Best practice guidance //

How to respond to vocal vaccine deniers in public

World Health Organization
REGIONAL OFFICE FOR Europe

Abstract

This guidance document provides basic broad principles for a spokesperson of any health authority on how to respond to vocal vaccine deniers. The suggestions are based on psychological research on persuasion, on research in public health, communication studies and on WHO risk communication guidelines.

Keywords

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Chapter 1

Introduction

This guidance document provides basic, broad principles for a spokesperson of any health authority on how to behave when confronted by and how to respond to vocal vaccine deniers. Vocal vaccine deniers do not accept recommended vaccines and are not open to a change of mind no matter what the scientific evidence says (see chapter 1.2. for further information). The suggestions on how to respond to vocal vaccine deniers are based on psychological research on persuasion, on research in public health, communication studies and on WHO risk communication guidelines. The guidance is primarily intended for spokespersons of health authorities who want to prepare themselves for a public event with a vocal vaccine denier.

Scientific evidence indicates that no one is born a good *speaker [1].* Training is needed to achieve this. Not everyone who is asked to speak on behalf of a health authority is a trained spokesperson. Addressing vocal vaccine deniers in the media can be fraught with danger and angst. While the recommended rules of thumb outlined in this document cannot substitute for professional education in rhetoric and interview skills, they provide a practical, easy-to-use approach to improve your ability to respond to issues raised by vocal vaccine deniers. Psychological research has provided very useful insights on how to frame written messages in response to common misperceptions of any kind *[2].* The document applies these insights to the specific situation of facing a vocal vaccine denier in a public event and focuses on designing messages to respond to vocal vaccine deniers. Additionally, if the media are visual as well as auditory, the audience will judge your credibility, trustworthiness and competence based also on non-verbal aspects like appearance, expression of emotions, eye contact, response time, etc. *[3].* This document offers strategies that address the three main elements of the process of successful communication *[4][5]* namely *the audience, the speaker* and *the argument* in order to maximize the positive impression left by you in a public discussion on vaccine denial.

The strategies presented in the following chapters convey two main rules that serve as guiding principles to rethink the way you debate and achieve the primary goal of a public discussion with a vocal vaccine denier, which is to make the public resilient against anti-vaccine rhetoric:

Rule 1	The general public is your target audience, not the vocal vaccine denier
Rule 2	Aim to unmask the techniques that the vocal vaccine denier is using AND correct the content
Goal	Make the public audience more resilient against anti-vaccine statements and stories; support the vaccine hesitants in their vaccine acceptance decision

1.1. What situation does this document address?

The recommendations and diagnostic processes provided here are broad principles to be used by you effectively to counter the flawed arguments of vocal vaccine deniers in a *public discussion* (Fig. 1: Situation 1). This refers to a situation in which a vocal vaccine denier is expressing arguments of science denialism, and your response can impact how the audience judges you, the topic, your organization and potentially health authorities as a whole. In other words, this is a public, not a private situation. This includes dialogues that are taped or recorded such that the discussion could be made accessible to a broader audience. In contrast, these strategies have little relevance to dialogue between you, a health authority or healthcare professional and a denier that takes place in private (Fig. 1: Situation 2), such as a discussion with religious leaders, concerned parents or any other face to face communication without public audience. There is much psychological research and evidence centred on optimizing interpersonal health communication between a provider and a patient *[6][7]*, but that is not the focus of this document. Public and private dialogue can be very different in terms of what to respond to, how to behave and whom to address. Face to face private dialogue involves the specific relationship between the conversants, whereas in a public discussion you must focus primarily on engaging the audience effectively. The recommendations outlined here relate to the latter situation (Fig. 1: Situation 1) providing basic principles on how to behave and respond to the vocal vaccine denier.

If you are invited for a public discussion you must first decide whether or not to accept the invitation. Before making this decision the decision aid outlined in chapter 9 should be considered.

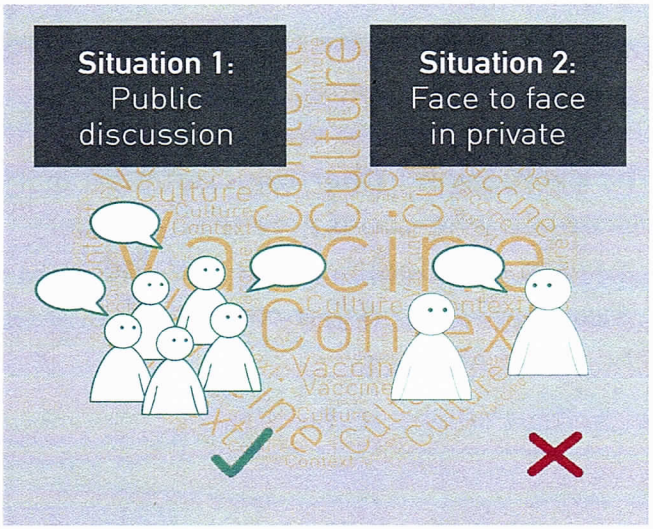

Figure 1: Two distinct communication situations confronting a vaccine denier, either with or without a public audience either listening to the discussion or listening and watching. These recommendations are applicable to a public discussion. Situations may vary with the context and content of the discussion and the specific vaccine that is addressed by the vocal vaccine denier.

1.2. The term vaccine denier

Individuals who refuse on principle to accept a recommended vaccination are commonly referred to as *vaccine refusers, vaccine sceptics* or members of an *anti-vaccine movement.* Research on the definition and scope of vaccine hesitancy identified the term *vaccine refuser* as a group on the more extreme side of a hesitancy continuum *[10].* Vaccine refusers are those who refuse all vaccinations without doubting the wisdom of this decision *[10].* However, this convinced refusal still permits the refuser to consider other opinions or arguments. A vaccine sceptic is defined as a person who "takes a scientific approach to the evaluation of claims" and is "willing to follow the facts wherever they lead" *[8].*

In contrast, the term *vaccine denier* refers to a member of a subgroup at the extreme end of the hesitancy continuum; one who has a very negative attitude towards vaccination and is *not* open to a change of mind no matter what the scientific evidence says (Fig. 2). A vaccine denier ignores any quantity of evidence provided and criticises the scientific approach as a whole. In fact, vaccine deniers may even counter-react to persuasive arguments *[11].* The vaccine denier has characteristics that are similar to religious and political fanatics *[12]* in that he or she adheres to a belief that is impossible to challenge *[13],* whereas challenge is the fundamental tenet of scientific progress *[14].*

The term *movement* as a description for vaccine deniers is also very misleading. A movement implies the image of a powerful, coordinated group, united by a shared collective identity *[9].* However, in most European countries vaccine refusers represent a small proportion of individuals with diverse reasons for not accepting vaccines *[10].* Of this minority, only a few actively engage in behaviour that seeks to undermine public health activities, and can be considered vaccine deniers. These few deniers certainly do not represent a movement.

