



# PREPSHIELD

## Deliverable D1.3 – Lessons learned for inclusive crisis management and communication

### WP1 – Task 1.3; 1.5: Best practices for communication in health crises and inclusive health crisis management

Version: 1  
Partner responsible: UiO  
Work package No.: 1  
Task No.: 1.3; 1.5  
Written by: Sebastian Cole and Øyvind Ihlen  
Date: August 22nd 2025



Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.

Nature of the Deliverable		
R	Document, report (excluding the periodic and final reports)	x
DEM	Demonstrator, pilot, prototype, plan designs	
DEC	Websites, patents filing, press & media actions, videos, etc.	
OTHER	Software, technical diagram, etc.	

Dissemination Level		
PU	Public, fully open, e.g. web	x
CO	Confidential, only for members of the consortium (including the	

Quality procedure			
	Name	Partner	Date
Checked by	Monica Trentin	UPO	28/07/2025
Checked by	Elena Rubini	UPO	28/07/2025
Checked by WP-leader	Francesca Giardini	UG	16/07/2025
Approved by	Luca Ragazzoni	UPO	25/08/2025

## Acknowledgments

The work presented is part of the PREPSHIELD project (<https://prepshield-project.eu/>), which is funded through the European Union’s Horizon Europe research and innovation programme under grant agreement no 101168124. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or REA. Neither the European Union nor the granting authority can be held responsible for them.



## Project Summary

PREPSHIELD aims to foster a more holistic and citizen-centric approach to health crisis preparedness and management, by co-creating policy recommendations, methods and an AI-powered platform for crisis management to better prepare for and address health emergencies from a social and societal perspective. To reach this objective, PREPSHIELD will rely on the participation of public authorities, citizens (specifically from vulnerable and non-compliant groups), CSOs, DROs and healthcare institutions. Based on the needs of these groups, PREPSHIELD will develop recommendations for health crisis preparedness, management and communication as well as tools to simulate future crises through an iterative process, involving various pilots for their evaluation. These pilots will include a communication pilot, tabletop exercises and an online exercise, which will include all these stakeholders and take place at different scales in different countries: local (Hamburg, DE), regional (Piedmont, IT) and national (Romania). The online exercise will rely on a PREPSHIELD platform and app (built on the proven CRIMSON platform) to reproduce real-life crisis communication conditions and provide decision-makers with simulations and feedback on the behaviour, well-being, capacities, and resources of the other stakeholders. The project brings together a complementary consortium of five universities, two public authorities, one RTO, two non-profit organizations, one SME and two large enterprises from seven European Union countries (and Switzerland)

## Document Objective and Executive Summary

The aim of this document is to develop lessons learned for inclusive crisis management and communication, in relation to the PREPSHIELD subtasks 1.3 Best practices for communication in health crises and 1.5: Best practices for inclusive health crisis management.

The report focuses on trust-building and communication of uncertainty as an essential aspect of crisis management and presents recommendations regarding inclusive crisis management and communication. Specifically, the report provides recommendations in 12 areas separated depending on their focus on crisis management or communication. The recommendations on crisis management cover the need to build trust and transparent communication and management before a crisis strikes, as well as the development of



coordinated and collaborative partnerships with different sectors to address the crisis. The recommendations on communication cover the need to develop messages that are tailored to different audiences and channels, and that are mindful of the spokespersons used for each message. A positive and empathetic message that uses clear and accessible language is also recommended.

## List Of Partners

<b>N°</b>	<b>Participant organisation name</b>	<b>Acronym</b>	<b>Country</b>
1	UNIVERSITA DEGLI STUDI DEL PIEMONTE ORIENTALE AMEDEO AVOGADRO	UPO	IT
2	RIJKSUNIVERSITEIT GRONINGEN	UG	NL
3	UNIVERSITETET I OSLO	UiO	NO
4	TECHNISCHE HOCHSCHULE KOELN	THK	DE
5	CS GROUP-FRANCE	CSG	FR
6	SOPRA STERIA GROUP	SSG	FR
7	EREVNITIKO PANEPISTIMIAKO INSTITOUTO SYSTIMATON EPIKOINONION KAI YPOLOGISTON	ICCS	EL
8	MINISTERUL AFACERILOR INTERNE	DSU	RO
9	SOCIETATEA NATIONALA DE CRUCE ROSIE DIN ROMANIA	RRC	RO
10	FREIE UND HANSESTADT HAMBURG	FHH	DE
11	EV.-LUTH. MARTIN LUTHER KING- KIRCHENGEMEINDE STEILSHOOP	MLKS	DE
12	EUROQUALITY SAS	EQY	FR
13	UNIVERSITAT ZURICH	UZH	CH



## Contents

Acknowledgments .....	2
Project Summary .....	3
Document Objective and Executive Summary .....	3
List Of Partners .....	4
Introduction.....	6
Crisis Management .....	7
1.1 Acknowledgement of Uncertainty .....	8
1.2 Pre-existing Trustworthiness and Trust.....	9
1.3 Coordination and Unification of Messages and Actions.....	10
1.4 Coordination and Collaboration Between Actors .....	12
1.5 Data collection and digitalization .....	13
Crisis Communication .....	15
2.1 Audience-Centred Messaging.....	16
2.2 Multiple Channels and Platform-specific Strategies.....	18
2.3 Spokespersons and Trustworthy Sources.....	20
2.4 Positive Framing Over Fear-based Messaging.....	22
2.5 Balance of Information and Persuasion.....	24
2.6 Simple and Accessible Language.....	25
2.7 Use of Visual Aids .....	26
Conclusion .....	27
References .....	27
Methodological Appendix .....	34



## Introduction

This Deliverable aims to outline and elaborate the lessons learned for the inclusive management of a health crisis, with an emphasis on communication, especially focusing on communication and management during a crisis. The Deliverable takes as a starting point that crises of any kind come with uncertainty and confusion, and it is necessary to develop strategies for communication and management in these conditions. While keeping the public in the centre, the Deliverable intends to create inclusive and context-sensitive recommendations considering all members of society, in line with PREPSHIELD’s whole-of-society approach including, but not limited to, the general public, vulnerable and non-compliant populations, public authorities, local communities, and Civil Society Organizations (CSOs). This is accomplished by examining how trust and trustworthiness are built in a period of uncertainty during a crisis, how different audiences emerge in a society, as well as understanding the diverse communication sources and messages that are used during a crisis.

Trust and trust-building are considered key aspects for communication during a health crisis (1). For this report we see trust as a state of willingness to be vulnerable based on the expectations of others, as developed by common definitions of trust in research: “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party” (2). The willingness to trust is largely led by an individual’s perception of how worthy of trust the other party is. This trustworthiness is built on three elements that can be built through communication: 1) demonstrating the necessary ability and knowledge, 2) upholding a high level of integrity and adhering to a set of values shared with the public, and 3) showing benevolence and interest in the well-being of others. It is important that the public can follow, understand, and trust recommendations during a crisis and that the appropriate institutions can adequately transmit such messages. The recommendations developed in this Deliverable consider this by examining how diverse stakeholders can build trust and develop trustworthiness by focusing on how their message transmits their ability, values, and interest to manage the crisis.

The findings presented here are based on the activities carried by the Work Package 1 in PREPSHIELD. The data collected as part of Tasks 1.3 and 1.5 are given special consideration. These focus on a systematic literature review of 81 English-language peer-



reviewed journal articles on health crisis communication published in the period 2011–2025 (more details about the methods and the material are provided in the Appendix). In addition, the empirical material includes 11 interviews with professionals from Germany, Italy, and Romania, who were involved in communication during the COVID-19 pandemic (details in the Appendix) at local, regional, or national levels by planning and developing communication or management strategies, or by communicating and organizing their communities. Furthermore, the results provided by the literature review and the interviews were also complemented with findings from project partners (UPO and UG) developed their respective tasks of Work Package 1 (WP1) and integrated as established in Task 1.5 in the project description (details in the Appendix). More detail on the recommendations and methodologies developed by WP1 can be found in *D1.1 Need analysis* (UG) and *D1.2 Lessons learned for crisis preparedness including health literacy* (UPO).

Based on the results from the systematic literature review, the interviews, and the findings from WP1, recommendations for health crisis management and communication were identified. All recommendations address trust-building, management, and communication in different ways, but they have been organized depending on their focus. This Deliverable is structured in two sections: Crisis Management and Crisis Communication. Each section provides subthemes with specific recommendations. The Crisis Management section focuses on the development and function of trust, collaboration, and coordination between stakeholders, especially regarding the development of a unified and transparent message. The Crisis Communication section focuses on recommendations regarding the content and delivery of such messages.

