication

The German Federal Ministry of Health regularly publishes short vaccine-related messages and information via social media (including Facebook and Twitter). The hash-tag #FokusImpfen (focus on vaccination) helps users to identify the messages quickly and creates a brand that is easily recognized. Topics have included adult vaccination, influenza vaccination, measles and herd immunity, among others. In this way, trustworthy information is regularly communicated to the public, to support the development of a resilient population by increasing knowledge and awareness of risks of diseases and benefits of vaccination.

1.

2.

Translations are as follows.

1. Message: "There is only one way to keep the numbers of measles cases down: vaccinate. #focus on vaccination"; picture: "5 times more measles cases in 2015 compared to the year before. There is only one solution: vaccinate!"

2. Message: "Adults also need protection from diseases. Check your vaccination status! #focus on vaccination"; picture: "Strong protection at every age"

Factors affecting individual risk perceptions

People translate any information about vaccination (campaigns, personal conversations, anti-vaccination websites, their own experiences and so on *(22, 23)* into subjective representations of risk. But humans are not perfect information processors, and the result is not a 1:1 representation of all available information *(24, 25)*. Both individual predispositions (e.g. the ability to understand information), health or general literacy *(26)* and the way in which information is presented will affect the decision. This means that trust in what authorities say cannot be taken for granted – many other factors affect individual risk perception.

Two aspects are important to keep in mind in relation individual perceptions of risk.

- An individual's emotions can have a stronger impact on behaviour than her/his knowledge *(21)*.
- The human being – constantly confronted with uncertainty – has developed a toolbox to help facilitate risk perception.

These tools are called heuristics.

Individuals are often unaware that they use "mental shortcuts" instead of seeing the whole picture.

Heuristics

Heuristics are kinds of mental shortcuts that make life easier, but they may in some situations lead to biased judgement and decisions *(27)*. Here are some examples of heuristics identified in psychological research.

- **Affect heuristic:** individuals tend to be guided by emotions – such as fear, anger or uncertainty – because these emotions alarm the individual about a potential risk *(28)*.
- **Safety effect:** the human mind tends to focus more on losses than on gains *(27)*. When it comes to assessing risk, people are thus more focused on avoiding loss or damage than on obtaining gains. With vaccination, this means that avoiding the risks associated with vaccines (however small they are) may become more important than gaining the protection the vaccine offers (however great it is).
- **Confirmation bias:** when individuals have come to a certain conclusion about an issue (for example, vaccination is safe or vaccination is not safe), they are more likely to believe in messages that support this conclusion, even if those messages are invalid *(29)*.
- **Availability heuristic:** individuals tend to make decisions based on events or examples that immediately come to their mind (such as recent, frequent or distinct events that have been discussed in the media).
- **Adjustment and anchoring heuristic:** individuals tend to base decisions on familiar positions ("anchors") with slight adjustments *(30)*. If they have recently heard a credible source express a certain opinion on vaccination (for or against), they will adjust how they assess future information according to this.

In conclusion, individuals are often blind to the whole picture; instead, they tend to focus on parts of it. Research also shows that individuals are normally not consciously aware of these "mental shortcuts".

Risk amplification: why small events escalate

Risk theories such as the social amplification of risk framework explain why it may only take a small event to make a crisis. The basic idea is that every time information passes a communicator (such as a person or a media channel) psychological, social, institutional and cultural processes change the information. This either amplifies or attenuates people's perception of how severe the risk is *(31)*. In other words, risk perception is not only shaped by factual circumstances; psychological, social, institutional and cultural factors play a role.

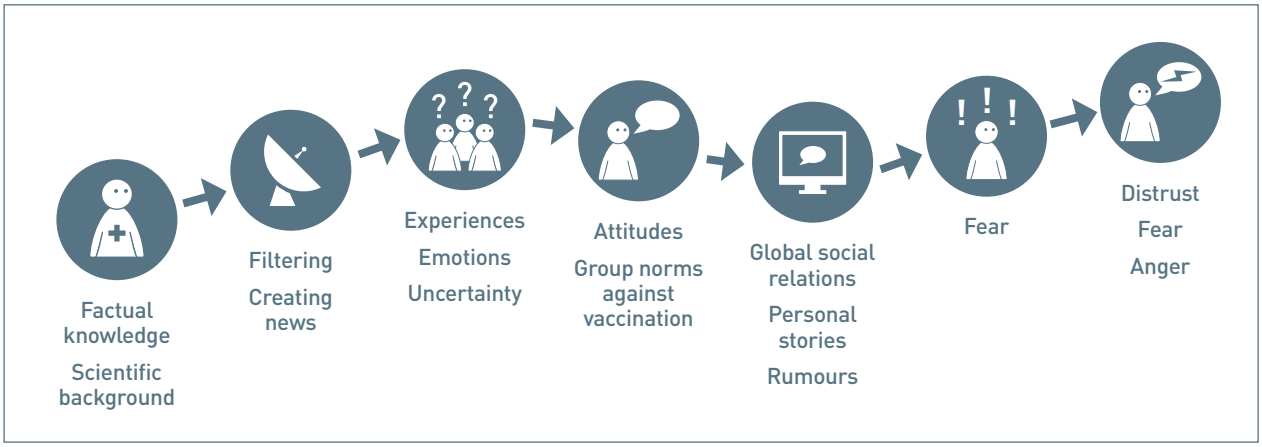
When risk perception is amplified or attenuated in this way, it affects people's behaviour – this again has an impact on how other people perceive risk *(31, 32)*. Very soon, an actual crisis may be the result (see Fig. 4).

