

# Optimisation through Research of Chemical Incident Decontamination Systems (ORCHIDS)

## Work Package 4: Review of Current Mass Casualty Decontamination Provision in the European Union

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### **ABSTRACT**

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The aim of the ORCHIDS Project is to strengthen the preparedness of European countries to react to incidents involving the deliberate release of biological and chemical agents. To ensure that the outcomes of the project are both relevant and applicable to EU Member States, it was important to develop an understanding of the existing provision for civilian mass casualty decontamination. To achieve a comprehensive overview of procedures that exist for mass casualty decontamination and the plans that are in place, a review of mass casualty decontamination provision was conducted. A survey was developed which sought to collect information on mass casualty decontamination provision from survey recipients across the EU. A database of individuals with expertise and interest in civilian decontamination was created by the ORCHIDS project partners and the survey was distributed to all database contacts. Recipients of the questionnaire were invited to become stakeholders in the ORCHIDS Project and thus, a database of stakeholders was developed from the database of contacts. Results obtained to date provide a useful insight into mass decontamination provision and procedures across the EU and have enabled the identification of a number of similarities and differences between stakeholder countries. The process of data collection and stakeholder engagement will continue for the duration of the project to ensure that the ORCHIDS project has a pan-European view.



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## **EXECUTIVE SUMMARY**

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This report provides a detailed account of the review of current mass decontamination provision that was carried out as part of the ORCHIDS project. This review constitutes Work Package 4 of the project and this report is submitted as Technical Report 1 (Deliverable 2).

The review was primarily concerned with the provision for civilian mass casualty decontamination that currently exists in EU Member State countries. However, data from other European and non-European countries was also collected where available. The purpose of the review was to collect information on the mass casualty decontamination procedures that would be carried out in the event of an incident involving the deliberate release of chemical or biological agents, and any emergency response plans that exist. This would enable a comprehensive overview of mass casualty decontamination provision to be constructed, including a summary of the main similarities and differences that exist between EU Member State countries (and other countries). It was hoped that the process of collaborating with mass decontamination experts in this way would also facilitate the process of engaging stakeholders in the project. ORCHIDS project stakeholders will form a network of expertise that will facilitate the dissemination of ORCHIDS project outputs throughout the EU.

A Civilian Mass Casualty Decontamination Survey was produced to enable the collection of relevant information from EU Member State countries. The survey was designed to collect information on countries' mass decontamination methods, procedures and equipment, the personnel that are involved in the decontamination of civilians and any guidance or policy documents that exist in their country. Survey recipients were also asked about any specific provision that exists for the decontamination of people who may be more vulnerable during a mass casualty incident (such as children, the elderly, the homeless, non-native language speakers and people with physical, sensory or cognitive impairments).

A database of contacts was compiled; this list of contacts comprised people in EU Member States who had been identified by ORCHIDS project partners as having an interest or expertise in emergency mass casualty decontamination. All people listed in the database received a copy of the survey as well as information about the ORCHIDS project and the purpose of the mass casualty decontamination provision review. All survey recipients were offered the chance to become an ORCHIDS project stakeholder.

To date, survey responses have been received from: The Czech Republic; France; Italy; Latvia; Slovakia; Spain; Sweden; the United Kingdom; Norway and Australia. Thus, the ORCHIDS Project has successfully engaged stakeholders in these countries. The Civilian Mass Casualty Decontamination Survey has been distributed to other EU Member State countries and responses are awaited.

The results that have been obtained to date provide a useful insight into mass decontamination procedures and provision across the EU and have enabled the identification of a number of similarities and differences between stakeholder countries. Particular areas where it has been possible to provide a meaningful description of mass

casualty decontamination are: the personnel that are responsible for conducting decontamination, the characteristics of the decontamination shower (including the temperature of the water, the use of washing utensils and who is responsible for decontamination washing), the rate of flow through the decontamination process and the provision that exists for vulnerable groups.

The process of stakeholder engagement and that of reviewing existing mass casualty decontamination provision is ongoing; as further mass decontamination experts are identified, further surveys are distributed. Furthermore, collaboration with existing stakeholders is ongoing to elaborate and clarify the results obtained to date. This continued process of stakeholder engagement and provision review will ensure that the ORCHIDS project has a pan-European view and that the outcomes of the project are made relevant to all EU Member State countries.

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## 1 INTRODUCTION

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The ORCHIDS project aims to strengthen the preparedness of European countries to react to incidents involving the deliberate release of biological and chemical agents. Response capabilities will be enhanced through the identification of ways in which decontamination processes for emergencies involving large numbers of casualties can be optimised. The project involves a programme of applied toxicological research, operational research trials, a mass casualty decontamination exercising and simulation modelling. These activities will facilitate the production of best practice guidelines and the generation of recommendations for the procurement of second generation mass decontamination programmes.

