



Deliverable D5.2

Final Pre-Incident Public Information Materials for CBRNe terrorism

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Consortium – List of partners

Partner no.	Short name	Name	Country
1	UIC	UNION INTERNATIONALE DES CHEMINS DE FER (COORDINATOR)	France
2	CBRNE	CBRNE LTD	UK
3	PPI	POPULATION PROTECTION INSTITUTE (MINISTRY OF THE INTERIOR OF THE CZECH REPUBLIC)	Czech Republic
4	DB	DEUTSCHE BAHN AG	Germany
6	UMU	UMEA UNIVERSITET	Sweden
7	DHPOL	DEUTSCHE HOCHSCHULE DER POLIZEI	Germany
8	RINISOFT	RINISOFT LTD	Bulgaria
9	WMP	WEST MIDLANDS POLICE AND CRIME COMMISSIONER	UK
10	ETICAS	ETICAS RESEARCH AND CONSULTING SL	Spain
11	SESU	STATE EMERGENCY SERVICE OF UKRAINE	Ukraine
12	UKHSA	UK HEALTH SECURITY AGENCY (DEPARTMENT OF HEALTH – PUBLIC HEALTH ENGLAND)	UK
13	SPL	STATE POLICE OF LATVIA	Latvia
14	AGS	AN GARDA SÍOCHÁNA – NATIONAL POLICE FORCE IRELAND	Ireland
15	FFI	FORSVARETS FORSKNINGSINSTITUTT	Norway
16	NPH	KOMENDA GŁÓWNA POLICJI	Poland

List of Acronyms

Acronym	Definition
AB	Åsa Burlin
AD	Amelia Dennis
CBRNe	Chemical, Biological, Radiological, Nuclear, and explosive
CEN	European Committee for Standardization
CSAB	Civil Society Advisory Board
D	Deliverable
EU	European Union
ISO	International Organisation for Standardization
NARU	National Ambulance Resilience Unit
PSAB	Practitioner Stakeholder Advisory Board
SOP	Standard Operating Procedure
WP	Work Package

Executive summary

This deliverable provides a comprehensive account of the full process of development of the PROACTIVE pre-incident information materials from their first genesis in Deliverable 5.1 (Nicholson et al., 2021) through to the final version presented in the final section of this report.

In the initial process for development outlined in Deliverable 5.1, a three-stage process including a longitudinal survey and exercise evaluation was detailed. In practice, a far more extensive and wide-ranging stakeholder engagement process was conducted, incorporating views from both practitioners and the civil society across a range of qualitative and quantitative data collection methodologies (and incorporating all aspects detailed in Deliverable 5.1). These methods included regular feedback from the PROACTIVE consortium (through progress meetings), a longitudinal survey, CSAB focus groups, implementation in two PROACTIVE exercises, and several cross-European public focus groups.

As detailed in the subsections within this report, feedback was provided at all stages of development of the pre-incident information material and incorporated into the iterative process of design. Throughout this deliverable we detail both the recommendations and feedback (and accompanying modifications to the information) as well as evidence concerning the public acceptability of pre-incident information and the impact of pre-incident information on knowledge and understanding of recommended actions. In short, the modifications made as a result of Deliverable 5.1 appear to have improved the clarity of the materials, however further recommendations to aid ease of understanding have been made throughout. Furthermore, there is clear evidence contained within this deliverable as to the broad public acceptability of pre-incident information, and its impact on both perceptions and actual knowledge of behaviours recommended during a CBRNe incident requiring decontamination. This adds to the developing literature, speaking to the effectiveness of such materials (e.g., Carter et al., 2019; 2020; 2021).

Through this comprehensive process, seven different iterations of the pre-incident information materials have been developed, with a variety of different options for pictograms and wording. While the final version represents the evidence-based, stakeholder-led best practice version of the materials which we recommend using, we will also provide a copy of all versions of the pre-incident information materials on the PROACTIVE website and app for practitioners and stakeholders to access and modify in order to fit the needs of their respective settings (e.g., incident type, fitting with specific SOPs for practice, etc). In this way, the suite of pre-incident information materials developed through this process really do go above and beyond in terms of delivering against the requirements of PROACTIVE Work Package 5.

Finally, in terms of next steps, the final pre-incident information materials detailed herein will be evaluated experimentally in the final PROACTIVE exercise in order to provide a large-scale test of the materials ahead of the final project deliverables. Findings relating to the pre-incident information from the final exercise will be discussed in detail in the final project deliverable (Deliverable 6.6) with any final modifications to the pre-incident information reported therein.

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1. INTRODUCTION

In a CBRNe emergency, rapid decontamination is essential to protect the health of casualties; if contaminants (for example, sulphur mustard) are not removed quickly it can lead to irreversible cell and tissue damage (Davis & Aspera, 2001; Garcia et al., 2011). Indeed, within the field of UK CBRNe response there has been work to establish methods of decontamination that can be taken prior to the se-up of specialist response capabilities to minimise the effects of contamination; this is known as the Initial Operational Response (IOR) programme (NARU, 2013). This involves steps that can be taken by non-specialist first responders and includes removal of outer layers of clothing and improvised dry (e.g., using towels/ absorbent materials) or wet decontamination (NARU, 2013; Amlôt et al., 2017, see also Carter et al., 2019 for more information). Furthermore, the provision of information to educate the public about what to do during a chemical incident (hereafter referred to as pre-incident information) has also been advocated as a method of increasing the speed of decontamination by providing the public with the knowledge and understand of initial steps that can be taken to minimise their risk (Carter & Amlôt, 2016; Cibulsky & Kirk, 2010; see also Carter et al., 2019).

In the UK, the REMOVE campaign developed pre-incident information to inform members of the public on three specific actions that they can take in the immediate stages of a chemical incident: remove themselves from the hazardous area, remove their outer layers of clothing, and remove the contaminant from their skin (NARU, 2018). Research into public perceptions of REMOVE shows that the information significantly increased public knowledge and confidence associated with taking action during a CBRNe incident (Carter et al., 2019; Carter et al., 2021), and that members of the public wanted to receive this type of information in advance of a chemical incident occurring (Carter et al., 2021). In a systematic review of pre-incident information, Carter et al. (2020) found that pre-incident information was effective at increasing preparedness, particularly public knowledge of actions to take. However, within this review, Carter and colleagues acknowledged that most of the studies reviewed focused on the impact of pre-incident information over the short term (e.g., one month or less), and that further work was needed to examine the long-term effects of pre-incident information.

Similarly, work conducted in Work Package 1 of the PROACTIVE project included both a review designed to examine the level of public preparedness relating to CBRNe incidents (Hall et al., 2021a) and a set of recommendations for the mitigation and management of CBRNe terrorism (Hall et al., 2021b). Across the research activities contributing to these deliverables it became clear that the general public's current understanding of how to manage CBRNe incidents is very low, and that there is a consensus that preventative recommendations are often misunderstood and perceived as confusing by the public (Hall et al., 2021a); given this, a series of recommendations were made during Work Package 1 around how to present pre-incident information in order to maximise its effectiveness (Hall et al., 2021b). These recommendations were used to inform the development of the initial PROACTIVE pre-incident information, which was reported and preliminarily evaluated in Deliverable 5.1 (Nicholson et al., 2021).

The PROACTIVE pre-incident information detailed within Deliverable 5.1 provided actions for members of the public to take during a CBRNe incident, such as moving away from the hazard, removing outer clothing, and removing the substance from the skin. The pre-incident information

was evaluated through eight public focus groups (with 36 participants in total), in which participants were shown and discussed the pre-incident information, and two surveys (one pre- and post- focus group). The focus group indicated that the content of the instructions themselves could be improved. Participants reported uncertainty around some of the actions, specifically for leaving the scene and using tissue to blot their clothes. Additionally, participants reported that the instructions were too long, and suggested that colour and graphics may help reduce information overload and increase engagement. The survey results show that the pre-incident information increased participants knowledge and confidence in which actions to take from the pre-survey to the post-survey (Nicholson et al., 2021). Overall, Deliverable 5.1 showed the benefit of the pre-incident information on confidence and knowledge but elucidated areas of development for the pre-incident information.

As per the Work Package 5 plan, this initial evaluation of the pre-incident information materials (detailed in Deliverable 5.1) was extended longitudinally to provide 3- and 6-month longitudinal data concerning perceptions of the materials (thus addressing the lack of longitudinal data identified as a criticism of pre-incident information studies by Carter et al., 2020); data from this longitudinal analysis is reported herein. The pre-incident information was also revised in line with the recommendations from Deliverable 5.1 and was subsequently deployed and evaluated across the two PROACTIVE field exercises held to date (Dortmund and Rieti). Results from this evaluation are presented in the respective exercise deliverables (Deliverable 6.3 and Deliverable 6.4) but are also summarised herein. Furthermore, however, a considerable amount of work has been undertaken to revise the pre-incident information materials above and beyond that described in the PROACTIVE Description of Action. This has included regular review and discussion with consortium members and practitioner stakeholders at PROACTIVE progress meetings, focus groups with members of the Civil Society Advisory Board (CSAB), and the substantial undertaking of a series of additional focus groups across PROACTIVE partner countries in their native languages.

In this report, we present an account of the extensive process undertaken to further develop and optimise the PROACTIVE pre-incident information. Specifically, this report summarises the further development of the pre-incident information through surveys, focus groups, PROACTIVE field exercises and public involvement. We gathered feedback from members of the public, vulnerable individuals, and practitioners across the EU and in different languages, to go above and beyond the requirements of the Description of Action in our pursuit of developing pre-incident information that is suitable across the EU and for all members of the public. The resulting pre-incident information presented herein represents the culmination of this work and provides a well-developed and socialised tool ready for experimental testing as part of the final PROACTIVE exercise.

2. DELIVERABLE 5.1 FOLLOW-UP DATA

2.1. Overview

As reported in Deliverable 5.1 (Nicholson et al., 2021), participants completed a pre-survey, the focus groups in which they were shown the pre-incident information, and then a post-survey. Based on the results from the surveys and focus groups, Nicholson et al. (2021) recommended the pre-incident information be modified to ensure that the language is accessible to all and to incorporate graphics, to increase understanding and engagement of the materials. Following the Deliverable 5.1 report,

participants received a 3- and 6-month follow-up survey. In this section we analyse the 3- and 6-month follow-up data and make modifications to version 1 of the pre-incident information (see Figure 1) based on recommendations in Deliverable 5.1.

Public pre-incident communication information sheet

- If you think you have been exposed to a harmful substance, you should move away from the hazard as soon as possible to prevent further exposure. You should remain at the scene as emergency responders will soon arrive to help you.
- Get fresh air if possible – this can help with any symptoms you may be experiencing. Do not eat, drink, smoke or touch your face to avoid swallowing any of the harmful substance.
- Remove your outer clothing. Your outer clothing may have some of the harmful substance on it, and so removing this will help to reduce your exposure to the harmful substance. Try to remove clothing without pulling any clothes over your head, if possible. If this is not possible, try to avoid clothing coming into contact with your face whilst removing over your head.
- If any of your skin has the harmful substance on it, use a dry tissue or similar absorbent materials to either soak it up or brush it off. This will help to remove the substance from your skin. If your skin is itchy or burning, then rinse the affected area continually with as much water as possible.
- When emergency responders arrive, they may ask you to remove your clothing to your underwear and then wash yourself all over in a shower system that they will set up at the scene.
- You should not put your old clothes back on after removing the substance from yourself. Emergency responders will help to provide you with clean, uncontaminated clothing.

Figure 1. Pre-incident Information Version 1

2.2. Method

2.2.1. Design

We used a longitudinal survey with four time points: T1 was pre-focus group; T2 was post-focus group; T3 was 3-month follow-up; T4 was 6-month follow-up. Both T1 and T2 were reported on in Deliverable 5.1 (Nicholson et al., 2021).

2.2.2. Participants

The initial sample of 36 participants completed the pre-survey, focus group, and post-survey, see Deliverable 5.1 for more information on the pre-survey, focus groups, and post-survey.

Approximately three months after the focus groups, all participants were contacted via email with a link to the follow-up survey. All 36 participants completed the three-month follow-up. Then approximately six-months after the focus group, participants were emailed again with the link to the final follow-up survey. 25 participants completed the six-month follow up.

2.2.3. Materials

At each stage, participants were asked to read the public-facing scenario describing a hypothetical incident involving the release of a non-caustic, liquid chemical contaminant on a train platform (see Appendix A). Participants were then asked to provide their unique identifier to enable the researchers to match responses across time points. They then completed a four-item measure of knowledge and confidence (Carter et al., 2018) that included statements such as “If a real incident of this type were to occur, I would know what actions to take to protect my loved ones” rated on a scale from 1 (Strongly Disagree) to 7 (Strongly Agree). See Appendix B for the survey. Finally, participants were asked an open-ended question concerning what actions they would take if this type of incident were to occur.

2.3. Results

Inferential statistical analysis was conducted on the knowledge and confidence scale in order to examine change in knowledge and confidence over time. The total score for each individual’s response for the items was collated to give one single knowledge and confidence scale for each participant. This was then averaged to give the overall average value reported in Table 1. Participants’ free-text responses concerning actions they would likely take if this type of incident were to occur were coded as to how much they referred to the content of the pre-incident information.