For the purpose of this document, the term vaccine denier is used to mean someone who does not accept the process of vaccination while denying scientific evidence and employing rhetorical arguments to give the false appearance of legitimate debate *[15].* This document gives recommendations about how to respond to vaccine deniers in a public discussion rather than refusers or sceptics who could potentially be persuaded by scientific evidence and arguments presented in a clear and comprehensible manner.

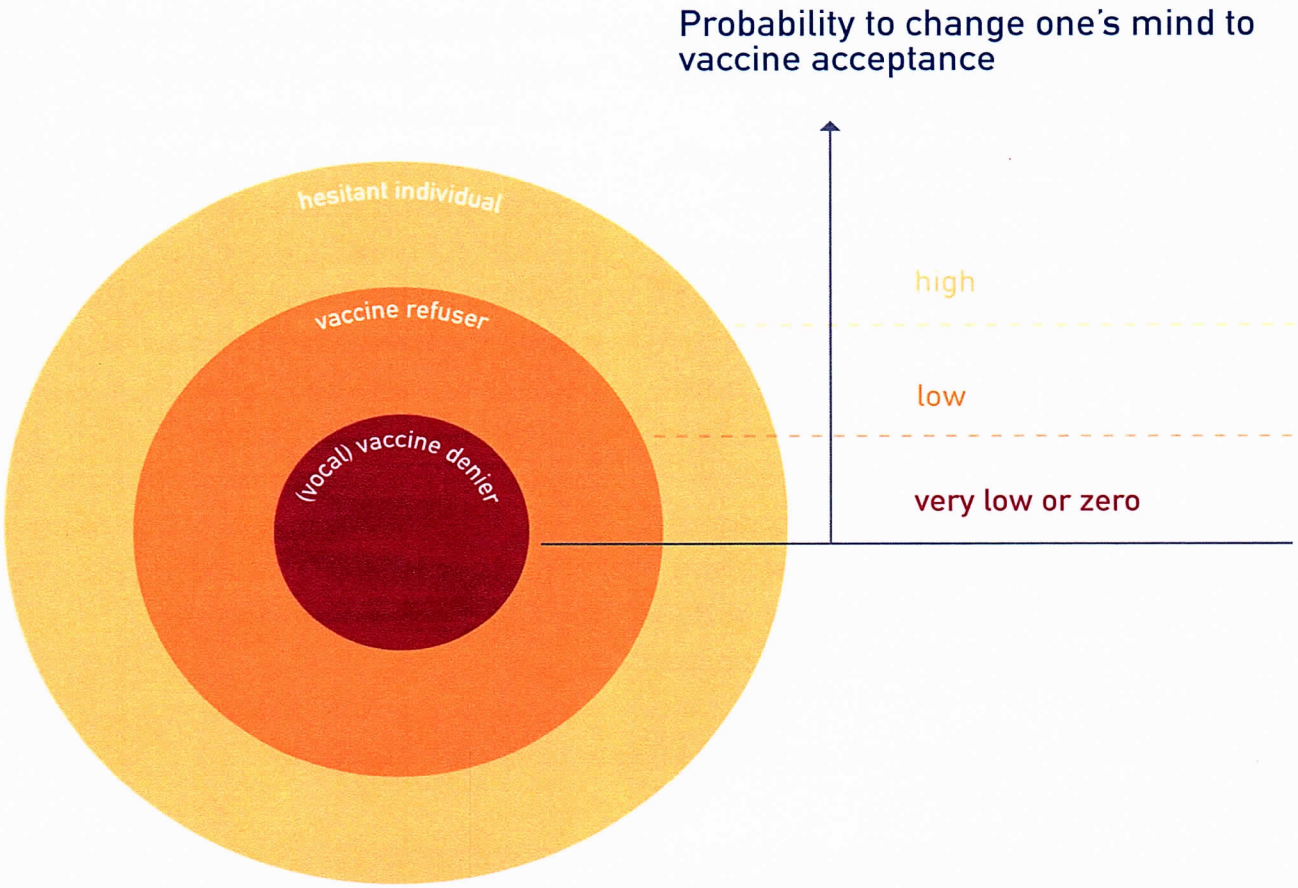

Figure 2: Vaccine hesitancy categorised by the likelihood of a change of mind regarding vaccine acceptance.

1.3. Who are vocal vaccine deniers?

When facing a public discussion with a vaccine denier he or she is most likely a vocal vaccine denier. Vocal vaccine deniers do not only ignore any quantity of evidence provided but have an obsessive eagerness to share their denial beliefs. These denial beliefs about vaccinations are as old as the introduction of the first vaccine *[16]*. While the number of available vaccines has increased and some have improved in effectiveness and reactogenicity, the arguments against vaccination have changed very little *[17]*. Kata *[18]* examined the actions that vocal vaccine deniers use to spread their messages (Table 1). These actions result from the belief in arguments that have the ultimate goal of rejecting the scientific approach by neglecting and suppressing the scientific evidence. Research about science denialism provides further insights into the arguments that are used by vocal vaccine deniers to skew the scientific evidence and to justify their actions *[15][19]*. Designing messages to respond to these arguments is one of the main objectives of this document (see chapter 4 for further information).

Table 1: Actions undertaken to spread messages of vaccine denialism. Adapted from Kata [18].

1. Skewing the science	2. Shifting hypothesis
Vocal vaccine deniers ignore and reject scientific evidence that counters their arguments. They only consider results that seem to confirm their belief. These results either do not represent the scientific consensus, are poorly conducted or misinterpreted by the denier.	Vocal vaccine deniers change the topic that they are addressing when they fear to lose an argument. They are willing to claim any hypotheses that seems to support their core statement i.e. vaccines cause harm.
3. Censorship	**4. Attacking the opposition**
Vocal vaccine deniers shut down critics and avoid open discussions. They ban comments or authors from communication platforms (social media, blogs etc.) and censor opposing opinions.	Vocal vaccine deniers use personal insults and even legal actions to silence representatives of the scientific consensus.

Individuals who refuse vaccines are a very heterogeneous group *[20][21]* and cannot accurately be described in simple terms, such as an anti-vaccine movement. They have very diverse, often very personal reasons for not vaccinating and variable degrees of conviction regarding this mindset. The group of vocal vaccine deniers includes conspiracy-theorists some of whom are very highly educated individuals *[16]* who are well aware of the available scientific literature *[16][22].* These individuals have either integrated the available knowledge about vaccination into their perspective on the issue, no matter how inconsistent *[23],* or have integrated only selected evidence that seems to confirm their beliefs (confirmation bias) *[24].* The diversity of motivations leading to vaccine denial is wide and in most cases cannot be altered by scientific evidence. Thus, you might wonder why you as a spokesperson should address the vocal vaccine denier if he or she is not even willing to consider the evidence concerning vaccines which you will present. This leads us to the question "who is the target audience?"