An important component of the ORCHIDS project involves the collation of information about the processes, procedures and provision that currently exist for mass casualty decontamination in EU Member State countries. In order to make the findings of the project applicable and relevant to all European countries, it is clearly necessary to first obtain a clear understanding of how mass casualty decontamination is currently carried out and the plans that are in place. A systematic review of current mass casualty decontamination provision was carried out as part of the project to ensure that this information was available and could be utilised (Work Package 4).

In order for a review of current mass casualty decontamination across Europe to be carried out, it was necessary for the ORCHIDS project partners to review both the processes and provision for decontamination within their own country and those of other EU Member States. To collect the information that was required from EU countries, a 'Civilian Mass Decontamination Survey' was constructed at the Health Protection Agency (HPA) with input from the project partners. The survey was designed to collect information on countries' mass decontamination methods, procedures and equipment, the personnel that are involved in the decontamination of civilians and any guidance or policy documents that exist in their country. Survey recipients were also asked about any specific provision that exists for the decontamination of vulnerable groups (such as children, people with physical, sensory or cognitive impairments, older people). This question served a dual purpose: not only did it provide information that was relevant to understanding the provision that exists across the EU, it also provided information that was directly relevant to Work Package 9 of the ORCHIDS Project (a systematic review of the needs of vulnerable and minority groups in emergency decontamination).

A database of contacts was compiled; this list of contacts comprised people in EU Member States who had been identified by ORCHIDS project partners as having an interest or expertise in emergency mass casualty decontamination. All people listed in the database received a copy of the survey, as well as information about the ORCHIDS project and the purpose of the mass casualty decontamination provision review.

All survey recipients were offered the chance to become ORCHIDS project stakeholders. They were informed that through the process of completing the survey and thereby contributing to the project, they would automatically be entitled to stakeholder status; as stakeholders they would receive regular updates on the progress

of the ORCHIDS project and would be able to implement the recommendations generated by the work conducted.

By collaborating with EU Member States in this way, the ORCHIDS project has a pan-European view and the outcomes and recommendations from the project can be made relevant and useful to all EU Member State countries. Furthermore, this approach helped to ensure that ORCHIDS project avoided any unnecessary duplication of work being carried out in other EU Member States (it was hoped that this process of communication and engagement would lead to the identification of any other initiatives that had taken place, were ongoing, or were planned in other EU Member State countries).

## **2 METHOD OF INFORMATION COLLATION AND STAKEHOLDER ENGAGEMENT**

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The process of stakeholder engagement and collating information on mass casualty decontamination provision was collectively termed the ‘Stakeholder Engagement Protocol’. This was a multi-stage process which began with the generation of a ‘potential stakeholder database’. This database contains a list of people who were considered likely to have the relevant expertise to complete a survey on civilian mass casualty decontamination. Having developed a survey with a cover sheet containing information about the ORCHIDS project and the purpose of the survey, emails were sent to contacts listed in the database. The stakeholder engagement protocol provided a defined process by which the initial contact made with survey recipients was followed-up. By adopting a standardised and pre-defined procedure in this way, it was ensured that the maximum numbers of responses were received.

### **2.1 The Civilian Mass Decontamination Survey**

To collect the information that was needed for the EU current mass decontamination review, a survey was designed at the Health Protection Agency (HPA) with input from the project partners (See Appendix A for the full survey). The survey begins by requesting that respondents provide their contact details (name, title, telephone number, fax number, e-mail address and the name of the organisation that they are representing). This information was extracted from the completed surveys and used to populate the ORCHIDS project stakeholder database.

Having provided some details about themselves, survey recipients were asked to describe the cleaning methods or procedures that are used to decontaminate people in their country (a definition of what was meant by the term ‘decontamination’ was included to provide clarification). The next two questions sought to obtain information about the organisations that are responsible for the decontamination of civilians. The first of these questions asked who carries out the act of decontamination (e.g. the fire service, the ambulance service or the military). The second personnel-related question asked respondents to detail any training that is received by the personnel that are responsible for carrying out decontamination; the examples of participation in decontamination exercises or specialist training courses were provided.

The next set of questions all sought to obtain detailed information about the process of decontamination. Respondents were asked for details of the type and concentration of any washing detergents used to remove contamination, including those used to decontaminate the body, hair or eyes and for the details of any reactive skin decontaminants used. The next question in this set asked about the use of washing utensils or materials during decontamination; examples of RSDL sponges, flannels, polyurethane sponges and soft brushes were provided. The following questions required that respondents indicate the temperature of the water that is used for decontaminating people, the duration of the decontamination washing procedure (in minutes/seconds), who conducts the washing of civilians (a member of the emergency

services, a member of another organisation or the individual person/casualty), the flow rate of individuals through the decontamination procedures (i.e. the number of individuals who can pass through the decontamination procedures or units during a fixed period of time) and finally, whether responses to real incidents and emergencies involving decontamination are routinely evaluated.