2.3.1. Knowledge and Confidence across time

We ran a repeated measured ANOVA to assess the difference in knowledge and confidence across the four waves. See Table 1 for descriptive statistics of knowledge and confidence. The results showed that there was a significant difference in knowledge across the waves, $F(3, 72)=21.7$, $p <.001$, $\eta^2_p=0.48$. At T1 participants reported significantly lower knowledge than in T2 ($p<.001$, $d=1.31$), T3 ($p<.001$, $d=1.04$), and T4 ($p<.001$, $d=1.02$). Thus, participants knowledge and confidence was sustained and did not return to baseline levels even up to six-months after receiving the pre-incident information.

Table 1 Knowledge and confidence across time points

	Average Total	Standard Deviation	Cronbach's α
T1 (pre-survey)	13.0	5.87	0.96
T2 (post-survey)	20.7	4.30	0.94
T3 (three-month follow-up)	19.1	4.43	0.97
T4 (six month follow-up)	19.0	4.89	0.97

2.3.2. Likely behaviours following an incident

The answers for what participants would do in the scenario were coded according to how much of the pre-incident information they referenced in their response. Specifically, responses were coded from 1 to 3 based on mentioning the three aspects of REMOVE (i.e., of oneself from the situation, of clothing, or of the contaminant). Responses were coded 1 if there was no mention of removal or decontamination. Responses were coded 2 if some form of decontamination was mentioned or some (1-2) aspects of REMOVE were mentioned. Then responses were coded 3 if there was mention of all three stages of removal/decontamination (i.e., moving away from the situation, removing the outer layer of one's clothing and removing the contaminant). The definitions of removal were based on the REMOVE campaign referred to in the introduction of the report (NARU, 2018). See Table 2 for descriptive statistics. We then ran a repeated measure ANOVA to assess the difference in response across time, in order to examine whether there was any change in reference to the recommended behaviours over time. The results showed that there was a significant difference in response across the waves, $F(3, 72)=11.7, p < .001, \eta^2p=0.33$. At T1 participants mentioned more responses that were not in line with the recommendations than in T2 ($p < .010, d=0.55$), T3 ($p < .001, d=1.11$), and T4 ($p < .001, d=1.31$). This suggests that it is actual knowledge and not only self-reported knowledge and confidence that is both: a) influenced by pre-incident information, and b) sustained over time.

Table 2 Response to the incidents across time points

Column 1		N	%	M	SD
T1				1.44	0.65
	1=No decontamination or removal	23	63.9		
	2=Decontamination or removal	10	27.8		
	3= All elements of REMOVE	3	8.3		
T2				1.92	0.87
	1=No decontamination or removal	15	41.7		
	2=Decontamination or removal	9	25.0		
	3= All elements of REMOVE	12	33.3		
T3				2.25	0.73
	1=No decontamination or removal	6	16.7		
	2=Decontamination or removal	15	41.7		
	3= All elements of REMOVE	15	41.7		
T4				2.36	0.70
	1=No decontamination or removal	3	12.0		
	2=Decontamination or removal	10	40.0		
	3= All elements of REMOVE	12	48.0		

2.4. Summary of Findings

Firstly, the results demonstrate that reading the pre-incident information and participating in the focus groups reported in D5.1 provides individuals with self-reported knowledge and confidence of actions to take in an incident that last at least 6-months. Furthermore, individuals were able to recall, without prompting, significantly more actions recommended for decontamination for up to six months after reading the pre-incident information; this demonstrates an effect not only on self-reported knowledge and confidence but on actual knowledge which could prove invaluable during a chemical incident. These findings provide support for the long-term protective effects of being provided with information about what to do during a chemical incident and provide some evidence to fill the lacunae regarding long-term data identified by Carter et al. (2020).

3. REVISIONS TO THE PRE-INCIDENT INFORMATION BASED ON DELIVERABLE 5.1 – PICTOGRAMS AND CSAB FOCUS GROUPS

Deliverable 5.1 recommended modifications to the pre-incident information that both included simplifying the language and also adding pictograms to the pre-incident information in order to inform readability. In the first instance, the following six pictograms were developed in order to go alongside the instructions provided (see Figure 2). These were designed using copyright free image components in order to ensure that they could be adopted, modified, and used by relevant stakeholder groups. In order to assess the suitability of the revised materials for the civil society (and particularly members of vulnerable groups), public involvement co-production focus groups were conducted with CSAB members.

3.1. Method

3.1.1. Participants

We recruited eight CSAB members, with 3 men and 5 women, their ages ranging between 32 and 78 years old ($M=53.83$, $SD=16.06$). Initially ten participants were recruited but 2 dropped out. Participants resided in a number of European countries including Sweden ($n=2$), the United Kingdom ($n=2$), Spain ($n=2$), Hungary ($n=1$), and Italy ($n=1$). Participants were recruited through the CSAB an email describing the activity was sent to all of the members of the CSAB, with individuals indicating their interest and then subsequently confirming their availability through a Doodle poll. These focus groups were jointly led by UKHSA and UMU. The focus groups received ethical approval from the Project Ethics Officer of Project PROACTIVE (Reference number: PROACTIVE/PEO/12/15/11.2021). UKHSA organisational ethics were not required as these focus groups were public involvement and so did not count as research activity.

3.1.2. Procedure


Participants indicated when they would be available for a focus group, and three separate groups were formed based on participant availability. Before the focus group began participants were emailed the pre-incident information and an online consent form to sign.


At the start of the focus groups, participants were shown and read-aloud a potential CBRNe scenario and the pre-incident information. The focus groups centered around feedback for three areas: general, pictogram, and vulnerable needs feedback (see Appendix C). The focus groups were run in English and lasted approximately 40 minutes. All three focus groups were run by AD (UKHSA).


Figure 2. Pre-Incident Information Version 2


Pre-Incident Public Information Materials for CBRNe terrorism


1. If you think you have been exposed to a harmful substance, you should move away from the hazard as soon as possible to prevent further exposure.

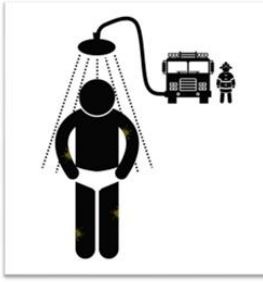

2. You should remain at the scene as emergency responders will soon arrive to help you.



3. Get fresh air if possible – this can help with any symptoms you may be experiencing. Do not eat, drink, smoke or touch your face to avoid swallowing any of the harmful substance.


4. Remove your outer clothing. Your outer clothing may have some of the harmful substance on it, and so removing this will help to reduce your exposure to the harmful substance. Try to remove clothing without pulling any clothes over your head, if possible. If this is not possible, try to avoid clothing coming into contact with your face whilst removing over your head.


5. If any of your skin has the harmful substance on it, use a dry tissue or similar absorbent materials to either soak it up or brush it off. This will help to remove the substance from your skin. If your skin is itchy or burning, then rinse the affected area continually with as much water as possible.


6. When emergency responders arrive, they may ask you to remove your clothing to your underwear and then wash yourself all over in a shower system that they will set up at the scene.


7. You should not put your old clothes back on after removing the substance from yourself. Emergency responders will help to provide you with clean, uncontaminated clothing.



who has previous experience in conducted in-depth interviews and qualitative analysis on sensitive topics. All focus groups were scribed by AB (UMU).

3.1.3. Analysis

The focus group notes were analysed using framework analysis (Ritchie & Lewis, 2000). AD conducted the five steps of framework analysis: familiarisation with the data; identifying initial codes relevant to the research; indexing broad themes; charting the data into an analytic framework; and defining and clarifying themes in relation to other themes.

3.1.4. Results

The analysis identified five themes: providing the information to the public, clarity, diversity, barriers for vulnerable individuals, and assisting others.

Providing the Information to the Public

Participants suggested ways to get the public to engage in the pre-incident information. First, it was noted that using more modes of communication and simple phrases (e.g., Remove, Remove, Remove) would be better and suggestions included: apps, signs, and leaflets. The use of an app (or apps) was highly recommended across all focus groups for a number of reasons; as it would work for a number of vulnerabilities (e.g., older adults) and could transcend language barriers by using videos and different languages.

In addition, participants in all focus groups agreed they would be able to remember the information in a real incident. However, participants noted that some vulnerabilities may limit individuals' ability to remember the information and they may panic.

Clarity of Information

The clarity of the pictograms and the information was discussed in all focus groups. In focus group 1 and 3, all participants agreed that the pictograms and text was clear, easy to understand, and made clear what actions to take. However, suggestions were made regarding the clarity of three elements of the information related to clean clothes, leaving the scene and when first responders arrive. First, in focus group 3, one participant suggested pictogram #7 would be clearer if something was added or it was more obvious that the new clothes were clean and non-contaminated. Second, participants in focus group 2 noted the contradiction between pictogram #1 (remove yourself from the situation) and the second (stay on the scene and wait). This caused confusion over which actions to take. Lastly, participants in focus group 2 stated it was unclear at what point in the pre-incident information emergency responders were due to arrive, thus making it unclear which actions were to be taken while waiting for emergency responders.

Diversity

Participants reported a need for diversity within the pictograms in focus group 2 and 3. In focus group 2, it was noted that there was no inclusion of disability or cultural differences represented in the pictogram, despite the information being aimed at the public. Suggestions to increase diversity included images of a person with a headscarf disrobing. In focus group 3, it was noted that no wheelchair users were included and that these could easily be added to pictogram #1.

Barriers for Vulnerable Individuals

Participants also reported barriers to engaging with the pre-incident information for vulnerable individuals, including core accessibility and assistance. First, core accessibility was reported as a barrier for vulnerable individuals as, for example, wheelchair users may not be able to use sinks in pictogram #5 unless the sink was accessible to all. This would make it hard for the vulnerable individuals to act on the information provided. Second, participants stated it was unclear from the pre-incident information what vulnerable individuals were supposed to do in terms of assistance, it was questioned whether participants would have to fend for themselves or wait for specialised assistance.

Assisting Others

In all three focus groups including information on how to assist others, particularly vulnerable individuals, was mentioned, although responses to this point were varied. In focus group 1, participants stated that vulnerable individuals would be more likely to need assistance, but there was no information on how to safely provide this. In focus group 2, it was reported that the information did not take interactions with others into account regarding how to assist others. However, in focus group 3, participants agreed information on assisting others should not be added, as it may suggest certain groups always need assistance or cannot manage and that the assistance may likely be patronising to vulnerable individuals.

Summary of Results and Suggested Modifications

In sum, the results of the focus groups show that the pre-incident information is largely clear. Increasing the clarity and simplicity of the recommendations was an issue noted in Deliverable 5.1 (Nicholson et al., 2021). This finding suggests that the inclusion of pictograms within this iteration of the materials may have helped to clarify the recommended behaviours for the public. However, several issues were noted, including some issues relating to the clarity of staying at versus leaving the scene, which actions to take while waiting for first responders. The inclusion of greater diversity within the pictograms was also recommended. Furthermore, there was discussion around barriers to engaging with pre-incident information for vulnerable individuals, and differing viewpoints around the inclusion of information on assisting others in the pre-incident information. Based on the results from the focus groups we suggested the following changes: including increasing diversity within the pictograms and removing pictogram #1 on waiting for responders. Given the lack of consensus around including information focused on assisting others, this was not recommended for inclusion in the information at this time.

3.2. Review at the 10th PROACTIVE Progress Meeting

At PROACTIVE's 10th Progress Meeting consortium members were presented with the findings and the suggested modification based on these focus groups and were encouraged to provide feedback for modifications. We received feedback relating to two modifications: making the contaminant brighter in the pictograms and in pictogram #5 removing the sink and replacing it with roll for dry decontamination.

3.3. Modifications of Pre-Incident Information

Following the results and feedback from PROACTIVE partners we made the following modifications to the pre-incident information:


- Remove pictogram 1 to reduce contradiction around staying and leaving the scene;
- Include diversity within pictogram #1 by adding children, wheelchair users;
- Make the contaminant brighter on all the pictograms;
- Change the sink in pictogram #3 to absorbent single-use paper material to be used to dry off (sometimes referred to as 'blue roll' by UK responders)

For modifications see Figure 3 for version 3 of pre-incident information.

Figure 3. Pre-incident information Version 3


Pre-Incident Public Information Materials for CBRNe Incidents

If you think you have been exposed to a potentially harmful substance, you should move away from the hazard as soon as possible to prevent further exposure.




You should remain near the scene as emergency responders will soon arrive to help you. While you are waiting:


1. Get fresh air if possible – this can help with any symptoms you may be experiencing. Do not eat, drink, smoke or touch your face to avoid swallowing any of the potentially harmful substance.



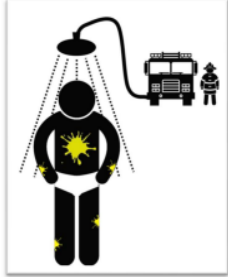
2. Remove your outer clothing. Your outer clothing may have some of the potentially harmful substance on it, and so removing this will help to reduce your exposure to the substance. Try to remove clothing without pulling any clothes over your head, if possible. If this is not possible, try to avoid clothing coming into contact with your face whilst removing over your head.




3. If any of your skin has the potentially harmful substance on it, use a dry tissue or similar absorbent materials to either soak it up or brush it off. This will help to remove the substance from your skin. If your skin is itchy or burning, then rinse the affected area continually with as much water as possible.



4. When emergency responders arrive, they may ask you to remove your clothing to your underwear and then wash yourself all over in a shower system that they will set up at the scene.



5. You should not put your old clothes back on after removing the substance from yourself. Emergency responders will help to provide you with clean, uncontaminated clothing.



