Risk communication:
Inspiration guide

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The Risk Communication Inspiration Guide was created with the cooperation of medical environmental experts from the RA Subject Group and MGAG, the Flemish Environmental Assessment Agency and the Centre for Research on Environmental and Social Change (CRESC) of the University of Antwerp.

Disclaimer: this English version report has been translated from the original Dutch report using AI-based translation tools. As a result, certain linguistic nuances or phrasing may not be entirely accurate.

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LIST OF ABBREVIATIONS

ATSDR	Agency for Toxic Substances and Disease Registry
MSF	Agency for Care and Health
CDC	Centers for Disease Control and Prevention
CERC	Crisis & Emergency Risk Communication
ECDC	European Centre for Disease Prevention and Control
GCD	Municipal Health Service (Netherlands)
mmk	Medical Environmental Scientist
US EPA	United States Environmental Protection Agency
WHO	World Health Organization

SUMMARY

The Risk Communication Guideline consists of the Risk Communication Inspiration Guide and the Risk Communication Practice Guide. This inspiration guide covers some **theoretical principles**, illustrated by practical examples from the Environmental Health Partner Organisation, and provides practical tips and tools for setting up risk communication.

We focus on health risks related to **environmental factors** that are identified through various channels and in which the Agency for Care and Health, medical environmental experts and municipal authorities have an important role to assess the risks and to communicate the assessment of the risks to citizens and/or specific target groups.

By **risk communication** we mean an interactive process of exchange of information and opinions between individuals, groups and (government) institutions. Risk communication is part of a **risk management process** in which risks are identified, analyzed, evaluated and managed in a structured way. As part of risk management, risk communication can aim to:

- Identify and align the target group's risk perception, information needs and search strategy
- Helping people better understand the risks they are exposed to and what measures are being taken (informing)
- reassuring people based on substantiated information
- make better decisions about health threats and about security (both private and public)
- encouraging people to reduce risks themselves and prevent risks: to encourage safe(r) behaviour by raising awareness and offering a perspective for action

An important characteristic of risk communication is that it is mainly about communicating opportunities and uncertainties. When setting up risk communication, the following points of **attention are** important:

- **Characteristics of the risk**: complexity, uncertainty and public debate
- **risk perception**: perception of risks by the target group on the basis of characteristics of risks and the individual and social context, which forms the basis for risk acceptance and risk behaviour
- **Message**: unambiguous, simple and clear with a clear call to action and action perspective
- **Organization**: who communicates, what, when
- **risk communicator**: characteristics of the communicating body (trust, transparency and integrity) and attitude of the communicator (listening and empathetic)
- **Participation**: involvement of the target group

Through a **communication strategy** , it is possible to structure your communication and take a practical approach. In this inspiration guide, we propose the following steps to arrive at a risk communication strategy:

1a. **Organisation of communication**: agreements on the division of tasks and spokesperson
1b. **Target group** : what is the composition, background, knowledge, risk perception and attitude?
1c. **Communication objectives**: formulate them SMART
2. **Message**:
    - What is going on, where, when and for what reason?
    - What is the extent of the problem or location?
    - What are the (possible) health consequences?
    - What measures have been/are being taken by the government?
    - What measures can the residents take?
    - When will more information follow?
3. **Communication tools**: which one do you choose to inform, persuade, instruct, dialogue?
4. **Communication material**: attention to the core message, language use, information design, scientific insights, action perspective and behavioural recommendations, figures, risks
5. **Evaluation**: have the communication objectives been achieved?

The **practical guide** summarises some of the principles from the inspiration guide and contains **questions and tools** to tackle and shape risk communication in a practical way. These are partly taken from this inspiration guide and partly supplementary.

CHAPTER 1. INTRODUCTION

1.1 WHAT IS THE PURPOSE OF THIS INSPIRATION GUIDE?

With the Risk Communication Guideline, we want to **provide tools** for tackling and implementing **risk communication about health risks as a result of environmental factors**[1]. This inspiration guide briefly discusses some theoretical principles, illustrated by real-life examples, but the main aim of the guide is to provide practical tips and tools for setting up proactive (i.e. information provision on one's own initiative) and reactive (i.e. in response to questions or complaints) risk communication.

This document is complementary to the **Rules of Risk Communication** of the Environmental Health Partner Organisation (PO MGZ, 2016). These rules mainly relate to the organisation of communication of research results, including human biomonitoring data (what do we do, when do we communicate to whom and by whom does the communication take place). They are based on the rules for risk communication of the Environment & Health Research Centre, 2016-2020 (Loots et al., 2016). This inspiration guide is not so much about communicating research results, but rather about communication about health risks related to environmental factors, which are identified through various channels and in which the authorities (Agency for Care and Health (MSF), medical environmental experts (MMKs) and by extension municipal authorities) have an important role to assess the risks, and to communicate the assessment of the risks to citizens and/or specific target groups.

➢ **Risk communication rules of the M&G Support Centre**

1.2 WHO IS THIS GUIDE FOR?

The Risk Communication Inspiration Guide was initially drawn up for MSF, the MMKs and the partners of the PO MGZ (Healthy Living, PIH and VITO). In addition, this document can also be used by, for example, municipalities, other services, and citizens.

1.3 PROCESS OF GUIDANCE DEVELOPMENT

As a first step, we mapped out the needs of MSF and MMKs through consultation and on the basis of a questionnaire. This revealed the ambition to deal with risk communication in a more conscious and structured way, and the desire to develop both a comprehensive guideline and a concise working tool for this. We then carried out a screening of existing documents from reputable authorities regarding communication about health risks due to environmental factors. The overview of the literature review can be found in **appendix 1**. We then tested the content and usability of the inspiration guide with MSF and mmk experts on the basis of their practical experience. In response to the comments and comments we received, some concepts were further clarified and examples were added. Finally, feedback was requested from experts from the Flemish Environmental Assessment Agency (VPO) and the University of Antwerp.

[1] By 'environmental factors' we mean: the living environment or the environment that is under pressure as a result of some form of disturbance or pollution, as a result of which the influence of the living environment on humans may also be adversely affected. It can be about eg. environmental pollution from nearby industry, but also indoor environmental pollution as a result of product use, ventilation problems, as well as air pollution from traffic (e.g. particulate matter, noise, NOx,...)

1.4 READING GUIDE

The Risk Communication Guideline consists of **two main parts**, namely:

- **The Risk Communication Inspiration Guide** (this document)
  A brief description of some theoretical principles, supplemented with a detailed description of the practical tips and tools for setting up risk communication (materials).
- **The risk communication practice guide**
  A brief overview of the inspiration guide with some additional elements. You can see this as a concise document that you can use in practice and, if clarification is needed, fall back on the inspiration guide.

The inspiration guide consists of four chapters. First, we provide a framework of the goal, the target group and the creation of the inspiration guide (**chapter 1**). Then we clarify what we mean by risk communication (**chapter 2**). We then consider the most important points of attention in risk communication, including risk perception (**chapter 3**). Finally, we discuss how you can approach risk communication in a practical way using a communication strategy, with practical tips and tools regarding risk communication (**chapter 4**). The main document has been supplemented by **four annexes**.

Throughout this inspiration guide, we also refer to other documents/sources of information/websites and to the risk communication practice guide. This is done on the basis of green and orange boxes respectively in the paragraph to which they apply. By clicking via "ctrl + click" on these boxes, you go to the document/source/website or to the practice guide.

➢ **Document/source/websit** ➢ **Practical guide**

CHAPTER 2. WHAT DO WE MEAN BY RISK COMMUNICATION?

2.1 GENERAL DEFINITION

Risk communication is theoretically defined in various documents. We adopt the definition as formulated in the Municipal Health Service (GGD) guideline on risk communication, which was based on the National Research Council, 1989: *"Risk communication is a **Interactive process** exchange of information and opinions between individuals, groups and (government) institutions. It relates not only to the risks themselves, but also to the concerns, views and reactions associated with risks and the way in which risks are dealt with by those involved."* (Elsman-Domburg et al., 2006). 'Interactive' here refers to co-creation with or without co-decision or consultation (processes described in the 'Inspiration guide for participation in environmental health focus areas; Colles et al., 2019), or on providing support (in the form of time, money, expertise, material resources) or delegating authority (to make decisions or implement policy within preconditions) by policymakers.

➢ **Inspiration guide for participation in environmental health focus areas**

An important characteristic of risk communication is that it is mainly about communicating **Opportunities and uncertainties** and that this should take into account possible **worry** of citizens. In practice, there is often a combination of "ordinary communication" and "risk communication" (Bouwdienst rijkwaterstraat et al., 2004). That is why Healthy Living is included in the guideline 'Engaging and persuasive communication in health promotion' (Flemish Institute for Healthy Living, 2020) has also included aspects of risk communication. Conversely, this inspiration guide for risk communication also includes a number of aspects that apply to communication (about health effects) in general.

➢ **Engaging and persuasive communication in health promotion**

2.2 RISK MANAGEMENT PROCESS

Risk communication is part of a **Risk management process**. **Error! Reference source not found.** shows the different steps of risk management as a means of identifying, evaluating and managing risks in a structured way:

- By **risk assessment** we mean the method by which risks are identified and (preferably) quantified[2] . The probability and severity of the occurrence of an event are estimated. **Risk evaluation** involves assigning a value to a risk and assessing its acceptability. The RIVM report 'Sober dealing with risks' (Elsman-Domburg et al., 2006) states that more than just the size of the risk must be taken into account in decision-making. For example, the following factors also play a role in the risk assessment:
    - extent and severity of health effects
    - Risk perception among different parties
    - Possibility and effectiveness of intervention measures
    - costs and benefits of measures.

[2] Risk assessment can also be qualitative, e.g. confirming nuisance, stress, nuisance as a health impact, without there being any figures on this.

Taking multiple factors into account in risk assessment is also reflected in the assessment framework for the (un)acceptability of carcinogenic risks drawn up by the PO MGZ (De Brouwere & Mollen, 2020). Such factors can be taken into account in decision-making, but are emphatically not a plea to take risks less seriously (Elsman-Domburg et al., 2006).

- **Risk management** includes implementing measures to reduce an identified risk (Dillen, 2012; van den Hazel, 2018).

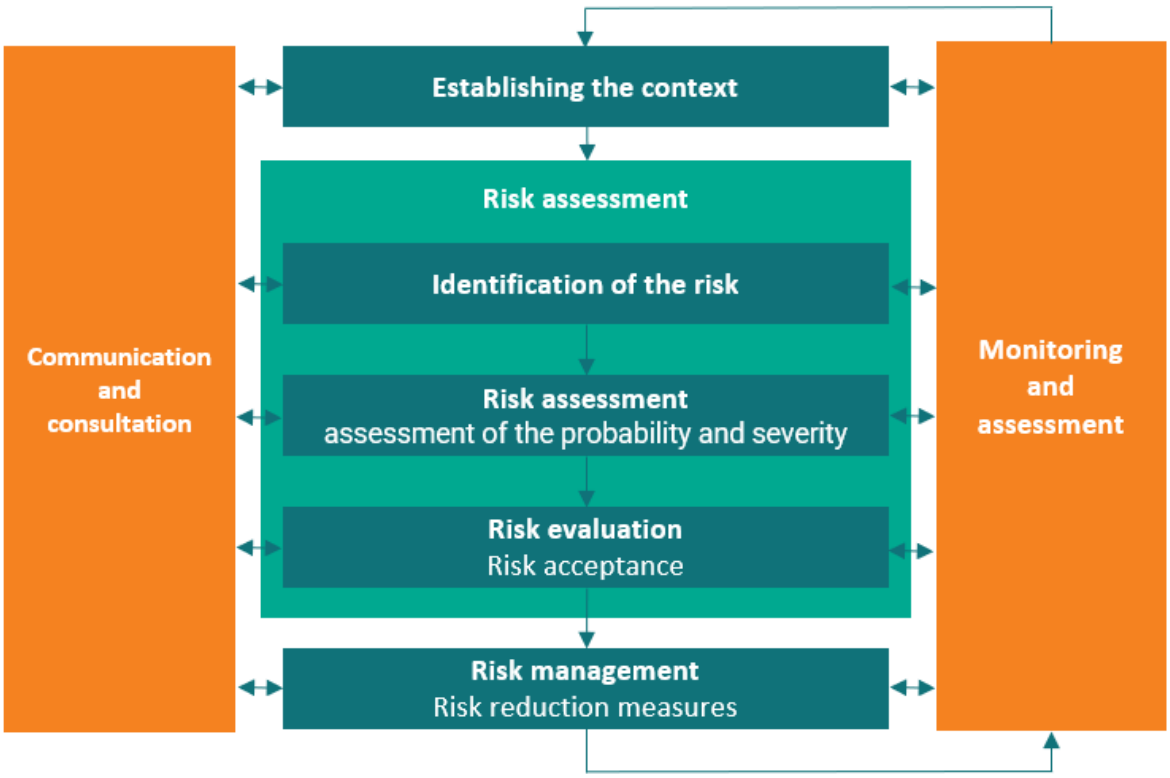

Figure 1: The components of a risk management process. Based on Hortensius & Mallens (2010).

Risk assessment and risk management are often seen as the more "objective" elements of a risk process (Morrens, 2016).