Chapter 2

The target audience

A true discussion always acknowledges different points of view and tests the strengths and weaknesses of different arguments. Effective scientific discourse requires that everyone contributing to the discussion is willing to evaluate all the evidence available, to accept conversational norms *[19]* and to set the increase of knowledge as the primary common objective of the discussion. Vocal vaccine deniers will not adhere to these basic premises of an evidence-based discussion. Trying to persuade a vocal vaccine denier to change their view in a public discussion will most likely fail. The goal of the public discussion with the denier is *not* to change the mind of the vocal vaccine denier. A public discussion is not really a conversation between the participating parties even if set up so that it appears to be. As a health expert or spokesperson, your audience is the public. The discussion is a good opportunity to inform undecided audience members, called *fence-sitters [25]*, convince sceptics *[26]* and strengthen the knowledge and arguments of all against anti-vaccine rhetoric. This may also strengthen resiliency amongst those who are pro-vaccine who hear the discussion *[11]*. The key messages are meant to debunk misconceptions about vaccination, equip the general public with knowledge that counters the arguments of a denier and sustain trust in health authorities and the immunization programme.

Rule 1

The general public is your target audience, not the vocal vaccine denier

Individuals who refuse vaccines are a very heterogeneous group *[20][21]* and cannot accurately be described in simple terms, such as an anti-vaccine movement. They have very diverse, often very personal reasons for not vaccinating and variable degrees of conviction regarding this mindset. The group of vocal vaccine deniers includes conspiracy-theorists some of whom are very highly educated individuals *[16]* who are well aware of the available scientific literature *[16][22]*. These individuals have either integrated the available knowledge about vaccination into their perspective on the issue, no matter how inconsistent *[23]*, or have integrated only selected evidence that seems to confirm their beliefs (confirmation bias) *[24]*.

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Public media are an opportunity not a threat.

2.1. Understanding the target audience

When designing messages to the general public, it is important to bear in mind that people do not necessarily process information in a rational manner. Human tendencies to deviate from a rational standard, so-called biases, have been under study in experimental psychology for decades *[30]*. These biases are the result of mental shortcuts (*heuristics [30]*) that help individuals to make decisions in a complex world.

These biases explain how your audience processes information related to vaccination and some also provide guidance for designing messages that debunk misconceptions *[31]*.

Some of also explain, for example

- how individuals may make decisions under uncertainty (see *negativity bias [32]*),
- why it is difficult to communicate statistical data (see *narrative bias [33]*),
- why you need to be very cautious when refuting a myth or misperception (see *familiarity [34]*),
- why it can be almost impossible to reach certain groups even though you have followed all guidelines of designing an optimal message (see *confirmation bias [35]*), why some messages have a completely different effect than intended (see *backfire effect [36,37]*).

Negativity bias

The negativity bias reveals that individuals trust scientific studies more when they report a health risk that could potentially harm people, than studies that indicate no risk for people *[32]*. This effect is independent of the perceived credibility of the source of the study. This means that the audience will also judge the trustworthiness of a message by the content of the message, and not only by the spokesperson's credibility.

The audience trusts negative information more than positive

Narrative bias

A narrative is a meaningful story that describes a personal experience. Media channels often use such narratives because they explain complex interdependencies in a simple, coherent and emotional manner. However, the narrative bias reveals that the more narratives about vaccine side effects people read, the higher is their perception of risk of side effects - even if they know the statistical base rate *[33]*.

The audiences' rational thinking is easily distorted by narratives

Confirmation bias

People tend to seek for and interpret information in a way that it confirms their initial beliefs - especially in discussions where they are personally engaged *[35]*. This so-called confirmation bias is a potential explanation of why irrational beliefs like "the MMR vaccine can cause autism" remains in discussions about vaccine safety.

The audience focuses on messages that confirm their perspective

Backfire effect: Familiarity

When trying to debunk a myth spokesperson often repeat the misconception. Psychological studies reveal that the repetition in a debunking attempt can reduce the impact of the attempt *[38]* or even backfire and foster the false knowledge *[36][37]*. This can be the case because individuals forget details of a message and judge the truth of a statement by its familiarity: "I think I have heard that before, so it is likely to be true."

You can create or foster false knowledge by trying to debunk it

Debunking

Research about debunking misconceptions does not only help to avoid pitfalls but also informs about what a message needs to contain to mitigate the

influence of myths. If a spokesperson wants to correct a misconception than it will not be enough to label the belief as false. The audience is seeking for explanations and tends to belief corrections that provide an alternative to the myth *[2]*.

Therefore, a useful correction of a myth explains why it is incorrect and also provides an alternative. This knowledge can structure responses to vaccine deniers and is used for the algorithm in chapter 4.

The audience seeks for explanations of why a message of a vocal vaccine denier is incorrect.

Chapter 3

The speaker

Facing a discussion with a vocal vaccine denier, you (as the spokesperson) should always remember that the most substantial arguments are on your side. Having a vast body of evidence agreed by the majority of scientists to back up your position makes you well-prepared from a scientific perspective. The scientific consensus that you are representing can serve as an initial "gateway" *[39]* through which to influence your audience's key beliefs and increase their support for public policy in support of immunization *[39]*. Emphasizing the existing scientific agreement on vaccine safety and efficiency can strongly influence people's attitudes towards vaccinations. You should emphasize how overwhelmingly the evidence supports vaccine safety and efficacy – not just one or two studies – and that the vast majority of scientists and clinicians in the field agree with this.

Remember, you are representing the scientific consensus.

Recent scientific research on communication shows that the evidence an argument is based upon is more important than impressions of source credibility *[5]* in persuading the public. The quality of the evidence you provide not only influences the audience's attitudes towards a health treatment but also increases your credibility *[5]*. Additionally, presenting messages that contain scientific evidence influences people's attitudes more persistently and makes people more resistant to other arguments than affective associations or simple allegations *[40]* used by deniers. This implies that in order to be perceived as a credible spokesperson and to influence the audience's attitudes toward vaccinations optimally you need to focus on the evidence.

The key messages need to be well grounded.

It's not just what you say but also how you say it. To maximize your effectiveness as a spokesperson you need to provide the facts; but you need to do this using effective communication skills so the public will be informed and misinformation corrected *[41]*. Choose the spokesperson carefully (see below) and ensure that he or she understands and is able to use the evidence-based do's and don'ts provided in this document (see 3.2.) effectively.

3.1. Who should be the spokeperson?

Awareness of the scientific facts about vaccinations does not necessarily make you a good presenter of the evidence, let alone a good discussant. The way you speak and present evidence and the way you listen to the participating parties of the discussion are key deciding factors for a successful media performance. In conjunction with the do's and don'ts (see 3.2.), these skills are much needed for an optimal response to a vocal vaccine denier in a public discussion. Remember: Even a very good speaker should considerchapter 9 "Should you participate?" before attending a public discussion.