4. 11TH PROACTIVE PROGRESS MEETING AND DORTMUND EXERCISE

This revised third version was subsequently presented for discussion at PROACTIVE's 11th Progress Meeting and was used as part of the evaluation in PROACTIVE's first field exercise in Dortmund. Given the close temporal proximity between these two events, any recommendations made based on this stage of development were incorporated into the fourth version, developed post exercise.

4.1. 11th PROACTIVE Progress Meeting

The pre-incident information was presented during the Work Package 5 meeting. First, the pre-incident information version 3 was compared to the ISO 7010 safety signs. The pre-incident information was only compared to the ISO safety signs as no other organisations (e.g., NATO) had public facing pre-incident information for CBRNe incidents. In terms of the comparison between the pre-incident information version 3 and the ISO safety signs (see Appendix D), we can see that for pictogram 1, the warning sign in the PROACTIVE pictogram is in line with ISO general warning sign. In terms of pictogram 2, both include the no or circle-backslash symbol, however, the PROACTIVE pictogram depicts people engaging in the behaviour whereas ISO symbols depict objects. In the third pictogram, no ISO safety signs displayed taking off contaminated clothing, however, the contaminant was similar to the ISO warning sign for substance or mixture presenting a health hazard. In pictogram four, there was no similar ISO pictogram, the closest was washing your hands, however this is different to improvised dry or wet decontamination. In the fifth pictogram, the PROACTIVE pictogram for the decontamination shower was in line with the ISO safety shower sign. In the sixth and final pictogram, there was no similar ISO pictogram for putting on clean non-contaminated clothing, the closest was wearing protective clothing.

Subsequently, the latest version (version 3) of the pre-incident information was discussed among the PROACTIVE consortium members. The discussion included the following key points:

- It was suggested to add an icon forbidding the mobile phone use. However, it was pointed out that this might be how people call the emergency services and receive information on actions (e.g., PROACTIVE App).
- It was suggested there should be an additional pictogram of people being aware of dangers in their location (e.g., the place where someone left the contaminated clothes), or more simply, basic awareness about the contaminated area.
- There was a discussion that there should be a pictogram about waiting for responders. It was stated this was previously included, but the focus group results showed people found this information contradictory. It was, however, concluded that there should instead be general instructions advising people to wait and follow guidance provided by the first responder/authorities.
- There was also a discussion about the colour of the contaminant vs the clean clothing. In that first the hazardous substance may not always be visible. Second, the contaminant and clean clothing are similar colours. It was suggested that different colours be used, for example green or white can be used to represent clean and red to represent the contaminant.

4.2. Dortmund Exercise

For the first field exercise in Dortmund, participants were sent version 3 of the pre-incident information two weeks before the exercise. During the exercise, participants were asked their thoughts on the pre-incident information using pre-exercise and post-exercise questionnaires. See Deliverable 6.3 (Carbon et al., 2022) for full details and results from the first field exercise.

In the pre-exercise questionnaire, participants were asked if they read the pre-incident information. Participants were also asked six questions on the actions in the pre-incident information. This included asking participants if they felt that in a real incident: the actions in the pre-incident information would be effective at removing the contaminant, whether they would seek further treatment after taking the actions, the extent to which they would feel comfortable, embarrassed and willing to take the actions, and whether they thought the actions would be easy to take. These six questions were rated on a scale from 1 (Strongly agree) to 7 (Strongly disagree).

In the pre-exercise questionnaire, seven (43.8%) participants reported they had read the pre-incident information before the exercise, while nine (56.3%) reported that they had not read the pre-incident information. Then in the post-exercise questionnaire, six participants (33.3%) reported that they discussed the pre-incident information with other volunteers during the exercise.

We ran t-tests on the six pre-incident information questions to assess if the means were higher than the scale mid-point of 4. The results showed that for five of the questions they were significantly higher than the scale mid-point: willingness to take actions, comfortable to take actions, easiness to take actions, effectiveness of actions to remove contaminant, and need to seek further treatment after actions (see Table 3). Therefore, participants who had read the pre-incident information indicated that they would be comfortable, willing, and it would be easy to take the actions indicated in the pre-incident information and perceived the actions in the pre-incident information to be an effective way to decontaminate, though they would still want to seek further treatment.

In an open-ended question on whether the pre-incident information would be helpful (“Do you think the pre-incident information would be helpful to the public if it was provided to people before this type of incident occurred?”), nine participants responded Yes, and indicated that it would be helpful to know what actions to take, particularly in case of poor responder communication. In the second open-ended question on improving the pre-incident information (“Are there any changes that could be made to improve the pre-incident information?”) three participants made comments, but these did not clearly relate to improvements in the material; specifically, One indicated that they hadn’t read it in detail and had just skimmed it, the second said “*Communication with affected persons*” and the third said “*Didn’t get any info from responders on the incident / pollutant*”.

Table 3 Comparisons between the Means and the Scale Midpoint

	Mean	Standard Deviation	T	p	df	Cohen's d
If a real incident of this type were to occur, I think that taking the actions recommended in the pre-incident information sheet would be an effective way to remove a contaminant from my skin.	5.38	1.41	2.75	.014	7	0.98
If a real incident of this type were to occur, I would feel comfortable taking the actions recommended in the pre-incident information sheet.	5.38	1.19	3.27	.007	7	1.16
If a real incident of this type were to occur, I would feel embarrassed taking the actions recommended in the pre-incident information sheet.	3.63	2.50	0.42	.658	7	0.15
If a real incident of this type were to occur, I think I would find it easy to take the actions recommended in the pre-incident information sheet.	5.00	1.31	2.16	.034	7	0.76
If a real incident of this type were to occur, I would be willing to take the actions recommended in the pre-incident information sheet.	5.88	1.36	3.91	.003	7	1.38
If a real incident of this type were to occur, I would feel the need to seek further treatment after taking the actions recommended in the pre-incident information sheet.	5.88	1.36	3.91	.003	7	1.38

Paired samples t-tests were then conducted to assess the impact of the exercise (pre-exercise vs. post-exercise) on the six pre-incident information items, which found no significant impact of the

exercise on perceptions of the pre-incident information. See Deliverable 6.3 (Carbon et al., 2022) for more detail.

4.1. Modifications to the Pre-Incident Information

Following the 11th PROACTIVE Progress Meeting and the Dortmund exercise the following modifications were made to version 3 of the pre-incident information:

- Add a new pictogram suggesting that people should be aware of the location they are at (e.g., the place where someone left the contaminated clothes), or basic awareness about the contaminated area at the next progress meeting.
- To add a new “Meet the responder” pictogram suggesting that people should look and wait for guidance provided by the first responder/authorities.

See Figure 4 for version 4 of the pre-incident information.

Figure 4. Pre-incident information Version 4

Pre-Incident Public Information Materials for CBRNe Incidents

If you think you have been exposed to a potentially harmful substance, you should move away from the hazard as soon as possible to prevent further exposure.



You should remain near the scene as emergency responders will soon arrive to help you. While you are waiting:

- Get fresh air if possible – this can help with any symptoms you may be experiencing. Do not eat, drink, smoke or touch your face to avoid swallowing any of the potentially harmful substance.
- Remove your outer clothing. Your outer clothing may have some of the potentially harmful substance on it, and so removing this will help to reduce your exposure to the substance. Try to remove clothing without pulling any clothes over your head, if possible. If this is not possible, try to avoid clothing coming into contact with your face whilst removing over your head.
- If any of your skin has the potentially harmful substance on it, use a dry tissue or similar absorbent materials to either soak it up or brush it off. This will help to remove the substance from your skin. If your skin is itchy or burning, then rinse the affected area continually with as much water as possible.
- Be aware of harmful substances in your location (e.g., contaminated clothes left on the floor or objects such as trees). Avoid touching anything in your location that could be contaminated.
- Wait for guidance to be provided by first responders/ authorities.
- When emergency responders arrive, they may ask you to remove your clothing to your underwear and then wash yourself all over in a shower system that they will set up at the scene.
- You should not put your old clothes back on after removing the substance from yourself. Emergency responders will help to provide you with clean, uncontaminated clothing.








5. 12TH PROACTIVE PROGRESS MEETING

The fourth version of the pre-incident information was presented at PROACTIVE's 12th progress meeting for feedback. The pre-incident information was presented in the Work Package 5 meeting and, given the substantial feedback elicited concerning the existing pictograms, the focus of the discussion revolved around the two new pictograms: the awareness of surrounding (number 4) and meeting the responder (number 5).

The discussion for the awareness of surroundings instruction included:

- To use language like “do not touch” instead of “avoid touching” as people need clear, direct instruction.
- To change the diagram of the pile of clothes so it is clearer that it is contaminated clothing.
- It was suggested that two pieces of information were being conveyed in this one point: one about touching contaminants and the other about moving away from the contaminated area. It was suggested to make these two separate points with two pictograms in order to aid clarity.
- It was suggested to use the double headed arrow (i.e., for COVID-19 social distancing) for the moving away from the contaminated area pictogram, as after COVID-19 people are aware this means distance.

The discussion for meet the responder instruction included:

- It was suggested that the individuals in the pictogram should be standing up rather than sitting down.
- Adding “standby for further instruction” to the worded instructions.
- It was suggested to make several versions of the pictogram and then in the next round of feedback the best pictogram could be chosen.
- Several suggestions were made for the speech bubble, these included: the i symbol for information; a radio symbol; a question mark or explanation point; a eyes and ear symbol; using the word “seek” instead of “wait”.
- It was also stated the instructions needed to be general as in each incident you do not know who will be giving instructions and when.

5.1. Modifications to the pre-incident information

Following the discussions in the 12th PROACTIVE progress meeting the following modifications were made to the pre-incident information:

- The awareness of surrounding was separated into two points: awareness of location and do not touch contaminated clothing.
- For awareness of location and do not touch the clothing pile was redrawn to make clear it was contaminated clothing.
- The social distancing symbol (double arrow) was added to awareness of location pictogram.
- Two pictograms were designed for do not touch contaminated clothing.
- For the meet the responder pictogram three pictograms were drawn up (based on suggestions) all with casualties standing up.
- The wording of instructions was changed for all three pictograms for clarity e.g., from “avoid touching” to “do not touch”

See Figure 5 (overleaf) for the fifth version of the pre-incident information.

Figure 5. Pre-incident information Version 5


Pre-Incident Public Information Materials for CBRNe Incidents

If you think you have been exposed to a potentially harmful substance, you should move away from the hazard as soon as possible to prevent further exposure.




You should remain near the scene as emergency responders will soon arrive to help you. While you are waiting:


1. Get fresh air if possible – this can help with any symptoms you may be experiencing. Do not eat, drink, smoke or touch your face to avoid swallowing any of the potentially harmful substance.



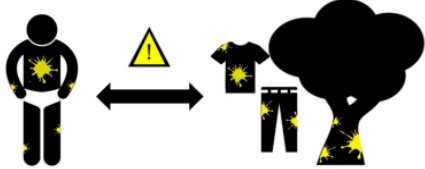
2. Remove your outer clothing. Your outer clothing may have some of the potentially harmful substance on it, and so removing this will help to reduce your exposure to the substance. Try to remove clothing without pulling any clothes over your head, if possible. If this is not possible, try to avoid clothing coming into contact with your face whilst removing over your head.




3. If any of your skin has the potentially harmful substance on it, use a dry tissue or similar absorbent materials to either soak it up or brush it off. This will help to remove the substance from your skin. If your skin is itchy or burning, then rinse the affected area continually with as much water as possible.



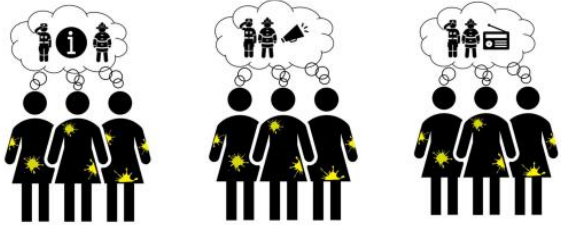
4. Be aware of harmful substances in your location (e.g., contaminated clothes left on the floor or objects such as trees).



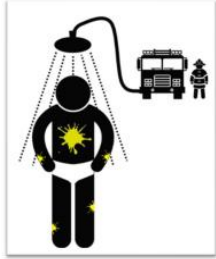
5. Do not touch anything that could be contaminated.




6. First responders are on their way, wait for instructions from first responders or authorities.



7. When emergency responders arrive, they may ask you to remove your clothing to your underwear and then wash yourself all over in a shower system that they will set up at the scene.



8. You should not put your old clothes back on after removing the substance from yourself. Emergency responders will help to provide you with clean, uncontaminated clothing.



6. 13TH PROACTIVE PROGRESS MEETING, EU FOCUS GROUPS, AND RIETI EXERCISE

We then presented the version 5 of the pre-incident information at PROACTIVE's 13th Progress Meeting. This was also evaluated through focus groups conducted by PROACTIVE partners in countries across the EU, and through the second PROACTIVE exercise in Rieti.

6.1. PROACTIVE 13th Progress Meeting

The pre-incident information was presented during the Work Package 5 meeting and focused on the modified points (pictogram number 5 – 7).

In regard to pictogram number 5, the following points were discussed:

- The pictogram is not clear as it looks like the individual is contaminating the environment and the environment can contaminate the individual.
- The wording was also discussed as it was suggested it needs to be less vague (e.g., be aware) but clearer (e.g., avoid).
- It was suggested to get rid of the person and just keep the trees and clothes, then it was suggested to remove the pictogram as it does not add anything beyond pictogram 6.