In addition, **Risk communication** an important role in the risk management process. According to the World Health Organization (WHO), risk communication is most effective when it is integrated with risk assessment and risk management (WHO et al., 2019). It is good to be aware of an assessment framework and the decision-making process for a particular risk; This can provide additional information and insights when you move on to risk communication.

Risk communication can aim to:

- Identify and align the target group's risk perception, information needs and search strategy
- Helping people better understand the risks they are exposed to and what measures are being taken (informing)
- reassuring people based on substantiated information
- make better decisions about health threats and about security (both private and public)
- encouraging people to reduce risks themselves and prevent risks: to encourage safe(r) behaviour by raising awareness and offering a perspective for action (van den Hazel, 2018)

Risk communication and risk perception (more on this in section 3.1) are also referred to as the "subjective" elements of a risk management process (Morrens, 2016 Risk Perception).

2.3 CRISIS COMMUNICATION

When communicating about the dangers and consequences of an incident or disaster that actually takes place, we speak of **Crisis communication** (Bouwdienst rijkwaterstraat et al., 2004). De Centers for Disease Control and prevention (CDC) “Crisis and Emergency Risk Communication (CERC) manual”, definieert crisiscommunicatie als *"the process of providing facts to the public about an unexpected emergency beyond the control of an organization, involving the organization and requiring an immediate response"* (CDC, n.d.-a).

This inspiration guide does not focus on crisis communication but on risk communication. For crisis communication, we refer in **Appendix 2** to a number of sources that have practical tools for crisis communication; we also briefly mention some principles and general tips.

If information is provided during a crisis or in the aftermath phase and risks need to be identified, aspects of this guideline may of course also apply. Especially after an incident, people are more open to risk communication, because they are more aware of risks due to the recent disaster or crisis. In addition, risk communication can increase the effectiveness of crisis communication in situations where citizens have already received information in advance about a possible disaster or crisis. As a result, citizens are more likely to recognize the risks and dangers during an actual disaster or crisis and will be more likely to follow the advice in crisis communication (IVF, 2019).

CHAPTER 3. POINTS OF ATTENTION IN RISK COMMUNICATION

In this inspiration guide, we focus on communication about health risks related to environmental factors. The CDC formulated seven considerations that they believe are important to keep in mind when communicating about health (and therefore also about health risks). These seven points were proposed in Figure 2 (CDC, 2016).

Figure 2: Seven points that the CDC says you should consider when communicating about health. Taken from (CDC, 2016)

The WHO has six basic principles for effective communication about health, some of which overlap with those of the CDC: accessible, usable, credible, relevant, timely and understandable (see Figure 3). The WHO mentions trust, consistency, transparency, clarity, risk perception and integrity (recognising uncertainties and limitations) as important principles of risk communication (WHO, 2019).

Figure 3: Principles of risk communication defined by WHO. Taken from (WHO, 2019).

The CDC and WHO recommendations address similar principles related to the following aspects:

- **Characteristics of the risk**: complexity, uncertainty and public debate
- **risk perception**: perception of risks by the target group on the basis of characteristics of risks and the individual and social context, which forms the basis for risk acceptance and risk behaviour
- **Message**: unambiguous, simple and clear with a clear call to action and action perspective
- **Organization**: who communicates, what, when
- **risk communicator**: characteristics of the communicating body (trust, transparency and integrity) and attitude of the communicator (listening and empathetic)
- **Participation**: involvement of the target group

In this chapter, we take a closer look at risk perception, characteristics of risks and participation. These are points of attention that you should be aware of before you start risk communication. We discuss the message and the organisation of communication in chapter 4, where the concrete drafting of risk communication is discussed.

3.1 RISK PERCEPTION

Experts often look at risks in a different way than citizens. Experts determine health risks by assessing scientific evidence about the likelihood of effects. An acceptable risk is then determined at the population level and risks are weighed against each other. Citizens assess a situation on many other aspects than just factual information and quantitative risk. Some risks are considered serious by the citizen, while these risks are objectively and purely scientifically and technically negligible, or vice versa. Under **Risk perception** we understand *"the perception of risks by a data subject"* (Elsman-Domburg et al., 2006), or more specifically "*people's subjective judgement of the characteristics and severity of a risk*" (WHO, 2013). The risk perception of a target group is a very important aspect to take into account during risk communication (Bouwdienst rijkwaterstraat et al., 2004).

The assessment of the probability and seriousness of an event by citizens is mainly aimed at determining the degree of threat to themselves, their family, their possessions and their environment (IVF, 2019). A **Complex interaction** place between intuition, emotions, knowledge, conviction, norms and values and culture. According to the model in Figure 4 (after Rohrmann, 1998), the citizen

(unconsciously) analyses risks from three different contexts, namely: a risk-related (see section 3.1.1), an individual and a social (see section 3.1.2) context. This analysis creates a certain risk perception, which forms the basis for risk acceptance and risk behaviour (see Section 3.1.3).

When a risk is perceived as greater than it actually is, a consequence may be that a threat (e.g. oak processionary caterpillar) is avoided and the benefits (e.g. a walk in the woods) are also lost, or that measures are taken against things that are of concern (e.g. pesticides on vegetables), rather than against things that are much more important (e.g. an unhealthy diet). If the perceived risk is smaller or greater than the objective risk, it may therefore be desirable to:

- adjust perception through risk communication
- adjust risk communication or risk management based on the perceived threat

The extent to which the different aspects in the Figure 4 can vary greatly. If the actual risk is low and the perceived risk is high, you can use communication to gently influence the risk perception (only reassuring can actually upset people more) and/or address the concern by implementing control measures (which are proportionate to the low risk). If the actual risk is high and the perceived risk is low, then you have to warn people without provoking panic (WHO, 2013). An example of this is the placement of frightening photos and texts on cigarette packs. However, if risk perception is low, people are less likely to be open to risk communication and will take action or follow (IVF, 2019).

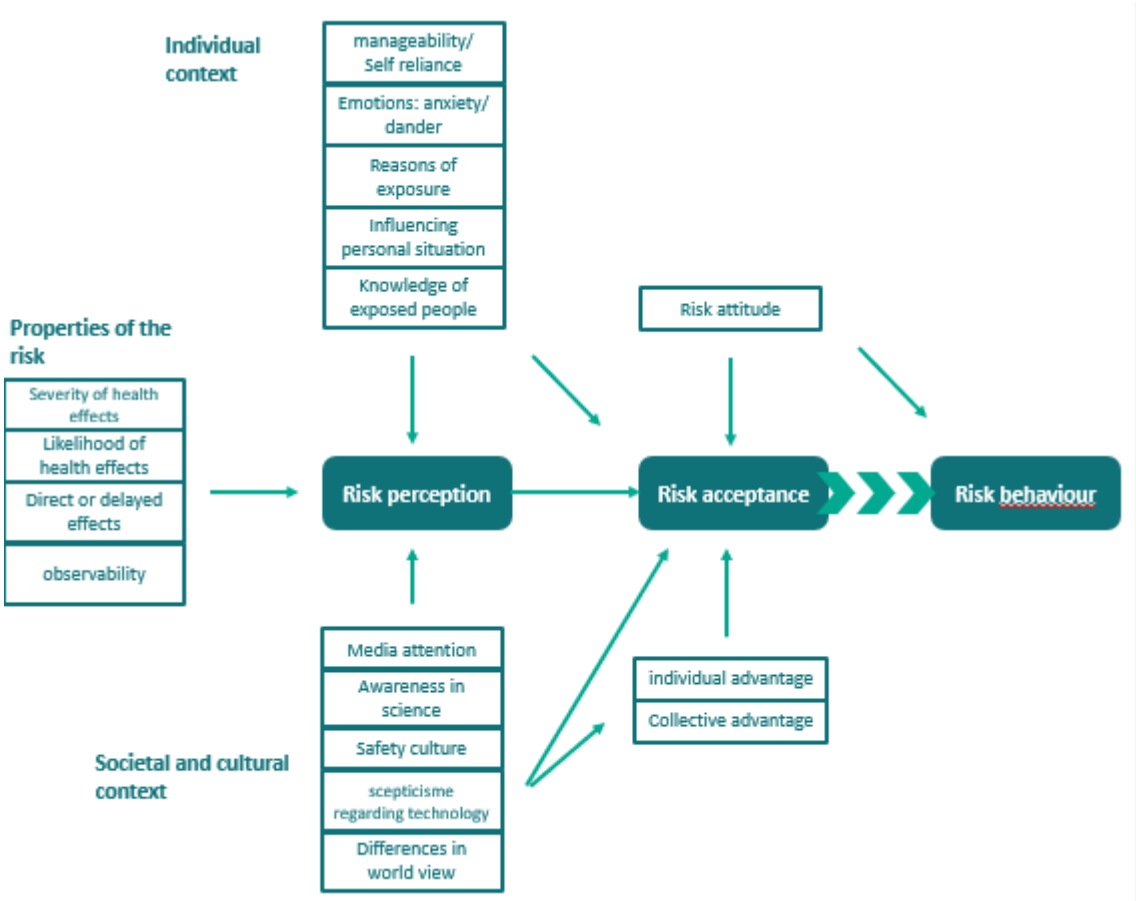

Figure 4: Subjective assessment of risks according to the structural model after Rohrmann, 1998. Taken from (Bouwdienst rijkwaterstraat et al., 2004).

Without taking risk perception into account, communicating about environmental and health problems becomes difficult (Elsman-Domburg et al., 2006). In order to address and/or try to influence the risk perception, you need insight into the factors that shape the risk perception.

3.1.1 Characteristics of risks

There are a series of aspects associated with a potential hazard or the associated risk that determine whether the risk is perceived as small or large. In Figure 5 we give some **Characteristics of health risks associated with environmental factors** determine whether people generally experience more or less threat (Elsman-Domburg et al., 2006). For example, you see that when people are involuntarily exposed to a risk (such as air pollution from car traffic), they are more likely to be worried than when they voluntarily take a risk (such as smoking cigarettes).

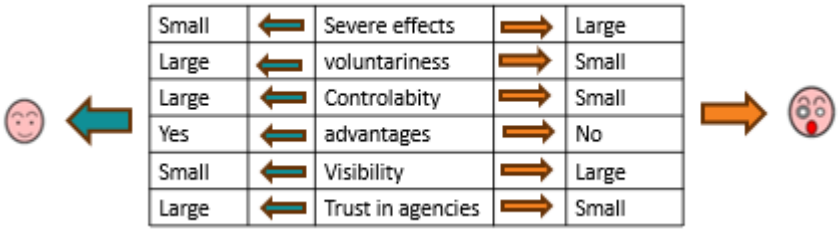

Figure 5: Characteristics of risks that influence whether people become worried or not. Taken from (Elsman-Domburg et al., 2006).

Complexity, scientific uncertainty, contradictions and social discussion around a risk also increase the perceived threat. Whereas you can often communicate very straightforwardly about unambiguous risks (such as health damage as a result of smoking), with unknown and complex risks (such as the 5G network) you will have to take more perspectives and considerations into account. Figure 6 shows that the management of risks with more **complexity** and **uncertainty** should involve more experts and stakeholders and take a more participatory approach (see also section 3.3).

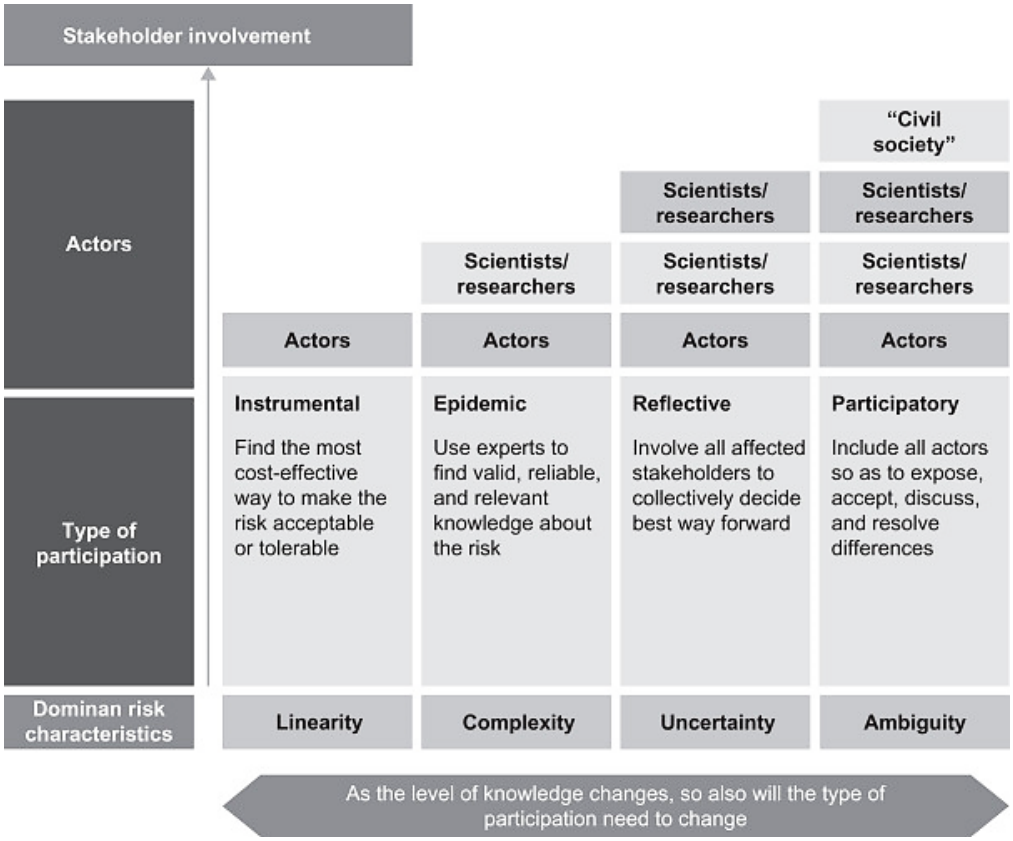

Figure 6: Varying participation rates in management of risks of varying complexity and uncertainty (Renn and Schweizer, 2020).