The intention of the next question in the survey was to gather information about any research literature, national guidance documents or policy documents concerning mass casualty decontamination provision in the respondents' respective countries. Respondents were also requested to detail any documents from other countries or from international sources.

The final survey question related to mass decontamination for vulnerable and minority groups; following a brief description of what is meant by the term 'vulnerable' in the context of emergency management, respondents were asked to provide details of any provision for these groups within their countries. Throughout the survey, respondents were encouraged to provide as much detail as possible.

## **2.2        The Potential Stakeholder Database**

A database was compiled which contained the contact details of people across the EU and beyond who were considered likely to have the expertise necessary to complete the civilian mass decontamination survey. This database was called the 'potential stakeholder database' as it contained the details of the people who were to be invited to become ORCHIDS project stakeholders. The database contains details of each potential stakeholder's name, affiliation (i.e. the organisation or company they are associated with), their position (job title) and contact details.

The initial iteration of the database included Health Security Committee Members, pre-existing contacts of HPA employees, contacts proposed by partner organisations and people from public health agencies who had previously attended HPA training courses. People were selected to appear in the database as the result of a perceived involvement in mass decontamination planning, procedure or policy. In some cases where the role of particular contacts was not known or was not fully understood, the contact still featured in the database, as they may have been able to provide useful information regarding more relevant contacts.

As the stakeholder engagement process progressed, those contacts that returned surveys and became ORCHIDS stakeholders were asked to provide the details of any of their own contacts who they thought may be interested in becoming involved in the ORCHIDS project. Thus, later iterations of the database also included these details. From the potential stakeholder database, the ORCHIDS Project Stakeholder database (Deliverable 4) was generated; this listed all of the established stakeholders, as well as those people who were yet to complete the survey.

## 2.3 The Stakeholder Engagement Protocol

The process by which the individuals listed on the potential stakeholder database were asked to complete the civilian mass decontamination survey and were invited to become stakeholders in the ORCHIDS Project was called the ‘Stakeholder Engagement Protocol’. A pre-defined and structured process was adopted to ensure that all survey recipients received an adequate, but not excessive number of requests to complete the survey. This ensured that the maximum number of responses were received, thereby optimising the review that was subsequently carried out.

The Stakeholder Engagement Protocol is summarised in Figure 1. This diagram shows that the first stage in the engagement of stakeholders involved the distribution of the Mass Casualty Decontamination Survey and a written coversheet outlining the aims of the ORCHIDS project, a brief description of its anticipated outcomes and an explanation of the purpose of the survey (see Appendix B for a copy of this document). This document also informed recipients that the process of completing and returning the survey would entitle them to become stakeholders in the project and that this would enable them to receive regular updates on project events and activities. Both the survey and the covering document were attached to an e-mail which specified how the recipient had been selected to receive the survey (i.e. where their contact details had been obtained from). The e-mail also provided a brief summary of the ORCHIDS project, the purpose of the questionnaire and the benefits of completing and returning it. Instructions detailing the person and e-mail address that the questionnaire should be returned to were also provided (see Appendix C for an example of a covering e-mail).

The initial e-mail also requested that if the recipient did not wish to complete the survey, they should submit an e-mail to this effect. It was stressed that if they knew of someone else who may be able to complete the survey, they should forward the e-mail onto this person or submit the person’s contact details so that the ORCHIDS project team could get in touch with them.

If within 14 days of the initial receipt of the survey a recipient had returned it completed, an e-mail was sent to the participant, thanking them for their time. Each participant was welcomed as a stakeholder in the ORCHIDS Project and was given a username and password to enable them to access the password protected area of the ORCHIDS website (containing project documents, project meeting minutes and presentations). A further e-mail was sent to each new stakeholder requesting that they nominate other stakeholders. This process (of a thank you e-mail and a follow-up e-mail requesting further potential stakeholder details) was also carried out if a questionnaire was returned at any time beyond the initial two weeks.

If a survey recipient responded to the initial e-mail stating that they did not wish to complete the survey, or did not have the knowledge necessary to do so, an e-mail was sent thanking them for their time.