3.1.1. Being a good speaker

When you think of a good spokesperson, these are often described as charismatic, meaning they have a "personal magnetism or charm" *[42]*; and they are able to inspire audiences *[43]*. In psychological research, charisma does not describe an inherent uniqueness, but is the result of concrete verbal and nonverbal practices, which lead to more influence, perceived trustworthiness and perceived competence *[43]*. Antonakis, Fenley and Liechti *[43]* identified 12 oratory techniques that lead to greater perceived trustworthiness and competence of the speaker (Table 2).

Table 2: Oratory techniques of charismatic leaders. Taken from Antonakis et al. [43].

Verbal

Metaphors

A figure of speech containing an implied comparison: "If enough are immunized, vaccination is a firewall that protects the weak in our community."

Stories and anecdotes

A simple narrative: "This reminds me of a patient that came to my office and asked..."

Expression of moral conviction

Revelation of your moral convictions: "The weakest members of our community are unprotected. I do not think it is right to risk the health of our community by refusing vaccination."

Contrasts

A clarification of your position by setting it against the opposite: "I became a physician not because of the good job opportunities but because I knew I could help save lives."

Reflection of the group's sentiment

Revelation of your character to allow identification with your personality: "I know what is going through your minds because I feel the the same. I really want to help these people..."

Rhetorical questions

A figure of speech in form of a question that lays emphasis to a point: "Do we want to give up our greatest achievements and return to the dark ages?"

Setting of high goals

A motivation technique that aligns the audience behind a common goal: "By the year 2020 we will have doubled the uptake rates."

Three-part list

A technique to turn a key message into an easy to remember list: "First we need to understand oratory techniques. Then we need to apply them. Finally we will become a charismatic spokesperson."

+

Conveying confidence

Convince the audience that the high goal can be achieved : "Even if all our partners back out...."

Nonverbal

Facial expressions

Varying facial expressions and keeping eye contact. This can visually support your message and the sentiment you wish to convey.

Gestures

Using gestures to support your voice and facial expressions. This can increase awareness and strengthen the message.

Animated voice

Varying the volume of the voice and the pace of your speech and using pauses. This allows you to highlight key messages and keep the attention of your audience.

This is general advice. Your style must always match your personality, the situation, the cultural context and the person you are facing in the debate.

All these techniques can be acquired through media training and provide a foundation for becoming a charismatic spokesperson. You might be overwhelmed by the amount of techniques that is presented above. To be able to acquire or even master those techniques media training, scenario-based workshops and practical experience are inevitable (see chapter 11 for further information). The key message for now is:

Being a good speaker can be learned.

3.1.2. Being a good listener

In communication studies the importance of listening in any communication process is unquestioned *[44][45][46]*. To design effective messages you need to listen to the denier. Even though the audience of your message is the general public, it would be a mistake to ignore your discussion partner totally. A discussion is not a platform for a monologue and the public will judge you by the attention, motivation and participation that you as a spokesperson demonstrate in the discussion *[47]*. The way you listen will be crucial for the public's judgement about your participation. Listening is an active process that includes all your senses and is not limited to hearing *[48]*. It is a basic communication skill that can be learned and improved *[49]*. Based on questionnaire research, Brownell *[47]* identified six interrelated components (Table 3) of listening that can be addressed and trained. The resulting HURIER model *[49]* (see also Annex 1) provides you with a theoretical visual depiction of components needed to optimize your competency.

Being a good listener can be learned.

Table 3: Interrelated components of listening. Taken from Brownell [49].

1. Hearing	Concentrating on and attending to the message
2. Understanding	Comprehending the literal meaning of the message
3. Remembering	Recalling the messages so that it can be acted upon
4. Interpreting	Sensitivity to nonverbal and contextual aspects of the message
5. Evaluating	Logical assessment of the value of the message
6. Responding	Selecting an appropriate response to what is heard

None of these listening and speaking techniques are easily acquired and even if they are mastered in a training environment, a spokesperson can still be overwhelmed by the stress triggered in a public discussion. The stress in a live-discussion is multiplied by the fact that there will be no opportunity to correct errors once they are made. In the face of well-trained journalists and rhetorically eloquent deniers, more than vaccine knowledge and simple communication training are needed. Coping with stress, managing errors and avoiding rhetorical traps while staying focused and maintaining a confident appearance are skills that can only be acquired through media training and experience.

Do not participate in a public discussion if you are not media trained.

3.2. Do's and Don'ts of communication

Prepare key messages

A person's working memory is responsible for storing visual and vocal information and is strongly restricted in capacity [50]. The audience will not be able to recall or even transfer the provided knowledge when confronted with too much information. Use the topics of the algorithm (see chapter 4) to prepare messages that reflect the topics that are often raised by deniers. To be persuasive you need to respond to the topics that are raised and not just reel of your own key messages.

Prepare three key messages you really want the public to know and remember.

Communicate what has been achieved

Celebrating gains, visualizing results and focusing on the continued common target, in this case community protection, are recommended strategies to uphold the public's motivation [60]. Furthermore, visible gains intimate what needs to be done to reach the final goal, which also addresses the responsibility of each and every individual.

Communicate what has been achieved so far and what needs to be done.

Keep your key messages simple

Do not use scientific jargon or acronyms if you can avoid them. According to research on reasoning, scientific jargon does not increase the speaker's perceived credibility [51] but it jeopardizes that a non-scientific community will understand you [52]. Additionally, research on cognitive psychology shows that unfamiliar words are less likely to be remembered or memorized [53] and should therefore be avoided. If you can, condense your main message into a simple, easily understood "sound bite" – that is, a less than 30 second message that captures your point in a riveting fashion.

Keep your three key messages as simple as possible.

Tell the truth

Psychological research shows that even three-year-olds question the credibility of a source when they figure out they have been lied to [58]. Additionally, a vast amount of research highlights the damage to trust and credibility of authorities due to dishonesty [59], regardless of the ethical considerations. Being honest does not mean being negative. Remember to cast your messages in a positive light, for example: "We have a strong system to detect any potential adverse events and to quickly check whether there are problems with a vaccine. We detected YY, but upon investigation discovered that YY was not due to a vaccine but was due to XX."

Be honest during any discussion.

Repeat your key messages

If you repeat information your audience will be more likely to remember it *[54]*. It also allows you to focus on the key message in a heated discussion. However, if used excessively, repeating your messages can also be perceived as ignorant. Find a balance between listening and responding to the topic at hand and coming back to key messages. Again, prepare messages based on the topics you know are often raised by deniers.

Repeat your key messages as often as reasonably possible.

Avoid humour

Humour is a very complex cognitive experience that is specific to language, culture and context. It is easily misinterpreted or even perceived as offensive [61]. Even if understood, humour can damage credibility, and undermine the perceived competence of a speaker when used in an inappropriate context [62][63]. It may be seen as "joking" about something that is serious and may even be interpreted as an insult.

Find other ways to appeal to your audience.