One critical factor in this process of escalation is the finding that negative information generally receives more attention than positive information. There are a number of reasons for this. For example, from an evolutionary point of view, paying attention to negative information could be crucial for survival, while missing positive information does not usually constitute the same threat *(33)*.

Further, research shows that negative information is generally perceived as more credible. This is because positive information is seen as something that may be used for self-serving purposes *(33)*.

Negative information (e.g. a child has died) receives more attention and is perceived as more credible than information that states that there is no risk (e.g. the vaccine is safe and did not cause the death of the child).

Fig. 4 **Amplification of risk perception creating a crisis**



Modifying factors in decision-making

Attitudes
Attitudes to vaccination have a strong impact on vaccination decisions. Firm attitudes can override rational thought and decision processes. They can arise from a particular identity (religious, anthroposophical or other) *(34)*, from distrust of authorities or from other factors.

Social norms
Social norms affect an individual's intentions and behaviour in relation to vaccination in various ways. These are shared rules within a group that determine behaviour as they describe how one should behave, or how most people behave *(35)*. The group in this case may be defined by where people live, but it may also be defined by age, gender, socioeconomic status, education, profession or religious or other beliefs *(36, 37)*. Thus, a group can be an ethnic group, a specific city neighbourhood or an online anti-vaccination group.

Both the belief that others think you should vaccinate and the fact that others do vaccinate can influence vaccination behaviour. In fact, group members tend to conform to the behaviour of the majority. Thus, when vaccination uptake in a group increases, other members of the group tend to vaccinate. Norms can also be counterproductive when the social norm in a community is to refuse vaccination (see Sobo *(34)*, for example).

Identity
Belonging to a group that shares certain religious, educational, philosophical or other views can also influence attitudes towards vaccination *(34)*. When the group norms do not support vaccination, group members will refrain from vaccinating to protect their identities and remain part of the group.

Culture and cultural norms
Culture affects attitudes and perceptions of risk, as well as willingness to participate in societal cooperation (for example, to contribute to herd immunity) and acceptance of authority *(38)*. It should be noted that culture is not static but is rather fluid *(37)*. Global networks and global social relations have a great impact on culture – it is no longer bound to a specific country. Global online anti-vaccination communities are an example of this.

Structural barriers
Even if an individual is generally willing to vaccinate, structural barriers can hinder eventual implementation of the vaccination. Such barriers may include access, inconvenience and direct costs (such as fees) or indirect costs (such as taking time off work).

Habit
Past vaccination decisions are one of the best predictors of future vaccination behaviour *(39)*. It becomes a habit: routine behaviour that is not questioned but simply happens because it happened before *(40)*. It is therefore suggested that first vaccinations are particularly important *(39)*.

Trust in or respect for authorities cannot be taken for granted. People base their risk perception on many factors other than information.

CASE EXAMPLE

Elderly men dying from cardiac disease – media accused the flu vaccine

During an influenza vaccination campaign in Israel, four men aged 52, 67, 70 and 75 years died after receiving the vaccine. Three of them lived in the same village, two were close friends and all had received influenza vaccines before. All four had received vaccines from the same batch and three of the four had been vaccinated at the same clinic. However, they had also all suffered from chronic conditions, including heart disease and diabetes.

The story was picked up by local media with frequent updates throughout the day, involving high-profile and very emotional coverage. Reuters and L'agence France Presse reported the story, prompting national public health and medicines regulatory authorities to request further information from WHO about the specific event.

The deaths created concern, and it was decided to suspend the influenza vaccination campaign temporarily while a formal investigation was undertaken. Families of the deceased were interviewed and expressed their fears that the vaccine had caused the death of their parent/grandparent. After four days, however, the investigation concluded that all four men had died from cardiac disease. It also revealed that the original vaccine batch of 176 300 doses had also been shipped to Austria, the Czech Republic, Greece, Italy, Poland and the Republic of Korea, where no serious adverse events had been reported. Based on weekly average death figures for the over-65 age group in Israel, it was also calculated that the average expected mortality for the elderly population being offered vaccination was 114 people per week nationwide. In the absence of any evidence of impaired vaccine quality or other identified risks, it was decided that there was no reason to halt the influenza campaign further.

To maintain trust in the campaign and in immunization a press release was sent out and a press conference held. The Minister of Health, himself an 80-year-old man, was also immunized on prime-time television news and interviewed by all key media, showing off his arm, telling everybody that he felt fine and recommending that all at-risk groups should be immunized.

Nonetheless, a significant decrease in vaccine uptake was noted, underscoring communication challenges in responding to vaccine safety concerns. Corresponding to this lower coverage was a marked increase in pneumonia deaths in the elderly during that influenza season *(41)*.


VACCINATION

What research shows about

vaccine hesitancy and vaccine safety scares

Vaccine hesitancy has become a growing concern, not least in the WHO European Region. This section describes why some people are hesitant about vaccination and how this may increase the risk of a crisis. It is based on research and lessons learnt in countries in the Region, as well as on the work of a global working group on vaccine hesitancy under the WHO Strategic Advisory Group of Experts on Immunization (SAGE) *(42)*.