## Crisis Management

This section focuses on recommendations for stakeholders to prepare and respond to a crisis. First, the recommendations in this Section address the need to build trust and strengthen trustworthiness ahead of a crisis to facilitate management and communication. A crucial element in this process is maintaining a consistent practice of transparency – both prior to and during a crisis – to address uncertainty successfully. While these elements are present throughout the Deliverable, they are also an essential base for a successful implementation of several of the recommendations developed in later sections. Second, the Section addresses the need for a collaborative, coordinated, and inclusive crisis management to develop consistent and unified messages and actions. It is expected



that consistency, clarity, and united forces will reduce uncertainty, confusion, misinformation, and support behavioural change. Finally, this section addresses the ongoing efforts for digital systems for data management.

## 1.1 Acknowledgement of Uncertainty

As uncertainty comes with every crisis, there are different ways to address it. In this Deliverable, it is recommended **to acknowledge uncertainty by being transparent**. In other words, the literature shows that admitting what is not known without sounding insecure or incompetent can be beneficial when managing the crisis, and **increase trust and trustworthiness**.

Research has shown that as uncertainty increases and crisis management becomes unclear, people tend to express mistrust in authorities, rely on conspiracy theories, and demand more transparency in social media (3). Transparent communication is seen as an effective way to counter uncertainty. A transparent and open communication that addresses doubts and concerns is recommended to build trust, increase sensemaking, overcome hesitancy, and communicate risk (4–8). For example, Barbaros argues that the public should be informed explicitly about uncertainty, and that transparent information that addresses uncertainty “is consistently associated with desirable outcomes such as reduced uncertainty about health-protection actions, reduced reliance on misinformation, rumours, and sensationalized media stories, and improved response to future warnings for the general public” (9). Studies demonstrate that showing a complete overview of relevant information about a crisis can successfully reduce uncertainty and fear and increase trust, compared to messages with partial or no information (10).

The importance of transparency was also discussed by practitioners during the interviews, who reflected on the importance of transparency, not only to build trust, but to maintain a realistic and grounded perception of the crisis, which can often be exaggerated by the media. For instance, interviewees involved with pandemic communication at regional and local levels discussed the importance of transparent information and data to build trust, be empathetic, and keep people calm, as highlighted in the following quotation:

*Because, you know, newspapers were saying one million people were dying in one week, and those were not real numbers. So, we [the university’s communication department] gave, for example, the numbers coming from our hospitals. Those were quite scary numbers as well, but not as awful as the ones that they were pretending on*



*this sort of scandal-driven newspapers and social networks.* – Head of Communication, University in Piedmont, Italy

Importantly, even if transparency is recommended, it should be considered that certain communities might also see communication of uncertainty unfavourably (9). While transparency is important for crisis communication to reduce uncertainty, research shows it is more complex than it seems because transparency has little or no direct effect on trust or compliance. Transparent communication does not affect compliance directly, but interacts with other factors such as preexisting high levels of trust (11). Thus, there is a need to establish trustworthiness and practice long-term transparency before a crisis to positively influence behaviour and compliance, which is expanded in the next section.

## 1.2 Pre-existing Trustworthiness and Trust

To successfully communicate uncertainty with transparency, **it is important to build trust and trustworthiness before crises arise** by showing the ability to perform, shared values with the public, and the intention to care for them. A crisis can be sudden and fast, and may not allow for trust-building in the moment. Thus, having pre-established trustworthiness, successes and reliability allows a person or an organization to potentially develop a positive reception of the management and communication strategies selected. However, the trustworthiness of a source is conditional and temporary as it is constantly being negotiated (12). This Section highlights this negotiation and the importance of building and maintaining trustworthiness over time.

Studies suggest that the effectiveness of a crisis strategy is often influenced by a leader's pre-crisis reputation. Notably, effective communication strategies depend on the presence and maintenance of public trust (11,13,14). They suggest that past performances and a leader's reputation before the crisis play an important role in the credibility this leader will have during the crisis (13). This is also why other studies suggest that in addition to a transparent, meaningful, and accessible message, politicians and authorities must behave responsibly to rebuild trust (6). Studies show that seeing politicians set a good example increases compliance (15). This is also reflected in the interviews, where experts in charge of developing communication campaigns at all levels explained their perceptions on the current strategies used and how to improve them. As noted during one of the interviews, an important difference in the next crisis will likely be that different individuals or teams will be in charge, which may affect how the response is managed and communicated and how the public will perceive the crisis management.



*[The next pandemic] will be another pandemic. We [will be] in a different time. Different... we will have a different president, and this will affect the beliefs of people. – Officer at the Ministry of National Defence, Romania*

The importance of pre-existing source trustworthiness is also visible in research on the role of healthcare workers who were successful at guiding hesitant users and increasing vaccine acceptance, where official guidance and communication were lacking or resulted in uncertainty (4). This is discussed by members of the Red Cross interviewed in all three countries included in the study, who explained the importance of the historical relevance of the organization and the trust they have built, and how this is reflected in the uniforms and badges they carry:

*But, you know, the Red Cross has a history. We have the help of our sign. Everybody, when they see our sign, they trust us. You know, even with the war now with the Ukrainians. When they see the sign, they trust us. They come directly to us. – Branch Manager at Romanian Red Cross, Romania*

*We just used what we had, you know. And the thing is that our symbols are very highly trusted in the people. So, if we say listen to this, it's from the Red Cross, they normally they trust you. [...] It's a trusted brand. And information you get that is branded with the red cross is normally a well-taken information by the people – Project Manager at Bavarian Red Cross, Germany*

### 1.3 Coordination and Unification of Messages and Actions

Research has shown that the lack of clear guidance, communication, and strategies in managing the pandemic from the government and relevant institutions created uncertainty and mistrust, and increased negative attitudes towards vaccination, in countries like Sweden and Italy (3,4). Even in countries that had response plans, the lack of extensive guidelines or ability to follow them led their governments to improvisation during the COVID-19 pandemic (16). This uncertainty, coming from a lack of guidance and communication, was increased by conspiracy theories, misinformation, and an excess of information (3,4). These concerns were also identified by the interviewees who worked at a local level with their communities and shared stories from their communities, as well as personal examples of official messages contradicting each other:

*It was really horrible because [the authorities] were totally confused. And I think also very afraid that they would get infected or that something could go wrong. And therefore,*



*you got a lot of information, but it was not always clear what was really the right thing to do. – Pastor, parish in Hamburg, Germany*

To address this source of uncertainty and increase compliance and trust, **it is recommended to coordinate messages and actions and foster an alignment of national, regional, and local actors before going public.** In other words, it is essential to ensure that everyone communicates and receives the same message, and that the same facts and instructions are consistently repeated across all channels. The importance of a coordinated message was especially visible in the interviews, where participants agreed that a united and centralized message would be beneficial to prevent confusion and potentially the spread of fake news. While multiple participants point to this level of coordination as a desirable strategy in the future, the interviewees in Piedmont, Italy, were able to implement it and highlight it as a successful strategy:

*At that time, if there had not been a centralization of information... If we have to think that in Piedmont there are 18 local health authorities and each one communicated on their own with the doctors who perhaps had different positions, it would have been total chaos and it would have ended very badly. So, the centralization must certainly be taken into consideration. – Member of the Crisis Unit in the Piedmont region, Italy*

Nevertheless, it should be pointed out that while the unification and coordination of messages is considered an essential strategy that should be followed throughout a crisis, as time passes, it will be more difficult to maintain a unified and coordinated message. The spread of different opinions, perspectives, and false information is inevitable through (social) media (4). Maintaining a unified official message becomes an even bigger challenge when controversial positions become polarized in social media, and there is uncertainty regarding the scientific consensus (17). This was also emphasized by the interviewees, who reflected on the diverse opinions on vaccination:

*And [in our region of Piedmont], the role of institutional communication was very contested, because we had to support the official position, but you realized that in fact there were reasons on the other side too, so it wasn't easy. The most critical moment with respect to this problem was at the time of the vaccines because vaccines were immediately a topic of division within the scientific community, so there were doctors who went on television and were openly against vaccination. And so, this produced problems, tensions, and critical issues within the community, among citizens, groups of*



*citizens who refused to get vaccinated.* – Member of the Crisis Unit in the Piedmont region, Italy

## 1.4 Coordination and Collaboration Between Actors

In addition to coordinating messages and guidelines within the governmental authorities in charge of producing the initial official communication, **it is also important to foster a cross-sector collaboration that includes government, health authorities, Non-Governmental Organizations (NGOs), media production, and community leaders.** This entails, for example, establishing centralized units involving members from all sectors at regional or national levels to oversee the health crisis. This unit should have pre-crisis protocols and guidelines to ensure clear actions and chains of command at local, regional, and national levels. Once a crisis strikes, this unit will manage and coordinate action, decision-making, and communication.