Do not repeat the anti-vaccine arguments

If you repeat the anti-vaccination information it can inadvertently reinforce the misinformation you seek to correct [2], because repetition makes messages easier to remember [55]. Furthermore, if the discussion is filmed, you may see your verbalization of the misinformation lifted out of context and included in an anti-vaccine video.

Respond with correct information instead of repeating any anti-vaccine argument.

Do not question the denier's motivation

Motivational aspects drag the focus away from the facts, and they leave room for emotional, personal narratives that have been shown to increase the audience's perceived risk of adverse events [57]. Save such discussions for private personal interactions with refusers and deniers.

Avoid raising questions about the personal motivation of vocal vaccine deniers.

Use inclusive terms

Psychological research shows that similarity to an audience is a strong indicator for perceived credibility of a speaker [56]. You as a spokesperson cannot influence the similarity of demographic aspects between the audience and yourself, but you can underline the similarity by using inclusive terms like "we as parents" or " as members of a community".

Use inclusive terms to underline a shared identity with the audience.

Underline scientific consensus

Research in the area of climate change shows that the belief in a scientific fact increases when consensus is highlighted [64][39]. However, identifying a scientific consensus requires a thorough understanding of the specific area of interest and a layperson will not gain that knowledge all by himself [65]. Therefore, highlighting the scientific consensus in public is a powerful tool to transfer essential scientific knowledge and increase belief in a scientific fact, especially when presented in a simple and short message [66][67].

Underline scientific consensus with regard to vaccine safety and efficacy.

Emphasize social benefit of vaccines

Vaccines have individual and social benefits [68]. If enough individuals are vaccinated, then the so-called "herd immunity" protects individuals who cannot get a vaccine because of their weak immune system or possible allergic reactions to the vaccine. Psychological research shows that emphasizing the social benefit of vaccines increases an individual's intention to vaccinate [69].

Make sure your audience understands the importance of herd immunity.

Chapter 4

The argument

The arguments of vocal vaccine deniers have not changed significantly since vaccines were first discovered *[16]*. Listening to these arguments and analysing their shared structure prepares you with fundamental knowledge on how to respond. During a discussion, deniers tend to intermingle different arguments and misconceptions (Table 4), which makes it difficult to respond with a clear statement. Therefore the following three steps are recommended for responding to vaccine denial in a public discussion (Fig. 3).

STEP 1:

Identify the technique the denier is using to misinform the public (Table 4).

Five common techniques used by science deniers are categorized below, as introduced by Hoofnagle and Hoofnagle *[15]* and discussed by

Table 4: The five characteristics of science denialism (first introduced by Hoofnagle and Hoofnagle [15] and discussed by Diethelm and McKee [19]).

1. Conspiracies	Arguing that scientific consensus is the result of a complex and secretive conspiracy.
2. Fake experts	Using fake experts as authorities combined with denigration of established experts.
3. Selectivity	Referring to isolated papers that challenge scientific consensus.
4. Impossible expectations	Expecting 100% certain results or health treatments with no possible side-effects.
5. Misrepresentation and false logic	Jumping to conclusions, using false analogies etc.

STEP 2:

Disentangle the core points and address each separately.

The main topics related to vaccine denialism are categorized below, informed by research from the area of psychology and communication studies *[18][70]* and experience from the WHO European Region.

Table 5: The five topics of vaccine denial. Based on prototypical messages of vaccine deniers [18][70] and WHO's experience.

1. Threat of desease	Arguing that vaccine preventable diseases are eradicated or harmless.
2. Trust	Questioning the trustworthiness of health authorities.
3. Alternatives	Arguing that there are safer and/or more effective prevention methods than vaccination.
4. Effectiveness	Questioning the effectiveness of vaccines as a prevention method.
5. Safety	Questioning that vaccines entail more benefits than risks and raising general safety issues.

STEP 3:

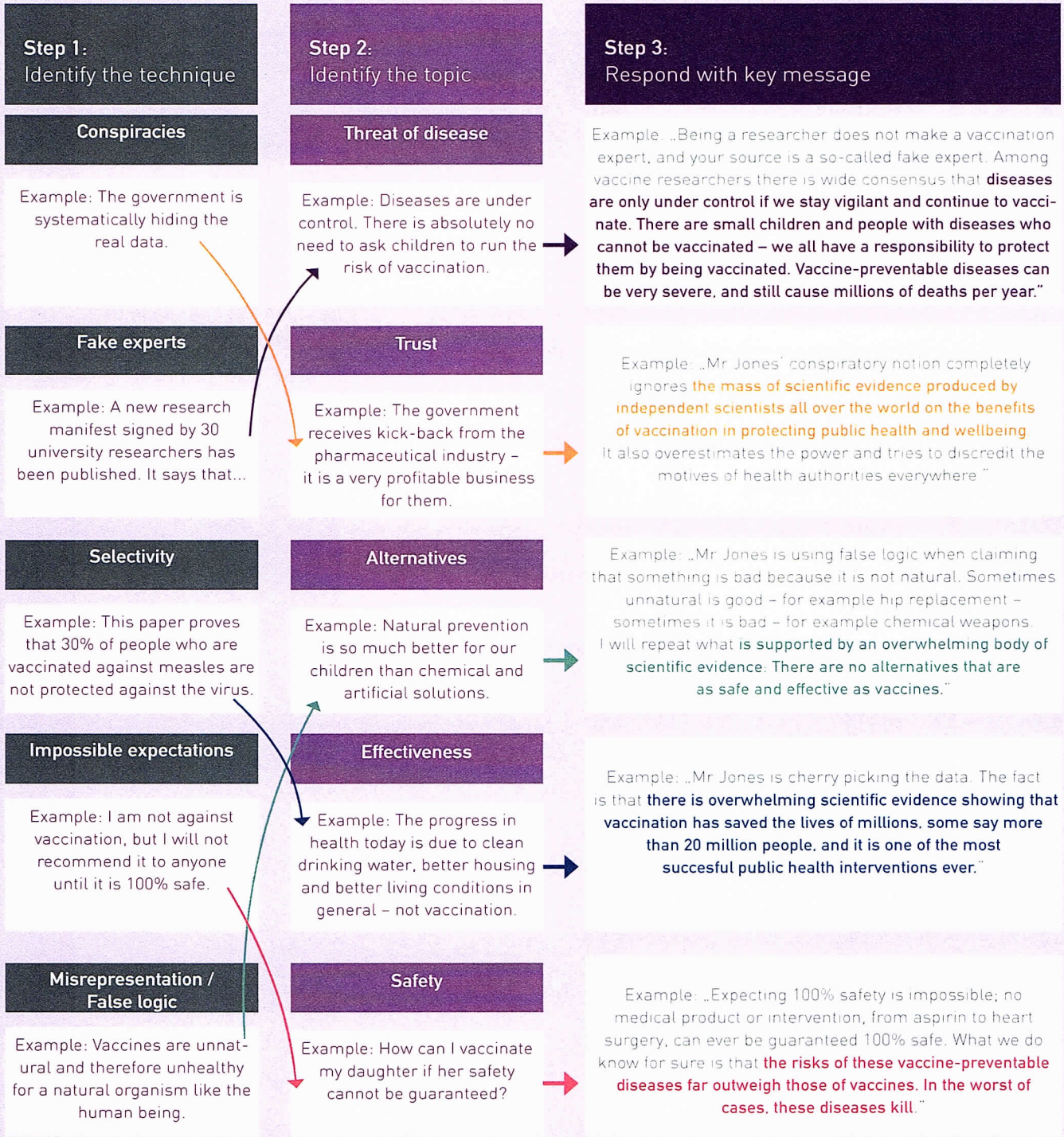
Respond with evidence-based message.