In terms of pictogram number 6 the following was discussed:

- There was agreement that they preferred the pictogram on the left with the circle-backslash symbol.
- It was also suggested to add contaminant further up the tree, add a car, and remove the hand.

In terms of pictogram number 7 the following points were discussed:

- There was a clear preference for the middle pictogram with the megaphone.
- It was suggested that more vulnerability should be included in these pictograms for example, a wheelchair user, a blind person, or an individual using a cane.
- It was brought up the people in the pictograms looked too close together and there was too much contaminant on individuals (as they would have been instructed to do improvised decontamination by this point).
- It was also discussed that the thought bubble looks like dreaming about the responders and that two things are being presented in this pictogram: waiting and listening.

- It was indicated that the casualties were not needed in the pictogram and instead presenting different emergency services persons or cars with megaphone to emphasise that it's about waiting for information.
- Then it was stated that the clarity on the text needed to be improved from “wait for instructions” to “listen to instructions”.

6.2. EU Focus Groups

Up to this point, the pre-incident information materials had been evaluated and assessed in a wide range of different contexts, including: UK focus groups, an exercise in Dortmund, repeated review by PROACTIVE consortium and PSAB members, and through a series of cross EU CSAB focus groups. However, in the interests of increasing the data and perspectives gathered from non-UK countries and increase representativity at European level, PROACTIVE consortium members conducted a series of focus groups in their native languages across Europe. Specifically, the following partners led focus groups:

- UMU in Sweden in Swedish
- UIC in Poland in Polish (with logistic support from NPH)
- UIC in France in French
- FFI in Norway in Norwegian
- ETICAS in Spain in Spanish

6.2.1. Methods

Participants and Design

The total sample included 24 participants recruited from across five countries represented by PROACTIVE consortium partners. Participants were aged 16+ and were recruited through convenience sampling by PROACTIVE partners (e.g., through sampling students at their respective institutions, and at public events and conferences). Participants not experts in CBRNe. As the focus groups were anonymous, demographic data was not collected as routine, and so is not presented herein. Focus groups were conducted either in person or online, for a breakdown of the context of each focus group see Table 4.

The focus groups followed a semi-structured approach, with a focus group schedule used to guide discussion (see the Materials and Procedure section). Each focus group leader received the same focus group schedule (i.e., there were no differences between groups in terms of questions asked) and were asked to translate this into the relevant language. All focus group leaders conducted the session in the native language of participants and were given training on how to conduct focus groups and gather informed consent by the UKHSA project lead. This training involved content

around what to expect, how to facilitate and provide prompts during the session, how to encourage discussion, how to deal with distress, the aforementioned content on gathering informed consent and ethical considerations, and how to transfer the data to the UKHSA team. The majority of focus group leaders translated and transcribed the focus groups into English prior to returning them to the UKHSA team. Any non-translated/transcribed data was sent to a translation company with which UKHSA has a non-disclosure agreement.

This component of the pre-incident information development process received ethical approval from UKHSA Research Ethics and Governance Group (R&D 517).

Table 4 Characteristics of EU focus groups

Country	Focus group lead	Setting	# of participants	Length of session
Poland	UIC	In person	5 participants	24 minutes
Norway	FFI	In person	5 participants	38 minutes
Sweden	UMU	Online	5 participants	50 minutes
France	UIC	In person	6 participants	95 minutes
Spain	ETICAS	Online	3 participants + 1 language interpreter	30 minutes

Procedure

As noted above, participants were recruited by one of the PROACTIVE partners through convenience sampling. All participants signed the consent form before the focus group began either online or in person. Focus groups were recorded to aid analysis.

At the start of the focus groups, participants were provided with details of the CBRNe scenario used in previous focus groups (see Appendix A) and were then asked questions on how they would respond to this incident (for example: “How do you think you would feel if an incident of this type were to occur?”, “what would you do if you found yourself in this scenario?”, “what actions do you think emergency responders would take during this type of incident?” and “what information do you think you would need if an incident of this type occurred?”, see Appendix E for more detail).

Following these general questions, participants were then informed as to the purpose of the pre-incident information using the following script:

“The information presented below is designed to be provided to people before an incident involving a hazardous substance takes place, to help people to understand what actions they would need to take to protect themselves and/ or others during these types of incidents. When reading this information please think about the scenario you read earlier and consider whether you think this information would be useful if it was provided to people before that type of incident occurred”.

Participants were subsequently shown the pre-incident information (either on-screen or using a printed copy) and were asked to either read this or to indicate if they needed it read aloud so that

this could be done by the focus group leader. Participants were not shared any pre-incident information ahead of the focus group.

After participants had finished reading the pre-incident information, they were asked questions around three areas of the information: (1) general feedback (e.g., “what do you think of the information provided?”, “is there anything that you don’t understand or which could be made clearer?”, “would you feel confident taking the actions recommended in the information sheet?”), (2) pictograms (e.g., “what do you think of the pictograms provided?” “based on the pictograms would you know how to take the recommended actions?”, and (3) a specific question on the needs of vulnerable groups (“do you think there are any barriers that may prevent vulnerable individuals making use of (acting on) this information?” (see Appendix E). When discussing the pictograms, two questions also focused specifically on asking participants for feedback on which pictogram they preferred from the two options for point 5 (“Do not touch anything that could be contaminated”) and the three options for point 6 (“First responders are on their way, wait for instructions from first responders or authorities”) developed as part of this iteration of the materials (see Figure 5).

Following the focus groups, participants were thanked and provided with the debrief information.

Analysis

The focus group transcripts were analysed using framework analysis (Ritchie & Lewis, 2000), as it is grounded in data, flexible, and is particularly useful in research which has implications for practice (Pop et al., 2000). One researcher read and re-read the focus group transcripts to familiarise themselves with the data. A thematic framework was created based on the initial read through of the transcripts and the research aims. The thematic framework included: communicating the information, general feedback from participants, initial reactions to the scenario, feedback on pictograms, and vulnerable people. Two researchers independently coded half of the data and then combined their analysis for the write up. For the additional focus group from ETICAS, in the interests of time, one further researcher coded this data which was subsequently integrated into this document.

6.2.2. Results

The following section reports on themes covered by the focus groups in relation to the pre-incident information document. Six key themes were identified: (1) communicating the information (what information to communicate, provision of information in advance of an incident, how information should be communicated), (2) initial reactions to the scenario (seek help, remove the substance, panic), (3) general improvements to the pre-incident information (condense the information, colour of contaminant, Pictogram 1, Pictogram 3, Pictogram 4, and additional suggested recommendations), (4) Pictogram 5 selection, (5) Pictogram 6 selection, (6) translating information into action, and (6) vulnerabilities.

First, many participants had generally positive opinions towards the pre-incident information. With some saying they were clear to understand, were interesting and easy to ‘take in’, for example:

“I also thought it was very, very good information and then it's very interesting because this is that kind of information. That I haven't seen before.” (Swedish)

“Yes, I also think it was good information. It's kind of easy to take in, written in a simple way that most people can understand I think, so it was clear and yes... but informative.” (Swedish)

“All the picto bans [pictograms] for me on one is clear, there is no need for the text. [...]” (French)

“I don't think it's a waste, because then you get a bit of it in the subconscious [...] you are going to react one way or another, but it will be some of this, you want to do some of it in a way, you're not going to do it all in the right order, but you're going to do something.” (Norwegian)

Communicating the information

This theme is about how information should be communicated to members of the public. It is separated into three subthemes: what information to communicate, provision of information in advance of an incident, and how information should be communicated.

What information to communicate

When asked what information participants would want to be communicated to them in the scenario, participants' responses were separated into two main categories. First, participants discussed wanting practical advice on actions they could do to help themselves in the situation, for example:

“What can you do yourself? If it helps to get more air? Should you cover yourself?” (Norwegian)

One specific area of practical advice that several participants said they would want was around the use of water and whether this is something that would help the situation. One participant recognised that the answer to this might be dependent on the specific material in the scenario and said they would want to request clarification on this:

“Is this a material that can withstand water? Or is this a material that absolutely cannot withstand water?” (Norwegian)

The second category of information that participants discussed needing in this scenario was information on who they should call to help and whether they should call the emergency services, for example:

“Interviewer (I): What information do you think would be needed if this type of incident occurred?”

Participant (P): Who to call” (Polish)

Provision of information in advance of an incident

Several participants discussed whether or not they would want information about what actions they should take in advance of an incident occurring. In one group one participant recognised that there were benefits and challenges to both providing, and not providing, people with information on what actions to take ahead of an incident in terms of preparing people, but also minimising potential panic, but concluded that they would personally want to know:

“I think it’s a slippery slope. Because, on the one hand you need information in the event that if the risk is assessed to be moderately high, or it is, people must know what to do, but it can also spread panic in society. But I personally would like to know, yes.” (Norwegian)

“If I can add... sorry... that the threat is really something that is very likely to happen. But is it worth alerting a population if it’s something anecdotal? Yes, why not. Yes, but then yes, I ask the same question, is alerting the public like this unrelated worth it? But yes, it is, as an awareness campaign, why not? So I’m a little bit divided between the other participants. Okay?” (French)

Participants in another group discussed the potential emotions associated with being told this information in advance and how they might make some people anxious. Yet, they said that it is better to be anxious and ready, than unaware and surprised in a situation like this. On the whole, participants agreed that provision of information in advance of an incident would be beneficial in terms of preparation of members of the public for how they should respond, for example:

“There would have to be some kind of pre-action to anticipate the potential threat, because in the moment of danger, everyone has to know how to act.” (Polish)

How information should be communicated

Four methods of communicating information to the public during an incident, such as the one detailed in the scenario, were discussed by participants. First, there were mixed opinions on whether the use of an app would be beneficial. One participant said that an app would not be useful because it would create too many methods for the provision of information. Another participant questioned whether they would have time to switch on their phone and look at it to see what to do if they were in an incident like the scenario. Additionally, another participant believed the app would not be useful for people who do not commonly use phone for apps or the internet:

“So I totally protest because I know that my parents, who are not even 60 years old, will never use an app and don’t even know how to use the internet on their phone. So I know that there is a whole part of the population that will never look at an application and even less in the middle of the panic. I’m not sure that’s the most effective way to get this information out.” (French)

Furthermore, whilst one participant recognised the benefits of having an app, they suggested that the benefits might be limited if it is just for a CBRN incident and might be more useful if it is an app that applies to a wider range of situations, for example:

“Not if it is only for CBRN. I think that if there is an information app that applies in general to everything that has to do with health, 113, all kinds of things, then it could be useful, but like the infection control

app, I don't know, it didn't work that well [...] that's just an example, so it must be something more general that everyone has anyway." (Norwegian)

"I don't think I would download an application just to have the 7 security information, but I would like it to be integrated with other transport applications that we already use." (French)

However, following further discussions, one group started discussing the potential benefits of an app in terms of being able to receive updated information and the provision of information to different groups, for example:

"I take back what I said about an app not having been relevant because it would have been really nice to have a place to go to get updated information if there had been some kind of incident, and an app you can, to a much greater extent, make it available to different groups." (Norwegian)

The second form of communication that most participants agreed would be beneficial was posters. The main identified benefit of posters was that they would be accessible to large numbers of people as they could be presented in multiple public places, such as train stations, ticket offices, and on buses. Participants discussed that in these types of places people might be more likely to have time to sit and read information presented to them on a poster. However, there was a discussion in one group around whilst repeated posters might be useful in terms of helping people to remember the information, it could be confusing having multiple pictograms presented in one poster, especially if people are only reading the poster for the first time during a real incident, for example:

"But if they are in the form of posters, hung in places where people, for example, are waiting [...] then a repeated poster will somehow be remembered in some way, will it work? Perhaps there will be too many of these pictograms and there will be chaos in a stressful moment." (Polish)

The third form of communication discussed (but by less participants than the previous two) was using a video or animation to present the information. Participants said there were benefits of having a video or animation over a static poster. First, participants said a video or animation would be more memorable than the pictograms in post format. Second, participants said it would draw peoples' attention for longer than if they were to just scan a poster, helping them to remember the information provided.

Lastly, participants also spoke about the importance of making the information as widely accessible as possible. It was suggested that educational courses (for example at workplaces) would be very useful in making the information commonly known, as well as by using many different information channels, for example:

"Ah well, the display, maybe some leaflets, maybe the application, well more than one, maybe multi-channel." (French)

Initial reactions to the scenario

This theme concerns how participants thought they would initially react if they were in a situation like the scenario presented. This theme is separated into three sub-themes: seek help, remove the substance, and panic.

Seek help

When asked about what initial actions people would take in the scenario provided, several participants said they would seek help through calling the emergency services. The main reason why people said they would call the emergency services is so the call operator could tell them what they needed to do and what actions they needed to take, for example:

“If you call 112, they call 113 then they call the poison control centre, so you don’t have to think about everything yourself.” (Norwegian)

In addition, when asked who they would most like to receive information from during the type of incident presented in the scenario, several participants said they would like to receive it from paramedics because they believed they would be the most qualified to provide this information, for example:

“I: Who would you like to receive information from during this type of incident? From whom would you seek advice or information?”

P: Certainly, a paramedic. They are the most qualified, and if it is a chemical substance, then firefighters would probably know something more about it, as they have greater contact with such events.” (Polish)

Yet, whilst several participants discussed calling for help, one participant recognised that in the moment they could not be sure on their emotions and what actions they would take initially:

“But it is difficult to say how one would react. It is easy to think now that you had called 113, that you had kept calm and blah blah. You don’t know if it will freeze or what kind of reaction you will get. You don’t know in advance.” (Norwegian)

Further, again whilst several participants expressed a desire to call the emergency services for help, one group discussed some concern whether the emergency services would be able to help because of the number of people involved, for example:

“I: This somewhat answers my second question. What would be your main concerns?”