WHO also mentions the artificial (industrial) nature of a problem, the extent to which people try to convince people of a problem, double truths about a problem, conflicts of interest, contradictory behaviour and unfair risk spreading as factors that can increase anxiety (WHO, 2013). The perception of a risk is largely determined by an unconscious consideration of such risk characteristics. However, sometimes a single factor (e.g. involuntariness) will dominate the risk perception.

The risk characteristics provide different ways of **Targets for risk communication**. If a risk is overestimated, the negative perception created by another characteristic (e.g. a lot of media attention) can be compensated by exerting a positive influence on a specific characteristic (e.g. feeling of controllability). In Although the above associations cannot be fully generalized, they indicate that risk perception may differ between **different individuals and communities** and may be subject to change.

Table 1 we explain each factor in more detail and indicate how the risk communicator can take it into account.

3.1.2 Individual, social and cultural context

A number of **personal characteristics** are known to influence risk perception. For example, it is stated that women are generally more worried than men. Men are more likely than women to be interested in and pay attention to science and technology. In addition, according to some studies, men have greater trust in scientific authorities, tend to be more supportive of controversial topics, and are generally less risk-averse. There is also an association between having a higher age and trust in experts, scientists and government. Highly educated people tend to be more tolerant of risk and may

tend to defend scientific authorities more. Trust in institutions and governments can also differ per living environment and country[3].

Knowledge and skills also play a role in risk perception, but personality, norms and values, culture, religion and political conviction even more so. Health and socio-economic status can also determine how a risk is perceived. In addition, past experiences can determine the perception of a risk and the response to risk communication. Finally, people who are in a negative mood process information more analytically and systematically, deal with information more critically and pay more attention to negative aspects. In a positive mood, people are more likely to use intuitive information processing and pay more attention to positive effects (Powel, 1998; US EPA, 2009; WRF, 2013).

Although the above associations cannot be fully generalized, they indicate that risk perception may differ between **different individuals and communities** and may be subject to change.

[3] https://www.statistiekvlaanderen.be/nl/vertrouwen-in-de-overheid, https://www.statistiekvlaanderen.be/nl/vertrouwen-in-europese-instellingen and https://ec.europa.eu/belgium/news/200227_eurobarometer_nl

Table 1: Risk perception factors related to environmental factors and associated communication targets that the risk communicator can take into account (Bennett, 1999; Breakwell, 2007; Elsman-Domburg et al., 2006; Ropeik, 2002, 2010; Slovic, 1987).

Risk perception factors	Definition	Targets for risk communication	Practical examples of risk communication
Threat Type			
Origin	• Risks with an artificial origin are often perceived as more threatening than natural risks. • E.g. proximity to a nuclear power plant or contamination with an industrial substance leads to more concern than mould or swimming in natural water.	• Put risks in perspective. • Avoid terms that emphasize the artificial nature, such as "chemical."	• Sometimes there is great concern about odour nuisance of unknown origin and that smells 'chemical'. It is often impossible to indicate which substance is involved, and risk communication is not obvious. • In communication about the occurrence of arsenic in well water, it was emphasized that this is (also) naturally present in the soil (https://studie3xg.be/sites/3xg/files/Arseen.pdf).
Severity of the effect	• Risks of contamination are estimated to be higher the more dire, frightening or severe the consequences. • For example, the risk of carcinogens is estimated to be higher than that of substances that cause eye tingling. • If the consequences of a risk apply to particular risk groups (e.g. children, pregnant women), the risk will be estimated to be higher. • For example, reports about the link between secondhand smoke and effects during pregnancy and between power lines and childhood leukaemia cause a lot of concern.	• Word use can have an alarming (e.g. contaminated, exposure) or reassuring (e.g. regulation, monitoring, minuscule) effect. • Emphasize safety rather than the chance of getting sick, when the health risk is small. • Use awareness campaigns when risks are underestimated.	• In the tick campaign, the focus was placed on positive health effects of nature and added that hospitalization as a result of a tick bite is exceptional (and can also happen with other diseases) (https://www.gezondleven.be/projecten/wees-niet-gek-doe-de-tekencheck). • If risks are overestimated, the emphasis can be placed on the limited exposure. People themselves focus mainly on the substance (which they may or may not have looked up on the internet) and possibly concentration, but less on the exposure. • A pregnant woman who was afraid of mold in the event of the death of her child was explained how mold works through lungs so that she understood the physical barrier.
Catastrophic character	• Activities that gradually make victims cause less anxiety than activities that have several victims at once. • E.g. the chance of a plane crash or terrorist attack is small, but such incidents can cause many deaths at once. • E.g. premature deaths due to air pollution: if these all occurred in one place and on one day, this would cause much more unrest.	• Identify the risk and make concrete what the consequence is and what can happen.	
Available knowledge	• Uncertainties or contradictions surrounding a (new) risk increase the perceived threat.	• Uncertainties can best be acknowledged and explained. But also make sure that insecurities are not exaggerated and not	• The Department of Environment always publishes the most recent scientific insights into radiation

	• E.g. there are more concerns about the 5G network than about radon.	misinterpreted that could call into question your competence. You have to find the right balance here. • Make sure that communication about uncertainties is consistent, not contradictory, clear and understandable. • Above all, emphasize what is already known, how uncertainty is dealt with and how people try to reduce it.	(https://omgeving.vlaanderen.be/straling-zendantennes-wifi-gsm). • In an advice on wind turbines and their influence on the spread of heavy metals towards a school, it was stated: "From a technical point of view, it is not technically possible for us to be able to estimate the impact of the wind turbines for the situation in X at any time. We can therefore not comment on the conclusion of the fabric modelling that the company commissioned (namely that there is a positive effect). We do see that they rely on information for their calculations that is also found in the literature (e.g. inspection height, weather conditions)."
Comprehensibility	• Complex risks are more of a concern than those that are easy to understand. • E.g. radiation from transmission masts (uncertainty and complexity of the effects of electromagnetic fields) is experienced as a greater threat than a heat wave (people are - from their own experience - familiar with the influence of heat and smog on movement, sleep, etc.).	• Explain risks in understandable language, e.g. by explaining or simplifying scientific parameters, stating figures generally or precisely and applying graphical representations.	• In the drawing campaign, language illustrated by figures was used as simply as possible (https://www.gezondleven.be/projecten/wees-niet-gek-doe-de-tekencheck). • Situating the number of childhood leukemia cases if the link with high-voltage lines were causal: a doubling of risk versus absolute figures, with accompanying explanations.
Observability			
Visibility/ Awareness	This can work both ways, namely: • More worried: if the danger is not perceptible or still reasonably unknown (e.g. risk of 5G is estimated to be high). • Less anxiety: not being aware of dangers or not being confronted with risks can lead to less anxiety or denial (e.g. risk of UV radiation is estimated to be low if there are no direct effects of unprotected sunbathing and not coming into contact with people with skin cancer). • In general, the more known a danger is, the lower people estimate the risk.	• Increase visibility, awareness and availability of information by proactively communicating about problems and working in a participatory way (see section 3.2). • Respond to media attention when a risk is (disproportionately) magnified.	• Many like it when it gets hot and estimate the risk of heat and smog to be low. Communication (e.g. Facebook posts) is scheduled according to weather forecasts and media attention (which is higher in heat waves anyway). There is proactive communication about the risks for vulnerable groups (https://www.warmedagen.be).
Time of Effects	• Risks are estimated to be lower if effects are not immediately visible but manifest themselves with a delay or only after a lower period of time. • E.g. health effects of exposure to asbestos have a long latency period.	• Inform about the likelihood of long-term effects that are not yet immediately observable.	• An advisory in a home incident where petroleum was spilled stated: "The fact that no acute health complaints have occurred is positive, but does not allow us to make a statement about any long-term effects." For that reason, a post-measurement was recommended.

			• From an advice on particulate matter and livestock farming: "If you do not belong to a sensitive group, you will probably not develop health problems in the short term. However, there is still a chance that you will become ill in the long term due to exposure to particulate matter."
Control			
Voluntary	• Risks associated with activities that people undertake voluntarily reduce unrest. • E.g. smoking is bad for your health, but smokers do it anyway. • E.g. exposure to pollution from industry and traffic or low-frequency noise (e.g. wind turbines) is generally not voluntary.	• Let people understand their own risk perception, e.g. by outlining the comparison between the use of mobile phones (if there are few concerns about this) versus the lower radiation from cell towers (a lot of fear). • Inform people before they start living in a contaminated area, buy and renovate an old house in which asbestos and lead are present, or undertake activities at high temperatures; This creates freedom of choice.	• In Hoboken, the district informs new residents about heavy metals. There is also a sign at the air monitoring post that informs about heavy metals and refers to Logo (https://www.antwerpen.be/nl/info/59e090a5b85c8d2fd06abac9/luchtkwaliteit-hoboken).
Probability	• Rare or avoidable risks are perceived as less of concern than frequent or unavoidable risks. • E.g. exposure to substances via drinking water and air can be seen as unavoidable and therefore threatening.	• Indicate how people can avoid risks by adjusting their own behavior and choices.	• VMM encourages to have well water tested before consuming it (https://www.vmm.be/waterloket/gezond-water/putwater-controleren). • In the action week 'Healthy Indoors', tips are given to achieve a healthy indoor environment (e.g. ventilation) (https://www.gezondleven.be/projecten/woon-gezond-kies-bewust)
Manageability	• Risks that people think they can control themselves ensure much less unrest. • For example, choosing organic food gives people the feeling that they are circumventing risks from crop protection products and making a healthy choice. • Verifiability by responsible authorities also has a positive effect on risk perception. • E.g. removal of chemicals from drinking water (sources) reassures people.	• Through communication, concrete action advice can be offered to limit risks due to environmental factors. • Communicate about risk management measures that have been implemented, e.g. introducing a LEZ zone to reduce air pollution.	• The tick campaign advised checking for ticks after a walk in nature, monitoring the location of a bite and visiting the doctor if necessary (https://www.gezondleven.be/projecten/wees-niet-gek-doe-de-tekencheck). • Risks due to heat and smog may be underestimated. Risk communication should therefore encourage them to protect sensitive groups, e.g. 'visit older people' (https://www.warmedagen.be). • By means of 'play it safe tips' that are communicated, for example, in Hoboken and the Noorderkempen, children are taught actions to reduce contact with heavy metals as much as possible

			(https://omgeving.vlaanderen.be/educatief-pakket-speel-op-veilig-contact-met-zware-metalen).
Reversibility	• Threats with reversible effects are less frightening than those that cause reversible effects. • E.g. irreparable environmental damage and incurable or fatal diseases are more frightening, regardless of the likelihood of these effects occurring.	• Indicate the risks of chemical substances by emphasizing that not only the toxicity is important, but also the extent, route and duration of exposure.	• People who see Lyme disease as a chronic condition can have a lot of fear of it. In the drawing campaign, a clear description of the disease was given with simple use of words, and it was explained that one can be cured of it (https://www.gezondleven.be/projecten/wees-niet-gek-doe-de-tekencheck).
Stakeholders			
Victims	• When people themselves, their family members or acquaintances are involved, the threat is estimated to be greater. • For example, people are mainly concerned about risks in their own home or living environment (such as the presence of high-voltage lines, or the reporting of possible cancer clusters). • On the other hand, there is such a thing as an 'optimistic bias': people tend to believe that they themselves are less at risk than the general population.	•	•
Trust in the responsible authority and company	• The more people trust institutions, the less worried they become. • Trust in an authority is closely linked to the transparency and actions of that authority. • This is especially important for matters that people cannot control themselves (e.g. environmental pollution). •	• Clarify the role, responsibility and expertise of authorities. • Making information available online and guiding visitors around institutions can contribute to trust. • Communicate openly about decision-making processes, uncertainties and research regarding health risks, and implementation of control measures. • Inform those involved before reports appear in the media. • In addition, provide regular and quick responses to media coverage.	• In the event of nuisance caused by companies, it is good to make it clear who is competent for enforcement (municipality, Flemish environmental inspectorate). • Not only is it important to provide information about decision-making and control measures, but also to make this tangible for the concerned citizen, e.g. in the event of low-frequency noise: "Who is really doing something for me?".
Openness and honesty of responsible authorities	• Consumers trust bodies that are perceived as competent, honest and objective, provide consistent information and demonstrate fairness, openness and good will.	• Simplifying and limiting information can frustrate citizens who are looking for a more informative source than, for example, the media.	• On www.milieu-en-gezondheid.be you will find reports and fact sheets and on www.gezondheidenmilieu.be you will find information tailored to the general population. • For the European Pure Air project, the city of Antwerp had an air measurement carried out by VITO in a daycare