With the topic and technique in mind, you can then create a key message where you unmask the technique used by the vaccine denier and respond to the topic raised by the vaccine denier with an evidence-based message. Use it as a response supported by the Do's and Don'ts methods recommended in section 3.2.

Figure 3: The three steps in responding to vaccine denialism in public.

Step 1: Identify the technique	**Step 2**: Identify the topic	**Step 3**: Respond with key message
Conspiracy	Trust	Unmask the technique used
Fake experts	Threat of disease	Use key message that relates to the topic raised
Selectivity	Effectiveness	
Impossible expectations	Safety	
Misrepresentation / False logic	Alternatives	

Figure 4: Algorithm with examples of use



4.1. Response to vocal vaccine denier

Once you have identified the topic under discussion, you then choose one of your key messages. If you were able to identify the denier's technique, this information can be added to your statement to strengthen your message and discredit the denier. This may not always be possible. In either case, do not feel insecure and stick to your key message in addressing the topic. The following pages are worksheets that can be used to prepare and write your own responses to each combination of the adressed topic and the technique used by the denier.

Rule 2

Aim to unmask the technique that the vocal vaccine denier is using AND correct the content.

Step 3: Your key messages

	Threat of disease	Alternatives
Conspiracies	.....	.....
	.....	.....
Fake experts	.....	.....
	.....	.....
	.....	.....
Selectivity	.....	.....
	.....	.....
Impossible expectations	.....	.....
	.....	.....
Misrepresentation and false logic	.....	.....
	.....	.....

	Safety	Effectiveness
Conspiracies	.....	.....
Fake experts	.....	.....
Selectivity	.....	.....
Impossible expectations	.....	.....
Misrepresentation and false logic	.....	.....

	Trust
Conspiracies	.....
Fake experts	.....
Selectivity	.....
Impossible expectations	.....
Misrepresentation and false logic	.....

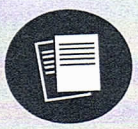
Chapter 5

Unfavourable interview conditions

Even trained spokesperson may find it difficult to stay calm and deliver key messages if, for example the interviewer is biased or has lost control of the session. Similarly interview conditions may be changed last-minute preventing you from preparing optimally. The advice presented in figure 5 may help you prevent such unfavourable interview conditions.

Figure 5: Ensuring fair interview conditions

Insist on a previous agreement



Before you accept an invitation to a public discussion make sure you have a clear understanding of the format and your role during the discussion (see also chapter 9 below). Clarify any uncertainties beforehand and insist that the format is not changed (e.g. number of participants in the discussion, your role, seating arrangements, who the facilitator is, how questions are asked etc.).

Demand fairness

The facilitator or interviewer should make sure that all discussion participants have a fair opportunity to express their points. If you feel at a disadvantage, you can ask for better balancing. Do not react with anger; provoking an emotional response from you might have been the vaccine denier's intention in the first place *[71]*. Leaving a discussion is not advisable, however, in very rare cases staying in the discussion and being unable to respond to untenable propositions of a vocal vaccine denier might be even worse.

Make the audience aware

If interview conditions are highly unfair it may be advisable to make the audience aware of this. However, in doing so stay calm and rational and do not allow the denier to provoke an agitated response from you. Simply state the facts and ask for fair conditions.

Chapter 6

Embracing the opponent

A frequently used discussion ploy is the so-called *false dichotomy* or *black and white thinking*. The speaker simplifies a complex issue by reducing the possible perspectives to only two options; the unacceptable or the noble one. For example, a denier may present his points in such a way where he appears to only want what is safe for children while the health authorities only represent financial interests.

You as a spokesperson should identify, uncover and prepare a proper response to this technique as described in the algorithm (Figure 4).

Furthermore, you should refrain from using or accepting the black and white thinking. Instead you may consider *embracing* the denier. This can be done by acknowledging that the denier has good intentions and wishes to prevent harm and by making clear that you have a common goal and fundamentally want the same – e.g. safe, healthy and happy children. You may also express an understanding of the personal experience and emotions that have led the denier to a different conclusion than yours. With this embracing technique (Figure 6) you rebut the black and white perspective and create a sense of consensus which appeals to the audience.