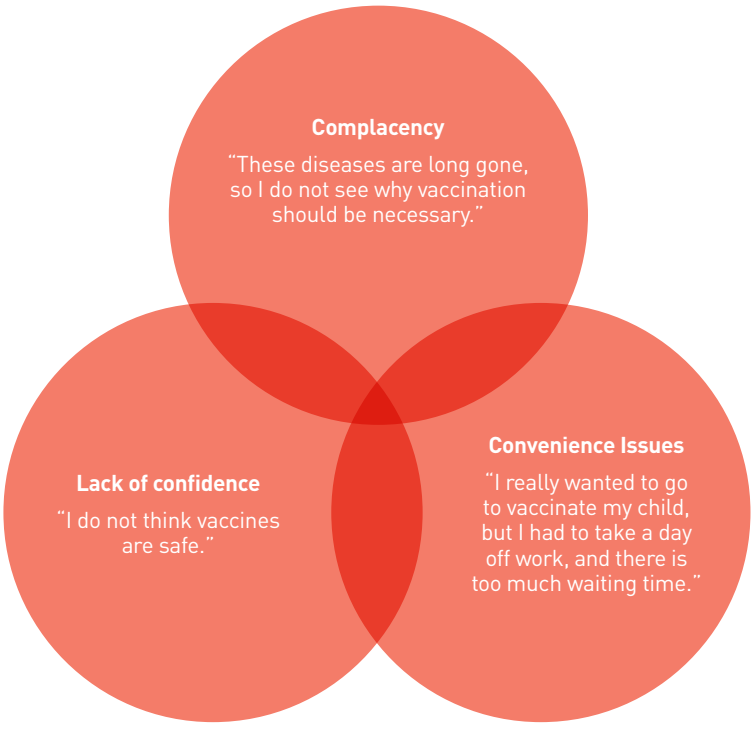
Definition of vaccine hesitancy

A great deal of research in recent years has been dedicated to exploring and understanding vaccine hesitancy. Reviewing and drawing on available evidence and research, the SAGE Working Group has defined vaccine hesitancy as a delay in acceptance or refusal of vaccines despite availability of vaccination services *(17)*. This is a broad category, which includes both the person who just forgets about vaccination and the person who actively advocates against vaccination.

From the evidence reviewed by the Working Group it was clear that all the factors described in the previous section of this document (risk perception, attitudes, social and cultural norms and structural barriers) could lead to vaccine hesitancy. The experts concluded that vaccine hesitancy is complex and context-specific; it also varies across time, place and vaccines. The key reasons behind vaccine hesitancy were defined as complacency, inconvenience and lack of confidence *(42)* (see Fig. 5).

The three factors of SAGE's model are described in more detail on page 19, drawing on work by MacDonald & SAGE Working Group on Vaccine Hesitancy *(42)*; Dubé et al. *(43)*; and Betsch, Böhm & Chapman *(8)*.

Fig. 5 **Factors contributing to vaccine hesitancy**



Source: *MacDonald & SAGE Working Group on Vaccine Hesitancy (42).*

Complacency

When the perceived risk of vaccine-preventable diseases is low, and vaccination is not deemed a necessary preventive action *(42)*, it results in complacency. Complacency may increase if other life or health priorities seem more important or if vaccine-preventable diseases are not common. Self-efficacy (the self-perceived/real ability of an individual to take action to vaccinate) may also affect complacency.

Convenience

Convenience is an issue when uptake is affected by physical availability, affordability and willingness to pay, geographical accessibility, ability to understand (language and health literacy) and appeal of vaccination services *(42)*. Even if a positive intention to vaccinate exists, structural barriers – such as difficult access – may block the implementation of the vaccination decision.

Confidence

Confidence relates to trust in:

- the effectiveness and safety of vaccines;
- the system that delivers them, including the reliability and competence of the health services and health professionals;
- the motivations of policy-makers who decide on the need for vaccines *(42)*.

Lack of confidence can lead to a failure to vaccinate. Situations in which unwanted events are rightly or wrongly connected with vaccination can lead to a reduction in confidence and influence vaccine decision-making negatively.

CASE EXAMPLE

Over 160 years of anti-vaccination movements

Smallpox vaccination started in early 1800. Acts passed between 1840 and 1853 made vaccination compulsory in Britain, and almost immediately anti-vaccination leagues challenged the law as a violation of civil liberty in the name of public health. In 1865, 20 000 people demonstrated against compulsory vaccination against smallpox in Leicester, and in 1885, up to 100 000 anti-vaccination sympathizers and proponents joined the Leicester Demonstration March *(44)*. Anti-vaccination movements continued to spring up in the 19th century in countries where the smallpox vaccine was made mandatory, including Sweden and the United States of America.

Since the first anti-vaccination movements were formed in Britain in the 1850s, various groups have existed that argue that vaccines are neither safe nor effective, or that see vaccination as incompatible with religious beliefs or civil rights *(45)*. Through their campaigns, publications or websites, vocal anti-vaccination movements influence risk perceptions of vaccination *(46)* and affect vaccination rates.

A literature review found that global anti-vaccination lobbyism activities in the 1970s and 1980s were the primary cause of the suspension of pertussis vaccine in some countries. As a result, the incidence of pertussis in those countries until the late 1990s was between 10 times and 100 times higher than in countries that continued to vaccinate *(47)*. Recent mathematical simulations also show that vaccine scares can lead to suboptimal uptake, even years after an incident *(48)*.

The dual relationship between vaccine hesitancy and vaccine safety scares

Vaccine safety scares are situations in which unwanted events are rightly or wrongly connected with vaccination and create feelings of insecurity and distrust in vaccines and health authorities.