	• This is important as these agencies are not the only source of information. • When information is disseminated through other channels without the involvement of the responsible authority, this can damage trust. • Citizens do not always have much trust in the government (especially socially vulnerable groups), but they do expect information from the government.	• An overly cautious approach can give the impression that things are being withheld. • By communicating structurally and (pro)actively, it can be prevented that people are very frightened by a calamity. • Please also indicate why you accept and mention certain information in communication materials, and other information (mentioned in other sources) does not. • Ensure that responsible authorities are involved in risk communication.	centre to find out whether a ventilation system can improve the air quality in childcare. Unexpectedly, higher benzene values were found than expected. MSF contacted Logo to draw up a risk communication to the daycare centre together with the city. MSF did the health-based interpretation of the values with the support of VITO (interpretation of air measurement values). MSF, Logo and the city agreed on how best to communicate these values to the day-care centre. It was also taken into account that the governments should be informed in time so that the authorities were prepared in the event of possible press attention.
Consequences			
Advantages	• Risks of activities that provide a (personal) benefit cause less anxiety, and in fact, people tend to accept the risks involved. • E.g. the health risks associated with car exhaust are estimated to be lower as a car offers many benefits; While the risk of emissions from a nearby factory, from which one does not benefit oneself, is estimated to be higher. • E.g. burning wood yourself in a fireplace compared to nuisance caused by wood burning by neighbors.	• Communication can focus on weighing benefits (e.g. walking in nature) against risks (e.g. tick bites) or on weighing personal benefit (e.g. industry near residential areas) vs. general benefit (e.g. employment). • The risk perception can be influenced by participatory processes (e.g. involving local residents in plans for the installation of a wind turbine, see also section 3.2).	•
Justice	• A risk is perceived as more threatening when the consequences are considered unjust. • Risks that affect specific population groups, or activities that hinder people and benefit other parties (such as industry), are less likely to be accepted. • E.g. high-voltage lines that expose government and industry as conducive to green energy and climate, while residents have the perception that there are cancer risks associated with them.	• Make it clear which interests are represented.	

3.1.3 Risk acceptance and risk behaviour

Figure 4 shows that individual and societal context, risk perception, attitude[4] and the perceived benefits of a situation together determine the degree of risk acceptance, which in turn determines the behavioural intention of the person concerned (Bouwdienst rijkwaterstraat et al., 2004).

Under **Risk acceptance** means the 'subjective balance of benefits and risks'. There are several factors that contribute to the "adoption/acceptance" of a message about risks (Bouwdienst rijkwaterstraat et al., 2004):

- Prior knowledge of the subject
- Involvement in the topic
- sufficient information available
- Tendency to think
- target group sees the expected usefulness or benefit of a measure/action
- message comes from multiple sources (note: no contradictory information)

It **Risk behaviour** is the response to a message about a risk after the recipient has assessed this risk. He/she then has the following options (Bouwdienst rijkwaterstraat et al., 2004):

- Do nothing
- Find information
- Risk-reducing behaviour

Risk-reducing behaviour can consist of adjusting one's own behaviour and looking for solutions, as well as protesting against the actions of responsible authorities or demanding enforcement, support or implementation of measures. To encourage behaviour **influence**, information must not only be provided about opportunities and consequences, but also emotion or feelings relating to the specific situation, for example by using stories or 'serious games'. The guideline 'Engaging and persuasive communication in health promotion' (Flemish Institute for Healthy Living, 2020) and the knowledge document 'Influencing behaviour with risk communication' (IVF, 2019) delve deeper into the role of communication in bringing about behavioural change.

➢ **Engaging and persuasive communication in health promotion**

3.2 COMPARING RISKS

Risks in communication are often compared with other risks. Covello (1989) did a lot of research into the presentation of **Risk comparisons**, which led to the following recommendations (Elsman-Domburg et al., 2006):

- Comparisons can help to put the risk into perspective.
- The comparative advantage of an activity that creates a risk compared to another risk should not be used to justify the risk.
- Irrelevant, oversimplified or misleading comparisons can erode trust and credibility.

[4] The attitude to taking risks differs per individual and depends, among other things, on general character traits and a condition at a certain time.

It depends very much on the target group with which you communicate whether and in what form a risk comparison is useful (e.g. with policymakers you can go deeper into a risk comparison or choose different comparisons than with citizens). Especially if the comparison ignores the perception of the recipient, the comparison will be less effective (or even counterproductive). Therefore, pay attention to the following (Elsman-Domburg et al., 2006):

- It is better not to compare involuntarily undergone risks with voluntarily undergone risks.
- The same applies to other risk perception factors (see §3.1.1): do not compare the risk of an activity that benefits one with an activity from which one does not benefit, or the risk of one controllable environmental factor with another that is not controllable.
- A comparison will not always allay concerns or motivate safer behaviour, especially if there are preconditions attached to the risk comparison (such as differences between exposure situations and uncertainties about risks) that must be included in the communication. However, a comparison can contribute to a better understanding of risks and insight into the knowledge on the basis of which a risk assessment is made.

Examples of risk comparisons

- The risk of developing lung cancer due to air pollution can be compared with the risk of lung cancer due to passive smoking (*involuntary exposure in both cases*), but not with the risk of lung cancer due to smoking (*voluntary*).
- The radiation from a mobile phone is the same type of risk as the radiation from a transmitting antenna (*imperceptible, health impact not well known*).
- The amount of particulate matter emissions from a fireplace, pellet stove, smoking or road traffic can be compared, but further nuance is needed to clarify the associated health risks.
- Although exposure to cadmium is much higher through smoking than through soil pollution, prevention of exposure by, for example, no vegetables from Consuming your own garden still contributes to risk reduction.

The distinction between different types of health effects is also important when comparing health risks related to environmental factors (Elsman-Domburg et al., 2006). Sometimes a health-based advisory value can be derived for an environmental factor: a target value for physical and chemical factors that corresponds to an exposure value that is assumed to have no or negligible negative effects on the health of populations that are exposed to this level of exposure for a long time.

- Before **health effects with a threshold value** Are there exposure levels or concentrations at which no adverse health effects occur as long as the health-based recommended value is not exceeded? With risk communication, you can then easily compare the exposure with the health-based recommended value and thus conclude whether there is a safe exposure or not (Elsman-Domburg et al., 2006). In case of exposure below the threshold value, be careful not to suggest that this means that there is no chance that someone will ever become ill (in other words: no "0 risk").
- Bee **health effects without a threshold value** gives each exposure a certain chance of an effect and the risk is only absent if the exposure is absent. The risk of health damage increases the longer or greater the exposure. In risk communication about such health effects, you cannot conclude that the exposure is safe. Here you have other options (Elsman-Domburg et al., 2006):

- You express the risks in the probability of getting health damage at the population level. For carcinogenic effects, for example, the risks are expressed in numbers such as 1 excess death in 1,000,000 exposed people at lifetime exposure (also referred to as a 'negligible risk'). Such numbers can be compared between environmental factors, but may not mean much to people (Elsman-Domburg et al., 2006).
- You can compare the risk of an environmental factor with risks of other factors with the same health effects (e.g. lung cancer risk due to exposure to arsenic compared to exposure to nickel). It is important when comparing risks that people always have their own **risk perception** .

➢ **Protocol for the choice of health-based test values**

3.3 PARTICIPATION

Participation We define it as involving stakeholders and target groups externally to one's own organisation (ranging from citizens and the wider public, to specific groups, agencies, organisations, etc.). also referred to as non-governmental actors) in its own policy or in the operation of the initiator (Colles et al., 2019). Participation can go beyond the application of two-way traffic in risk communication because a certain degree of consultation and authority can be added (Elsman-Domburg et al., 2006).

A participatory approach can serve either to shape risk communication in the right way, or as a means to carry out the communication. As we have already illustrated in Table 1, participation can, for example:

- Promoting transparency
- Increasing attention for an important theme
- help to clarify and delineate a problem
- Increasing knowledge
- uncover the perceptions and concerns of the target group
- Identify, accept, discuss and resolve differences and disagreements
- Creating support for risk management
- to test the clarity and impact of communication material.

In this context, the PO MGZ developed a **Inspiration guide for participation in environmental health focus areas**. In this inspiration guide, participation is seen as the involvement of actors in the development, execution, implementation and evaluation of scientific research, large-scale complaint handling (no individual complaints or neighbour disputes) and policy. The guide provides tools for a participatory approach and encourages critical thinking about the how and why of a participation process (Colles et al., 2019). The different degrees of participation are represented as spheres or beads (**Error! Reference source not found.**). The thicker the ball or bead, the higher the degree of participation, the stronger the interactions between initiators and actors, the greater the role and involvement of the actors, and (usually) also the greater the workload and cost of the participation process.

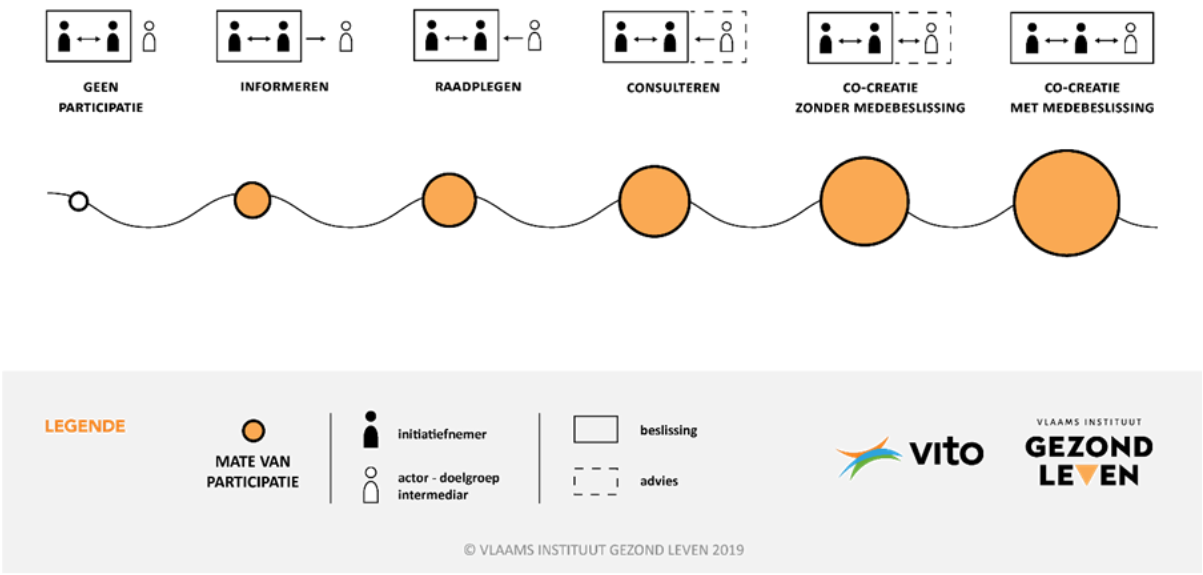

Figure 7: Visual representation of the participation cord. Taken from (Colles et al., 2019).

➢ **Inspiration guide for participation in environmental health focus areas**

Examples of a participatory approach to risk communication

- **Informing**: the information evening about the annual measurement results in the Beerse focus area; participation of MMKs in the information sessions about the Ventilus high-voltage project.
- **Consult**: the community worker in Hoboken translates the local residents into a company. She hears reactions and questions in the neighborhood that do not end up directly with the government or the company and she ensures that the questions are asked anyway and so she can provide feedback.

CHAPTER 4. A RISK COMMUNICATION STRATEGY

Communication is always tailor-made (Bouwdienst rijkwaterstraat et al., 2004). Through a **Communication strategy** it is possible to structure your communication and take a practical approach. You don't have to draw up a communication strategy for every advice/communication. However, it can be useful to know the steps and keep them in mind when proceeding to (risk) communication (Elsman-Domburg et al., 2006). Drawing up a risk communication strategy hardly differs from a regular communication strategy (Bouwdienst rijkwaterstraat et al., 2004). Nevertheless, there are a number of concepts that apply specifically to risk communication (e.g. uncertainties and opportunities).

The drafting of a communication strategy always takes place in **Different steps** (Elsman-Domburg et al., 2006). Based on the literature consulted, we propose five steps in this inspiration guide to arrive at a risk communication strategy, in which the three sub-aspects within the first step are closely related (see Figure 8). Depending on the situation (answering a question by phone or email, developing an information campaign, etc.), you may sometimes only go through part of the steps. Also, the process will not always be straightforward, and you will sometimes return to an earlier step to reevaluate or refine it. In this chapter, we explain the steps and refer to the practical guide. In the practical guide you can find a concise overview of these steps, supplemented with practical tools.

➢ **Practical guide p. 7**

Figure 8: Steps for creating a communication strategy.