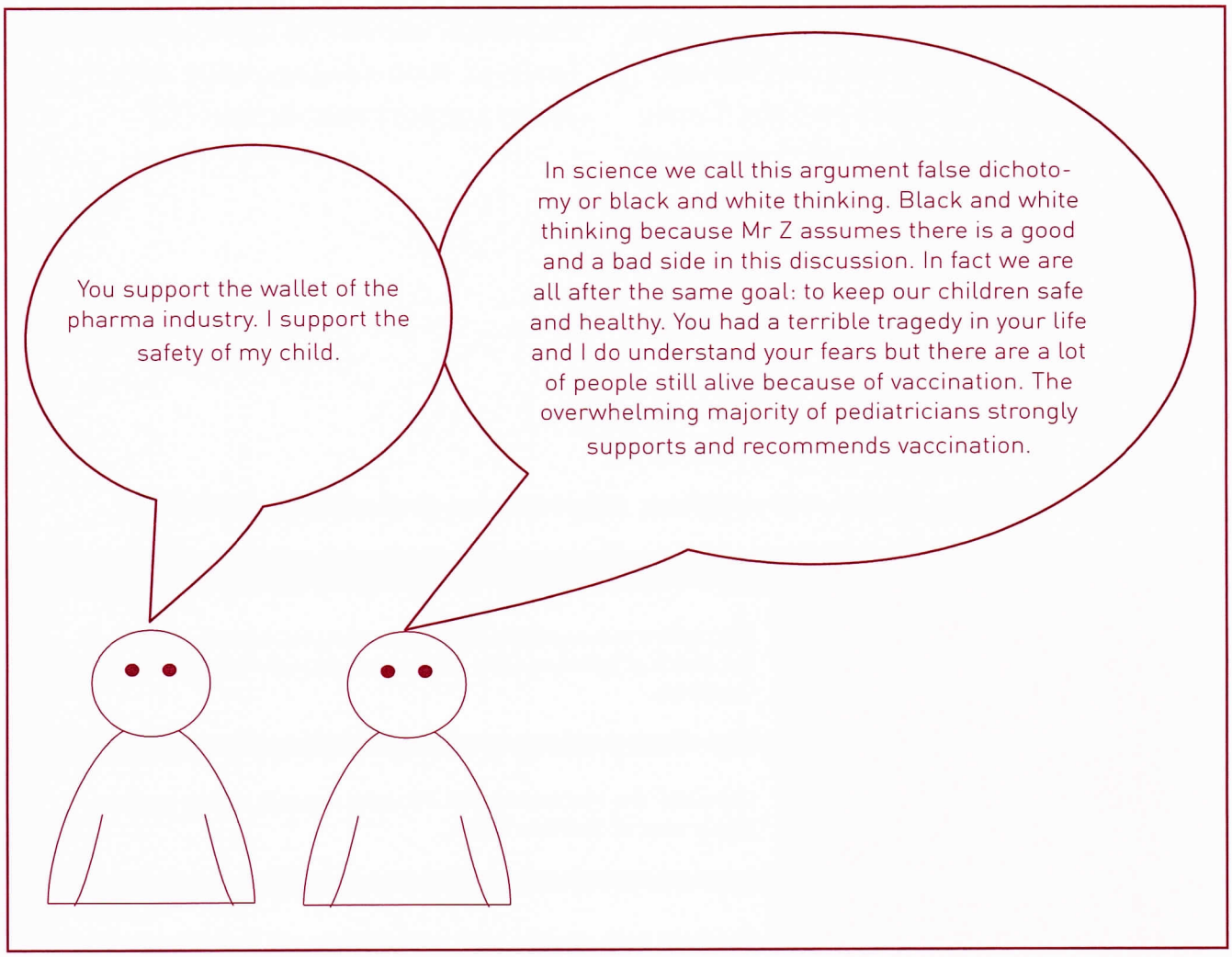
Figure 6: Steps of embracing technique

Embracing

- Identify the technique *false dichotomy* and make the audience aware of the simplified 'black and white' thinking which is being used by the denier.
- Highlight your common goal, e.g. to prevent harm or protect children.

- Acknowledge the fears and concerns of the denier.
- Acknowledge the experience and potential personal tragedies of the denier.
- Acknowledge the complexity of the issue and the difficulty to interpret evidence the right way.
- In doing so, avoid talking down to the denier to prevent you from appearing arrogant.

Example:



Highlight the necessity of the scientific approach (knowledge and facts as opposed to feelings and assumptions) as the fundamental method to reach the common goal.

Chapter 7

Religious beliefs

Religious belief systems generally have no prescribed position on vaccination because canonical texts like the Torah, Bible or Quran were written long before the introduction of the first vaccine. However, most religions prioritize the need to sustain human life and aim to protect the faith community and every individual within the community (see Table 6). As a consequence major religions support vaccination *[72].*

Table 6: Perspectives of selected religions. Adapted from Grabenstein, 2013 [72].

Jainism, Buddhism, Hinduism	Recognize the need to sustain human life, with regretful acceptance of cooking food, boiling water, using antibiotics and vaccines.
Judaism	Consider the imperative for Pikuakh nefesh, acting to save one's own or another's life.
Christianity	Vaccines with remote fetal implications are morally acceptable (with a duty to protect children), unless alternative products are available.
Islam	Consider the law to protect life, the principle of preventing harm (izalat aldharar) and the principle of the public interest (maslahat al-ummah).

Some members of religious groups are concerned about the compatibility of vaccination and their religious understanding of purity, the natural order or their religious dietary plans. For example, some Catholics are concerned about cells derived from aborted fetuses *[73]*, some Muslims have issues with viral vaccines that include porcine gelatin or trypsin residues *[74]*, and some Christian Scientists believe that health prevention is superfluous when trusting in prayer *[72]*. These concerns can have serious consequences as vaccine hesitancy in close communities increases the risk of disease outbreaks *[75][76][77]*.

Still, representatives of the major religions generally assert positive attitudes on vaccination, and many faith communities actively support the distribution of vaccines and disseminate vaccination information in their communities *[78]*.

Catholic concerns about cells derived from aborted fetuses

It should be noted that immunization with fetal tissue culture cell lines used in the production of some viral vaccines has been deemed acceptable by Catholic religious leaders *[72]*. The official Roman Catholic position is that being immunized with vaccines that use fetal tissue cell lines originally derived from aborted fetuses (more than five decades ago to grow the viruses needed for the vaccine) is acceptable because these fetal derived tissues came from abortions that were not done for the intent of making these cell lines *[72][73]*.

Muslim concerns about porcine gelatin or trypsin residues

Also the Muslim concerns about potential trace porcine components in some vaccines have been directly addressed by multiple imams and other Islamic leaders, stating that immunization is consistent with Islamic principles and referring to the necessity of the product to save lives, the lack of alternatives and the extensive dilution of the component during vaccine production *[72]*.

7.1. How to respond to religious concerns?

Opportunities for a face-to-face meeting should always be explored before engaging in a public discussion with religious leaders. Both parties aim at protecting lives and public discussions should be avoided that might leave the impression of a controversy where there is none.

As described above, the major religions do not have a position against vaccination. If a vocal vaccine denier raises religious concerns, this is likely to reflect his personal concerns regarding vaccines *[72][79][80]*. Still, it is generally advised to avoid questioning religious beliefs and engaging in discussions about incompatibilities of religious beliefs and scientific evidence.

Spokespersons are advised to focus on how science and faith communities together can ensure the well-being of the society and each individual. An open dialogue may enable health authorities and religious authorities find a compromise that respects the values of the faith community yet enables people to benefit from the scientific progress of safe and effective vaccines.

Chapter 8

How to behave in a passionate debate

In a heated discussion you may wonder whether it is better to act passionately or to avoid emotions.

If you are a passionate person and speaker, try to control your temper and relax. Never get personal or direct attacks to your adversary's lifestyle, integrity or honesty. You may find that your adversary is failing to understand your position, but if you become too agitated, the audience may take this as a sign of weakness. Crisis and emergency risk communication principles suggest that staying calm in discussions involving risk is important for sustaining trust *[81]*. Anger, fear and hostility can undermine the words being spoken. By staying calm, you stay in control of the situation and you are better able to concentrate on the best responses to the denier's comments. Your comments should be driven by facts, not emotions.

If you manage to control your temper then you can turn your passion into a skill to promote your argument. Research shows that passion can potentially influence the success of a speaker *[82]* and increase the speakers own confidence *[83]*.

Psychological theories suggest that only audiences with a certain level of personal involvement in the issue are convinced by the contents and quality of messages *[40]*. If members of the audience are not particularly interested in the issue, they will pay less attention to the content and more to the so-called periphery cues. Periphery cues are for example, the passion or non-verbal aspects of the speaker (see chapter 3.1). Even if the audience is highly involved and evaluates the quality of arguments, periphery cues can add to the persuasiveness of a message *[40]*.