P: Health condition after some time, possibly just as my colleague said here-panic. Whether the services will arrive and be able to assist so many people at once.” (Polish)

In addition to seeking help from the emergency services, some participants also discussed seeking help from each other, as well as providing help to each other. However, participants did say that this would depend on who they were with, for example if they had their own children with them, and that they would take actions to protect themselves first, before helping others, for example:

“It also depends on who you are with. If you join. If you have children and are with your children, you tend to focus on your own but if you are alone, you can perhaps take on a bit more of a look-out-for-others role. If you manage to take care of yourself first. You have to take care of yourself first.” (Norwegian)

Remove the substance

The actions participants discussed they would take to remove the substance from themselves were separated into two sections: removing themselves and removing the substance. First, participants discussed removing themselves from the situation, for example leaving the building:

“Probably go outside just to get some fresh air.” (Norwegian)

Second, participants also discussed potential actions they could take to remove the substance from themselves. One way participants discussed they could do this was by removing any clothing that was wet. A second way participants discussed they could remove the substance from themselves was by using water to wash themselves and remove the substance, for example:

“I would look for a bathroom to wash my face, because finding running water is the simplest and most appropriate first reflex.” (Polish)

Lastly, one participant reported that the actions that they believe they would take, and actions they would perform during the scenario may differ due to the ‘crisis situation’:

“I think I’ll scream and I want to say I’d rip off my clothes and I’d find a public toilet and start rinsing. But at the same time, I don’t know. So once it comes down to a crisis situation, you might as well stand and giggle and not know what is happening.” (Swedish)

Panic

When asked how they would respond if an experience like the one presented in the scenario were to happen to them, several participants said they think they would panic in that situation, for example:

“I: How do you think it would be experienced if this happened to you?”

P: I think I would have panicked” (Norwegian)

Some participants discussed the reasons why they think they would panic, for example because other people in the crowd are panicking. One participant said that the unknown substance that is on them and not knowing whether their life is in danger would cause them to panic. The physical effects of the contaminant was also cited by some participants as a reason why they might panic, for example:

“Fear and anxiety because I do not know what it is and why my eyes are burning. Is it easy to combine these events so that someone sprays me and my eyes pinch and people cough around me too, so there is still this unknown. We do not know how the situation will turn out.” (Polish)

One participant compared the situation to a movie scenario and said that in a situation like this, panic is inevitable, for example:

“I feel we have learned it throughout life through movies and such things. So that when I read it, I thought that it is exactly how it is in the movies. That's exactly what happens when you watch a movie about this here. So you have, in a way, heard it and taken it in many times. I think that no matter how many times you are told, when you get into a situation you panic anyway. I don't know how much it helps” (Norwegian)

In terms of helping to minimise the amount of potential panic, one group discussed the need for specific actions that people can take to help to calm other people down and prevent people having panic attacks, for example:

“Something to do might be to calm others down, because you are guaranteed to have panic attacks if you experience something like that. After all, there are few, or I hardly think that everyone in such an area, something like that, behaves completely 100% calmly.” (Norwegian)

General improvements to the pre-incident information

The following section reports on the following sub-themes: condensing the information; colour of contaminant; Pictogram 1; ;Pictogram 3; Pictogram 4; and additional recommendations.

Condense the information

Some participants believed that the pre-incident information sheet contained too much information, and could therefore be difficult to remember

“I think I'll remember the booklet overall, but I remember the first half very well and the second half less well. I think the length should be shorter, so that it's a bit shorter by half. It's not that the information can be retained more easily. There's nothing else. In the second part that uh but it's just the length that would be harder to get.” (French)

“Way too much to remember in an emergency.” (Norwegian)

“I mean, there are definitely a lot of them, certainly not all of them would be remembered. I think the most memorable are those who say, for example, not to smoke, not to touch your face, not to drink.” (Polish)

and should be condensed or shortened.

“As Number 1 said, this kind of leaflet might not even be read. It's too long, already that, it has to be striking enough for someone to read it. Prepare a first picture, something visually striking so that people know that it describes this kind of event, I think that's very good, maybe that's what this first picture is.” (French)

“I have, I was going to come to that, it's on the length for example, it's on the fact that the text repeats several times to take off your clothes, to separate from them, not to take them back, to throw them in the bin and to make sure that there you go, to leave the clothes to finish and not to touch, we talk,

we often talk about clothes, it's good because inevitably, if you've been contaminated, you have to get rid of them, but it can be synthesised a bit better in the text.” (French)

It was also suggested for the pre-incident information to instead focus on only a few key elements to aid in keeping the reader's attention:

“I find that there is too much information and I would have really taken 2 or 3 of the most important ideas and the masters and for example there we display in the first icon what we are not allowed to do, so that's good, it's in red, but it would also be good to have another pictogram for what we are allowed to do. So I think there are so many prohibitions. I personally don't like it. To read that today, nobody, well few people read, we don't have time, but I think it's better to focus on one or two very important ideas in the not eating, not drinking, not smoking all that and to really put in red and next to it, put pictograms towards what we have the right to do, my 2 or 3 ideas, because the brain today between the phone and all that, we don't necessarily have the time to capture all that.” (French)

“And concise text, if it is to be informational text, very very short, take off your clothes, for example.” (Norwegian)

Suggestions on ways to condense included:

‘Merging three of the pictograms into one’ and ‘merge the two paragraphs on clothing to basically say if you feel your clothes are contaminated, separate and be careful not to touch the contaminated area’. (French)

Colour of contaminant

Some participants raised concerns with the use of the colour yellow for the contaminant, as some say yellow is either an unknown, or not seen as a dangerous colour (e.g., such as red).

“I think we have to be very careful with the colour, that is to say, as long as the French see red as “it's not ok”, green, that's fine, but yellow, what does that mean? That is to say that it varies in the countries. The pictograms we have here, there is yellow. And in fact I see the yellow, I say to myself that it's not very serious, so maybe here's a way of really emphasising the fact that there's a question mark, it's really dangerous. Well, maybe put it in red instead of yellow, that is. So in terms of colour, if I'm counting hyper-important, green would be clear, red is clear, yellow is not clear. Not clear to me, that's it. Yellow danger? 1 is danger. The 2 is the stuck 2 that is severe, it's all good. Yellow is not that. So yellow, yellow means nothing to me, we understood.” (French)

However, one participant noted that it would be ‘very worrying’ to use the colour red as the colour of the contaminant.

“It was also the colour and I think that if we put the colour of toxic substances or something other than yellow for example, red, it would be very worrying for the people who look at the plate in fact. So I think that yellow is the colour of danger that you see on all electrical signs and it's something that is quite recognisable.” (French)

One participant suggested putting a 'logo' in the pre-incident information to illustrate that yellow means danger.

"I just want to say after the indication that it's true that for people who are, who don't really know your function, the colour yellow, not for me. Put yellow but put a logo inside that means danger to explain that it is, it is dangerous" (French)

Pictogram 1

Participants believed that an illustration of a woman was missing from the first pictogram, and that this could imply the woman should be the one calling the emergency services.

"The first pictogram. I don't understand, that is to say that priority is given to the disabled person, the child, the man and the old person, but where is the woman in all this? No, it's not a woman because she doesn't have a dress, for me that's wrong. That she has no hair or very little hair but for me it's not clear. So for me, when I see this, it's the disabled person, it's the child, it's the man and it's the old person, but for me there's no woman, so I think we should put some in. So that's what I'm missing." (French)

It was also noted that participants believe they should leave the scene as a result of pictogram 1 but then are told to remain close to the scene in pictogram 2, which was considered confusing.

"The opening paragraph is quite contradictory for me. Because it says at the outset, if you think you've been exposed, you should move away from the hazard, but then it says, you should stay close to the incident. So um, there's maybe a distance scale, to be specified, if we keep this structure. But maybe more emphasis should be put on, um, please keep calm and stay close to the incident, while putting yourself in a safe place, so as not to mislead. Because when I read the first paragraph, I want to get as far away from the area as possible. But when I read the second one, I think, but we still have to stay close to the place, right, and then? Explain why you have to stay close to the scene, because I don't think anyone wants to stay close to the scene of a similar incident. So you have to give a good reason. Uh, this security, advises me, recommends me to stay close to the incident. There has to be a good reason for someone who is panicking and afraid of being contaminated even more to stay close to the incident. It's like saying, there's a bomb, er, but be careful. That's it." (French)

Pictogram 3

Some participants believe that figure three could be made clearer by including arrows to show movement, for example heading towards the bin.

"For me, the number 3 but without the text. In any case, everything is understandable for me with the text, but without the text something could be added so, it is pictogram 3 to make it clearer. ... I don't know, I'd like little arrows, green arrows that show the bin, so the green stuff, so an arrow [i.e. line] that has two arrows on it. That life goes to the glass bin." (French)

“I had another remark about the 03, yes, because the person is looking at his hands and there is no real action in this pictogram. There's no arrow or anything, you really have to read the whole instruction which is quite long to understand what it's about. In fact, perhaps an arrow should be shown to say that the person is throwing his clothes away.” (French)

Pictogram 4

Some participants found pictogram 4 to be unclear due to the double arrow, and there were suggestions to include an eye - to provide a visual representation of looking for contamination.

“[...] and the same for pictogram 4, there's an arrow. And as the person is looking at his hands, I don't really understand. The instruction says that you have to stay away from harmful substances, but here he seems to remain static.” (French)

“The pictogram 4, I think that it should perhaps be shown that it is necessary to make a visual recognition, thus to add an eye, it the arrow towards the contaminated environment so that one understands well that one becomes aware of the contaminated zones, for example, that an eye on the man for example, yes or just to an eye with an arrow which leaves on the contaminated zones to say "To identify the source or the contaminated zones". Because we don't necessarily understand the arrow that goes back and forth from the person. Well, we just understand that there can be exchanges between the contaminated areas, the environment, but not necessarily the action of identifying or paying attention to what is already contaminated. So an eye, an eye or even maybe a nose because if it's olfactory.” (French)

“It might be worth making an arrow that says be careful, if you feel or if you see, move away from something like this because the pictogram is not totally clear. With the double arrow.” (French)

Additional suggested recommendations

One participant recommended that an additional instruction should be created to ‘memorise and report’ any information that could be useful in identifying the source of the contaminant, and also recommending ‘Alert, Secure and Act’.

“In line with what was said earlier about any information about the source that might be useful. There should be a recommendation, I think also in the brochure, that is to say any information that would make it possible to identify the source. Memorise and report any information that could be useful in identifying the source of products and on the classic recommendations of alerting and securing and um, I don't know, it was... Alert, secure and act.” (French)

One other participant suggested that there should be an instruction to ‘not touch each other for reassurance’ and risk contamination. Also that distancing from others should always be recommended:

“I have one important suggestion, I think, which... I mean, I don't remember seeing it... Which is related to the other recommendation by the way, which is, you have to stay close to the scene of the

incident and uh the fact that if people panic, they may want to gather and touch each other to reassure themselves? And so a clear instruction that it's in their interest not to touch each other and risk contamination is missing in my opinion. Even at a good enough distance, a distancing should be recommended because it is not necessarily the case of COVID, it is something chemical and potentially harmful at a much greater distance. No?" (French)

Pictogram 5 selection

Focus group participants were asked their preference on the two pictograms accompanying instruction 5 (do not touch anything that could be contaminated, please see Figure 6).

Figure 6. Two options for “Pictogram 5: Do not touch anything that could be contaminated”. Option 1 is on the left and option 2 is on the right.

5. Do not touch anything that could be contaminated.



In general, there was a preference for option 1, the image containing the red barrier sign.

“The left one.” (Swedish)

“I prefer the pictogram on the left because it is clearly understandable as a prohibition not to touch anything that could be contaminated and I will also put the contaminated person in the circle so that it is clear that you should not touch objects, the environment or a person who has been contaminated and so on.” (French)

Despite a preference for option 1, there are also suggestions on how to improve this pictogram. These included changing the tree image, as it was difficult to tell it was a tree due to the positioning of the red barrier sign:

“It is. But the icons, that tree for example. We only know it's a tree because we have the same image on the right without the bar.” (Swedish)

[...] *“The tree should be small, a little more visible.”* (French)

“The circle could have been a little smaller, and that in the middle more visible.” (Norwegian)

and there was confusion as to why a tree was included in the things not to touch, as this seemed unusual to the participants:

“The handles. that's the kind of thing we'll be touching. That's what we're not going to touch. The tree, I'm not going to run out and hug a tree when this happens.” (Swedish)

“ And trees... are well maybe. Maybe you don't think about like? I don't know, I probably wouldn't have connected.” (Swedish)

There was also preference for more emphasis on the hand icon:

“[...] I have a preference for the pictogram with the red, but I would have put the hand in the middle and put the [...] there to tell me not to touch it, because that's not really good. Put the accent, don't touch.” (French)

“[...] I prefer the program on the left, but I like the fact that the hand is crossed out in the other one on the right, so I think you have to make a combination so that it's clearer.” (French)

Despite a general preference for option 1, some participants expressed a preference for option 2:

“I don't agree at all with the others. For picto 5, you have to go to the left, the one on the left with the hand in the middle.” (French)

“I liked the one on the right [...] Yes, I only see the tree and the red one, so for me I won't touch trees.”

[...]

Yes, and I don't quite understand that tree, is it a tree or?