4.1 STEP 1A - TARGET GROUP

"Different target groups require a different approach"

To set up risk communication properly, you need to have information about the **target audience**. Your objective (step 1b) and message (step 2) may look different for different target groups. The target group can also be an individual questioner. Before you communicate about risks, the following things must be clear (Bouwdienst rijkwaterstraat et al., 2004; Elsman-Domburg et al., 2006):

- **What does your target group look like**? What is the **background** of the target group? (age, sex, family composition, level of education, nationality,...)
- What **knowledge** does your target group already have about the problem? What **information needs** are there (with regard to risks, consequences, action perspectives, procedures, etc.) and what **search strategy** is applied?
- What is the **risk perception** (see chapter 3) of the target group?
- What is the **attitude** of your target group towards the problem (how is the target group affected by it?) and/or the risk communicator?

The guideline 'Engaging and persuasive communication in health promotion' (Flemish Institute for Healthy Living, 2020) takes a closer look at **target group segmentation**, in which the target group is split into smaller and more homogeneous groups of people who display similar interests, needs, needs or characteristics.

➢ **Engaging and persuasive communication in health promotion** ➢ **Praktijkwijzer p. 8-10**

If there is no knowledge about the risk perception of your target group(s), it is best to investigate this, provided the situation offers enough time and space for this. You can do this through "desk research" (e.g. analysing reports, magazines, the media, previous experiences, etc.) or by questioning the target group (e.g. on the basis of interviews, group discussions, residents' evenings, surveys, etc.).

Tip: "First aid for measuring instruments"

If you are going to question a target group, we refer you to the "First aid for measuring instruments" of the Flemish Institute for Healthy Living. In these documents you can find concrete tips and examples regarding interviews, questionnaires, focus groups, observations, testing and product evaluations *(Flemish Institute for Healthy Living, n.d.)*.

➢ **First aid for measuring**

4.2 STEP 1B - COMMUNICATION OBJECTIVES

"What do you want to achieve with your communication process or material?"

It is important to formulate your **objectives** clearly and concretely. The clearer and more concrete, the easier it becomes to find the right approach, means of communication, etc. . The communication objective can be based on the target group you have identified (step 1a), but the exact target group can also follow from the communication objectives.

Depending on the problem and the target group, you can formulate risk communication objectives in terms of (Elsman-Domburg et al., 2006):

- **Connecting** with the risk perception, information needs and search strategy of the target group.
- **Inform** so that people better understand the risks to which they are exposed and what measures are being taken.
- **Reassure** based on substantiated information.
- **Encouraging** safe (r) behaviour by raising awareness and offering an action perspective.
- **Support decision-making** on risk management and safety.

A goal is ideally **SORROW** Formulated (GezondLeven, n.d.):

- **Specific – The objective is unambiguous and cannot be interpreted in any other way**
- **Measurable – You** can measure whether the objective is achieved
- **Acceptable – The objective is acceptable to** all involved
- **Realistic – The objective is achievable and realistic**
  (*be careful not to set your expectations too high or too low*)
- **Time-bound –** The time frame in which you want to achieve the objective is indicated

Tip: Formulate objectives specifically
By making goals specific, you give direction to the information that is relevant to collect in order to determine later whether the goals have been achieved. A step towards that is to formulate those goals in terms of more, less, bigger, smaller, higher, lower etc. No quantity is included in so-called 'ER' goals. *Source: Gezondin knowledge base guide to setting goals (GezondIn, n.d.)*

Examples:

- 'At the end of the information campaign, a larger proportion of target group X indicates that they feel sufficiently informed'
- 'After receiving the information about problem X, 80% of the questioners indicate that they feel less worried'.
- 'In 2024, X% of residents in district Y will be actively involved in solving problem Z'

In order to actually measure the result of the risk communication, it is necessary to carry out a baseline measurement before the activities to achieve the goal begin. **Evaluation** of the achievement of the objective (step 5) is therefore best designed, budgeted and factored in at the beginning of the communication strategy (i.e. investment in the form of time and money).

➢ **Praktijkwijzer p. 10**

4.3 STEP 1C - ORGANIZATION OF COMMUNICATION

"Who communicates what and when?"

A good **organization** of risk communication is important for the cooperation, task demarcation, time planning and financing of the communication. For example, it is best to make good agreements about the division of tasks and spokesperson (Elsman-Domburg et al., 2006) And you respect internal agreements and communication guidelines of the authorities involved. The division of tasks will often be related to the expertise of the parties involved, the target group (step 1a) and the communication objectives (step 1b) and can therefore differ per case or project. For both the formulation of the message (step 2) and the choice of the means of communication (step 3), it is advisable to involve the

right experts, who have a good understanding of the specific target groups that need to be reached, e.g. young people, ethnic groups, or groups with a certain socio-cultural background.economic status.

➢ **Praktijkwijzer p. 11**

4.4 STEP 2 - MESSAGE

"What are you going to say? What substantive aspects does your message contain?"

In risk communication, it is important that you formulate a central message. Next **ingredients** can be present in your message (Elsman-Domburg et al., 2006):

- **What** is going on, **where**, **when** and for **what reason**?
- What is the **extent** of the problem or location?
- What are the (possible) **health consequences** ?
- What **measures** have been/are being taken by the **government** ?
- What **measures** can the **residents** take?
- When **will further information** follow (including about knowledge that is currently lacking)?

It is not necessary to always name all the ingredients. Always keep in mind that a message must be clear, contain sufficient information, be written/spoken in simple language and be in line with the target group and risk perception (see chapter 3). The tone of a message is also important (Elsman-Domburg et al., 2006). The WHO provides the following guidance for the **Drafting a communication message** (WHO et al., 2019):

- Keep it simple and concise (up to 3 key messages in short sentences)
- Base content on evidence and make it consistent
- Only provide facts that have been verified and clarified
- Use clear non-technical language without jargon and acronyms
- Give people a perspective for action to protect their health (make sure they can take concrete action themselves)
- Acknowledge uncertainties and mistakes
- Don't reassure too much and don't minimize risks
- Explain how the problem affects people's lives
- Make use of analogies and human stories
- Draw a conclusion

In step 4, we will discuss the *design* of the message in concrete terms.

➢ **Praktijkwijzer p. 11**

Tip: "Checklist Persuasive Communication"

If your objective is specific to engage and convince with your message, you can consult the checklist 'Persuasive communication' (Flemish Institute for Healthy Living, 2020) (see **appendix 4**). This focuses on the following fists:

- Attract attention: make sure your message is seen.
- Be clear: make sure your message is understood.
- Make it feasible: reduce fear of change.
- Emphasize incentives: give an extra push.
- Set a positive social norm (by indicating that the majority of the target group chooses the desired behavior) and offer social support.
- Choose credible evidence.

- Use a suitable frame.
- Choose the right messenger.
- Avoid stigmatization and culpability.
- Communicate with an eye for diversity.

➢ **10 rules of thumb for an engaging and persuasive message**

4.5 STEP 3 - COMMUNICATION TOOLS

"Which means are most effective for achieving your goal?"

In practice, you will usually opt for **A mix of communication tools**. Which means you choose depends on the situation (e.g. a telephone question or a proactive information campaign), the approach of the message (e.g. narrative or visual, intended to inform or raise awareness, etc.), your target group (preferences, habits and (language) skills), but also on the budget, the duration of the activity and the degree of participation (Elsman-Domburg et al., 2006). You should also consider the expected emotions that a message may evoke (Bouwdienst rijkwaterstraat et al., 2004).

There is a wide range of communication tools and channels to choose from (telephone consultation, press release, personal visit, letter to residents, information evening, etc.). (Elsman-Domburg et al., 2006). The guideline 'Engaging and persuasive communication in health promotion' takes a closer look at the typology of communication channels (Flemish Institute for Healthy Living, 2020). A tool that can help you make a choice is the **(risk) communication intersection** by Van Ruler (see Figure 9). He states that a strategy can be determined on the basis of the experienced and calculated risk and distinguishes four basic strategies for risk communication, namely: persuasion, instruction, information, dialogue (Elsman-Domburg et al., 2006).

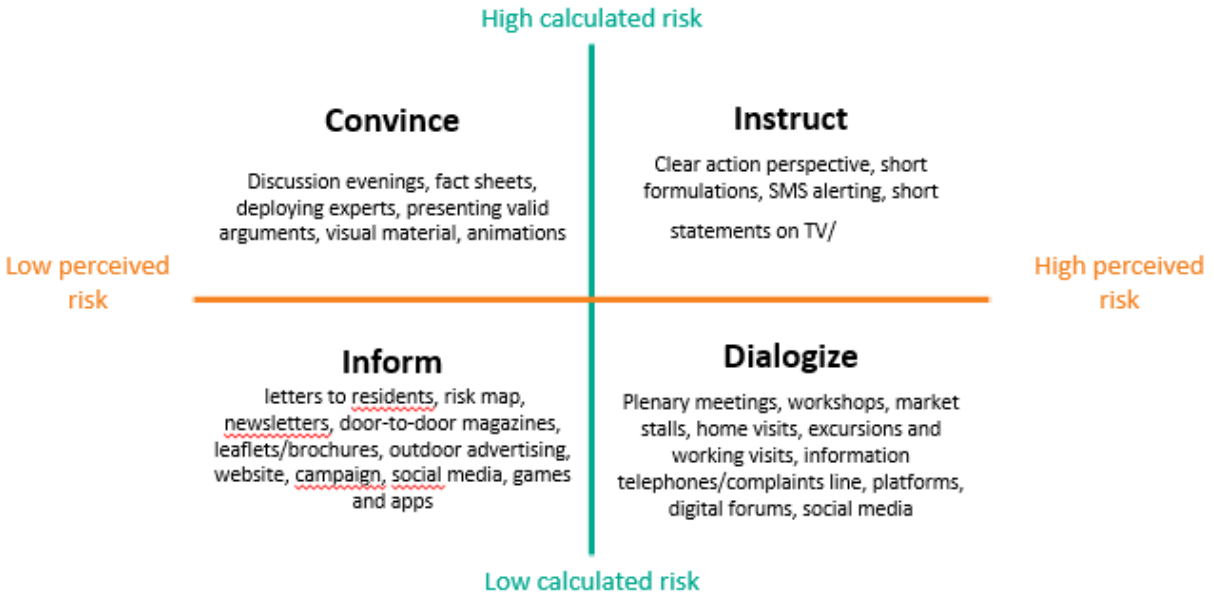

Figure 9: (Risk) communication intersection of Ruler. Based on (Elsman-Domburg et al., 2006)

If you are dealing with multiple target groups, it is best to make an overview of the communication tools per target group (Elsman-Domburg et al., 2006).

➢ **Engaging and persuasive communication in health promotion**

➢ **Praktijkwijzer p. 12-13**

4.5.1 Risk communication and (social) media

Media play an important role in risk communication. Mass media are considered the main "amplifier" of risk. The media do not always base themselves on objective facts or scientific knowledge, but rather want to highlight emotions. Risk, damage, death and illness are often important key points of media coverage. Another approach is sensationalism and exaggerating some elements of the news to increase the appeal that the message has to the audience. Such an approach can be dangerous when it comes to health communication (unnecessarily alarming, false impressions to a possible solution, ...) (WHO et al., 2013).

The **Social Media** have caused a change in the media landscape. The strength of social media lies in the 'share' aspect ('likes' on Facebook, 'retweets' on twitter). These simple actions give the feeling of sharing and active communication that allows people to create their own information strategy. However, social networks can also be a source of misinformation ('fake news'). As a result, health authorities are now aware of the importance of monitoring and social media presence, and alert to respond appropriately to misinformation, rumours, public opinion and concerns. In addition, social media can be used to engage the public, create awareness, and promote peer-to-peer communication. **Appendix 3** shows a number of ways to make effective use of social networks (WHO, 2017; WHO Regional Office for Europe, 2013).

4.6 STEP 4 – DRAFTING AND EVALUATING COMMUNICATION MATERIALS

"Developing (and reviewing) the communication materials (regardless of the format or distribution channel)"

Once you have decided which message you want to convey and through which communication channels, you can proceed to actually draw up (and then evaluate) the communication materials. In this context, the CDC has developed a tool that identifies the key communication features to promote the clarity and comprehensibility of messages/materials, namely the "**CDC Clear Communication Index**". The index goes beyond risk communication and can be used by anyone who develops public health communication materials (CDC, n.d.).

The index has been created to help you communicate clearly with your intended target group. According to the CDC, you can use the index in different ways, namely (CDC, n.d.):

- for the **design** and development of a new communication product
- to assess the **clarity** of a communication product prior to its public release
- to foster **discussion and collaboration** between writers and reviewers while working yourself to achieve scientific rigor and clarity of content
- to quickly **assess the clarity and ease of use** of an already released communication product

The index evaluates communication materials based on **Seven different elements**namely (CDC, 2019):

A. **Key message**
B. **Language**
C. **Information design**
D. **Scientific insights**
E. **Action perspective and recommendations for conduct**

F. **Figures**
G. **Risks**

The first four elements (A to D) are the core elements, which apply to all means of communication. The three other elements (E to G) do not necessarily apply to all materials (CDC, 2019). Note that in risk communication, all elements often apply.