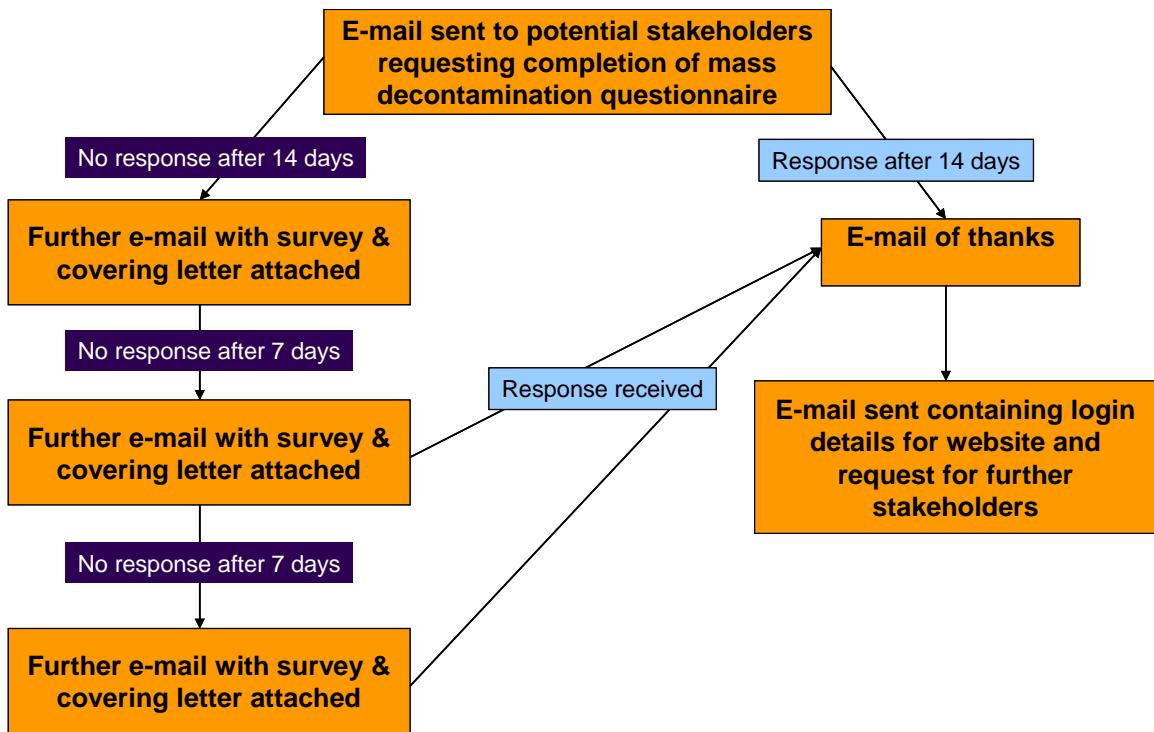
If the recipient of a survey failed to return it within 14 days (and had not responded with information that they did not wish to participate), a further e-mail was sent (with the survey and covering document attached). This e-mail again summarised the importance of engaging with other EU Member States and the necessity of understanding

European provision for mass casualty decontamination. This e-mail also asked that if the recipient did not wish to complete the survey, or they did not have the relevant knowledge to answer the questions, they should submit an e-mail to this effect. The possibility of forwarding the e-mail to somebody who may be willing to complete the questionnaire or submitting such a person's contact details to the ORCHIDS project team was also reiterated.

If the recipient of a questionnaire failed to return the questionnaire after a further seven days (and they had not specified that they did not want to participate), a further e-mail was sent. The purpose of this contact was simply to remind the recipient of the questionnaire that they had received it and that their timely response would be highly valued. This was repeated after a further seven days if the survey had still not been returned.

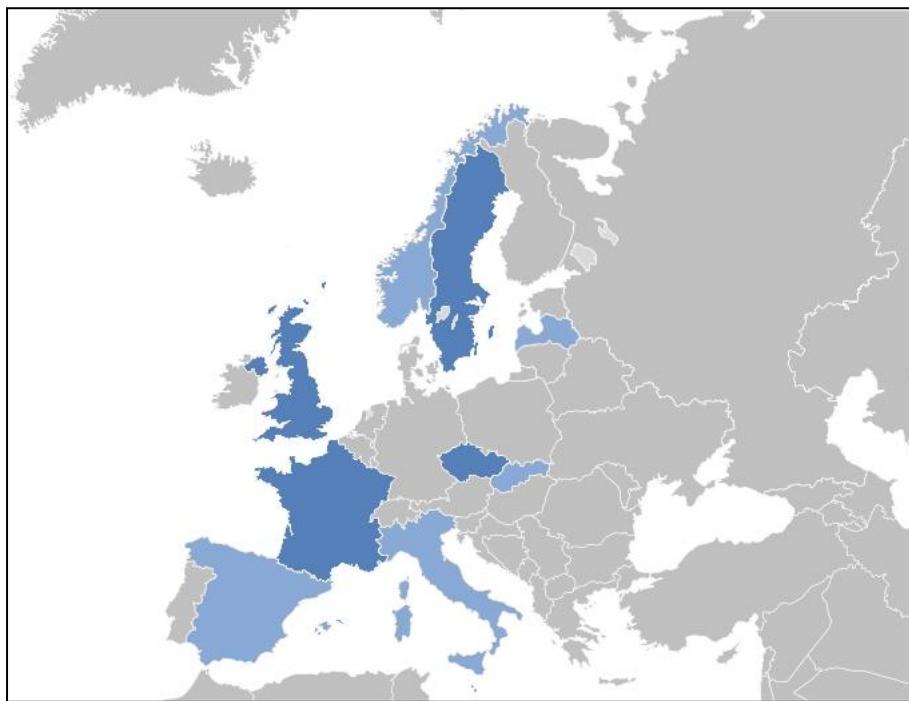
In some cases, the initial recipients of the survey responded by stating that although they did not have the necessary expertise to complete the survey, they were able to provide the contact details of someone they felt may be better equipped. In such cases, the new contact replaced the old in the potential stakeholder database and the Stakeholder Engagement Protocol was commenced from the beginning.