There is, for instance, a historical record of the function of local administrative bodies to keep registers and provide safety nets, among others (18). A historical analysis of Italy's vaccination campaigns in the 1800s shows how universities and religious leaders were contacted to disseminate information and develop health literacy regarding vaccination at the time (18). Furthermore, other organizations have been found to be well organized before a crisis, such as Non-Profit Organizations (NPOs), and can act faster in a crisis due to their previous experiences, while other institutions need more time to adapt and develop new guidelines (19). In this way, not only can the authorities rely on and learn from smaller organizations and actors, but these can play an important role by acting as mediators between the government and its official message and public. Considering the confusion generated by official messages, as reported by some of the interviewees, organizations and community leaders can aid in communicating and making sense of the official guidelines, as suggested by interviewees in Germany who did this at the local level:

*I think we were inherently trustworthy as a parish. And then obviously corona came, and well, the institutions just failed at communicating with the people, and people were confused... We were the first point where they went to... I think the trust just comes from that we didn't leave them alone.* – Volunteer at parish in Hamburg, Germany

*A lot of information goes out there, but through channels like official government pages and such. And, I mean, it is accessible, but people, they wouldn't really go there by themselves." [...]* "I think that what we need to do in general is to kind of form



*communication networks between the people and the government.* – Volunteer at parish in Hamburg, Germany

In addition to aiding in the communication of the crisis, the collaboration between different sectors, institutions, and actors as part of a crisis unit may develop an inclusive communication and action through feedback mechanisms for clarity, feasibility, and success. And inclusive collaboration can also help in maintaining a united community to avoid spreading misinformation. Furthermore, social cohesion is associated with better immunization indicators, and making people feel they are partners in health prevention efforts increases engagement and acceptance of lockdown measures (20,21). This can be seen, for example, in communication strategies aimed at promoting togetherness, as in the Norwegian Prime Minister’s communication during the pandemic (13). Therefore, it is possible to involve people from local communities, marginalized groups, and community leaders to create unity, increase trustworthiness, and lead by example. The Red Cross in Piedmont is an example of how “everyone” tried to help, having already an unusually high number of volunteers that increased during the pandemic.

*The way was to share only scientifically based information and information that was shared by our international movement and from the Italian Red Cross as a national society. We deal also with the passion of the volunteer staff [...] because yes, there was the communication campaign, but our very first kind of communication was the direct relationship between the people in need and the volunteering staff, their family, their friends, and the people in contact with the ones who vest this red dress and our emblem.* – Delegate from the Italian Red Cross at Piedmont, Italy

## 1.5 Data collection and digitalization

An important development sped up by the COVID-19 pandemic was the digitalization of everyday life. As the COVID-19 pandemic developed, new measures were implemented to allow education, work, social life, and healthcare, among others, to continue while social distancing. As discussed in the interviews, for example, remote working has increased since the pandemic.

*So, working from home, as I'm doing today, was absolutely not known in Italy. We had only some forms of remote working, but only for very specific cases. [...]. Now it's quite usual to do remote working. It really became quite familiar for us. I think everything changed, really. Procedures, everything turned digital. We have very, very, very few*



*[documents in] paper considering the tons of paper we had before. That was another big consequence.* – Head of Communication at University in Piedmont, Italy

While such efforts are not new, **it is recommended to continue developing digitalization systems to access, store, and unify information and data collection** in all areas that could be affected by a crisis, such as education and healthcare. This includes, for example, the investment in reporting systems that link local, regional, and national health authorities, as well as developing a standardized reporting system.

A digital and unified healthcare system, as recommended by the findings of WP1, can also be used to study vaccination patterns and the spread of a virus, make more informed decisions, and to communicate more accurate information. While digital communication through social media will be discussed later in this document, official systems for digital data collection and dissemination can improve the spread of transparent information. An example for this is the possible development of an app or messaging system, as discussed by some interviewees and as reported in this Deliverable, as well as part of the PREPSHIELD objectives.

It should also be noted that these recommendations come with the need to establish clear guidelines and protocols for data protection and cybersecurity that follow both national and European regulations (e.g., The General Data Protection Regulation (GDPR) - Regulation (EU) 2016/679). Further recommendations on digitalization and data security are developed in Deliverable D1.2.

## 1.6 Hospital and healthcare management

As a crisis develops, the communication and management within hospitals and other healthcare facilities are also affected. These institutions are often forced to adapt their current routines and spaces to make room for elevated numbers of new patients and fast use of inventories. It may also be a time of confusion and uncertainty for all persons involved, including the doctors, the patients, and their families.

To prevent and reduce uncertainty, maintaining trust, and manage the healthcare facilities' resources and communication, it is recommended that **all healthcare institutions should have established protocols** to determine the management of medical material and equipment, emergency chains of command, reutilization of spaces, and relocation of staff, for example. Once a crisis is underway, healthcare facilities must be prepared to take action and implement pre-established protocols. This means not only the development of



the protocols but also ensuring that the facilities are prepared for an emergency and that staff members are trained to react and follow the protocols. Deliverable D1.2 further develops recommendations related to the preparation of healthcare facilities for a crisis.

While having pre-established guidelines and protocols is recommended, a crisis might present unique challenges that were not considered in the preparedness phase. For this, the interviews show the possibility to develop local solutions that can then be shared to other institutions. As reflected by an interviewee who worked in a hospital during the pandemic in Romania, it was necessary to improvise certain solutions, such as paper name tags to identify doctors, nurses, and auxiliary personnel, who were all wearing hazmat suits and facemasks.

*So, we would try and think of easy tools to overcome some difficulties that we met. Then time would tell us if this was the best method to go further. At the beginning and at the end of every shift we [the doctors] would have a briefing and debriefing session and everyone, every doctor, would try [each other's] techniques to talk with the patient or communicate better with them. I think that's the way to go further. – Doctor in Romanian city hospital, Romania*

Furthermore, the recommendations described earlier in this report are also relevant for the communication and management of a healthcare facility. As reflected in the interviews, the collaboration and coordination between different organizations and sectors is essential. Interviewees explained how certain equipment, such as facemasks, was difficult to find during the COVID-19 pandemic, as they were in high demand. Different organizations were able to share excess products to help each other.

*We have a collaboration with the Red Cross from Germany and from Switzerland and with their support we managed to continue our work. [...]. The [Red Cross in Switzerland] could afford to send us what we needed. For example, when I told them that we needed some facial masks they sent one truck. And we didn't have any masks left here. – Branch Manager at the Romanian Red Cross, Romania*

## Crisis Communication

This Section focuses on recommendations for stakeholders to develop and communicate messages during a crisis. The first three recommendations outlined in this Section address the need for targeted communication to increase reach and trust, and the use of digital



tools. In addition to cross-sectoral collaboration and community participation, discussed above, research suggests that effective communication strategies during a health crisis should include targeted communication, outreach initiatives, and social media campaigns (22). The next two recommendations address the need to develop a humanized and empathetic communication style to build trust and benevolence by demonstrating the public an interest in their well-being. Empathy is considered to build emotional engagement, which supports trust and motivations to act. The final two recommendations address the need to develop clear, understandable communication to help overcome misinformation and enable action. Confusing, unclear, and complicated information are seen as issues that, among excessive amounts of information, add to the uncertainty that arises during a crisis.

## 2.1 Audience-Centred Messaging

It is recommended that communication should be inclusive, and **that content is tailored and adapted to different sociodemographics (e.g., age, education, media habits) to increase acceptance, reach, and trust.** It is necessary to adjust the way of informing each group, considering that different demographic groups have different influences and cognitive processes (23,24). However, which demographics or groups to target will depend on the types of crises, social contexts, or countries. This Section aims to outline some of the social characteristics that should be considered when developing a message, even if some populations may be hard to reach or resources are not always available.