So, if passion is not perceived as inappropriate (given the culture and context), and if you are still discussing in a reasonable manner, passion can be recommended. For example, your appearance can be perceived as more passionate if you make use of non-verbal aspects of charismatic leaders such as facial expressions and gestures (see chapter 3.1 Table 2).

The quality of your message, of course, must remain your priority. Passion is no substitute for rational arguments. You and the denier can both be passionate about the issue, but your strength is the quality of your arguments.

In addition, many spokespersons, especially if untrained, will find it easier to focus on good arguments if they remain calm and less passionate.

Chapter 9

Participating – or not

Facing a vaccine denier in public provides opportunities to deliver key messages, appeal to the audience, inform undecided individuals, equip vaccine advocates with evidence-based messages and even convince sceptics. Especially in a time of crisis it may be critical to mitigate the negative impact of vaccine deniers on the public and to use any opportunity to reach out to the public. Not participating may also be interpreted as unwillingness to discuss vaccination issues in an open and transparent way.

However, under some circumstances the risks of attending the discussion outweigh the potential benefits, and you should always carefully consider whether to participate or not. Use Figure 7 to guide you in your decision. As a general principle you should be cautious to participate under the following conditions:

- you are not media trained;
- you do not have sufficient time to prepare;
- the content, focus or format of the discussion are unclear or repeatedly changed;
- the format of the discussion does not seem serious;
- the audience of the discussion is not relevant or large enough to justify your participation;
- the journalist is unwilling to listen to you or brief you properly;
- you suspect that the discussion may be too biased against vaccination (e.g. judging by the number of deniers invited or previous experience with the journalist);
- your safety during the discussion cannot be guaranteed.

Figure 7: Should you participate? Things to consider when deciding whether to face a vocal vaccine denier or not.

+ Consider attending the training 'How to respond to vaccine deniers?' See chapter 11 for further information.
++ Remember: The document does not make up professional media training. If you want to learn more about the issue then please see chapter 11 for further information.

Chapter 10

Fake experts

Internet has created new opportunities for the scientific community to share data, publications and education materials *[84]*. However, it also provides potential for abuse and fraud as anyone can pretend to be an expert and spread misinformation. This has been taken to the extreme by so-called predatory publishers that copy the appearance of academic journals from reputable publishers while disregarding the requirements of quality peer reviewed science and quality editorial review *[85]*.

These publishers ask researchers to submit papers to their journals that mimic titles and publishing outlets of well established, high standard scientific journals, but provide neither a transparent editorial policy nor adhere to the ethical guidance of the global editorial association *[86]*. In so they make profit from researchers who may not be aware of these issues.

With over 900 existing predatory publishers and over 1000 predatory journals *[87]* the layperson and even researchers can be affected by their data even if they have not passed a proper scientific evaluation.

Initiatives within the scientific community have been taken to address this issue *[85][86][88][89]*. Some examples are:

- Beall provides a list of predatory publishers which is updated on a regular basis *[87]* and a list of how journals use questionable metrics to appear credible *[90]*.
- Other scientists provide checklists to identify reputable publishers *[88]* and guide researchers in the submission process *[91]*.

As a general rule, scientific articles should be treated with caution if:

- articles are not indexed in a scientific database such as Medline (PubMed);
- articles are published in a journal with no impact factor;
- articles are published in an open access journal not listed in the directory of open access journals;
- journal metrics cited come from sites that are not transparent, sites where the scores increase every year, sites that may use Google Scholar for calculating metrics (Google Scholar does not screen for quality and indexes predatory journals), sites where the methodology used in calculating the metrics appears suspicious *[90]*.

If the denier is referring to a predatory journal during a discussion, you can address this issue as an example of the technique fake experts (see Figure 4). Make sure audiences are aware that these journals publish with no quality peer review.

Chapter 11

What now?

You have already made an important step in preparing yourself for a public discussion with a vocal vaccine denier by reading this document. However, scenario-based media training is essential to be able to put the outlined theory and recommendations into practice. Only by training your responses and facing honest feedback provided by colleagues and experts in the field of debating will you be able to improve your impact in a public discussion. Therefore, the Regional Office provides workshops on the issue of how to respond to vocal vaccine deniers for spokespersons of health authorities in Member States. For additional information on the general issue of how to respond to vocal vaccine deniers and on the workshops, please visit the Regional Office website.

www.euro.who.int/vaccinedeniers

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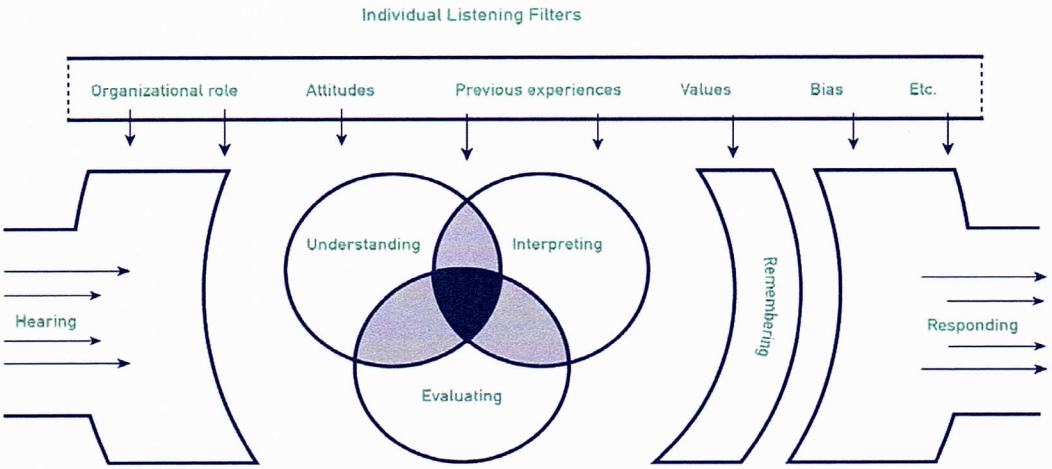
Annex 1: HURIER model of listening instruction+



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The HURIER Model visualizes six interrelated skills of listening; hearing, understanding, remembering, interpreting, evaluating and responding. By identifying and addressing these skills listening can be learned in sub steps:

- **Hearing:** listening is determined by the physiological process of hearing sounds. This also involves the management of your attention and focus.
- **Understanding, interpreting, evaluating:** after receiving what was being said you automatically try to understand, interpret and evaluate the message. Especially these three sub steps are influenced by interpersonal relations and the context, e.g. your organizational role, attitudes, personal experiences, values and cognitive bias. By reflecting on these individual listening filters you improve your listening skill and reduce misunderstandings.
- **Remembering:** the next step is your memory. Being able to remember the most important parts of a message and inhibit unnecessary information will enable you to respond in an appropriate way.
- **Responding:** your response, as the final listening step, reveals your ability to listen to your discussion partner.

The general public, i.e. your key audience, will judge your performance based on your ability to pay attention to, understand, interpret, evaluate and remember what the vocal vaccine denier said.

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