Although the Stakeholder Engagement Protocol provided a useful tool for stipulating the process by which potential stakeholders should be contacted, in some cases survey recipients responded to state that they would not be able to complete the survey until some point in the future (this was normally when they were attending a meeting at which they were planning to complete the survey as a group). In such cases it was not considered beneficial to make contact again until the after the date stated. Thus, reminders were only sent after this date.

**Figure 1: The Stakeholder Engagement Protocol**

### 3 MASS CASUALTY DECONTAMINATION PROVISION: SURVEY RESULTS

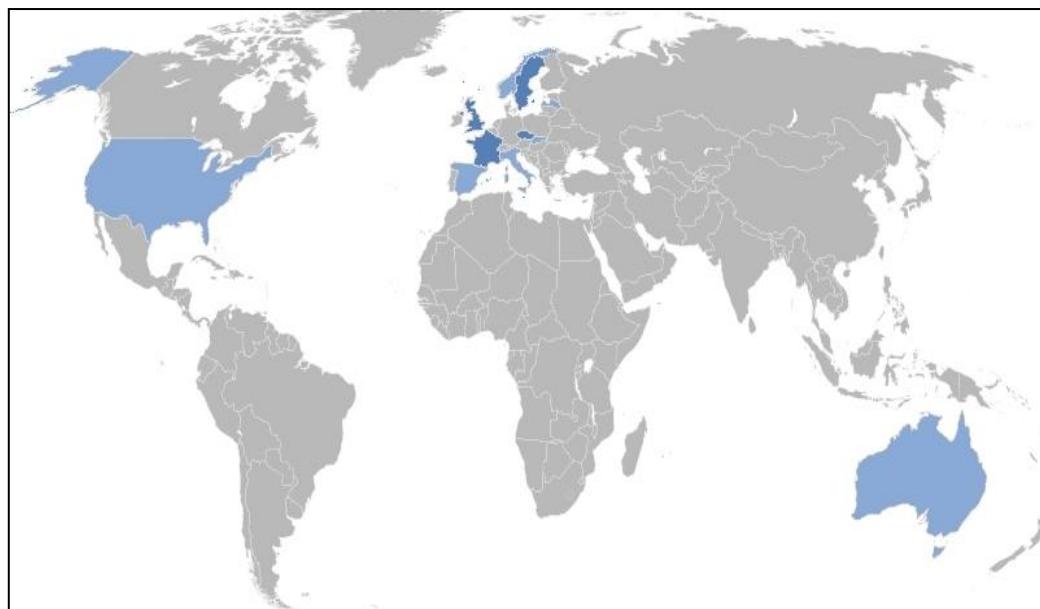
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**Figure 2: Schematic map of Europe depicting project partners (dark blue) and European countries (light blue) from which a stakeholder survey has been returned.**

Full survey responses have so far been received from the following EU Member State countries: The Czech Republic; France; Italy; Latvia; Slovakia; Spain; Sweden and the United Kingdom. Responses have also been received from Norway and Australia. Figure 2 shows a schematic European map displaying all current European stakeholder countries and partner countries, whilst Figure 3 depicts a schematic world map displaying all stakeholder and collaborating partner countries. Although potential stakeholders in other EU countries have also received the survey, responses have not yet been received.

Because a full complement of survey responses has not yet been received, the results obtained to date do not provide a comprehensive account of decontamination procedures and provision in all EU Member State countries. Furthermore, in some cases not all questions have been fully answered or two respondents from the same country have provided conflicting information. Although efforts are being made to fill in these gaps in the data and clarify any areas of inconsistency, at present it is difficult to provide useful summaries of the information received for some areas of the survey. However, the responses that have been received have provided a useful insight into some of the key similarities and differences that exist in decontamination practices across the survey respondents.



**Figure 3: Schematic world map depicting the location of all stakeholder countries. Additional survey returns have been received from: Australia and the United States<sup>1</sup>**

Particular areas where it has been possible to identify key differences and similarities between the various survey respondents are: The personnel responsible for mass casualty decontamination; the temperature of the water that is used in the decontamination showers; the washing utensils that are used during showering; the flow rate of individuals through the decontamination process, the personnel/individuals that are responsible decontamination washing and the decontamination provision that exists for vulnerable groups.