One way to target messages is by considering the personal beliefs of a sociodemographic group and how these affect their response to a crisis. The satisfaction and acceptance of the communication provided by the authorities have been linked to a person's willingness to pay attention to information, beliefs about the progression of the pandemic, individual perceptions of risk, responsibility, solidarity, and identity (25,26). This suggests that a tailored message that considers the attitudes, beliefs, and needs of a particular demographic group is more likely to be more effective in building trust and compliance (4,27). Furthermore, sociodemographic characteristics have been related to particular beliefs, levels of compliance, and trust in official messages. While distrust in the media can be found in all social groups, particular sociodemographic characteristics like income, age, and education are especially related to trust in the media and information seeking behaviours (28,29).



Examples of the importance of tailoring messages to different groups based on beliefs, media habits, and age can be seen in several research studies. Older people and people who believe in conspiracy theories, for example, are more likely to rely on social media and distrust information received from the authorities, as demonstrated in one Romanian study (28). Younger people also tend to rely on social media (30). However, they are found to be less likely to comply with regulations even if they are informed, showing high knowledge but low risk perception (5). Similarly, research finds that different sociodemographic groups of (non)compliant audiences have different media uses, information seeking habits, and (dis)trust in different sources, and that communication strategies should be adapted accordingly (29,31–33). For example, in the English population, the more trusting and compliant segments responded well to official guidelines and messages, while groups that were less compliant and more afraid or overwhelmed might rely more on community or religious leaders (31).

Differences can also be identified regarding different countries and geographical contexts. For instance, the UK government was found to be the most untrusted and criticized, while governments with severe restrictions, such as Italy and Spain, received support (34). While the literature review did not point specifically to differences between rural and urban areas, the interviews indicated how different parts of one country had different perceptions and responses to the pandemic. An officer at the Ministry of Defence in Romania, for example, suggested that there are differences between individuals in the mountains and rural areas who considered they were healthy and didn't need a vaccine, even when they had COVID, compared to people in the city who were more likely to accept the vaccine. These differences have also been noticed when cultural differences are considered, for example, regarding the diverse sociocultural meanings given to face masks in European and Asian countries (25). Similarly, the interviewees in multiple countries also reflected on the need to consider multicultural populations:

*The main strategy was to adapt. To adapt to everyone. Because the population of Romania is mixed. It's educated people, non-educated people. It's minorities. They have Roma people, Greeks, Turks, other nationalities... – Officer at the Ministry of Defence, Romania*

*What I want to say is that there were different ways to understand what this virus is. And the people also have a different cultural background. Everybody had his or her own*



*interpretation. And people were not listening or watching the German TV. They have their own reality.* – Pastor, parish in Hamburg, Germany

Therefore, it is also recommended to identify the key social and cultural groups that might be affected before a crisis strikes, for example by establishing partnerships with the communities and including them in collaborative decision-making processes, as discussed above. In this way, once a crisis happens, the key languages, networks, and leaders will already be identified, and crisis management and communication will be easier to implement.

Using tailored and personalized messages is considered a good strategy and practice, as indicated by both the literature review and the interviews. However, in most cases, it is the lack of time or resources to create multiple campaigns and messages that is an issue. The COVID-19 pandemic, like most crises, was sudden, and information arrived or changed quickly, which does not allow for extensive and personalized campaigns in most cases. This also highlights the need for collaboration among different organizations, as established in the previous chapter.

## 2.2 Multiple Channels and Platform-specific Strategies

To address different sociodemographic groups, **it is recommended to use and combine different communication channels**, including social media, phone lines, face-to-face, and traditional media, among others. Both the literature and the interviewees suggest that different sociodemographic groups have different media uses that can be considered when developing a communication strategy.

It was found, for instance, that trust in institutions was higher than trust in the media both during the COVID-19 pandemic and previous health crises (28,35–37), such as 2009's H1N1 pandemic, which suggests that a message issued by a trusted institution will be received in a more positive view. In Spain, for example, it was found that during the crisis phase of the COVID-19 pandemic, the official authorities and organizations are the most credible source of information, followed by health personnel, the media, family, and friends (38). Regarding specific media channels, they found that traditional media, like television and the press, are the most used, followed by radio, and finally diverse forms of social media and direct messaging applications (38). These differences also vary depending on demographic groups, where older adults tend to rely on television while younger groups tend to rely on the internet and social media (29,30).



Communication through digital channels, such as social media, and using other technologies such as QR codes or apps, became an important element during the pandemic. These technologies presented multiple advantages regarding social distancing and mass communication and proved to be beneficial in coordinating and targeting different groups. The Internet can be considered the most used channel to find and share information, for example, through news websites and social media (32,39,40). Both the literature and the interviewees agree that despite its mainstream popularity and widespread use, social media tends to be the least trusted channel and a source of confusion and misinformation (6,28,37,38,40). Media, both traditional and new, creates suspicion due to the high amount of information, even if coming from an expert (6). This is also supported by the interviewees, who find that social media is a problem regarding the spread of fake news, but at the same time, they recognise it as an important communication channel.

*We had to calm down all the people and counterbalance all the fake news that were being disseminated by social media with our proper information that was given by doctors, our doctors, by virologists, researchers.* – Head of Communication at University in Piedmont, Italy

Still, social media can be used to counteract the negative effects of the infodemic caused by excessive amounts of information and be used to spread relevant information (22). This suggests that there is a need to develop strategies to counter its issues and take advantage of its benefits, as well as strengthening people's digital and health literacies to better interpret information (22,41). Social media can be used to engage diverse audiences, and it is still an important source of information for people and can be a valuable (mass) communication tool. Instagram, for example, is considered a good channel to communicate with young audiences that are less likely to rely on traditional media for information (30). In this way, different platforms provide the opportunity to reach different groups or communicate different types of information. For example, research on the communication strategies conducted by the Romanian government shows an increase in online communication during the pandemic and recommends the use of social media for flexible communication and continuous adaptation (42,43). Interviewees from Romania discussed this strategy:

*And we try to adapt so everyone can understand the benefits and the side effects of the vaccine. So, we had different types of posts on social media. We had posts with*



*scientific data, with studies made by scientific doctors. Also, we had storytelling posts where I went to the vaccination centres in Bucharest with my camera, and I took photos and interviewed normal people, and I asked them their story. A simple story because I want to live, or a complicated story of the only one in the family who understands the medicine or... Someone who had a rough life with a lot of diseases, and the vaccine was the only choice to live. – Officer at the Ministry of Defence, Romania*

Furthermore, social media provides an additional way to counter misinformation, build trust, and communicate with citizens by allowing two-way communication through feedback and interaction. An open, transparent, and collaborative communication during a crisis is considered beneficial to balance control and decision-making (7). In addition to traditional two-way communication channels that were also used during the pandemic, such as phone lines, social media allows for an open and monitored way to communicate in a participative and inclusive way. Social media allows others to comment and share opinions, while authorized sources can monitor the information and the discussion.

### 2.3 Spokespersons and Trustworthy Sources

In addition to the different levels of (mis)trust in a particular channel, **the trustworthiness of the spokespersons (e.g., authorities, health workers, religious leaders, community figures) matters and can also be tailored to appeal to different audiences.** As already mentioned, research on vaccination campaigns in Italy in the 19<sup>th</sup> Century shows the role of intermediaries to effectively communicate to different audiences (18). Educated individuals were informed through academic contexts, while ecclesiastical authorities and priests disseminated information to the general population. Today, professors and priests are still relevant and hold an important role as trusted intermediaries in their communities, which can be essential to communicate with particular groups, as discussed in the previous section. Key community leaders and organizations at local levels that have been identified as part of the establishment of collaborative partners, as discussed earlier, can also act as facilitators or mediators for communication in these communities. Yet, the role of spokespersons is also taken by celebrities, healthcare workers, and other authorities who can generate trust and trustworthiness in other contexts.

As described in the previous section, official authorities and institutions have been more trustworthy than media in previous health crises (38), yet the trustworthiness of experts and leaders is in constant negotiation (12). However, even if social media can be considered unreliable, as real-world events occur, people tend to go to social media either



to look for information or to share personal experiences (38,40,44). This generates a scenario where anyone can become an expert, and official messages become difficult to differentiate from user-generated content (6,44). For instance, social media influencers adapt official messages to fit their style, and while they show how to behave during a pandemic, they do this without committing to the wording established for a coordinated campaign (45). Still, influencers can engage their followers and share valuable information, spread messages, and promote solidarity (46). This highlights the importance of generating guidelines for relevant sources to communicate appropriately.