Each element is assessed in the index on the basis of a number of questions. In total, the index asks 20 questions (divided over the seven elements). Depending on the answer to a question, the communication material achieves a score of 1 or 0 per question. These scores can be summed and traced back to an overall score out of 100. A score of 90 or higher means that the communication material is adequate. Even without calculating the score, the 20 questions can support you in designing the communication material.

In sections 4.6.1-4.6.7, we explain elements A to G and the associated questions. We based the description of each element on the CDC Clear Communication Index, supplemented with our own clarifications and specifications regarding risk communication. For examples for each question, please refer to the CDC Clear Communication Index – user guide (CDC, 2019).

The aspects we elaborate below apply both to large-scale, well-prepared risk communications and to risk communications of a more limited scope (e.g. e-mail correspondence or telephone conversations with individual citizens). The degree of elaboration, and the time spent on the elaboration of each step, of course, differ per situation, but the principles are applicable regardless of the size and form of the communication.

➢ **CDC Clear Communication Index** ➢ **Praktijkwijzer p. 13-16**

4.6.1 Key message

By core message, we mean what you want to communicate to a person or group and that needs to be remembered (CDC, 2019).

Did you clearly state one key message somewhere?
Make sure your communication materials have one key message. The message may consist of 1 to 3 short sentences. A topic, such as 'Health risks of smog' or 'Are eggs from your own chickens unhealthy?', is not a core message; 'A tick bite can make you sick, so do the tick check!' is. If the material contains multiple messages and no core message, the answer to this question is 'no'.

The statement "There is no danger to public health"
The widely used message "There is no danger to public health" does not fit into clear and open communication with the population, and may not fit in with the risk perception (e.g. when thick clouds of smoke are still visible in the event of a fire). The past shows that instead of a reassuring effect, this can have an alarming and sometimes even frightening effect. It signals that something is going on, and when a substantiation and interpretation of uncertainties is lacking, it can suggest that the government is trying to hide it. One should not underestimate people's ability to process bad news. It is precisely telling exactly what is going on and what this means for an individual (what is the potential risk, what measures have been taken for what reason and what can one do oneself) can be reassuring. A clear and concise message with the ingredients identified in step 2 provides people with the most important information.
Source: (Elsman-Domburg et al., 2006); (IVF, 2019)

Is your core message at the top/at the beginning?

People always look for the most important information at the beginning, the start or at the front of the material. By placing your core message first, people find it more easily. For example, you should include the main message at the top of a poster or web page (it is recommended that the main message be fully visible without scrolling) and in the first paragraph or section of a leaflet or brochure.

Tip: Always put the most important thing first

This principle of "most important first" can also be extended to every block of text and paragraph (without this being about the main message). If you find it difficult to determine what is most important, put yourself in the shoes of the readers to find out or ask non-experts.

Source: (Flemish Institute for Healthy Living, n.d.)

Is the core message emphasized with visual accents?

Visual accents draw the attention of your target group to certain parts of the communication material. So use visual elements to draw attention to your core message. You can emphasize the main message in posters, flyers or websites, for example, through font, color, shape, lines, arrows, headers, ...

Is the core message supported by images?

Using clear images can help people to understand a message (faster and easier). Make sure that images and words tell the same message and reinforce each other. People expect images and words that are close to each other to be about the same information. Don't overload images with too much information. Always provide your image (photo, graphics, infographic, etc.) with a title or label, so that it becomes clear to your target group what you mean by this.

Does the core message contain one or more calls to action and action perspectives for the target group?

Tell your target audience what you expect them to do with the information provided. This can be about a change in behavior, a call to collect more information, a request to share information with someone else, or just doing nothing. Even if your goal is merely to inform, think about why your target audience needs the information. You can then use this to formulate your action perspective (see section 4.6.5).

➢ **Praktijkwijzer p. 14**

4.6.2 Language

The language you use in your communication material is important. Make sure that you use colloquial language throughout the entire communication material, write actively and avoid the use of jargon, abbreviations, vague and official language (CDC, 2019; Flemish Institute for Healthy Living, n.d.). In addition, adjust language (use) to the target group when necessary.

Do you write actively? Do you use the active form in both the core message and the action perspective?

Let the subject of your sentence do something and use colloquial language.

Examples of active writing (Flemish Institute for Healthy Living, n.d.):

- Avoid: "use"; rather use "use"

- Avoid: "if asbestos is not bonded, asbestos fibers can easily be released"; use "Non-bonded asbestos releases asbestos more easily"
- Avoid "one assumes"; Use "scientists assume"

Do you avoid professional jargon and use simple language? Do you always use words in the material that your target group uses/understands?

Make sure you avoid using jargon, abbreviations, vague and official language. Use the most common and frequently used words/terms of your target group, the everyday words. A pilot test of the material can tell you whether the language used corresponds to your target audience.

Examples of colloquialisms (Flemish Institute for Healthy Living, n.d.):

- Avoid: "regarding"; use "about"
- Avoid: "regarding"; use "by"
- Avoid "if"; use "because"

Tip: The use of colloquial language

Read the text aloud to yourself as if you were explaining it to someone. Check if this "sounds natural".

Source: (Flemish Institute for Healthy Living, n.d.)

If you do use professional jargon (because there is no other way, for example), give a relevant example or briefly describe what you mean. In other words, make sure that all specialized or unknown terms are explained or described.

Acronyms and abbreviations should be written out and explained if they are not known to the public.

Tip: Spelling of abbreviations?

If you are not sure about the spelling of an abbreviation, take a look at one of the following two websites:

- http://taal.vrt.be
- www.vandale.nl/vandale/opzoeken/woordenboek/

Examples:

- And so on or abbreviation etc. NOT: etc.,...
- For example, or abbreviation e.g. NOT: e.g., e.g.,...

Source: (Flemish Institute for Healthy Living, n.d.)

➢ **Praktijkwijzer p. 14**

4.6.3 Information design

This is mainly about the structure of texts: do you use enumerations, blank lines, ... You can skip these parts if no written texts are used.

Do you use bullet points or numbered lists?

Use bullets/lists to break up text and make the material easier to read. If your list contains more than 7 elements, divide this list into sub-lists. A good standard is to use bulleted lists for bullets that are longer than one line of text. Preferably also use short lists.

Are you using enough blank lines/paragraphs and headings?

By using paragraphs and blank lines, you help your target audience remember and group similar information. It also looks less overwhelming to read. Make sure that a paragraph contains only one

topic. Use titles to label and structure paragraphs. The titles should accurately reflect the information that follows.

Tip: Visually distinguish between headings and paragraphs
Make a distinction by visualising headings (font, size, blank lines, etc.). It is best to leave more space above the heading than under the heading.

Is the most important information your target audience needs summarized in the first paragraph or paragraph?
You don't have to include all available information in one communication tool. Instead, show only the most important information associated with the core message you've selected. You can offer your target group additional opportunities to obtain additional or related information if they want to.

Examples of forms of information that may be important to include:

- **Basic knowledge** that you need to know ('understanding')
- This is what you can **learn** ('assessment')
- You can **do this** ('overcoming barriers')
- How can this **help you**? ('motivators')
- Ways in which you can take actions ('strategies')
- Where to go for **help** ('community resources')

➢ **Praktijkwijzer p. 14**

4.6.4 Scientific insights

Do you explain the state of affairs in terms of scientific research? Does the material indicate what is known and what is not known?
Make sure you acknowledge uncertainties (about data, recommendations, actions, guidelines, ...). It's better to acknowledge insecurities than to claim that you know more than you do (Elsman-Domburg et al., 2006). This acknowledgment of uncertainties helps your target audience understand how the scientific process works and introduces the idea that findings and recommendations can change over time.

Do you explain how uncertainty is dealt with and how people try to reduce it?
Research into the health risks of an environmental factor is always accompanied by uncertainty about the extent and severity of the risks. It is always a consideration to what extent you should communicate these uncertainties.

- Sometimes the uncertainty can be interpreted, for example in the case of Lyme disease where you can explain that you are not always sure of the effect of antibiotics in any disease.
- Sometimes it is better to wait to communicate until there is more awareness about the seriousness and extent, because it can lead to ambiguity and uncertainty. For example, it is not wise to communicate uncertainties about action recommendations to those involved (e.g.: "we are thinking about evacuating people", only to say an hour later that this is not the case after all).
- In certain situations (serious situations, a lot of unrest, a lot of pressure from the media and the population) it is better to tell what is already known and about which there is still

uncertainty. In this case, you can cite what is being done to reduce or remove the uncertainties. When future problem situations are foreseen, you can already prepare very concretely for the eventual risk communication that must take place if the problem actually occurs, and if possible even communicate proactively.

Tips: Dealing with uncertainties

- If there is a lot of uncertainty, it is best to think carefully about how you can present the data as clearly and understandably as possible. For example, a situation sketch on a map can offer a lot of clarification.
- If you express uncertainties such as probability, probability or spread of numbers, this must be properly explained to those involved to avoid misunderstandings. For example, by explaining underlying assumptions.
- Think about the wording you use. E.g.: "most conservative estimate" is very specialized, it is better to speak of "most conservative estimate".

Source:(Elsman-Domburg et al., 2006)

➢ **Praktijkwijzer p. 14**

4.6.5 Action perspective and recommendations for conduct

By an action perspective, we mean what an interested citizen can or cannot do to protect himself (Flemish Institute for Healthy Living, n.d.).

Are you asking your reader to do something? Does the material contain one or more behavioural recommendations for the audience?

Behavioural recommendations in the context of risk communication are specific actions that people can take to protect their health or that of others. Doing nothing can also be a recommendation. When crafting health or safety messages, focus on the behavior rather than medical facts or statistics.

Do you explain why it is important that they do that? Does the material explain why the behavioural recommendation(s) is/are important to the target group?

Make sure you explain to your target group, i.e. give reasons why they should or should not show the recommended health behavior. Tell them the possible consequences of whether or not they perform the behavior. By offering sufficient information, so that your target group can easily and quickly understand why the behavior is important, you help people make informed decisions. Don't limit yourself to numbers to explain the importance of the behavior.

Explain how to do it? Possibly step by step? Does the behavioural recommendation include specific instructions on how to carry out the behaviour?

If you make behavioral recommendations, it is best to also explain to your target group how they can perform this behavior. This can be done using step-by-step directions or a simple description. E.g.: the material contains information about how and when to contact a medical provider. By breaking down behavior into specific step-by-step actions, you can increase people's confidence to perform the recommended behavior ('self-efficacy').

➢ **Praktijkwijzer p. 15**

Tip: "Engaging and persuasive communication in health promotion"

The document "engaging and persuasive communication in health promotion" of the Flemish Institute for Healthy Living can help you develop health messages. More specifically, the manual is about the application of persuasive communication techniques within health promotion. The guideline focuses on communication as a specific technique to work on a healthy lifestyle in a healthy environment through behavioural insights (Flemish Institute for Healthy Living, 2019).

In Appendix 4 you will find a checklist for persuasive communication.

➢ **Engaging and persuasive communication in health promotion**

4.6.6 Figures

If your communication material contains one or more figures that relate to the core message, this element applies. If not, you can move on to the next element and you don't have to evaluate the element 'grades' (CDC, 2019).

Do you use numbers that your reader uses and understands? Does the material only contain figures that the primary audience uses?

It is important that you only use figures that support and clarify the core message. It is best to leave out other figures as much as possible. Try to explain the figures that support the core message as much as possible in colloquial language. Avoid using percentages, decimals, fractions, less common or specialist units of measurement, etc. (CDC, 2019; Flemish Institute for Healthy Living, n.d.).

Tips: Use whole numbers and absolute digits

It is best to use whole numbers. Some examples:

- "1 in 1000" instead of "0.001"
- "About 2 hours per day" instead of "1.96 hours per day"*

  * *In the case of the results of an investigation or a risk assessment, you must state the general information campaign, may prefer the exact, accurate results.*

It is best to use absolute numbers instead of relative numbers.

- E.g. "1 in 10 people have a chance of getting sick" instead of "10% chance of getting sick"

Source: (Flemish Institute for Healthy Living, n.d.-)

Explain what these numbers mean?

Outline the context and explain why the number is important to understand the key message. Also explain by concepts such as 'high', 'big', 'small', 'reasonable', 'special', 'unlikely', 'very likely'. This is important because different people give a different meaning to a certain number: a number will reassure some people, while it will worry others (CDC, 2019; Flemish Institute for Healthy Living, n.d.).

Tips: Explaining numbers

- Describe ratios: is the grade higher or lower than expected?
- Describe the figure in relation to expectations, reference values, norms, averages, ...
- Is the figure high or low for this type of exposure or health problem?
- Describe evolutions in function of time and regions.
- Clarify the number with words or pictures
- Combine numbers and qualitative descriptions, especially with probabilities
- Don't use numbers alone, but in combination with words like 'high', 'small', ...

Source: (Flemish Institute for Healthy Living, n.d.)

Does your reader still have to make a calculation?

Addition, subtraction, multiplication and division are calculations. If possible, it is best to avoid that your target group has to make calculations to be able to interpret or compare figures. It is best to make sure that you have made all the calculations and conversions yourself. If this is not possible, consider whether the figure is necessary.

Tip: Use the same denominator

Always use the same denominator. If you use different denominators, it is more difficult for the reader to compare figures (e.g. 1 in 3 this, 2 in 5 that, ...).
Source: (Flemish Institute for Healthy Living, n.d.)