### **3.1        The personnel responsible for mass decontamination**

In all of the current stakeholder countries the fire and rescue service are involved in the decontamination of civilians at the incident site. In some countries (Italy, Spain and Norway) emergency medical personnel also assist in the decontamination process. In Sweden, a differentiation is made between life-saving decontamination, which the fire rescue service carries out and damage control decontamination, which is carried out by emergency medical teams. According to the survey returns received from France, the Czech Republic and Slovakia, the military may also be involved in civilian decontamination. However, in France and the Czech Republic this is more likely in large-scale incidents.

The survey response that was received from the ORCHIDS Australian stakeholder highlighted that in addition to the existence of mobile decontamination units, a number

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<sup>1</sup> At the time of writing, survey results had not yet been received from the United States, therefore this report does not detail decontamination protocol details from the United States.

of hospitals also have their own decontamination facilities which enables decontamination to be carried out on site. Thus, in these cases hospital staff also become involved in the decontamination process.

### **3.2 Characteristics of the decontamination showering process**

The survey asked respondents to provide details pertaining to particular characteristics of the decontamination process, including the temperature of the water used, any washing utensils or materials used, the flow rate of individuals through the decontamination units and the personnel/individuals that are responsible decontamination washing. The responses received are summarised here.

#### **3.2.1 Water temperature**

It is considered acceptable to use cold (unheated) water for decontaminating civilians in Latvia, Norway and Australia. However, Latvia states that the ideal temperature is 30°C and Norway states that the ideal temperature is 45 °C. The use of heated water in Australia is dependent on the specific decontamination system that is used; only some are designed to heat water.

According to the Swedish survey response, the water used is generally between 25°C and 35 °C; warm water is used when time permits. The water temperature in Spain also varies. However, in this case, rather than being dependent on time, the temperature used will be varied according to the environmental temperature at the time of an incident and the solubility of the contaminant.

All of the other countries from whom survey responses have been received provided precise figures for the temperature of the water that should be used in the decontamination process. In Malta and the United Kingdom this temperature is 35°C, in Italy it is 25°C, in Slovakia it is 40°C and in the Czech Republic the water should be at a temperature of 38°C for the decontamination of chemical warfare agents and 32°C for the decontamination of industrial toxicants.

#### **3.2.2 The use of washing utensils**

Soft brushes are the washing utensils most commonly used by current stakeholder countries. They are used by: Italy, Sweden, the Czech Republic, Latvia, Norway, Slovakia, Australia and the United Kingdom. It should be noted however that in Australia, soft brushes are only used in some circumstances (it is not yet known what these circumstances are) and in the United Kingdom, they are only used for non-ambulant casualties.

Slovakia and Australia both state that sponges may be used in the decontamination process whereas Sweden, Malta and Norway specify the use of polyurethane sponges. According to the responses received from the Czech Republic, a range of other materials or utensils may also be utilised, including: paper towels, single-use blotting materials and swabs.

The survey responses received from France and Spain did not list any utensils in response to this question. Having questioned the ORCHIDS French project partner, it appears that this absence of information is likely to reflect the differences that exist in decontamination procedures across France; this diversity is likely to make a definitive answer difficult. It is not yet clear whether the same is true in Spain, or whether in fact no utensils are used.

### **3.2.3 Flow rate through the decontamination process**

In the context of mass casualty decontamination, flow rate is defined as the number of individuals who can pass through the decontamination procedures or units during a fixed period of time (e.g. 100 individuals per hour).

The survey returns that have been received to date indicate that a considerable degree of variability exists in the flow rate of individuals through decontamination procedures in existing stakeholder countries. There was a general consensus among all respondent countries that the flow rate will depend on the characteristics of the casualties; it will not be possible to decontaminate as many non-ambulant casualties in a given time period as ambulant casualties. Despite this, a number of stakeholders were able to provide estimate figures. In the United Kingdom there is a theoretical flow rate maximum of 200 individuals per hour. However, it was acknowledged that a flow rate of 150 individuals per hour is a more realistic estimate. It was reported that in Slovakia the flow rate is 40-50 individuals per hour; in Latvia the flow rate is 20 individuals per hour and in Malta the flow rate varies between 10 to persons per hour.

The survey responses that have been received to date from the Czech Republic provide inconsistent flow rate estimates of between 20-40 individuals per hour to 120-150 individuals per hour. Consultation is taking place with the ORCHIDS Project partners from the Czech Republic (Faculty of Military Health Sciences, University of Defence, Czech Republic) in order to clarify this figure.