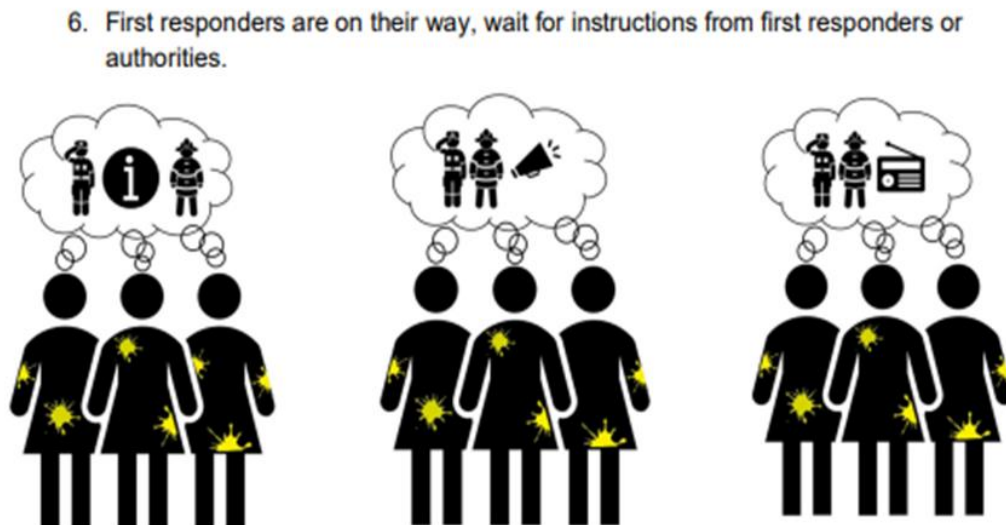
Yes, it's a tree

What is that tree doing there?” (Norwegian)

Pictogram 6 selection

Focus group participants were asked their preference on the three pictograms accompanying instruction 6 (First responders are on their way, wait for instructions from first responders or authorities, please see Figure 7).

Figure 7. Three options for “Pictogram 6: First responders are on their way, wait for instructions from first responders or authorities”. Option 1 is on the left, option 2 is in the middle, and option 3 is on the right.



In general, opinions were mixed across the three pictograms.

For option 1, one participant believed that the ‘i’ icon was thought to look like the Tourist Office symbol:

“And on the left, I think of the Tourist Office.” (French)

Whereas two participants preferred this pictogram as the ‘i’ symbol was easily recognisable:

“I prefer the pictogram on the left with the symbol in training in the centre because you can immediately recognise this symbol and I find you in the middle of the two people who could help us. So I liked the fact that they are the ones who are going to talk to us compared to the other two pictograms, where the symbol is on the side. And I find them a bit less clear, um.” (French)

“I prefer the one with the information logo, precisely because the information speaks more. On the other hand, the bubbles that go from the heads, I would prefer arrows that speak from the cloud to the people to indicate that the information is coming and going down and coming from the police and rescue forces.” (French)

A few of the participants showed preference towards option 2:

“The middle one. So, does it indicate that it will call the rescue workers who will [...]? I think it's better than the one on the left, with an information point with an information, the radio, it's true that it goes, at least it speaks, we know that they will be the ones to say things directly verbally” (French)

“Yes, the same for the same reasons. It's more, it's more meaningful.” (French)

“The middle one.” (French)

“Number two I think shows very clearly that you should wait for a message from some someone who had authority in the areas.” (Norwegian)

There was not much discussion about option 3, however some participants associated the icon with a radio:

“[...] on the right, yeah radio... I think more about listening to more than them who will communicate the message.” (French)

“That with radio, think they need to go back to the drawing board, nobody has a radio anymore.” (Norwegian) “I do not know on the third, is there a radio” (Polish)

“The first one is that the services will come and there will be some information. Second, there will also be information. The first and second are fine. Third, the first responders will come and play music.” (Polish)

Overall, participants expressed confusion over the use of a ‘thought bubble’,

“[...] I totally agree that the bubbles towards the cloud make it look like what the participants might imagine when that's not at all what the programme wants to communicate. So I also like the information symbol and I would put something like a pictogram that illustrates the sound of the instructions that the authorities might give, so use the symbol of the megaphone speaker, whatever.” (French)

“There is the question of why it is illustrated as thought bubbles. So if you had this group of people and then at one end and then to draw a scared... , that is a fire engine. At the other end, which is still angled towards the group of people. Then, So but.” (Swedish)

“But why thought bubbles? I think they have to do something else.” (Norwegian)

As well as why the contaminated people were standing so close together in the image,

“By combining with the first logo and the logo in formation. And in parenthesis, if we could put some distance, if we could distance the people to show that we don't want them to be too close together, at the risk of contaminating themselves. So it would be nice to have a loudspeaker above their heads with the symbol of the authorities and information. Between the two, I think it would be very telling to say, You will receive, uh by the authorities the necessary information to react. And still respect a minimum distance. Don't make a mistake like on the pictogram.” (French)

“I'm talking about pictogram 6. I find that this pictogram can communicate a contradictory message in fact that people risk contaminating each other, so we don't necessarily want them to group together. But that's what the pictogram seems to be saying. And do 3.” (French)

Some participants also spoke about the use of a ‘collection point’ symbol associated with fire instructions, or the pictogram showing ‘leading them to a collection point’.

Translating information into action

When asked whether participants would follow the pre-incident information, responses were mixed, with some participants stating they would not carry out the behaviour due to 'not being confident with the cold':

"The 7 and 8 pictogram I can't see the notices and I can't... I'm not confident at all with the cold and everything... I'm a woman so I'm not going to take my clothes off and I'm not going to put other clothes on either so no I can't do it." (French)

Others believed the instructions were clear and would carry out the actions if required:

"For me the instructions are clear, so I will follow them if I have to. That's what is required. If the instructions match what I'm told, the paramedics are asking me to do if it's yes, that's fine. That's more like it. The rescuer, if they say to undertake these actions. Okay, I would follow, but I would be more confident if they also said the same." (French)

"Yes, I also think it would depend on how the environment would react. I want to say that I would rip my clothes off, but if nobody else would just rip their clothes off then I don't know. Yes, but the psychological factor that I would then be naked, practically naked, in front of other people. They're not going to have to... This hesitation. Then I wonder about myself whether it would put any form of lock without me really knowing if it yourself? Because that's a big deal. That you have to stand in your underwear and Bra in front of...on a train platform. But at the same time if everyone would do it. It wouldn't feel as bad. So it depends. I think also. It depends on the environment." (Swedish)

"Yes, the same. I think I'd be more reassured if I was told to do this rather than read this. And then to follow it on my own. Okay? At least it's clear. I mean, I think everything is all clear and easy to understand. If ever we had to do this, if we were in this situation, I would have no problem with it." (French)

"Absolutely but great to get this reminder that it's not touching your face and not like drinking anything. It makes a lot of sense when when you read it or when we read it. But, yeah, maybe not things that have, maybe things that you don't think about. Because it's things that we do so automatically so it's good, great to have such a...this reminder." (Swedish)

"It is very obvious when you read it, that you shouldn't touch your face or take your clothes over your head and things like that, but it's good to have read it, so that you know about it so you can focus on remembering these things here rather than panicking." (Norwegian)

Vulnerabilities

Throughout the focus groups there were mentions of vulnerable groups and ensuring accessibility of the material for all. Firstly, there were concerns about language, and ensuring that those that couldn't speak French would be able to have instructions in their native language (raised in the French focus group).

"I think that yes, there are children, there are people who cannot read, so we must also take into account that there are many people who cannot read French." (French)

But not just reading in the native language, some participants also discussed people who might not be able to read in general, no matter what language it was presented in:

"Here it is very text-dependent. There is a lot of text on some of them, and if you depend on text, then there are quite large groups that are left out." (Norwegian)

The pictograms were noted in terms of an accessible feature, but it was noted that these are not accessible for those visually impaired.

So, the visually impaired, the hearing impaired, people with reduced mobility and children who might not be able to follow the distancing instruction. Directions according to the person's disability, that I imagine is, that is known for instructions. Governmental, accessibility? Your language too." (French)

"I think a lot of people with just, if you would, a lot of people with cognitive impairments. So that you, or maybe I used the wrong word, but that you have a bit of a developmental disability or...that... Then it can be more difficult, but others who have disabilities I think are better at, they are used to reading information in a different way than many of us who have full mobility can. But but." (Swedish)

Similarly, there were also concerns that some people are unable to read, for example children and those who are visually impaired, therefore it suggested that an audio file accompanies the pre-incident information.

"Well, that's precisely where we need, how can I put it... a message that is shown on the screens or even a message that we can hear and understand. But there, like that in isolation, there are people who can't read. So that's a bit like that and the same for children. I don't know if any children will see this?" (French)

"I don't know. I have my son who is in first grade and well, he can't read yet, so there you go, because he's facing that. I don't think I can do anything for him. Well, he still has to listen to a message, so it will be easier for him to speak." (French)

"When you say like that, it was very nice when you (interviewer) read the text actually, to hear the sound of it. So an audio recording in Except those who cannot read for the pictures, honestly, it leaves little to wish for." (Swedish)

One focus groups' discussion focused primarily on the experiences of individuals with a hearing-impairment. Participants highlighted the need for emergency services personnel to be able to communicate through sign-language:

"And we've always called for professionals at least knowing how to get by in sign language, when dealing with a deaf person, which implies having to be able to make gestures at any time or maintain meaningful eye contact for long enough to ensure effective communication bla bla bla." (Spanish)

"So, if the professional doesn't know sign language, then, then if the professional can learn sign language, you know... it would be... it often wouldn't be fluent communication, you know, but there

might be different kinds of people, older people, children, deaf-blind people... So, you need to know a bit in general about how to understand those people.” (Spanish)

Ensuring this communication was not condescending, and simply communicates the same information that was being given to individuals without a hearing-impairment was highlighted as important by several participants:

“The problem is the communication barrier and the fact that sometimes, in those situations, the attitude of the professionals changes and they can really talk down to us such as “Oh God, she can’t hear me, she can’t talk”. They treat us the way they treat kids and palm us off in a little group of our own and they fetch and carry us here and there when we’re capable of doing that ourselves. So, for me, the priority is safety, safety and for people to know that I’m a deaf person who, if I’m given the information, then I’m able, in an emergency situation, to understand all situations and maybe, if they tell me I need to take my clothes off and they tell me why, then I’ll do it.” (Spanish)

“When I go in for an operation, what I often come up against is “it’s fine, it’s fine, calm down, don’t worry, I’ll take you there”. I don’t need you to take me there, what I need is for you to give me the information about what’s going on, like you would with anyone else. So sometimes when we give that answer, the professionals are a bit taken aback because they have that patronising attitude you were talking about before. And situations like these don’t give us the assurance we need. And, in an emergency situation, where we’re in an emergency, that kind of situation. We don’t know what’s going on. And if someone comes up and treats me like a little girl, then no it’s not nice. What I want is for someone to listen to me.” (Spanish)

“I think that trying to share and showing me that you want to share all the information with me that the hearing people have. If all the hearing people know that they need to stand in that queue and that they need to go to such and such a place” (Spanish)

However, not all participants in the same focus group agreed that this was necessary:

“So, there are situations that are so extreme that, honestly, if they talk down to me, I’m not bothered. The important thing is saving my life. My life and the lives of the people I’m in that situation with.” (Spanish)

Although, these participants did acknowledge their perspective did not reflect that of someone with a hearing impairment:

“What I mean is, I’m not bothered if... Of course I’m not bothered, but I’m telling you, as a hearing person, you know?” (Spanish)

“I don’t know whether a deaf person would feel the same way is what I’m saying. Because I don’t know,” (Spanish)

Additionally, there were also concerns about the ability of individuals to communication being reduced at various stages of the emergency scenario. This includes when exposed to a contaminant, when PPE is worn and during decontamination showers:

“The third would be whether the... the emergency services will be wearing PPE that make it impossible for me to communicate with them and understand them or whether they’ll know sign

language or not. Because if there's some situation when they're wearing masks, then we can't lip read at times like that" (Spanish)

"Of course, for me, as a deaf person, if I need to communicate with a deaf-blind person, then the way we'll communicate will be with supported sign language, or, if there's some contact with their hands, to know what's going on because that's the way they communicate. So, that contact has to be there. At the end of the day, the risk doubles and grows." (Spanish)

"But then, thinking properly about it and seeing that you have to get showered, you have to take your clothes off, I think sign language could even... But sign language, the ability or capacity to communicate non-verbally with deaf people in those types of situations. Because I understand that hearing aids, cochlear implants or anything like that won't work in a decontamination shower or in any situation that requires a nearby energy source." (Spanish)

To address some of the concerns highlighted above, several participants suggested incorporating an interpreter into the app:

"So, If I need a sign language interpreter, then they can go and get me a sign language interpreter, who can then come and then I can communicate through them on a video call, so they can provide us with the information we need at that time." (Spanish)

"Because I really would like to point out that technology makes it possible to have an interpreter in situ in any situation. What I mean to say is that just a simple tablet with a good connection makes it possible to have a professional interpreter whenever. So I'm not sure whether a tablet like that is part of PID or..." (Spanish)

"I'd imagine the app would be useful for me when the time comes up, but what I would say is that if the emergency services personnel, healthcare professionals, the area coordinator and what not, have to come to me and I'm a deaf person, in that situation if they come to me with a tablet and I can see a sign language interpreter on there, things get resolved in so much less time instead of having to depend on pictograms, drawings and what not." (Spanish)

Summary

Considered together, the European focus groups provided some further invaluable evidence concerning the value of pre-incident information, and some clear suggestions for iterations to improve the PROACTIVE material. Specifically, the broad focus group consensus was that individuals would want to know what actions to undertake in an emergency and, although the information might be uncomfortable, they would want to know this in advance. There were also variable perceptions of the utility of an app, and positivity around the use of both poster communication (to reach a mass audience) and a desire for an accompanying audio version (for those who are less able to see/read).