➢ **Praktijkwijzer p. 15**

4.6.7 Risks

Since this inspiration guide is all about risk communication, this element can certainly be interesting to evaluate your risk communication material.

Do you explain the nature of the risk?

When you talk about risks, try to describe what you mean by that risk. Is the figure important for an individual to know and act on (individual risk), or is it a figure that reflects a health impact for a large group of people (population risk)? Is it about risk factors or about the chance that something will happen?

Tips: Facilitate the interpretation of a risk

- Explain what the cause-effect relationship is.
- Avoid using words like "high, low, big, wide" without additional clarification. A high risk for one person can mean a low risk for someone else. Clear framing is important here.
- Give your target group enough information so that he/she can assess for themselves how this may affect him/her:
    - Is it a short-term or long-term effect?
    - Is it about an illness or about dying? What is the severity of the disease?
    - Is it an individual risk, or a risk at the population level?
    - What if something happens once versus if there is regular exposure?
    - How does the risk compare to other (well-known) risks?
    - What happens if your target audience doesn't do/can't/hasn't done what you recommend?
    - Will people get sick or die if they don't follow the behavioral recommendation?

Source: (Flemish Institute for Healthy Living, n.d.)

If you use relative numbers, do you also explain what this means?

A probability (expressed with a relative number) is a number that indicates how likely a certain outcome or event is (also called the probability). The same matters are important here as we already discussed in the element "figures" (§4.6.6). Risk statements based solely on numbers are more difficult to understand. It is best to use a combination of numbers, words and images to explain risks.

Will you explain the benefits of the action you are asking for? Does the material address both the risks and benefits of the recommended behavior?
This relates to risk perception. It is best to take into account how people understand and assess risks and benefits. This can be very different from the actual risk and benefits (see Chapter 3 for more explanation).

➢ Praktijkwijzer p. 15

4.7 STEP 5 – EVALUATION

"The evaluation of the effects of communication is also important: has the goal been achieved?"

The evaluation step is often skipped when it comes to (risk) communication. Yet it is important because it allows you to document experiences and provide inspiration for others. The approach and resources for carrying out the evaluation should be determined at the beginning of the communication strategy (see also step 1c).

Whether a communication goal is achieved (or not) depends on a large number of variables (Bouwdienst rijkwaterstraat et al., 2004):

- Communicator **capabilities and reliability**
- **Unambiguity** of the message
- The **channel/means of communication** must meet certain quality criteria (sufficient range, reliable, timely, etc.)
- as little noise as possible (watch out for distortions of messages along the way)
- **Recipients** of the message (and their quality of listening)

You can perform evaluation in different ways, namely (Elsman-Domburg et al., 2006):

- Questioning the **person involved/target group**
- research into **reach, reception and appreciation** of the message and/or means of communication (e.g. via media monitoring)
- research into the effects on the set **goals**
- evaluating **communication materials** (see also step 4)

➢ Praktijkwijzer p. 16

Example: participant evaluation of the Environment and Health Support Centre

Over the past two decades, the Centre for Environment and Health has built up a great deal of experience in providing feedback on individual measured values of environmental health research (human biomonitoring) to study participants. Participant evaluations were regularly carried out as part of these communication campaigns. This is a specific form of risk communication, but the findings are illustrative and show the importance of a thorough evaluation practice.

Initially, these evaluations were mainly done in writing, via a short (online) questionnaire. The findings of these evaluations were generally positive, especially in local settings where, in addition to communication by post, investments were also made in local information sessions and personal consultations by a study doctor.

In 2018, a more in-depth evaluation was carried out for the first time for one of the Flemish studies, with participants spread across the different provinces (Morrens et al., 2018). Eleven **in-depth interviews** were conducted among mothers who had participated in an HBM study of the Support Center for newborns. This evaluation yielded some critical findings for the first time:

- The written information in the brochure was judged to be too scientific and therefore came across as somewhat distant, especially if it was not accompanied by sufficient verbal communication. A **more narrative and personal communication** was recommended. Nevertheless, the mothers were motivated to participate in the study.
- The presentation of the personal results was judged to be insufficiently contextualized. Mothers indicated that they did not understand the personal results well, or that they were worried about a specific high value. On the one hand, they needed **additional interpretation**, in function of health and in function of their child, and on the other hand a **verbatim and personal summary** of the results. A more visual representation of the technical results was also recommended.
- Mothers felt a certain reluctance to provide the information offered by the Support Centre because the information was **insufficiently action-oriented** and the study was mainly perceived collectively. The way in which the results were shown provided **few tools and little story** to take action yourself.

These findings show the importance of sufficient **interaction opportunities** as part of the communication strategy (although this is (more) difficult for Flemish studies to organise in physical form). In addition, the communication materials of the Support Centre were also thoroughly reworked, including more attention to **visual representation**, concrete and relevant **action perspectives** and the use of **multimedia**. Experiments are also being carried out with a **digital interface** to offer individual research results in a more personalized and gradual way. Future evaluations will have to show whether these adjustments lead to more effective communication. The results of a first written survey were already positive.

Source: Participant experience study human biomonitoring - Interviews mothers newborns FLEHS III (2018) BERT MORRENS, DRIES COERTJENS, ILSE LOOTS – University of Antwerp.

➢ **Website of the Environment and Health**

Tip: Evaluation of projects

To evaluate projects that include risk communication, you can use the RE-AIM checklist that evaluates the following dimensions:

R = how (many) and which people are reached (*Reach*)
E = does the project have the desired effect (*Effectiveness*)
A = which organizations, key figures or intermediaries are reached (*Adoption*)
I = is everything of quality and according to plan (*Implementation*)
M = remains the project and its effects exist, even after the completion (anchoring) (*Maintenance*)

Source: (Flemish Institute for Healthy Living, n.d.-c)

➢ **RE-AIM Checklist**

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APPENDIX 1: LITERATURE REVIEW

To build this inspiration guide, a screening of existing documents regarding risk communication was carried out. The overview of these sources of information with a short description can be found in Table 2.

Table 2: Literature review

Title (year)	Link
RIVM	
Risk Communication (2019) *Mainly information about projects related to risk communication*	https://www.rivm.nl/rivm/kennis-en-kunde/strategisch-programma-rivm/spr-2015-2018/risicocommunicatie
GGD Guideline: risk communication (2006) *Specifically drawn up for mmk's in the Netherlands*	https://www.rivm.nl/ggd-richtlijn-risicocommunicatie
WHO	
Risk Communication – WHO guidance *On this webpage you will find various documents regarding risk communication (from WHO)*	https://www.who.int/risk-communication/guidance/en/
Technical document 4 – education course for health care and public health professionals on chemicals in indoor air and children health (2019) *One section is specifically about risk communication and gives examples in the context of indoor air in children*	/
Health and environment: communicating the risks (2013) *Report building on the presentations and discussions from a workshop in Italy to share experiences in the management of environmental risk communication*	http://www.euro.who.int/en/publications/abstracts/health-and-environment-communicating-the-risks-2013
Communicating risk in public health emergencies: a WHO guideline for emergency risk communication (ERC) policy and practice (2017) *Guidelines for communication in the event of a health crisis based on literature review*	https://www.who.int/publications/i/item/communicating-risk-in-public-health-emergencies
CDC	
Gateway to health communication *Website where various issues related to health communication can be found (broader of risk communication)*	https://www.cdc.gov/healthcommunication/healthbasics/WhatIsHC.html
CDC Clear communication Index *The index is a tool that identifies the most important communication characteristics to promote the clarity and comprehensibility of messages/materials. On this website you will find various documents about the tool (including the "user guide")*	https://www.cdc.gov/ccindex/index.html
Risk communication: crisis & emergency *CDC's CERC is based on lessons learned during previous public health and research emergencies. So this is about crisis communication. On this website you can find various manuals, tools and templates.*	https://emergency.cdc.gov/cerc/
ATSDR	

Title (year)	Link
Risk communication *Provides an overview of the various materials, manuals, toolkits available to ATSDR.*	https://www.atsdr.cdc.gov/publications_risk_comm.html
Self Learning Module: risk communication *Tips for risk communication based on cases. Also cites various sources for self-study.*	https://www.atsdr.cdc.gov/sites/brownfields/pdfs/risk_communications-508.pdf
Tools and techniques for effective health risk communication (2001) *Comprehensive document on various components of risk communication, supplemented with practical tools and techniques*	http://www.bvsde.paho.org/tutorial6/fulltext/tools.pdf
US EPA	
Risk communication *Gives an overview of the different materials, manuals, toolkits available to US EPA.*	https://www.epa.gov/risk/risk-communication
The risk communication workbook (2007)	link
The tools of meassage mapping (2007)	link
Flemish Institute for Healthy Living	
First aid for measuring instruments *Tips/manuals for the following measuring instruments: interviews, questionnaires, focus groups, observations, testing and product evaluations* *Eline Dedecker and colleagues, Healthy Living*	https://www.gezondleven.be/projectmatig-werken/evalueren-van-projecten/eerste-hulp-bij-meetinstrumenten
Engaging and persuasive communication in health promotion (2020) *This guide is about applying persuasive communication techniques within health promotion* *Leen Van Brussel and colleagues, Healthy Living*	https://www.gezondleven.be/files/leidraad-engagerende-en-overtuigende-gezondheidsboodschappen.pdf
Introduction to qualitative guideline 'communicative output' info pages *This guideline is intended to increase the quality of info pages in terms of readability, effectiveness and comprehensibility (is partly based on CDC index)* *An Verdeyen, ism AZG en de Vlaamse Logo's*	/
Engaging and persuasive communication *Website, rules of thumb and checklist on how to communicate engagingly and convincingly* *Leen Van Brussel and colleagues, Healthy Living*	https://www.gezondleven.be/gezond-leven-gezonde-omgeving/engagerend-en-overtuigend-communiceren and https://www.gezondleven.be/gezond-leven-gezonde-omgeving/engagerend-en-overtuigend-communiceren/hoe-doe-je-dat/10-vuistregels
Flemish Institute for Healthy Living and the Flemish Logos	
Transmitting antennas: a hot item? (2012) *Manual for municipal authorities on how to deal with concerns about the placement of transmitting antennas.*	
Vlaamse Logo's	
Communicating with your neighbours (2012) *Guide for municipal authorities and companies on how to deal with concerns from local residents about a company*	http://www.gezondheidenmilieu.be/echo_files/769-xx-srcBestand.pdf
Presentations for mmk's	
Risk perception (2016)	/

Title (year)	Link
Bert Morrens, Dries Coertjens, Ilse Loots - UA	
Risk communication in the Environment and Health Research Centre (2016) *Bert Morrens - UA*	/
Risk communication (2018) *Peter van den Hazel – Environmental Medical Science Office*	/
Risk communication (based on CDC guidance) *An Verdeyen – Gezond Leven*	
Additional literature	
Conference "Risks and crises: (not) something to be afraid of?" (April 2019) *Through this website you will find various presentations, including: writing crisis messages, identifying and formulating risks, crisis communication*	https://overheid.vlaanderen.be/agenda/conferentie-risicos-en-crisissen-niets-om-bang-voor-te-zijn
Risk Communication Guideline – How to Communicate About Uncertainties (2004) *Construction Department Rijkswaterstraat & Ministry of Transport and Waterstraat*	https://www.ifv.nl/kennisplein/Documents/20040501-Rijkswaterstaat-Leidraad-Risicocommunicatie.pdf
Influencing behaviour with risk communication (2019) *Institute for Physical Safety (IFV)*	https://www.ifv.nl/kennisplein/Paginas/Kennispublicatie-Gedrag-beinvloeden-met-risicocommunicatie.aspx
Technical report – a literature review on effective risk communication for the prevention and control of communicable diseases in Europe *European Centre for Disease Prevention and Control (ECDC)*	https://www.ecdc.europa.eu/en/publications-data/literature-review-effective-risk-communication-prevention-and-control
Concerns about local environmental factors *Health Council of the Netherlands*	https://www.gezondheidsraad.nl/documenten/adviezen/2001/04/03/ongerustheid-lokale-milieufactoren-risicocommunicatie-blootstellingsbeoordeling-clusteronderzoek
Risk communication. Outdoor Environment Handbook. *F. Woudenberg*	

APPENDIX 2: CRISIS COMMUNICATION

This inspiration guide focuses on risk communication. For crisis communication, we refer you in this appendix to a number of sources that have practical tools for crisis communication. We also briefly mention some principles and general tips here.