In addition to influencers, experts can use both digital and traditional media to communicate different types of messages and influence the public's perceptions of the crisis and the proposed recommendations. Studies find that medical experts who delivered advice with the aim to reduce the risk of a crisis were more supported online than medical experts who were more alarmist or recommended limits on personal freedom (17). Other studies suggest that sociodemographic differences, such as the age of the person, will also influence whether a source, such as a politician or a medical expert, will be trusted (47).

The strategies used by the interviewees vary. Participants in Piedmont (Italy), for example, warn about the role of spokespersons and the impact they may have. On the other hand, while all interviewees highlighted how they tried to base their message on evidence and science, some described how including different sources can be used to show the public that everyone should follow the official recommendations, as reported below:

*Yes, there is a big difference. Our scientists were not divas, okay? Because at that moment, Italian television was totally crammed by divas. Yes, that was the problem. Because at any time, in any TV show, there were these doctors, professors, but sometimes they were zoologists. Sometimes they were botanists. Yes, because they had good names. They were very famous for their names. They were historians. So, I mean, when we were sending our scientists and professors on any public broadcasting, we sent virologists.* – Head of Communication at University in Piedmont, Italy

*We promoted the sportsmen, singers, celebrities, [...] actors, well-known actors who play in the theatre, in cinema, the president of Romania, the Prime Minister. Because we wanted to show that there isn't any theory of conspiracy, because if there were a theory, why should the most important people in Romania vaccinate?* – Officer at Ministry of National Defence, Romania



## 2.4 Positive Framing Over Fear-based Messaging

Fear appeals are commonly used by journalists covering a crisis, such as the COVID-19 pandemic, to mobilize and facilitate responses and generate warnings to an upcoming threat (48). In Italy, for example, the dominant media narrative during the COVID-19 pandemic focused on individual responsibility through punitive and guilt-based frameworks (49). Thus, it is not a surprise that sadness and fear are the most common emotions at the start of a crisis (38,48). In addition to the negative framing in the media, the lack of consistent information, constantly changing restrictions, and the uncertainty generated by a crisis are important sources of stress, fear, and sadness among vulnerable groups (24).

Despite the potential benefits of framing messages with fear, both the literature review and the interviewees support **a positive framing that highlights kindness, solidarity, and collective impact** is often recommended. Research demonstrates the importance of social cohesion in a crisis and finds that an important factor that reduced excess mortality during the COVID-19 pandemic was a government that cared about the most vulnerable, equal distribution of resources, and implementation of programs to reduce social risk (20). In line with this, fostering hope and relating to followers became important themes in the Norwegian government's communication strategy during the pandemic (13).

Research also shows the impact of communicating unity, hope, care, and kindness. Research finds that messages that threaten freedom lead to higher reactance and negative attitudes (50). On the other hand, research in Italy finds that transparent and empathetic communication, the use of personal examples, and legitimising fears (rather than dismissing such emotions) are effective in building trust and overcoming vaccine hesitancy (4). This approach was also discussed by the Italian interviewees who reflected on the importance of sharing the official data and information, but also of sharing more positive messages to show how the community worked to overcome the crisis.

*We also made some of our content to tell, in a very transparent way, [...] to provide all the numbers and all the dimensions of the activity. So, we shared with our followers and with the people every week the number of hours our volunteers made, the number of deliveries of medicine or groceries, and some other numbers like these, in the context of a national campaign called the Tempo della Gentilezza [the Time of the Kindness]. –*

Delegate from the Italian Red Cross, Italy



Similar strategies, such as sharing real stories and promoting empathy and kindness, to build trust and communicate during a crisis, were also shared in the interviews. As seen in the quote above (see section 3.2), part of Romania’s communication strategy consisted of sharing stories collected in vaccination centres. Research on the communication of the pandemic in Romania also refers to the increase in social media engagement and the positive tone of the messages generated by the government (42). After the pandemic, the topics of these posts changed, and the engagement decreased, but the positive and optimistic tones were kept (43). These studies recommend a balance of optimistic messages and transparent discussions on challenges and highlight the importance of communication for managing a crisis, building trust and social cohesion (42,43).

Nevertheless, even if the literature review and the interviewees support the use of positive framing, it should be considered that this strategy is context-dependent, and both fear and positive frames can be beneficial in different contexts, for different aims, or phases of a crisis. This is especially highlighted in a focus group conducted within Task 1.2 with the objective to brainstorm about solutions to better manage and improve healthcare governance in future health crises and to gather feedback on the preliminary recommendations developed within WP1 studies. During this focus group, a participant from Romania argued that fear appeals would be more beneficial in this country, as transparency and positive communication, while a good idea, would lead the public to lose respect for the authorities. This contrasts, to some extent, with the first recommendation in Section 1.1, where acknowledging uncertainty is recommended. As discussed above, transparency can be complex, and as with positive communication, cultural contexts and individual characteristics may influence how these strategies are received. Yet, the data analysed in this report suggests that both transparency and positive communication can be beneficial for building trust and trustworthiness in preparation and during a crisis.

Finally, even though it was not covered by the articles included in our literature review, the interviewees argue that a lesson from the pandemic was the importance of addressing mental health and emotional fatigue. This is related, for example, to excessive and overwhelming media information that leads to anxiety. It is recommended to include mental health treatment as part of the response and management to a crisis, as well as including supportive, human-centred messaging alongside factual updates.

*So, we also learned about mental health, a lot. After this pandemic, it’s a very subjective opinion, but also in my circle, people became more aware of mental health. My*



*colleague, who is a manager on mental health, is doing great work by promoting psychological first aid for children. So, it is a more open subject. Because in Romania, we didn't talk that much about mental health. And the pandemic, again, taught us how mental health matters and mental health is there. It's not just physical health. – National Community Health Coordinator at Romanian Red Cross, Romania*

*It was not only that you had the families of the patients who were not allowed to go to their relatives, which was not only a problem for the families, but also for the healthcare workers. This is something that is often overseen that psychologically, you know, this person is dying, and you are not allowed to let the family visit this person. [...] In my view, we should have had much more psychological help, especially for the healthcare workers. To help them deal with this whole situation. I mean, there were people that were working for like days, you know, they did not even go home because they were so afraid to infect their families that they stayed actually at the hospital for weeks. – Project manager at Bavarian Red Cross, Germany*

## 2.5 Balance of Information and Persuasion

The management of and communication during a crisis should not follow a one-size-fits-all strategy (51). In addition to balancing optimistic messages and transparent information (42,43), as discussed above, it is also recommended to **balance information and persuasion to focus on empowering informed decisions, not enforcing behaviours**. While stricter mandates can be beneficial to expedite and optimize immunization, and such strategies are better received during outbreaks than during non-outbreak periods, such approaches also have risks (18). Strict approaches can generate social alienation, evasion tactics, anger, fear, and uncertainty (18,52).

Therefore, it is advised to avoid enforcing behaviours and instead develop informed decisions, and a combination of informative messages with targeted and authentic communication is necessary. This should be done by considering the social context for the crisis, as socioeconomic disparities and feelings of resistance developed in a particular area will influence how measures will be received (18). Also, the stage of the crisis should be considered, as different phases might require different strategies. Studies find that information-seeking and anger-based behaviours as a way of coping are common during periods of uncertainty (52). While informative messages can be successful in correcting misinformation, they are not necessarily successful in reducing hesitancy towards vaccination (51).



The interviews conducted with experts also point toward strategies that aim to inform and not convince, and balance information with action. None of the participants suggested a need for stricter measures, and in some cases, criticized instances when unclear measures were enforced as they led to confusion among the public. This was especially discussed by participants from Romania, both at the regional and national levels, who reflected on informing and avoiding fear.