When considering their initial reactions to the scenario, participants indicated that they would want to seek help and to remove themselves (from the location) and the substance (from themselves), but also mentioned the possibility of panic (both themselves and others). The provision of specific

actions to undertake in this scenario was cited in one group as a method of reducing panic, thus further strengthening the argument for pre-incident information.

In terms of the pre-incident information material, participants broadly saw this as clear to understand and had largely positive general opinions. However, some specific feedback was discussed during the sessions. In summary, this included:

- A desire for the written text to be condensed and shortened
- A reconsideration of the colour of the contaminant (or the addition of a clarification that yellow means danger)
- The inclusion of a female character in pictogram 1
- The confusing contradiction between being told to leave the scene in pictogram 1 but also to remain close to the scene in pictogram 2
- The inclusion of an arrow in pictogram 3 to aid clarity
- The removal of the double arrow and the inclusion of an icon to make it clear that they should be recognising and staying away from the substances in pictogram 4
- The inclusion of additional instructions to: 1) memorise and report any information that might be useful, and 2) avoid touching each other/ recommend distance from each other

Participants also provided detailed feedback on pictograms 5 and 6, concerning their preferences between pictogram options, and recommended the provision of the information materials in different language and audio formats in order to cater to vulnerabilities.

Overall, these focus groups provided an essential opportunity to workshop the materials with members of the public from across the PROACTIVE consortium countries. The wealth of additional information reaped from these analyses provided recommendations for modifications to be integrated alongside feedback from the Rieti exercise and PROACTIVE progress meetings for the next version of the materials presented in Section 9.

6.3. Rieti Exercise

For the second field exercise in Rieti, participants were sent Version 5.1 of the pre-incident information five days before the exercise. During the exercise, participants were asked their thoughts on the pre-incident information through pre-exercise and post-exercise questionnaires. See Deliverable 6.4 (Godwin et al., 2023) for full details and results from the first field exercise. The findings in this section are duplicated from those presented in Deliverable 6.4.

In the pre-exercise questionnaire, participants were asked if they read the pre-incident information. Participants were also asked six questions on the actions in the pre-incident information, these were if in a real incident: the actions in the pre-incident information would be effective at removing the contaminant, if they would seek further treatment after taking the actions, whether they would feel

comfortable, embarrassed and willing to take the actions (individual items), and if the actions would be easy to take. These six questions were rated on a scale from 1 (Strongly agree) to 7 (Strongly disagree).

When probed about whether they read the pre-incident information for CBRNe incidents, twenty-eight of thirty-one volunteers responded. Nineteen volunteers (67.9%) reported that they had, and nine volunteers (32.1%) reported that they had not read the information. Moreover, none of the participants reported using the PROACTIVE App.

A one-sample t-test was run to analyse whether each pre-incident item was significantly different to the scale mid-point (see Table 5). The result shows that volunteers who read the pre-incident information reported that they believed the pre-incident information would be an effective way to decontaminate and would also want to seek further information. They would also feel comfortable and willing to take the actions in the pre-incident information. However, the results also showed that even though participants reported they wouldn't feel embarrassed and would find it easy to take the recommended actions in the pre-incident information sheet, these were not significant.

A paired samples t-test was conducted on the six pre-incident information items from pre-exercise to post-exercise to assess if the exercise influenced views on the pre-incident information. The results from the pre-exercise and post-exercise item on feeling embarrassed to take the actions recommended in the information sheet indicate that participants reported they would feel significantly less embarrassed to take the actions post-exercise (see Table 6). There were no significant differences between the remaining five pre-exercise and post-exercise pre-incident information items.

Table 5: Comparisons between the Means and the Scale Mid-Point for the pre-incident information

	Means	Standard Deviations	t	p	Df	Cohen's d
If a real incident of this type were to occur, I think that taking the actions recommended in the pre-incident information sheet would be an effective way to remove a contaminant from my skin.	5.24	1.39	3.66	<.005	16	0.89
If a real incident of this type were to occur, I would feel comfortable taking the actions recommended in the pre-incident information sheet.	4.94	1.63	2.46	<.05	17	0.58
If a real incident of this type were to occur, I would feel embarrassed taking the actions recommended in the pre-incident information sheet.	3.72	1.78	-0.66	>.05	17	0.16
If a real incident of this type were to occur, I think I would find it easy to take the actions recommended in the pre-incident information sheet	4.56	1.50	1.57	>.05	17	0.37
If a real incident of this type were to occur, I would be willing to taking the actions recommended in the pre-incident information sheet.	5.78	1.11	6.77	<.001	17	1.60
If a real incident of this type were to occur, I would feel the need to seek further treatment after taking the actions recommended in the pre-incident information sheet.	5.00	1.57	2.70	<.05	17	0.64

Table 6: Analytical comparisons between pre- and post-exercise pre-incident information questions

	Pre-		Post-		t	p	Df	Cohen's d
	M	SD	M	SD				
If a real incident of this type were to occur, I think that taking the actions recommended in the pre-incident information sheet would be an effective way to remove a contaminant from my skin.	5.25	1.44	5.56	1.32	-0.92	0.37	15	0.23
If a real incident of this type were to occur, I would feel comfortable taking the actions recommended in the pre-incident information sheet.	4.88	1.65	5.59	1.62	-1.90	0.08	16	0.46
If a real incident of this type were to occur, I would feel embarrassed taking the actions recommended in the pre-incident information sheet.	3.88	1.82	1.81	1.11	3.51	0.003	16	0.88
If a real incident of this type were to occur, I think I would find it easy to take the actions recommended in the pre-incident information sheet	4.47	1.51	5.18	1.98	-1.27	0.22	16	0.31
If a real incident of this type were to occur, I would be willing to taking the actions recommended in the pre-incident information sheet.	5.71	1.11	5.65	1.66	0.14	0.89	16	0.03
If a real incident of this type were to occur, I would feel the need to seek further treatment after taking the actions recommended in the pre-incident information sheet.	4.94	1.60	4.82	2.01	0.28	0.78	16	0.07

7. INTERIM MODIFICATIONS TO PRE-INCIDENT INFORMATION

Following the feedback presented during the 13th PROACTIVE progress meeting, modifications were made to three of the pre-incident information instructions/ pictograms in order to provide options for discussion. Specifically, modifications were made to the “be aware of harmful substances in your location”, “do not touch anything that could be contaminated”, and “first responders are on their way, wait for instructions from first responders or authorities”. See below (Figure 8) for the different options for these three pictograms.

These options were then discussed during the 14th progress meeting. As part of the discussion, it was agreed that the two pictograms focused on being aware of the environment/ avoiding contact with contaminated items could be combined. After considerable discussion, all the partners agreed on changing the wording of the “contamination” pictogram to “Minimize contact with your surroundings. Not all hazards are visible”. There was also agreement to introduce some urban environments into the pictogram (e.g., a house) as it is unlikely that an incident will occur exclusively in a natural environment.

These recommendations will be taken into consideration alongside feedback from the EU focus groups and Rieti exercise (and all previous iterations) in the following Discussion section, to lead to a final series of recommendations for the final pre-incident information materials to be tested in the PROACTIVE exercise in Campus Vesta.

Figure 8. Various options presented for the three pictograms and discussed at the 14th PROACTIVE progress meeting.

Be aware of harmful substances in your location (e.g., contaminated clothes left on the floor or objects such as trees).



Avoid harmful substances in your location (e.g., contaminated clothes discarded on the floor or objects (e.g., trees)



5. Do not touch anything that could be contaminated.



Do not touch anything that could be contaminated.

First responders are on their way, listen to instructions from first responders or authorities.



8. SUMMARY AND DISCUSSION

This deliverable provides a comprehensive account of the full process of development of the PROACTIVE pre-incident information materials from their first genesis in Deliverable 5.1 (Nicholson et al., 2021) through to the final version presented in the section following this one. In the initial process for development outlined in Deliverable 5.1, a three-stage process including a longitudinal survey component and exercise evaluation was detailed. In practice, a far more extensive and wide-ranging stakeholder engagement process was conducted, incorporating views from both practitioners and the civil society across a range of qualitative and quantitative data collection methodologies (and incorporating all aspects detailed in Deliverable 5.1).

Through this comprehensive process, seven different iterations of the pre-incident information materials have been developed, with a variety of different options for pictograms and wording. While the final version (presented in the following section) represents the evidence-based, stakeholder-led best practice version of the materials which we recommend using, we concede that these may not be exactly fit for every purpose or context. Indeed, we reflect that differences in procedure across countries did come up throughout the review process; this emphasises the impracticality of creating one set of guidelines that will work for all contexts. We therefore strove to create a version of the pre-incident information that was agnostic to procedural difference (i.e., that was generic enough to fit a broad range of contexts), and will provide a copy of previous versions of the pre-incident information materials online for practitioners and stakeholders to access and modify in order to fit the needs of their respective settings (e.g., incident type, fitting with specific SOPs for practice). In this way, the suite of pre-incident information materials developed through this process really does go above and beyond in terms of delivering against the requirements of PROACTIVE Work Package 5 and ensuring the applicability of PROACTIVE outputs in a wide range of contexts.

Furthermore, the analyses and stakeholder engagements reflected herein provide crucial data concerning the effectiveness of pre-incident information materials, and public perceptions of their usefulness. Specifically, across data collected through focus groups and exercise analysis we can see that, although there is also an acknowledgement that the need for such materials may make some feel uncomfortable, there is a broadly positive view of pre-incident information and a desire to receive these ahead of any incident. In addition, we see that the pre-incident information provides improvements to both perceived and actual knowledge and understanding of the recommended behaviours which persists over the long term (e.g., at least six months). These findings concerning the value and effectiveness of pre-incident information are consistent with those identified by Carter and colleagues (Carter et al., 2019; 2021), and provide longitudinal data to help address the research gap identified in Carter et al., (2020). In summary, across the work conducted in developing these materials, we have identified substantial further evidence to support both the positive perceptions of pre-incident information, and their effectiveness at influencing knowledge, understanding and confidence in undertaking recommended behaviours.

The insights learned through this process also have far-reaching implications beyond the PROACTIVE project. Indeed, insights from the project have been fed into workshops conducted as part of the Horizon 2020 STRATEGY project to develop a CEN Workshop Agreement (CWA) concerning standardisation of early warning social media messages for use in crisis management (see <https://www.cencenelec.eu/news-and-events/news/2023/workshop/2023-02-20->

[smessages_crisisdisaster/](#)). The initial draft of CWA guidelines for effective messaging have recently been released for public comment (see [https://www.cenelec.eu/media/CENELEC/News/Workshops/2023/2023-02-20-%20-SMMessages_CrisisDisaster/draftcwa_openforcomments.pdf](https://www.cenelec.eu/media/CENELEC/News/Workshops/2023/2023-02-20%20-%20SMMessages_CrisisDisaster/draftcwa_openforcomments.pdf)) and the PROACTIVE pre-incident information is already consistent with many of the key aspects included therein (including clarity, simplicity, accessibility, and the importance of carefully designed graphics). The final iteration of pre-incident information – developed based on feedback from testing at the Campus Vesta exercise – will also consider the final adopted version of the CWA guidelines.

Furthermore, as part of the process of reviewing these materials, participants were also asked about the potential utility of an app for disseminating information. While there were some variable perceptions as to the usefulness of an app, there was a strong emphasis throughout the civil society engagements on accessibility and providing methods of engagement for individuals with visual impairments. These included recommendations for audio versions, which we know can be incorporated into an app. This, therefore, provided support for the app as a method of making information accessible to a broader range of groups.

As can be seen from this report, feedback provided across the six iterations of the pre-incident information has been iteratively incorporated into each version. This has resulted in a wide range of different structures and content of the pre-incident information material. While this has been a critical part of the iterative drafting and review process, it may, at times, have made the material confusing or harder to follow in terms of the ordering (some points of which are reflected in the feedback from stakeholders). This has included occasional errors in ordering where instructions have been paired with different pictograms than those intended. These issues and criticisms have been taken on board and in the following section is a synthesised version, in which the ordering and content of the material has been standardised. In general terms, looking across the data collected from the civil society through this process, we can see generally positive views concerning the clarity and understandability of the pre-incident information; this is likely attributable, at least in part, to the addition of the pictograms. Nevertheless, recommendations for revisions have been made throughout and remain from the last round of stakeholder engagement for incorporation into the final version of the materials. Specifically, recommendations include further simplifying and condensing the written text (making the behaviours more explicit), reconsidering the colour of the contaminant, the inclusion of a female within pictogram 1, a resolution of the contradiction between being told to leave the scene but also remain close, and modifications made to (specifically) pictogram 4, 5 and 6 to aid clarity. These modifications are detailed in the following section.