The survey responses that have been received from Sweden and Norway indicate that the flow rate is largely dependent on the type of decontamination unit used. In Norway, a flow rate of between 40 and 80 persons per hour is possible in defence decontamination units, whereas in smaller hospital units, the flow rate is 20 to 40 individuals per hour. The Swedish survey response differentiates between mobile decontamination units and stationary decontamination units. The estimated flow rates for ambulant casualties are 20 persons per hour in the mobile units and 20 to 40 persons per hour in the stationary units. The flow rates for non-ambulant casualties are estimated to be four persons per hour in the mobile units and four to eight persons per hour in the stationary units.

Neither the Spanish or Australian stakeholders were able to provide a definitive estimate of flow rate. According to the Spanish response, flow rate varies depending on the type of decontamination station used and the characteristics of the incident. According to the Australian response, flow rate is dependent on many factors such as the resources that are available, the extent of the contamination, the nature of the contaminant and the number of non-ambulatory persons.

### **3.2.4 Who is responsible for decontamination washing?**

In a number of the countries from which completed decontamination surveys have been received, ambulatory casualties are responsible for carrying out their own decontamination and emergency service personnel (either the fire service or emergency medical personnel) are responsible for carrying out the decontamination of non-ambulatory casualties; this is true for: Australia, the Czech Republic, the United Kingdom and Spain. Conversely, it has been reported that in Slovakia a member of the emergency services carries out the decontamination of civilians in most cases; it is less common for people to be responsible for decontaminating themselves. The proportion of people who will be self-dependent is said to be dependent on factors such as how disorientated people are and how much people panic.

The survey that was completed by the Norwegian stakeholders differentiates between the sites at which decontamination is carried out: When decontamination is carried out at the scene of an incident, ambulance service personnel and the fire service are responsible for decontaminating people. At hospital-based decontamination facilities, trained nurses carry out decontamination.

## **3.3 Provision for vulnerable and minority groups**

Survey recipients were asked to identify examples of best-practice and policy concerning the needs of vulnerable groups or special populations in emergency response (particularly mass casualty decontamination procedures). A number of examples of vulnerable groups were provided, these included: children, pregnant women, the elderly, people with mental health problems and people with physical disabilities who may be reliant on mobility aids. It was hoped that the answers that were provided to this question would help to inform a review of the needs of vulnerable and minority groups in mass casualty decontamination which was carried out as a component of the ORCHIDS project (Work Package 9).

None of the survey responses that have been received to date have provided any information on specific decontamination provision that exists in vulnerable groups. Two countries (Latvia and the Czech Republic) explicitly stated that no such provision exists. There was a general acknowledgement among all current stakeholders that the decontamination of vulnerable groups is an unresolved problem.

## 4     **LOOKING FORWARD**

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The review of current mass decontamination provision is an ongoing activity; as more of the stakeholder surveys are returned and as further potential stakeholders are identified and contacted, it will be possible to obtain a more comprehensive insight into the mass casualty decontamination provision that exists across the EU and beyond.

Surveys and stakeholder invitations have been distributed to a total of 23 EU Member State countries and 7 non-EU Member State countries. Survey responses have been received from 9 of these. Although it is unlikely that all of the survey recipients to date will become stakeholders, it is hoped that a proportion of those contacted will complete the survey, thereby providing the information that is required.

The process of identifying new potential stakeholders is ongoing: All ORCHIDS Project partners are responsible for identifying contacts in both their own country and other EU Member States. Furthermore, all existing stakeholders have been asked to provide the contact details of any person or organisation who they believe may be interested in the ORCHIDS project, or may have the expertise necessary to complete the survey.

The Workshop on Health Programme Projects on Generic Preparedness Planning and Response in Health Emergencies, held by the European Commission in Luxembourg on the 30<sup>th</sup> September and 1<sup>st</sup> October 2009 served as a useful event for identifying further potential stakeholders. A number of the delegates attending the workshop had previously gone through a process of stakeholder engagement for their own projects. Work is currently underway to contact these delegates with a view to identifying any contacts who have expertise in mass casualty decontamination processes and procedures within the EU.

In addition to the work being carried out to obtain further survey responses, work is also ongoing to clarify some of the areas of uncertainty that exist in the data obtained so far. In some cases there are small differences between the survey information provided by two respondents within the same country. There are also instances in which respondents have not been able to answer all questions fully. Work is ongoing to identify where these areas of weakness in the data exist and carry out the work that is necessary to ensure that the data is as accurate and complete as possible. This process involves engaging the help of ORCHIDS project partners, existing stakeholders and, in some cases, identifying further stakeholders that are able to provide the relevant expertise.

## 5 CONCLUSION

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To ensure that the outcomes of the ORCHIDS project are applicable and relevant to all European Member States, it is necessary that the existing mass casualty decontamination provision in these countries is clearly understood. To achieve a comprehensive overview of the procedures that exist for mass casualty decontamination and the plans that are in place, a review of mass casualty decontamination provision is being conducted.