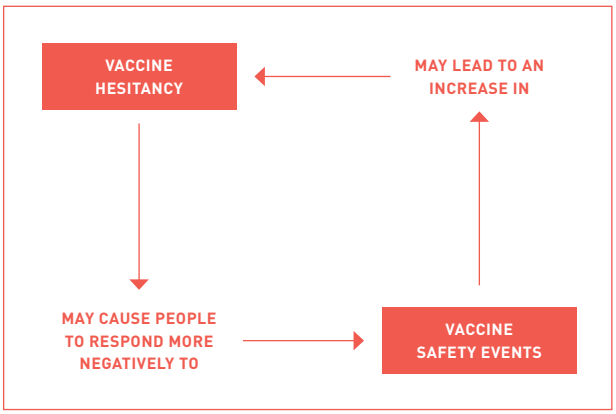
Lessons learnt in the WHO European Region show that vaccine hesitancy and vaccine safety scares are interlinked – for two reasons.

- With high levels of vaccine hesitancy, populations seem to be more easily affected by misperceptions about vaccines.
- Vaccine safety scares in a range of countries have increased vaccine hesitancy, as shown by decreasing trust and confidence in vaccines and health authorities.

This means that addressing vaccine hesitancy is critical not only for increasing vaccination uptake but also for ensuring population resilience against vaccine safety scares (see Fig. 6).

It also implies that an effective response to vaccine safety scares may help to prevent escalation of vaccine hesitancy in the population.

Fig. 6 **Dual relationship between vaccine hesitancy and vaccine saftety scares**



KEY POINT

Terminology – population resilience

Resilience is defined as "the ability to become strong, healthy, or successful again after something bad happens" *(49)*. In other words, with increased resilience the long-lasting negative effects of vaccine-related events decrease.

Country experiences demonstrate that population resilience increases when people understand the risks and benefits associated with vaccines and vaccine-preventable diseases, and are able to make informed choices to demand vaccination.

READ MORE

Refer to "Vaccine special issue WHO recommendations regarding vaccine hesitancy" **euro.who.int/vaccinetrust**

CASE EXAMPLE

Flawed study on vaccine safety increased hesitancy

Following the publication of Andrew Wakefield's allegations of an association between the measles, mumps and rubella (MMR) vaccine and autism in 1998, MMR vaccination levels dropped in some European countries and remained below previous levels for a range of years, and a resurgence of measles outbreaks was seen in the Region *(50–52)*. Despite the fact that the study was later found to be seriously flawed, that the author was found guilty of serious professional misconduct and that many subsequent studies found no link between the MMR vaccine and autism, a range of Member States in the European Region report that this paper is still used to back up arguments against MMR vaccination, and that the link between MMR and autism is still a widespread misperception fuelling vaccine hesitancy among parents.

What research shows about

crises and how communication activities may mitigate them

A crisis is here defined as a specific, unexpected and non-routine event or series of events creating high levels of uncertainty and (perceived) threat *(53)*. This section describes how building trust, listening to and understanding people, building relations, communicating risk and shaping messages to the audiences may mitigate crises.

Research shows that crises have three key characteristics: short response time, surprise and threat *(54)*. Within immunization, this knowledge can be used to define mitigating actions as illustrated in Fig. 7 below.

Fig. 7 sets out communication measures that may mitigate a crisis. These are described in more detail in the following sections, with a focus on both preparedness and response.

KEY POINT

Terminology – crisis

In this document a crisis is defined as a specific, unexpected and non-routine event or series of events creating high levels of uncertainty and (perceived) threat *(53)*.

A vaccine-related crisis may occur when unwanted events are rightly or wrongly connected with vaccination in a way which seriously damages confidence in vaccines and the authorities delivering them.

Fig. 7 **Characteristics of a crisis and how escalation can be mitigated**

CRISIS CHARACTERISTIC	COMMUNICATIONS THAT MAY MITIGATE	WHY
Short response time there is a limited timeframe to respond	• Building trust – continuously • Building strong relations with stakeholders	Facilitates a quick and appropriate response
Suprise the crisis was not expected	• Listening to and monitoring public opinion – continuously	Enables events to be detected earlier so that a response can be initiated to provide information and thereby limit the feeling of shock/surprise
Threat the crisis includes a (real/perceived) threat, beyond the usual	• Communicating risk – continuously • Creating messages that convey more than just information • Shaping communications to the audiences	Builds population resilience to vaccine safety scares and facilitates correct responses to real vaccine reactions

Described in more detail in the following sections

Building trust

Research on crises and crisis communication points to one key concept above all: trust. If trust in health authorities and health workers is damaged, it may lead to long-term decline in vaccine uptake, possibly resulting in disease outbreaks.

Trust is a sensitive good: it is hard to gain and easy to lose. Research shows that once trust is lost, risk communication becomes ineffective and trust is difficult to re-establish *(25, 55)*. The aim, therefore, is to build and maintain trust continuously, in routine as well as crisis communication.

Determinants of trust

Research shows that the key determinants of trust are how people perceive the following *(56, 57)*:

- **competence** (people need to feel that authorities and spokespeople possess knowledge and expertise);
- **objectivity** (people need to feel that the information provided and the actions taken are not influenced by stakeholders with an agenda);
- **fairness** (people need to feel that all relevant opinions were included);
- **consistency** (people need to feel that messages and actions are predictable and aligned);
- **sincerity** (people need to feel that authorities and spokespeople are transparent, honest and open – showing transparency or empathy through actions here is more important than declaring it *(56, 57)*);
- **faith** (people need to feel that authorities and spokespeople possess empathy, listen to them and understand them and sincerely want the best for them).