*We wanted to inform, not to convince, and say this is the only way. We wanted to inform about the benefits, the side effects, what is good, what is wrong, and everyone to have all the information and then to make a decision for their body and their health.* – Officer at the Ministry of National Defence, Romania

*We have concentrated on promoting the vaccination, how we can prevent the spread, what the complications can be, and so on. So, we are trying to create constructive messages. We are not working, let's say, on fear. So, we are not building... Trust by fear. We try to calm down and explain in simple words.* – National Community Health Coordinator at Romanian Red Cross, Romania

## 2.6 Simple and Accessible Language

Both the literature review and the interviews highlight the importance of **clarity and consistency, using language that everyone can understand**. In addition to general uncertainty during the pandemic, the complexity of scientific language and the communication of regulations were described as a central issue during multiple interviews. This is also related, for example, to low levels of health literacy identified by UG in a survey conducted in the three pilot sites for PREPSHIELD's task 1.1.2. Official messages, as they try to be precise, become difficult to understand by sectors of the population that may not have the knowledge to understand such messages, thus generating more uncertainty. As described by participants in Germany:

*[In the authorities' website there is] legal language. It's government language. And also, the way that information is portrayed is also like it's not very user-friendly, if you want to say so.* – Volunteer at Parish, Hamburg, Germany

Research suggests that consistent, clear, and simple messages are best, especially for groups with the highest resistance (31). For example, studies on social media engagement during times of crisis suggest that excessive specific details and emotionality during a crisis negatively affects engagement (53). Many interviewees explained that, to communicate the



official recommendations to the communities they were part of, there was a need to **translate technical terms, such as types of masks, into plain language that people would understand**. This also included balancing evidence, numbers and scientific facts with clear and simpler messages. For instance,

*The statements from the government were totally illegible, unreadable, because it was full of scientific terms. For example, the government statement used a totally scientific way of saying a little mask, or to wash hands with, and there was a scientific way to say disinfectant.* – Head of Communication at University in Piedmont, Italy

## 2.7 Use of Visual Aids

In addition to clear and consistent messaging, **infographics, posters, and videos can be used to explain steps and facts more clearly**. While some studies (10) find that infographics did not have an effect when compared to text-only messages, research and practical experience from the participants suggest that visuals are useful tools for communicating uncertainty. Historically, visual aids such as wax models were used as educational tools, during vaccination campaigns in the 19th Century (18). In more recent crises, messages with images were also found to be important aids to share information (46). For instance, health organizations used social media such as Instagram during the pandemic to share image-based content. A study on these practices finds that more than half of the posts by the health organizations included were infographics, which were especially successful at generating engagement, when compared to other types of posts (30). While more research is needed to understand the impact of emotive images and influencers on perceptions and behaviours, research also highlights the value of such strategies to generate engagement, spread information, and generate solidarity (46).

The interviewees also explained how visuals and infographics aided them in breaking down complex information during the pandemic at diverse levels. For example, as described by the delegate of the Red Cross in Italy, the organization's central committee created graphics and posters for the volunteers to use in public spaces. Similar strategies were also described by other participants who were members of this organization in other countries, both for internal and external communication. A stronger use of visuals was also mentioned as an element to be improved in the next pandemic.

*They were more convinced. They could imagine better. I think that the text, the information written, it's important. But when you show them some images, you know*



*that there is an image that can speak as 100 words. They remain with that image in the mind.* – Branch Manager at the Romanian Red Cross, Romania

In addition to posters, visual aids were also useful for communicating at a personal level. For instance, videos, images, and whiteboards were used by doctors in Romania to aid communication with the public and patients in hospitals. Particular social groups who were difficult to reach or had specific issues, such as hearing difficulties in elderly patients, could be addressed using such instruments, as described by the interviewees.

*Yeah, with older patients, it was sometimes very hard to communicate. In some cases, they had hearing problems and sometimes left their hearing aid equipment at home. We used a very big whiteboard to explain things to them. [...] So, we would have some materials, videos, some charts, some diagrams... So, we would use these kinds of tools.*  
– Doctor in Romanian city hospital, Romania

*We realized a series of videos about all our work during the pandemics just to tell these most important moments of the pandemics and a lot of interesting activities made in the territory and born from the volunteers that was in the first line, our first line responders.*  
– Delegate from the Italian Red Cross at Piedmont, Italy

## Conclusion

This Deliverable focuses on recommendations for inclusive crisis management and communication (D1.3), paying special attention to building trust and reducing uncertainty before and during a crisis. The report covers 12 areas for recommendations separated depending on their focus on crisis management or communication.

First, regarding crisis management, it is recommended to communicate and manage a crisis with transparency and confidence to reduce uncertainty. It is necessary to build trust and trustworthiness before the crisis hits for this to be effective. Furthermore, it is recommended to coordinate guidelines, messages, and actions at all levels to reduce multiple, even contradicting, management and communication strategies. This can be done by developing cross-sector collaborations to maintain and spread the messages. It is also recommended to develop or continue digitalization efforts to collect, manage, and use data.

Second, regarding crisis communication, it is recommended to adapt and tailor messages and



strategies to different sociodemographic groups to be inclusive and increase compliance and reach. In addition to the design of the message, it is recommended to consider different communication channels for different objectives and sociodemographic groups. Furthermore, the spokespersons used to deliver the messages matter and should be considered when developing the message and targeting specific audiences.

It is also recommended to develop communication campaigns using positive and empathetic framing, instead of communicating using fear and enforcing behaviours. Information should be balanced with persuasion to promote informed decisions and collective action. The messages communicated should use clear and consistent language that can be understood by the public, instead of highly scientific or legal language. Furthermore, visual aids can help clarify and communicate information better.

These recommendations are the result of the analysis of data collected for this project by WP1, and especially Tasks 1.3 and 1.5. Based on the findings of previous research and the experiences of experts involved in the management and communication of the COVID-19 pandemic in Italy, Germany, and Romania. They were developed to highlight what the data revealed was missing in previous crises or was implemented successfully regarding strategies to manage and communicate uncertainty, as well as to be aligned with existing research on trust and trustworthiness.

Furthermore, the recommendations aim to be inclusive and keep the public in the centre. They consider research from multiple countries and populations in Europe and are mindful of how different sociodemographic categories might influence trust and communication. Yet, it should be considered that these recommendations may vary depending on social and cultural contexts, as overlapping cultural characteristics or personal vulnerabilities might affect their operation. Additionally, this Deliverable (D1.3) is complementary to *D1.1 Need analysis* and *D1.2 Lessons learned for crisis preparedness, including health literacy*, which further develop aspects regarding the needs of different actors and the preparation stages before a health crisis.

## References

1. World Health Organization. Communicating risk in public health emergencies: a WHO guideline for emergency risk communication (ERC) policy and practice [Internet]. World Health Organization; 2017 [cited 2025 Aug 5]. 57 p. Available from: <https://iris.who.int/handle/10665/259807>



2. Mayer RC, Davis JH, Schoorman FD. An Integrative Model of Organizational Trust. *Acad Manage Rev.* 1995;20(3):709–34.
3. Beirakdar S, Klingborg L, Wees SH van. Attitudes of Swedish Language Twitter Users Toward COVID-19 Vaccination: Exploratory Qualitative Study. *JMIR Infodemiology.* 2023 Feb 22;3(1):e42357.
4. Alderotti G, Corvo MF, Buscemi P, Stacchini L, Giorgetti D, Lorini C, et al. Communicating with Patients about COVID-19 Vaccination: A Qualitative Study on Vaccinators in Tuscany Region, Italy. *Vaccines.* 2023 Feb;11(2):223.
5. Betsch C, Korn L, Burgard T, Gaissmaier W, Felgendreff L, Eitze S, et al. The four weeks before lockdown during the COVID-19 pandemic in Germany: a weekly serial cross-sectional survey on risk perceptions, knowledge, public trust and behaviour, 3 to 25 March 2020. *Eurosurveillance.* 2021 Oct 21;26(42):2001900.
6. Breeze R. Claiming Credibility in Online Comments: Popular Debate Surrounding the COVID-19 Vaccine. *Publications.* 2021 Sep;9(3):34.
7. Haavisto VE, and Linge TT. Internal crisis communication and Nordic leadership: the importance of transparent and participative communication in times of crisis. *Scand J Hosp Tour.* 2022 Oct 20;22(4–5):331–56.
8. Teasdale E, Yardley L. Understanding responses to government health recommendations: Public perceptions of government advice for managing the H1N1 (swine flu) influenza pandemic. *Patient Educ Couns.* 2011 Dec 1;85(3):413–8.
9. Barbaros MC. Communicating uncertainty in times of crisis. The legitimization of EU’s response to COVID-19 pandemic through the discourse used by the President of the European Commission. *East J Eur Stud.* 2022;13(1):167–84.
10. Claeys AS, De Waele A, Koppen E. Informing the public matters: A field experiment during an ongoing health crisis in Belgium. *J Contingencies Crisis Manag.* 2022;30(4):354–64.
11. Gamerdinger A, Just SN, Lantz PMV. Healthy transparency: Dynamic interrelations between credibility, transparency, and trust in the context of Danish public authorities’ COVID-19 communication. *Soc Sci Humanit Open.* 2023 Jan 1;8(1):100688.
12. Skogerbø E, Ihlen Ø, Kjeldsen JE, Vranic A. Trustworthiness: Public reactions to COVID-19 crisis communication. *Communications [Internet].* 2024 Sep 28 [cited 2025 Jun 18];