9. FINAL PRE-INCIDENT INFORMATION FOR EVALUATION AT CAMPUS VESTA

Following the synthesis of data collated from across the review periods detailed above, several final changes were made to the pre-incident information that will be evaluated at Campus Vesta. Specifically, work was undertaken to clarify the pictograms and to simplify the language (including the addition of a box containing short versions of the instructions) to address concerns around clarity. Particular attention was paid to clarifying the disparity between leaving the immediate scene and staying in the area to await instruction and making clear at which point individuals should be acting in response to instructions from responders. An additional pictogram recommending that individuals avoid touching each other where possible was also included, and modifications were made to integrate the previous Pictograms 4 and 5 into one pictogram with the accompanying text to “minimise contact with your surroundings”.

This final version of the pre-incident information resulting from this extensive process of review and iterative development will next be reviewed as part of PROACTIVE PM15 with any final small edits being incorporated into this version for testing during the exercise at Campus Vesta. The final version of the pre-incident information can be seen in its entirety below.

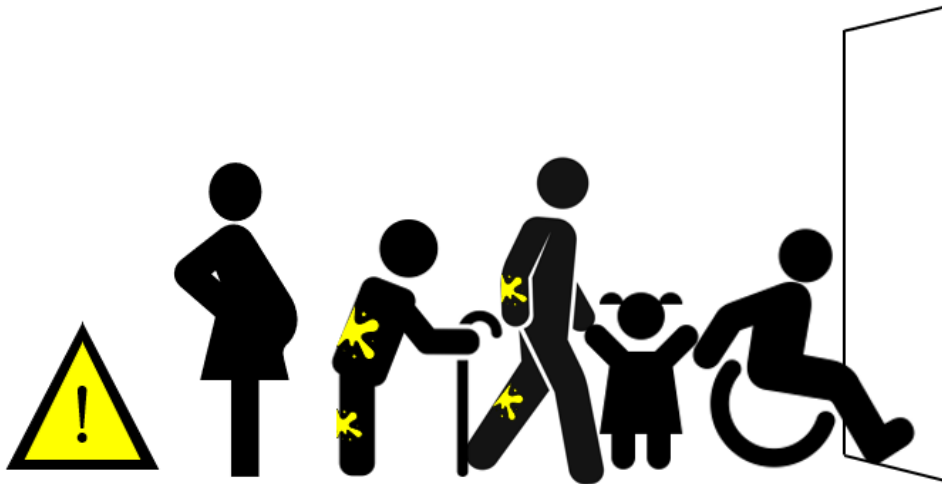
Pre-Incident Public Information Materials for CBRNe Incidents

The information in this document outlines the steps you can take to protect yourself in the initial stages of an incident involving the release of a hazardous substance. Emergency responders refer to these as CBRNe incidents - where the letters stand for Chemical, Biological, Radiological, Nuclear, or explosive (CBRNe). The incident described in the following scenario is an example of this type of incident:

Mid-morning, you and other passengers, are awaiting to board a train at a Railway Station when there is a loud noise from up the railway track followed by a cloud of gas which drifts onto the platform. The passengers show signs of irritation, such as coughing, breathing difficulties, and streaming eyes.

In this example, a hazardous substance may have been released, and is causing symptoms in the passengers. The information on the following pages outlines steps you can take in this scenario.

Please note: *The yellow splodges in the following images represent a hazardous substance and indicate danger. In reality, some harmful substances may not be visible.*



If you think you have been exposed to a potentially harmful substance, whether you can see it or not, **move away from the hazard as soon as possible** to prevent any further contact with the substance. Get fresh air if possible – this can help with any symptoms you are experiencing.

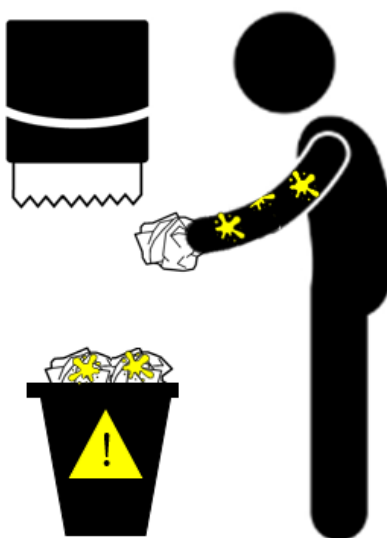
While you should move away from the hazard, you should remain in the general area as emergency responders will soon arrive to help you. While you are waiting you should avoid doing the following things:



- 1. Do not eat, drink, smoke or touch your face to avoid swallowing any potentially harmful substance.**



- 2. Remove your outer clothing.** This will help to remove any harmful substances. Remember that not all harmful substances will be visible, so you should remove your outer clothing even if you think there isn't any substance on you. When removing your outer clothing **try to avoid pulling any clothes over your head.** If this is not possible, try to avoid clothing touching your face whilst removing over your head.



- 3. If any of your skin has the potentially harmful substance on it, use a dry tissue or similar absorbent materials to either soak it up or brush it off.** This will help to remove the substance from your skin. If your skin is itchy or burning, then rinse the affected area continually with as much freshwater as possible.



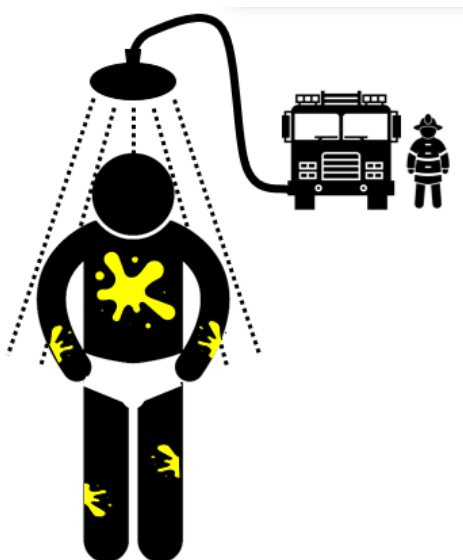
4. **Avoid coming into contact with other people**, where possible, to prevent spreading any substance.



5. **Minimise contact with your surroundings**. Not all hazards are visible.



6. **When first responders or authorities arrive, make sure you listen to any instructions they give you.** Responders will also provide specialised assistance to vulnerable individuals.



7. Emergency responders or authorities may also ask you to **remove your clothing to your underwear and then wash yourself all over** in a shower system that they will set up.



8. **You should not put your old clothes back on after removing the substance from yourself.** Emergency responders will help to provide you with clean clothing.

To protect yourself in a CBRNe incident, remember to:

- **Move away from the hazard as soon as possible**
- **Do not eat, drink, smoke or touch your face**
- **Remove your outer clothing, try to avoid pulling any clothes over your head**
- **Use a dry tissue or similar absorbent materials to either soak up or brush off the hazardous substance**
- **Continuously rinse your skin with water if you have symptoms of itching or burning**
- **Avoid coming into contact with other people**
- **Minimise contact with your surroundings**
- **Make sure you listen to instructions from emergency responders**
- **Remove your clothing to your underwear and then wash yourself all over in the shower system set up by emergency responders**
- **Do not put your old clothes back on after removing them**

10. CONCLUSION

Overall, this deliverable details the extensive process of iterative development and review that was undertaken in developing the final PROACTIVE pre-incident information materials. In short, across seven iterations and several stages of both practitioner and public feedback we have developed an evidence-based series of instructions and pictograms that are fit for purpose for general use in CBRNe pre-incident information provision. Furthermore, as part of the evaluation process we have identified considerable evidence supporting the effectiveness of pre-incident information for both aiding knowledge and confidence around what to do during an incident, which dovetails with existing evidence in the field. Lastly, although the pre-incident information materials have been optimised and designed to be relevant across contexts, we are providing every iteration of the materials online so that any element can be adapted by relevant stakeholders for use in their contexts.

In terms of next steps, the final pre-incident information materials detailed herein will be evaluated experimentally in the final PROACTIVE exercise in order to provide a large-scale test of the materials ahead of the final project deliverables. Findings relating to the pre-incident information from the final exercise will be discussed in detail in the final project deliverable (Deliverable 6.6) with any final modifications to the pre-incident information reported therein.

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12. APPENDICES

12.1. Appendix A: Public facing scenario

On a cold, wet late evening, you are travelling alone to meet a family member. As you are standing on the platform of an unfamiliar train station, someone wearing dark clothing and a backpack runs through the crowd spraying people with liquid. You look down and realise that your clothing is wet. Your eyes sting and you start to cough. You look around and see that other members of the crowd are also starting to suffer.

12.2. Appendix B: 3 and 5 months follow up questionnaire items

1. If a real incident of this type were to occur, I would know what actions to take to protect myself.

<i>Strongly disagree</i>	1	2	3	4	5	6	7	<i>Strongly agree</i>
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2. If a real incident of this type were to occur, I would know what actions to take to protect my loved ones.

<i>Strongly disagree</i>	1	2	3	4	5	6	7	<i>Strongly agree</i>
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3. If a real incident of this type were to occur, I would feel confident that I could successfully undertake appropriate actions in order to protect myself.

<i>Strongly disagree</i>	1	2	3	4	5	6	7	<i>Strongly agree</i>
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4. If a real incident of this type were to occur, I would feel confident that I could successfully undertake appropriate actions in order to protect my loved ones.

<i>Strongly disagree</i>	1	2	3	4	5	6	7	<i>Strongly agree</i>
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5. Please describe the actions that you would take to protect yourself if an incident of this type were to occur.

12.3. Appendix C: CSAB focus group topic guides

General Feedback

- a) What do you think of the information provided?
 - a. Prompts: is there anything contained in this information that you don't understand? Do you think this is memorable / that you would remember this information?

- b) Is there anything you don't understand, or which could be made clearer?

- c) What would be the best way to encourage people to engage with the information

Pictograms

- a) What do you think of the pictograms provided?
 - a. Prompts: are there any pictograms you don't understand?
 - b. Is there any more information/resources that would need to be provided with the pictograms?
 - c. Based on the pictograms would you know how to take the recommended actions?

- b) Is there anything you don't understand, or which could be made clearer?

- c) How would you want to receive this information?
 - a. Prompt: would an app be useful/ would you use an app to access this information?

- d) Do you think you would remember this information in a real incident?
 - a. If not, why?

Specific Vulnerable Needs Questions

- a) Are there any barriers that may prevent vulnerable individuals making use (act) of this information?

- b) Would you feel confident taking the actions recommended in the information sheet?
 - b. If not, why?

- c) Is there anything that you think might make it difficult for you to take these actions?
 - c. Prompt – vulnerability/ additional requirements
 - d. There needs that we need to accommodate? And how could we do this?

- d) Would you be willing to take the actions recommended in the information sheet?
 - e. If not, why?



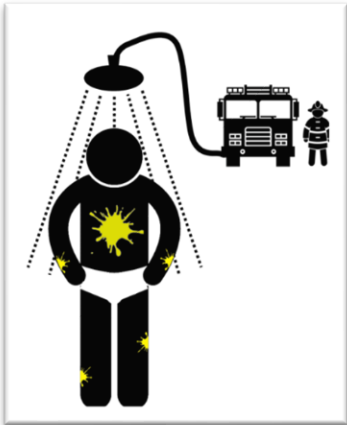



General questions about pre-incident information:

- a. In general, do you think the provision of this kind of information is a good idea (before an incident)?
 - i. If so, why?
 - ii. If not, why?

2. Does anyone have anything else they would like to add before we end?

12.4. Appendix D: Pre-incident information version 3 compared to the ISO safety signs

PROACTIVE pe-incident information Version 3	ISO Safety Signs
	 <p>General sign W001*</p> <p>Radioactive material or ionizing radiation W003</p> <p>Biological hazard W009</p>
	 <p>No smoking P002</p> <p>No eating or drinking P022</p>
	 <p>Warning; Substance or mixture presenting a health hazard W071</p>

	 <p>Wash your hands M011</p>
	 <p>Safety shower E012</p>
	 <p>Wear protective clothing M010</p>

12.5. Appendix E: EU Focus group Topic Guide

3. Ask the following questions, and facilitate discussion of these:

- a) How do you think you would feel if an incident of this type were to occur?
- b) What would your main concerns be?
- c) What would you do if you found yourself in this scenario?
- d) What actions do you think emergency responders would take during this type of incident?
- e) What information do you think you would need if an incident of this type occurred?
- f) Who would you like to receive information from during this type of incident?

[share pre-incident information]

General Feedback

- d) What do you think of the information provided?
- e) Is there anything that you don't understand, or which could be made clearer?
 - a. Are there any changes we could make to the information to make it clearer?
- f) Would you feel confident taking the actions recommended in the information sheet?
 - a. If not, why not?
- g) Would you be willing to take the actions recommended in the information sheet?
 - a. If not, why not?
- h) Do you think you would remember this information in a real incident?
 - a. If not, why not?
- i) How would you want to receive this information?

- j) Would an app be useful/ would you use an app to access this information?
 - a. If so, why?
 - b. If not, why not?
- k) How would you feel about this type of information being provided before an incident?
 - a. Prompts: would you feel suspicious / frightened / reassured
- l) In general, do you think the provision of this kind of information is a good idea (before an incident)?
 - a. If so, why?
 - b. If not, why not?

Pictograms

- e) What do you think of the pictograms provided?
 - a. Are there any pictograms you don't understand?
 - b. Is there any more information that would need to be provided with the pictograms?
- f) For point 5, do you prefer the first or second pictogram?
 - a. Why?
 - b. Which pictogram is clearer?
- g) For point 6, do you prefer the first, second, or third pictogram?
 - a. Why?
 - b. Which pictogram is clearer?
- h) Based on the pictograms would you know how to take the recommended actions?

Specific Vulnerable Needs Questions

- e) Do you think there are any barriers that may prevent vulnerable individuals making use of (acting on) this information?
 - a. If so, what are they?