READ MORE

Refer to "Tips for spokespersons"
euro.who.int/vaccinetrust

Preference for easy information

Psychological research shows that the human mind is more trustful, positive and receptive when it receives information that repeats something it has heard before, and when the message is clear and simple in format and language *(58)*.

In line with this, research has revealed three key aspects that increase trust:

- using clear, understandable and non-technical language *(55, 59, 60)*;
- demonstrating an ability to listen to people's concerns *(56)*, taking these seriously *(61)* and responding to them;
- regularly providing and repeating information, even when there is nothing new to say *(55)* (never answering, "No comment" *(60)* – instead repeating the same messages, being confident about expressing any possible uncertainties while sharing information about the steps taken).

Building strong relations with stakeholders

Situational crisis communication theory *(62)* also emphasizes the importance of trust as part of the crisis management process. It points to good stakeholder relations as a way of ensuring this trust, arguing that people generally tend to search for the causes behind a crisis and want to identify responsibility for it (inspired by Weiner's attribution theory *(63)*). Thus, building, rebuilding or maintaining trustful relationships is essential.

Trustful relationships with stakeholders help to avoid confusion, distrust and misconceptions. They can also, in the best cases, mobilize advocates to provide active support, and may help to avoid negative interference from adversaries. As crises are characterized by a short response time *(54)*, steps to build trust must start long before a crisis occurs.

READ MORE

Refer to "Stakeholder management before and during a vaccine-related crisis"
euro.who.int/vaccinetrust

Listening to and monitoring public opinion

Listening to public opinion allows authorities to learn about opinions, misconceptions and fears in real time *(64)* before they become widespread, and to respond to them before they escalate. It is a first step in anticipating a potential crisis and forms the basis for starting a dialogue with the audience and managing uncertainty *(65)* (see Fig. 8).

Listening also facilitates a more efficient and targeted response. It enables health authorities to collect information about community-specific misconceptions, risk perceptions and beliefs that may hamper vaccination uptake *(61)*, helping to inform effective and targeted communication that takes into account aspects of the individuals concerned and the cultures and subcultures they belong to *(66–68)*.

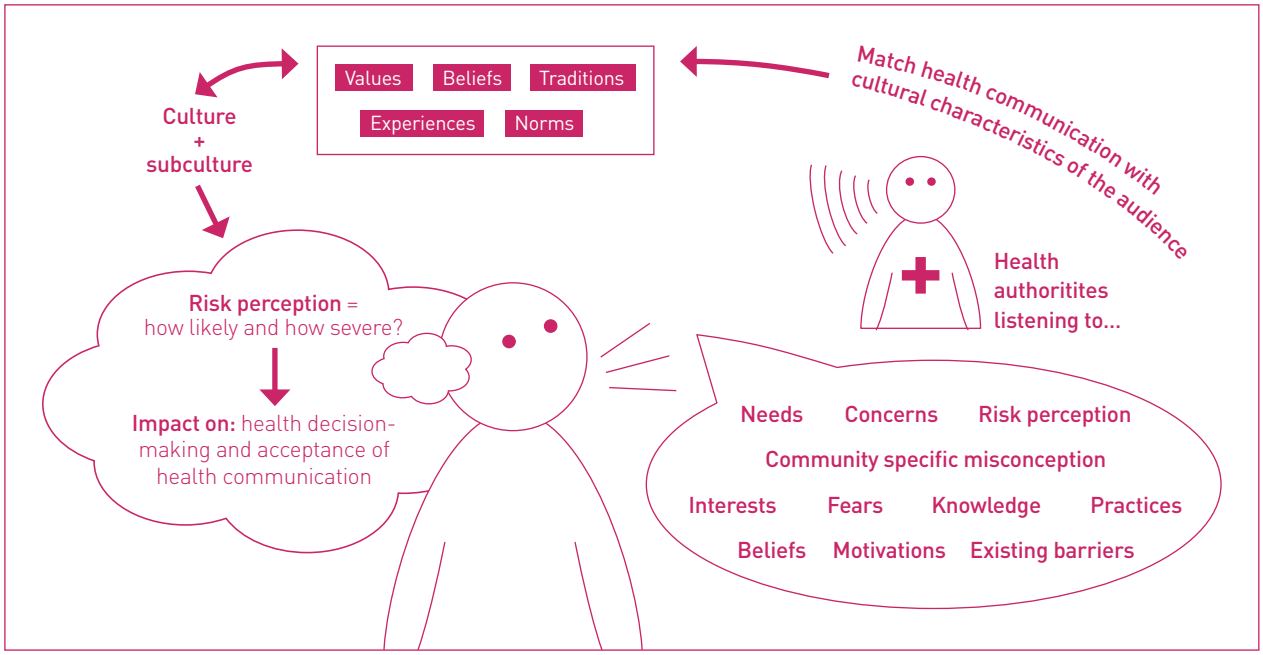
A key tool for listening is media monitoring. Monitoring traditional media provides information about trends in public opinion; monitoring social media facilitates listening to the public in a more direct way *(69)*. Social media offer the opportunity to comment, like and share messages directly, and observing social media interactions provides valuable information about public fears and perceptions.

Other ways to monitor public opinion include observing face-to-face interactions between health workers and individuals, national question-and-answer phone-ins or chats, feedback from religious or community leaders and research within specific target groups.

READ MORE

Refer to "How to monitor public opinion"
euro.who.int/vaccinetrust

Fig. 8 **Listening to public opinion**



Listening to public opinion and concerns about vaccination is a first step to anticipating a potential crisis. It forms the basis for starting a dialogue and managing uncertainty, and facilitates a more efficient and targeted response.