SOURCES

Source	January	Dangerous
CERC manual	This guide provides an evidence-based framework and best practices for anyone communicating on behalf of an organization responding to public health emergencies. You will find various manuals, templates and tools	https://emergency.cdc.gov/cerc/manual/index.asp
The Belgian National Crisis Centre	The National Crisis Centre collects, analyses and disseminates relevant information to the policy and implementing authorities on an ongoing basis. It informs you about all possible risks and coordinates large-scale emergencies in close cooperation with other authorities and emergency services.	https://crisiscentrum.be/nl/inhoud/over-crisiscentrum
Conference "Risks and crises: (not) something to be afraid of?"	On 23 April 2019, the Crisis Centre of the Flemish Government (CCVO), the business continuity management working group (BCM) and Audit Flanders organised a conference on risks and crises. In the documentation (presentations) of this conference you can find information about crisis communication.	https://overheid.vlaanderen.be/agenda/conferentie-risicos-en-crisissen-niets-om-bang-voor-te-zijn
IFV (Institute for Physical Safety)	In the Crisis Communication dossier, information about crisis communication is collected (means of communication, knowledge documents, publications, examples) to provide professionals from population care and security regions with insight into various aspects of this process during incidents and crises.	https://www.ifv.nl/kennisplein/crisiscommunicatie; https://www.ifv.nl/kennisplein/Documents/20191119-IFV-Crisiscommunicatietips-voor-ongevallen-met-gevaarlijke-stoffen.pdf

TIPS AND PRINCIPLES OF CERC

In the event of a crisis, it can take a while before a full response can be made. For example, the situation must be assessed for new or secondary threats; staff, resources and equipment must be allocated; logistical and security barriers must be overcome; … But affected individuals or those at immediate risk need immediate information about the situation and how to ensure their safety (CDC, 2018).

The CDC's Crisis and Emergency Risk Communication (CERC) manual and principles can help you inform the public about the best decisions and accept the imperfect nature of the choice, within the challenging time constraints (CDC, 2018).

From 6 principles van CERC

You can help your organization or community prepare, respond to/recover from an emergency by providing the **6 key principles** of CERC: be first, be right, be credible, express empathy, promote action and show respect (see Figure 10). The CERC states that "we can have a real and measurable impact on the well-being of our communities through what we say, when and how we say it" (CDC, 2018).

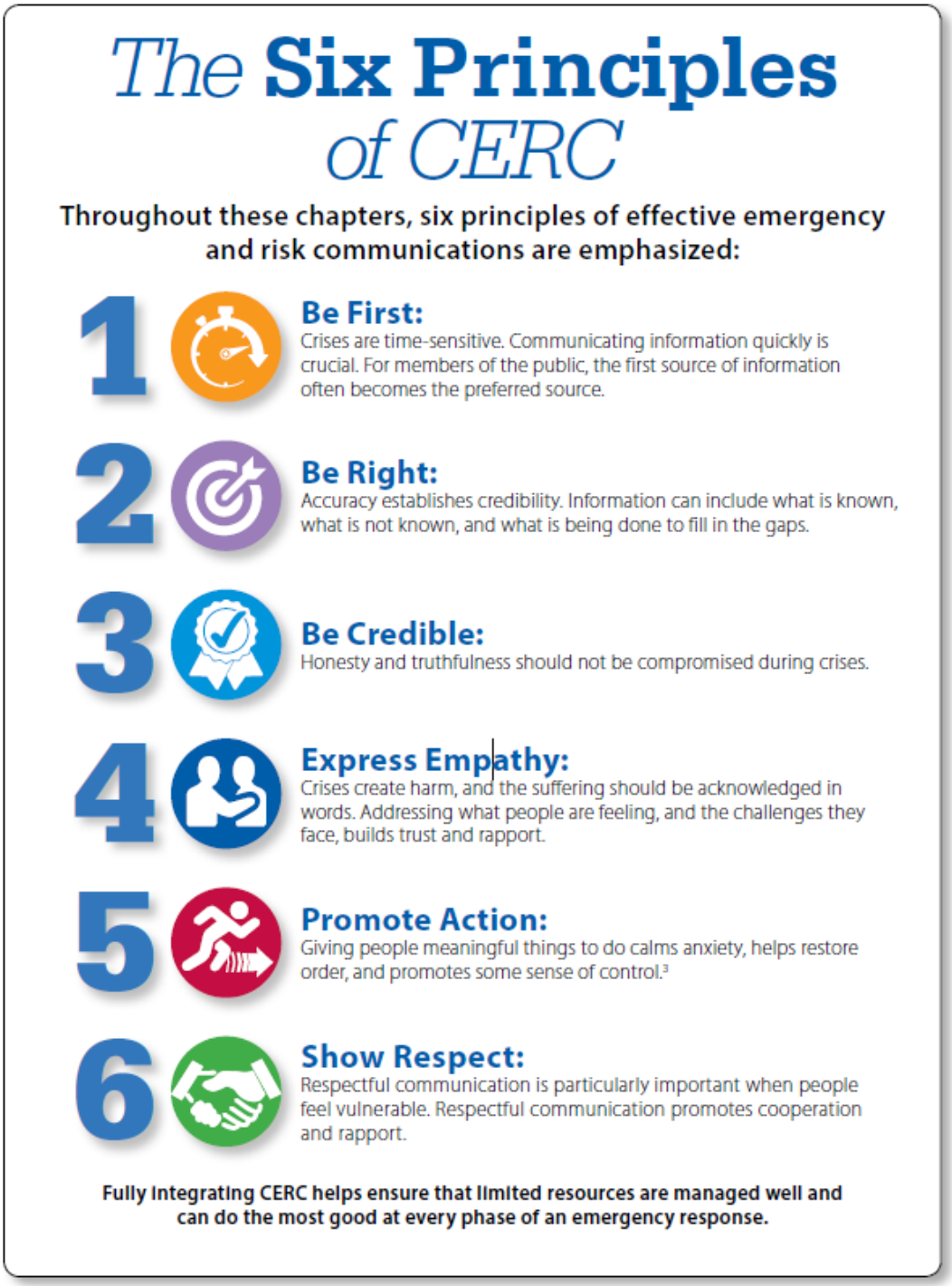

Figure 10: The 6 principles in crisis communication of the CERC manual. Source: (CDC, 2018)

The phases of a crisis and the "communication rhythm" according to CERC

According to CERC, every emergency, disaster or crisis takes place in phases. The communication efforts and priorities correspond to these phases and one must adapt and react according to each phase. This phase classification allows communicators to anticipate the information needs of the public, private, media, government organizations, public organizations, and the people in the affected area (CDC, 2018).

While some communication tactics change across the phases, there are a number of criteria that must be maintained in each of the 3 phases:

- Community Engagement
- Encouraging decision-making
- Evaluation

The crisis is divided into the following phases:

- Preparation
- Initiation
- Maintenance
- Repair

More specifications for each phase can be found in the CERC manual and more specifically in the CERC introduction (CDC, 2018).

➢ **CERC introduction**

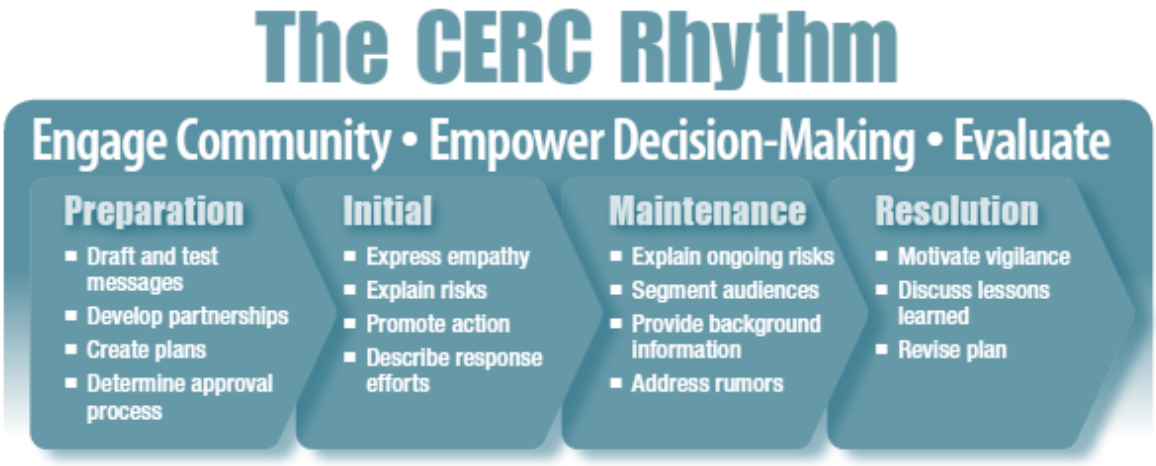

Figure 11: Crisis and Emergency Risk Communication (CERC) Rhythm. Source: (CDC, 2018)

TIPS AND PRINCIPLES FROM CONFERENCE "Risks and crises: (not) something to be afraid of?"

Literally source: the presentation "writing crisis messages" of the conference on April 23, 2019 - https://overheid.vlaanderen.be/agenda/conferentie-risicos-en-crisissen-niets-om-bang-voor-te-zijn

1. Communicate
    - Even if you don't know yet what measures will be taken
    - But: first get a good picture of what is going on, so that you do not give incorrect information. It is often difficult to rectify that later
    - "At the moment, the crisis center of the Flemish government is looking at what needs to be done"

2. Communicate clearly
    - Don't sugarcoat, unclear communication will raise questions
    - Sometimes even: "it makes no sense to contact the helpdesk with your question at the moment"

3. Communicate unambiguously
    - Don't change your message, this will only cause confusion and questions

4. Communicate in simple language

5. Try to communicate internally first, then externally
    - Not always easy/feasible in a political context
    - It is also important that internal employees receive the right information immediately

6. Provide factual information as quickly and completely as possible
    - Prevent the spread of false information

7. Communicate honestly and transparently

8. Always keep the legal consequences of your message in mind
    - Never say: by a mistake at X or Y
    - Not only legally dangerous, but comes across as unprofessional

APPENDIX 3: WAYS TO MAKE EFFECTIVE USE OF SOCIAL NETWORKS

Source: (WHO et al., 2013)

- Identify the social networks that are most relevant to the intended target audience.
- Allow several trusted individuals in the relevant organization access to the social media sites, to help spread the workload.
- Ensure that the organization's presence is built and maintained on social media sites before a crisis. Building a community presence is important to make sure that it is recognized in advance as an authoritative and trustworthy source of information.
- Provide regular updates about the organization's work and respond to community questions or concerns.
- Identify other organizations involved in crisis communication and develop partnerships with them, in order to spread consistent messages and work together to challenge misinformation.
- Develop resources adapted to a variety of media (fact sheets, news reports, blogs, podcasts, videos).
- Use the community as an information source by asking questions about people's experiences or concerns. The social media provide two-way communication and the public could prove to be an invaluable source of information.
- Avoid overly didactic language and aim to strike a consistent balance between authoritative and personable communication.
- Clearly communicate risk; help users gain a better understanding of the level of risk to themselves and those in their online and offline networks.
- Demonstrate that the organization listens to users by regularly responding to their concerns.
- Make it easy for users to share content on the web site with their own networks by adding buttons for sharing the social media.
- Do not confine communications to just one social media platform. Some social media sites are liable to crash owing to a high level of use and it is important to ensure that your message reaches as many people as possible.
- If using multiple platforms, it is crucial to be consistent in conveying messages and other information.

APPENDIX 4: CHECKLIST FOR PERSUASIVE COMMUNICATION

Excerpted from "Engaging and persuasive communication in health promotion" (Flemish Institute for Healthy Living, 2019).

	wholly	Surely it is	Could be	no
Does the message attract attention? • Is our language lively and creative? • Are we using the right tone (formal, informal)? • Are we using attractive and relevant visuals? • Do we engage multiple senses where we can? • Do we communicate where the target group is?				
Is the message clear? • Are 'what', 'now what' and 'so what' clearly present? • Is there one clear core message? • Is the language accessible and do we avoid jargon?				
Does the message reduce fear of change? • Are we not asking for too big changes all at once? • Is the behavior we recommend concrete and clear? • Are the actions we recommend delimited in time? • Do we emphasize short-term benefits? • Do we use role models who demonstrate the behavior? • Do we propose positive actions? • Do we use motivational language?				
Does the message give an extra push through incentives? • Do we use multiple incentives? • Are our incentives worded positively? • Does the message set a positive standard and offer social support? • Do we emphasize that the majority of the group makes or wishes to make the healthy choice? • Do we use role models to provide social support? • Do we use words or images that evoke a sense of social support?				
Does the message use framing wisely? • Do we use a profit frame or loss frame? • Do we think about framing risks and figures: communicating honestly and accurately, but avoiding panic reactions or false hope? • Don't we use an individual responsibility frame?				
Is the message credible and does it contain appropriate evidence? • Does the message contain no misleading or incorrect information? • Do we integrate the right form of evidence, or combination of them: statistical or narrative?				
Is the messenger suitable for the theme and the target group? • Famous people: to draw attention to a boring subject • Experts: to provide rational arguments/evidence • Experts by experience: to emphasize the seriousness of negative consequences of a certain behavior • Experiential experts who share characteristics with the target group: to increase risk perception • 'Peers': to demonstrate the recommended behaviour, to increase self-efficacy,...				

Isn't the message stigmatizing? • Do we focus on the person and not on the disorders? • We don't use pejorative or stereotyping. • Language? • Do we focus on health and not on appearance? • Do we add information about resources? • Do we propose concrete actions?				
Do we communicate with an eye for diversity? • Do we reflect diversity (culture, gender, sexuality, etc.) in our images, illustrations, testimonies, etc.? • Do we communicate culturally sensitively on a 'superficial level' (clothing, customs, people, places, music) and on a 'deep level' (values and views)?				

Figure 12: Checklist for persuasive communication (Flemish Institute for Healthy Living, 2019).