Available from: <https://www.degruyterbrill.com/document/doi/10.1515/commun-2023-0132/html>

13. Arora S, Debesay J, Eslen-Ziya H. Persuasive narrative during the COVID-19 pandemic: Norwegian Prime Minister Erna Solberg’s posts on Facebook. *Humanit Soc Sci Commun.* 2022 Feb 1;9(1):35.
14. Hirschfeld G, Thielsch MT. Impact of Crisis Communication Strategies on People’s Attitudes toward Behavioral Guidelines Regarding COVID-19 and on Their Trust in Local Officials. *Int J Disaster Risk Sci.* 2022 Aug 1;13(4):495–506.
15. Claeys AS, De Waele A. From Message to Messenger: Should Politicians Lead-by-Example to Increase Compliance with Public Health Directives? *Health Commun.* 2023 Dec 6;38(14):3393–408.
16. Ferlin A, Malešič M, Vuga Beršnak J. PREPAREDNESS VS. IMPROVISATION: A RESPONSE TO THE COVID-19 CRISIS IN SLOVENIA. *Teor Praksa.* 2021 Oct 10;632–51.
17. Bertolazzi A, Bongelli R, Riccioni I. Health Risk Communication During COVID-19 Emergency in Italy: The Impact of Medical Experts’ Debate on Twitter. *Health Commun [Internet].* 2024 Jul 2 [cited 2025 Jun 18]; Available from: <https://www.tandfonline.com/doi/abs/10.1080/10410236.2023.2227436>
18. Vigezzi GP, Vecchio R, Barbati C, Bonazza G, Mazzarello P, Odone A. Historical analysis of the first smallpox vaccination campaigns in early 19-century northern Italy: organisation and communication insights for contemporary epidemics’ prevention and control. *Vaccine.* 2025 Mar 7;49:126764.
19. Karantza I, Chrissos Anestis M, Vlachakis S. Crisis mapping in the “senses” arena narratives. *Int Rev Public Nonprofit Mark.* 2022 Dec 1;19(4):649–73.
20. da Silva RE, Novaes MRCG, de Oliveira C, Guilhem DB. The impact of social cohesion and risk communication on excess mortality due to COVID-19 in 213 countries: a retrospective analysis. *BMC Public Health.* 2024 Jun 14;24(1):1598.
21. Graffigna G, Palamenghi L, Savarese M, Castellini G, Barello S. Effects of the COVID-19 Emergency and National Lockdown on Italian Citizens’ Economic Concerns, Government Trust, and Health Engagement: Evidence From a Two-Wave Panel Study. *Milbank Q.* 2021;99(2):369–92.



22. Cataldi S, D'Amelio AC, Dallagiacomma G, Gentile L, Odone A, Signorelli C. Promoting societal resilience during the COVID-19 pandemic: a multi-country analysis of public health strategies. *Acta Biomed Atenei Parm.* 2023 Aug 30;94(S3):e2023181–e2023181.
23. Guljaš S, Bosnić Z, Salha T, Berecki M, Krivdić Dupan Z, Rudan S, et al. Lack of Informations about COVID-19 Vaccine: From Implications to Intervention for Supporting Public Health Communications in COVID-19 Pandemic. *Int J Environ Res Public Health.* 2021 Jan;18(11):6141.
24. Nacheva I, Panchelieva T, Bakalova D. Emotional Experiences of Vulnerable Groups During COVID-19. *Eur J Psychol Open.* 2023 Jul 3;82(2):69–78.
25. Martinelli L, Kopilaš V, Vidmar M, Heavin C, Machado H, Todorović Z, et al. Face Masks During the COVID-19 Pandemic: A Simple Protection Tool With Many Meanings. *Front Public Health* [Internet]. 2021 Jan 13 [cited 2025 Jun 19];8. Available from: <https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2020.606635/full>
26. White TM, Lazarus JV, Rabin KH, Ratzan SC, El-Mohandes A. Emerging global patterns of COVID-19 vaccine information fatigue in 23 countries in 2023. *Vaccine.* 2024 Dec 2;42(26):126475.
27. Korim V, Masaryk R, Lesičková M. How did slovak students perceive the COVID-19 pandemic: Insights from one of the least vaccinated EU countries. *J Health Psychol.* 2024 Oct 27;13591053241291476.
28. Buturoiu R, Corbu N, Oprea DA, Boțan M. Trust in information sources during the COVID-19 pandemic. A Romanian case study. *Communications.* 2022 Sep 1;47(3):375–94.
29. Olszewski R, Watros KM, Brzeziński J, Owoc J, Mańczak M, Targowski T, et al. COVID-19 health communication strategies for older adults: Chatbots and traditional media. *Adv Clin Exp Med.* 2024 Dec 16;34(12):0–0.
30. Malik A, Khan ML, Quan-Haase A. Public health agencies outreach through Instagram during the COVID-19 pandemic: Crisis and Emergency Risk Communication perspective. *Int J Disaster Risk Reduct.* 2021 Jul 1;61:102346.
31. Coleman S, Slater MD, Wright P, Wright O, Skardon L, Hayes G. Pandemic lifeworlds: A segmentation analysis of public responsiveness to official communication about Covid-19 in England. *PLOS ONE.* 2024 Jan 31;19(1):e0296049.



32. McDermid P, Craig A, Sheel M, Blazek K, Talty S, Seale H. Information seeking behaviors of individuals impacted by COVID-19 international travel restrictions: an analysis of two international cross-sectional studies. *Front Commun [Internet]*. 2023 Sep 7 [cited 2025 Jun 19];8. Available from: <https://www.frontiersin.org/journals/communication/articles/10.3389/fcomm.2023.1101548/full>
33. Link E, Baumann E, Czerwinski F, Rosset M, Suhr R. Of seekers and nonseekers: Characteristics of Covid-19-related information-seeking behaviors. *World Med Health Policy*. 2022;14(2):276–94.
34. Moreno A, Lara CF, Tench R, Romenti S. COVID-19 communication management in Europe: a comparative analysis of the effect of information-seeking in the public’s sense-making in Italy, Spain and the United Kingdom. *Corp Commun Int J*. 2023 May 30;28(5):744–68.
35. Bangerter A, Krings F, Mouton A, Gilles I, Green EGT, Clémence A. Longitudinal Investigation of Public Trust in Institutions Relative to the 2009 H1N1 Pandemic in Switzerland. *PLOS ONE*. 2012 Nov 21;7(11):e49806.
36. Bârgăoanu A, Buturoiu ,Raluca, and Durach F. Predictors of COVID-19 Vaccine Acceptance: The Role of Trust and the Influence of Social Media. *Soc Work Public Health*. 2024 Jan 2;39(1):20–35.
37. Kahlawi A, Masri F, Ahmed W, Vidal-Alaball J. Cross-Cultural Sense-Making of Global Health Crises: A Text Mining Study of Public Opinions on Social Media Related to the COVID-19 Pandemic in Developed and Developing Economies. *J Med Internet Res*. 2025 Jan 27;27(1):e58656.
38. Losada Díaz JC, Rodríguez Fernández L, Rojano FJP. Government communication and emotions in the Covid-19 crisis in Spain. *Rev Lat Comun Soc*. 2020 Oct 30;(78):1–18.
39. Moreno Á, Fuentes-Lara C, Navarro C. Covid-19 communication management in Spain: Exploring the effect of information-seeking behavior and message reception in public ´s evaluation. *Prof Inf [Internet]*. 2020 May 29 [cited 2025 Jun 19];29(4). Available from: <https://revista.profesionaldelainformacion.com/index.php/EPI/article/view/epi.2020.jul.02>
40. van Velsen L van, Gemert-Pijnen JEWC van, Beaujean DJMA, Wentzel J, Steenbergen JE van. Should Health Organizations Use Web 2.0 Media in Times of an Infectious Disease Crisis? An In-depth Qualitative Study of Citizens’ Information Behavior During an EHEC Outbreak. *J Med Internet Res*. 2012 Dec 20;14(6):e2123.