CASE EXAMPLE:

Monitoring public opinion prepared authorities for anti-vaccination demonstration

One example of successful listening during a crisis was the Israeli Ministry of Health's communication campaign in 2013 *(70)*. The country established environmental surveillance for polioviruses following a poliomyelitis (polio) outbreak in 1988. Through this system the public health authorities were alerted to the silent introduction and spread of wild poliovirus type 1 in 2013. Population immunity was high, with high vaccination coverage and no paralytic polio cases detected. However, the spread of the virus was possible because inactivated polio vaccine protects against paralysis and clinical infection, but does not prevent virus multiplication in intestines. Oral polio vaccine had been phased out from the immunization schedule several years previously.

To stop further transmission of the wild poliovirus that threatened the global eradication goal, and to protect vulnerable individuals who could not be immunized, it was decided to bring in supplementary immunization activities. This decision initially caused resistance in some groups, which failed to understand that although fully immunized with inactivated polio vaccines, children could nevertheless successfully transmit the virus. Through concerted efforts the first round of the campaign was deemed successful in the circumstances.

A key element contributing to this success was a sophisticated system of communication surveillance used to monitor public opinion and respond to public concerns. As an example, authorities monitored social media and became aware of a planned anti-vaccination protest demonstration. They were able to mobilize polio victims, who had become paralysed at the time immunization was not widely available, to address the crowds at this demonstration. Reportedly, this caused it to end soon afterwards.

Communicating risk

This section presents research and evidence on the communication of risk. It builds on the knowledge of risk perception outlined above.

How risk is perceived during a crisis is affected by what the individual already knows (see pages 11-12). Thus, how authorities educate the population about risks before any crisis has occurred is crucial. This is termed "risk communication".

Risk communication aims to:

- provide sufficient information about an issue and about the consequences of possible actions to enable people to weigh positive and negative outcomes;
- introduce precautionary measures to allow people to adopt preventive behaviours *(19)*.

In immunization, this is complicated by the fact that the precautionary measure (vaccination) in itself implies risk. Thus, it is essential that the public:

- understands the risks associated with vaccine-preventable diseases;
- understands the benefits and risks associated with vaccines;
- knows where to find accurate, trustworthy and clear information about these.

How authorities communicate about risk before a crisis is critical because risk perception during a crisis is affected by what people already know.

The risk perception gap

Even though it should be evident that the risk associated with diseases is far greater than the risk associated with vaccines, this may not be the obvious conclusion for all, as individual understanding of risk is highly subjective.

As explained in detail above, in situations of uncertainty, individuals make decisions based not on information alone but more often on emotions and cognitive shortcuts (heuristics) (see page 12). Negative messages (for example, a child died) gain more attention than positive ones (for example, the vaccine had nothing to do with this). Further, individuals tend to focus more on avoiding loss (such as the potential side-effects of vaccines) than obtaining gains (such as protection from vaccines).

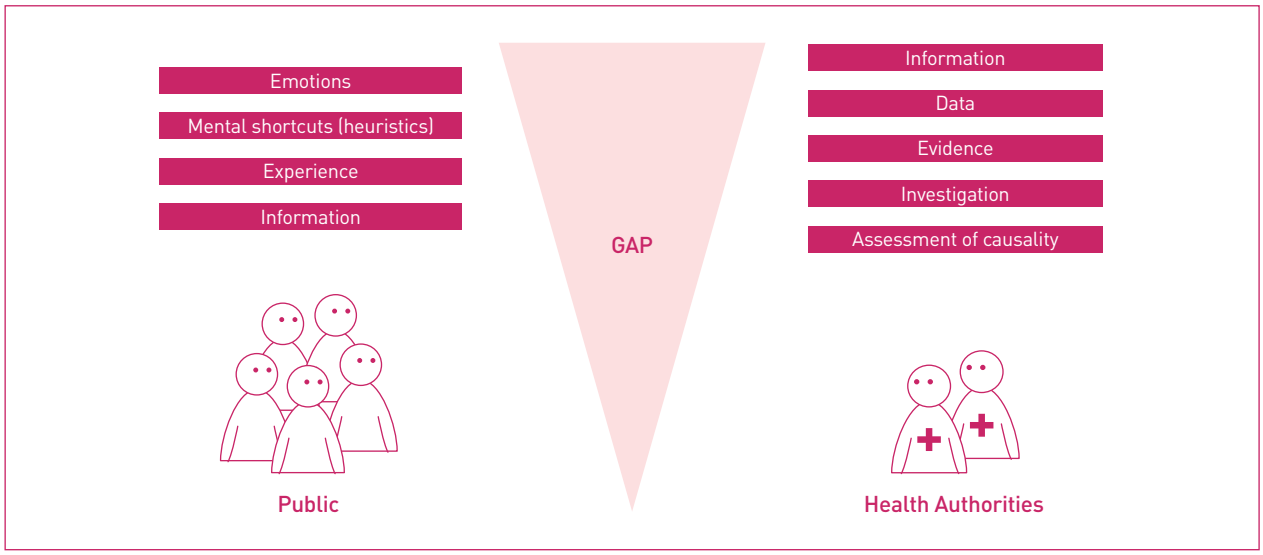
While authorities assess risks and respond to them based on available data, the public assesses risks and responds to them based on emotions and heuristics and (to a lesser degree) information. This creates a risk perception gap (see Fig. 9).

To bridge this gap, or to prevent it from emerging, it is critical to communicate risk:

- in a way that the audience can understand;
- in a way that appeals to the audience.

How to create messages and shape them to the audience is described on the following pages. Mastering this will help close the risk perception gap.

Fig. 9 **Risk perception gap**



READ MORE

Refer to "Key principles for presenting data"
euro.who.int/vaccinetrust

READ MORE

Refer to "How to prepare a message map"
euro.who.int/vaccinetrust

Creating messages that convey more than just information

Humans are not perfect information processors *(30)*. Thus, messaging is not (only) about conveying information. It is just as much about eliciting emotions, creating trust, ensuring a genuine understanding of the issue in question and making sure that the right people notice and remember the essence and react according to it. These pages summarize evidence-informed general principles of health communication.

METHOD

Focus on loss or gains (gain frame, loss frame)

Messages may be framed (focused) in two ways:

- in "gain frames", focusing on the positive opportunities for better health;
- in "loss frames", focusing on the risk of disease.

The choice of frame may have an important influence on how people react to the message *(71–73)*. Research shows that gain frames work better in a prevention context such as vaccination. Loss frames are more effective when advocating detection behaviour, such as cancer screening *(74)*.

EXAMPLES

Gains for health versus risk of disease

- Gain frame: "Your child has a right to health and life. Protect that right. Vaccinate."
- Loss frame: "Measles can kill small children. Vaccinate."

METHOD

Emotional appeals

Research shows that emotions play an important role when individuals make decisions about vaccination *(75)*. Emotional health messages are easier to remember than non-emotional ones, so eliciting emotions is an important strategy in health communication *(76–78)*.

Because of their impact, however, emotional appeals may also create even stronger negative responses. To be appropriate and effective, they need to be culture- and context-specific, and may even vary from one community to another. They should be applied with care and always tested with representatives of the audience before wider use.

EXAMPLE

Eliciting emotions

"Love your child.
Protect your child.
Vaccinate"

METHOD

Fear appeal

Stressing potential losses and eliciting fear (fear appeals) should generally be avoided in the context of vaccination communication. Nevertheless, sometimes it is necessary to increase the awareness of a certain disease risk – for example, if the population is complacent about vaccination *(17)*.

Fear appeals work best when they *(79, 80)*:

- recommend one-time only behaviours (e.g. vaccination);
- stress both severity and susceptibility;
- provide guidance on what to do to reduce risk (e.g. vaccinate);
- provide guidance on how to do that (e.g. consult the family doctor).

When people feel that risk is high and that they understand what to do and feel able to reduce the risk, they perform the recommended behaviour (e.g. vaccinate). When people feel that risk is high but they do not understand what to do or do not feel able to reduce the risk, they do not perform the recommended behaviour. Instead, they control their fears by denying the risk or derogating the message *(81)*.

If fear appeals cannot be avoided, they have to be combined with information on how to prevent the threat. The call for action should be very clear: which vaccine, for whom (age, gender), where, when and how, as well as the cost, where more information can be found, why this course is recommended right now and who is recommending it *(82)*.

EXAMPLE

Eliciting fear

Picture: sad-looking woman.

Text: "Susan, 66, widowed by influenza. Influenza vaccination can prevent serious illness. If you are 60 years or older, influenza vaccination protects you and the people you love. Your flu shot is free of charge. Call your family doctor and book an appointment. Find more information here: www.flushot.xx."

Logo: message sender (e.g. ministry of health, national institute of public health)

METHOD

Narratives

Narratives are small stories that describe a personal experience *(83)* and can be an influential tool for health communication and increase awareness of diseases. They can, however, also lead to biased risk perceptions *(84)*.

Several experiments have studied narratives in the context of adverse events following immunization and have demonstrated that subjective risk perception is heavily influenced by narratives about adverse events (e.g. in Internet forums), even when facts and data demonstrating the extremely low rate of adverse events are available *(83–85)*.

Narratives that describe the decision-making process, however, may be useful as they intend to inform (not persuade), they help the audience to engage with the decision and they model behaviour (such as a change of mind, active decision-making) *(86)*.

EXAMPLE

Process narrative

"Initially I was quite hesitant regarding vaccination. I talked to my doctor about vaccines. I learnt that every ingredient in the vaccine is needed and that the amount of the substances is so low that even breast milk contains more of these substances. I changed my mind and today I am happy that my child is protected" – Katia, aged 29 years.

METHOD

Illustrations

Research shows that combining text and illustrations increases accessibility and understanding of information *(87)*, especially when the text is technical or complex *(88)*. Nevertheless, illustrations only facilitate the process of understanding and learning if they are closely related to the text *(89)* and if they are presented together, not separately at the end of the text *(90)*.

Icon arrays that present relative frequencies (see example) have also been shown to improve the understanding of risk and reduce misunderstandings *(91)*.

EXAMPLE

METHOD

Correcting misperceptions

Correcting misperceptions, rumours and myths concerning immunization is challenging. Just mentioning a myth can reinforce it, even if the intention was to disprove it *(92)*. Paradoxically, a strong denial of possible risk can increase the perception of risk and thereby reduce the intention to vaccinate *(93)*. To correct misperceptions effectively, psychologists have formulated a set of rules based on a broad review of the literature *(93–95)* (summary adapted from the European Centre for Disease Prevention and Control *(96)*).