41. Dadaczynski K, Okan O, Messer M, Leung AYM, Rosário R, Darlington E, et al. Digital Health Literacy and Web-Based Information-Seeking Behaviors of University Students in Germany During the COVID-19 Pandemic: Cross-sectional Survey Study. *J Med Internet Res.* 2021 Jan 15;23(1):e24097.
42. Tasente T, Rus M, Stan MI, Sandu ML. Social Media in times of change: a three-period analysis of sentiment and engagement on the romanian ministry of education's online presence. *Mediaciones Soc.* 2024 Jul 2;23:e-91667.
43. Tasente T, Rus M, Tanase G. From Outbreak to Recovery: An Observational Analysis of the Romanian Government's Online Communication during and post-COVID-19. *Vivat Acad.* 2024;1–21.
44. Furini M. Identifying the features of ProVax and NoVax groups from social media conversations. *Comput Hum Behav.* 2021 Jul 1;120:106751.
45. Pöyry E, Reinikainen ,Hanna, and Luoma-Aho V. The Role of Social Media Influencers in Public Health Communication: Case COVID-19 Pandemic. *Int J Strateg Commun.* 2022 May 27;16(3):469–84.
46. Sleight J, Amann J, Schneider M, Vayena E. Qualitative analysis of visual risk communication on twitter during the Covid-19 pandemic. *BMC Public Health.* 2021 Apr 28;21(1):810.
47. Szászi AJ, Bíró-Nagy A. Controversies of COVID-19 vaccine promotion: lessons of three randomised survey experiments from Hungary. *Public Health.* 2024 Apr 1;229:192–200.
48. Hase V, Engelke KM. Emotions in Crisis Coverage: How UK News Media Used Fear Appeals to Report on the Coronavirus Crisis. *Journal Media.* 2022 Dec;3(4):633–49.
49. Cobianchi V. The Coverage of the COVID-19 Emergency Outbreak in the Italian TV News. *Comun Sociali.* 2024 Jun;(1):58–75.
50. Plohl N, and Musil B. Trust in science moderates the effects of high/low threat communication on psychological reactance to COVID-19-related public health messages. *J Commun Healthc.* 2023 Oct 2;16(4):401–11.
51. Helfers A, and Ebersbach M. The differential effects of a governmental debunking campaign concerning COVID-19 vaccination misinformation. *J Commun Healthc.* 2023 Jan 2;16(1):113–21.



52. Gaspar R, Gorjão S, Seibt B, Lima L, Barnett J, Moss A, et al. Tweeting during food crises: A psychosocial analysis of threat coping expressions in Spain, during the 2011 European EHEC outbreak. *Int J Hum-Comput Stud.* 2014 Feb 1;72(2):239–54.
53. Pachucki C, Grohs R, Scholl-Grissemann U. Is nothing like before? COVID-19–evoked changes to tourism destination social media communication. *J Destin Mark Manag.* 2022 Mar 1;23:100692.
54. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol.* 2006;3(2):77–101.

## Methodological Appendix

This appendix addresses the methodology and the materials used for the development of this Deliverable. The information presented in this document comes from two main sources: a literature review and interviews. Additionally, the findings presented here are also built upon the work from project partners in WP1, as established in PREPSHIELD’S project description.

A semi-systematic literature review was conducted in two databases, Scopus and Web of Science. These two databases were searched using a set of keywords to identify research articles that studied communication strategies in a health crisis with a particular emphasis on trust and uncertainty. The search was further limited to peer-reviewed articles published in English that included studies conducted in at least one country in Europe. The initial search resulted in 268 results, which were screened to remove duplicates and articles that did not match the search criteria.

This resulted in a final sample of 81 articles published between 2011 and 2025, where most (94%) were published in 2020 or later. All articles studied a specific health crisis or outbreak. The COVID-19 pandemic (89%) was the most studied in the sample, followed by H1N1, E. coli, Legionnaires’ disease, Ebola, and smallpox. Furthermore, while most articles studied one country, including Austria Belgium, Bulgaria, Croatia, Denmark, England, Estonia, EU, Finland, Germany, Greece, Hungary, Italy, Netherlands, North Cyprus, Norway, Poland, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, UK, many articles included research that collected data in two or more countries where at least one was European (26.5%). The methods used were also varied. Most articles used



quantitative methods (51%), such as surveys, experimental studies, and (computational) content analysis. Qualitative methods (41%) were also used, including interviews, focus groups, and content analysis. Finally, a small number of articles used a mixed methods (8%) approach.

The findings derived from the literature review were complemented by 11 semi-structured interviews with 12 professionals involved in the communication and management of the pandemic in Germany, Italy, and Romania. The interviews were conducted online via Zoom between April and June 2025 and lasted approximately one hour. All interviews were conducted in English, except one that was conducted in Italian. Table 1 below provides an overview of the participants.

The professionals who were interviewed were identified and recruited in collaboration with the PREPSHIELD partners. They were selected for their role and expertise during previous health crises, especially the COVID-19 pandemic, as well as the different levels researched by PREPSHIELD. In other words, all the participants were involved with the communication and management of the pandemic, either by designing and planning the messages, communication campaigns, or restrictions during the COVID-19 pandemic, or by communicating the official messages to the public or internally in their organizations.

Individuals and organizations at a local, regional, and national level were invited to participate, also considering the focus of each pilot site. In Germany, the focus of the interviews was at a local and regional level, where participants worked at organizations that communicated directly with the public, such as the Red Cross, the Fire Department, and religious organizations such as local churches. In Italy, interviews were also focused at local and regional levels. In this case religious leaders were also interviewed, but participants who were members of organizations who communicated at regional levels, such as universities, the Red Cross, and the Regional Crisis Unit during the COVID-19 pandemic. In Romania, the interviewees worked at organizations with local, regional, and national reach, including local and national levels of the Red Cross, doctors at local hospitals, and members of the government.

*Table 0: Overview of participants.*

Role	Country	Interview date (2025)
------	---------	-----------------------





Head of the Rector's Office and Communication at University in Piedmont	Italy	April
Delegate for Communication, Volunteering, and Innovation at the Italian Red Cross	Italy	May
Imam (religious leader)	Italy	June
Member of Crisis Unit of Piedmont during Covid Pandemic	Italy	June
Pastor (religious leader) and volunteer at Parish in Hamburg (2 participants)	Germany	April
Project manager at the Bavarian Red Cross	Germany	May
Chief Medical Director of Fire Department in Hamburg	Germany	May
Branch manager at the Romanian Red Cross	Romania	May
Public Relations Officer at the Ministry of National Defence	Romania	May
National Community Health Coordinator at the Romanian Red Cross	Romania	May
Doctor in city hospital	Romania	June

Both the documents from the literature review and the interviews were analysed following thematic analysis guidelines (54) to identify common findings, recommendations, and themes regarding health communication strategies during a pandemic. First, the abstracts of the articles selected, as well as the conclusions and discussions, when necessary, were analysed to determine preliminary themes for recommendations. These themes were further developed with the interview data. Finally, the findings from both the literature review and interviews were integrated into recommendations for communication during a crisis.

Finally, as established in the project description, this deliverable also draws from the findings and conclusions regarding management and communication reached by WP1. Specifically, WP1 consisted of 5 interconnected tasks. *Task 1.1*, led by UG, aimed to understand the needs and perceptions of vulnerable and non-compliant groups regarding health crises. This was achieved through a literature review to identify these groups and the barriers to compliance, and a survey study in combination with interviews to validate the findings of the literature review. *Task 1.2*, led by UPO, aimed to understand the needs and challenges of healthcare facilities and professionals. This was accomplished with a



literature review and historical overview to identify gaps in healthcare facilities' responses to health crises. This was complemented with interviews with key stakeholders to identify the challenges faced by professionals. A focus group was conducted in June 2025 with external experts from the advisory board and the pilot sites to comment and evaluate preliminary recommendations from WP1 (see Task 1.4 and 1.5 below) and brainstorm solutions for management and healthcare governance. *Task 1.3*, led by UiO, aimed to understand how communication strategies and trust-building was developed in previous health crises. This task was accomplished through the literature review and interviews described above in this appendix. *Tasks 1.4 and 1.5*, led by UPO and UiO respectively, aimed to develop best practices and recommendations based on the findings of WP1. This was done at a physical meeting hosted by UPO to discuss findings from UPO, UG and UiO.

For more details on the methods used by UG and UPO as well as their findings, please consult Deliverables *D1.1 Need analysis* and *D1.2 Lessons learned for crisis preparedness, including health literacy*.