- Emphasize facts. Do not repeat the myth. Start with the facts to make sure people remember them.
- Present only core facts. Myths are often simple, so your message must also be as simple as possible.
- Make explicit warnings. If you have to refer to a misperception, use text or visual cues to warn that the upcoming information is false.
- Provide alternative explanations. Provide the correct explanations for the facts that were "twisted" in the myth and explain why the myth is wrong and perhaps even why the misinformers promoted the myth in the first place.
- Use graphics. Facts should be displayed graphically, if possible.
- Pay attention to language. Avoid strong language when you intend to state that "there is no risk". Strong claims denying the possibility of risk associated with vaccinations may backfire and increase rather than decrease risk perceptions *(93)*.

EXAMPLES

Correcting a myth

Correcting the misunderstanding that vaccine-preventable diseases are no longer a threat and there is no reason to uphold and increase investment in immunization may include the following messages.

- It is a myth that vaccine-preventable diseases are no longer a threat.
- Vaccine-preventable diseases may have become uncommon in your country, which can lead to this misconception.
- Diseases like measles have been drastically reduced, but even in countries with high coverage outbreaks have affected pockets of unvaccinated individuals.
- Measles causes suffering and, in the worst of cases, even death.

Misinformation needs to be corrected effectively. This is challenging, however, as just mentioning a myth (even while attempting to disprove it) can reinforce it.

Shaping vaccination communication to audiences

Research shows that health communication is more effective when it is relevant to *(97, 98)* and shaped to match the characteristics of the specific target group *(99–101)*, including cultural values, norms, traditions and characteristics of the community that is approached.

Communities may be people living in a specific geographical location, but they may also be groups defined by age, gender, socioeconomic status, education, profession, specific opinions or interests, or religious or other beliefs *(35, 36)*. As an example, health communication should differ when approaching individualistic or collectivistic cultures *(37)*.

- People in individualistic cultures perceive themselves as independent, and each individual's achievement is important *(102)*. Health messages should target personal preferences and stress risk for the individual.
- In collectivistic cultures cohesiveness and harmony influence perceptions and actions *(102)*. Health messages should accentuate shared norms and explicate risks for the social environment, such as family and friends.

Based on communication research, the key principles of shaping communication to target groups are as follows *(103)*.

- Define who the communication is aimed at – the target group.
- Define segments – for example, according to demographics (such as age, gender, geographical location, education or socioeconomic group) and/or according to vaccination behaviours (such as vaccination status, risk perceptions, barriers/enablers to vaccination, views and perceptions to vaccination).
- Understand the target groups and their barriers and motivators to vaccination, and plan communication activities accordingly.
- Prepare different messages and activities for different segments, based on what is known about them.

Health authorities need to understand the target groups and their barriers and motivators to vaccination, and plan communication activities accordingly.

KEY POINT

Understanding barriers and motivators of susceptible populations

Through qualitative and quantitative research, it is possible to analyse and diagnose barriers and motivators to vaccination. Understanding such barriers and enablers will help policy-makers to tailor interventions to reach un- and under-vaccinated groups. WHO's Guide to tailoring immunization programmes *(104)* can be used as a diagnostic tool to help guide interventions.

From generic to interpersonal communication

The value of shaping communication efforts to the audience is indisputable, but resources and time may be constrained. Especially in a time of crisis, there may not be time to engage in in-depth research to understand the barriers and motivators of target groups. Nevertheless, even in a hectic time of crisis it is worth the investment to understand target groups and consider how messages and activities can be shaped according to the people who will receive them.

Approaching target groups may vary from generic to interpersonal communication (see Fig. 10).

Fig. 10 **Approaches to vaccine messaging**

SPECIFICITY TO TARGET GROUPS →

Generic

- This approach presents the same message to all.
- May be effective in special situations, e.g. an emergency warning during a crisis.
- It may have no effect at all, or may in worst cases have counter-productive results, as it does not take into account any specific cultural or group characteristics.

Targeting

- This approach presents customized messages for a specific target group.
- It is based on principles of market segmentation, where target groups are divided into segments according to their specific characteristics, needs and concerns.
- One method may be to shape messages to the cultural backgrouns of the target group, taking into account the variety of cultures and subcultures.

Tailoring

- This approach is even more specific: it takes into account characteristics of subgroups.
- WHO's *Guide to tailoring immunization programmes* offers a diagnostic tool to determine vaccine behaviour in specific subgroups of a population.
- Here, subgroups are segmented according to their *behaviours*, not according to any cultural, socioeconomic or geographical groups.

Interpersonal

- This approach may be achieved through interaction between health worker and caretaker/vaccinee.
- Strong messages should be provided to the health worker, along with job aids to support messaging and answer questions.

Source: adapted from suggestions by Kreuter et al. *(105)*.

WHO guidance on building trust and responding to crises

With the insights gained from this presentation of the factors that affect decision-making about vaccination, vaccine hesitancy and vaccine safety scares, and about vaccine crises and how communication activities may mitigate them, WHO recommends that Member States should:

- work long-term to build population resilience against vaccine rumours and scares through ongoing activities;
- build a strong programme that is well prepared to respond to any event that may erode confidence;
- respond immediately to any event which may erode trust in vaccination and health authorities with appropriate actions based on an assessment of the situation.

Together, these actions may prevent a situation from escalating into a crisis, or minimize the damaging effects of a crisis.

Users seeking practical advice and guidance in relation to these issues are referred to the WHO online library: **euro.who.int/vaccinetrust**. This contains a range of supporting documents developed for specific needs and situations, such as guidance on crisis preparedness and response, templates for strategies and message development, planning and much more.

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Vaccination and trust

How concerns arise and the role of communication in mitigating crises

Background evidence for national immunization programmes, ministries of health, regulatory authorities and health promotion units.

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