To collect the information that was required for the review from EU Member State countries, a 'Civilian Mass Decontamination Survey' was produced at the HPA and the ORCHIDS project partners. The survey asked recipients about their countries' mass decontamination methods, procedures and equipment, the personnel that are involved in the decontamination of civilians and any guidance or policy documents that exist in their country. A question was also included about any provision that exists for vulnerable groups in emergency decontamination.

The Civilian Mass Decontamination Survey was distributed to all contacts listed in a potential stakeholder database together with a cover sheet about the ORCHIDS Project. The purpose of the survey and its relevance to the ORCHIDS project was explained and recipients were informed that the process of completing the survey would entitle them to stakeholder status.

Analysis of the results that have been obtained to date provide a useful insight into mass decontamination procedures and provision across the EU and has enabled the identification of a number of similarities and differences between stakeholder countries. Particular areas where it has been possible to provide a meaningful description of mass casualty decontamination are in the personnel that are responsible, the characteristics of the decontamination showers (including the temperature of the water, the use of washing utensils, the rate of flow through the decontamination process and who is responsible for decontamination washing) and the provision that exists for vulnerable groups.

It is hoped that more of the surveys that have already been distributed will be completed and returned. Additionally, the process of identifying people who could potentially become stakeholders is still in progress; all project partners are responsible for identifying contacts in both their own countries and in other EU Member States. As these contacts are identified, further surveys are distributed. Existing stakeholders have also been asked to provide the contact details of anyone they think may be interested in the ORCHIDS project; surveys are distributed to any such contacts submitted. In addition to these potential sources of further stakeholders, conferences and events which are attended by ORCHIDS project partners have served as a useful tool in the identification of potential stakeholders. It is hoped that when these individuals are contacted, it may be possible to achieve further survey returns.

As more information is obtained from new stakeholders and clarity is obtained regarding some of the returns that have already been received, a clear picture of civilian mass decontamination provision across the EU will be generated.

## APPENDIX A

### **Mass Casualty Decontamination Survey**

The ORCHIDS project aims to provide evidence-based best practice guidelines on civilian mass decontamination. We would like your help in compiling information concerning existing mass casualty decontamination provision in EU Member States.

As a potential project stakeholder with knowledge of emergency planning and response, please complete the questionnaire that follows with information concerning mass casualty decontamination provision in your country. By completing and returning this survey you will automatically receive stakeholder status in the ORCHIDS project. As a stakeholder you will receive updates on project activities and recommendations on best practice for mass decontamination based on the ORCHIDS project research outcomes.

If you would like to become a stakeholder in the ORCHIDS project, please complete the following questionnaire with your details, and any further information you can provide for us at this stage.

Further copies of this questionnaire can be obtained by contacting:

- **Dr Vicky Edkins**, Research Fellow, +44 (0)1980 616969, [vicky.edkins@hpa.org.uk](mailto:vicky.edkins@hpa.org.uk)
  - **Dr Richard Amlôt**, Project Manager, +44 (0)1980 616967, [richard.amlot@hpa.org.uk](mailto:richard.amlot@hpa.org.uk)
- 

**Please complete each boxed section in the pages that follow.**

**1. Your details (please include all international dialling codes)**

**Name:**

**Title (e.g. Mr, Mrs, Dr):**

**Tel no.:**

**Fax:**

**Email:**

**Organisation:**

**Name of Country:**

## National Emergency Decontamination Standard Operating Procedures

### **3. Decontamination of people**

*Decontamination* – the process of making a person free of noxious chemicals, harmful micro-organisms, or radioactive material in order to minimise negative health effects.

#### **a. Please describe the cleaning methods or procedures used in your country:**

#### **b. Who conducts mass casualty decontamination in your country?**

(e.g. Fire Service / Ambulance Service / Military etc.)

#### **c. What training do the personnel expected to carry out decontamination receive?**

(e.g. participation in decontamination exercises, specialist training courses etc.)

d. Please give details of the type and concentration of any washing detergents used to remove contamination, including to decontaminate the body, hair or eyes:

e. Please give details of any reactive skin decontaminants used:

f. Please give details of any washing utensils or materials used in decontamination:  
(e.g. RSDL sponge, flannel, polyurethane sponge, soft brush)

**g. Please give details of the temperature of water used for decontaminating people:**  
(please tick the appropriate box or describe below)

Cold (unheated)       15°C       20°C       25°C       30°C   
35°C   
40°C       45°C       >45°C

**h. What is the duration of decontamination washing procedures for people?**

Please give the length of time (minutes / seconds) and any justification for the duration of the procedures.

**i. Who conducts the decontamination washing?**

(please tick as appropriate)

A member of the emergency services   
A member of another organisation   
The individual person / casualty

**Please give details:**

**j. What is the overall 'flow rate' of individuals through the decontamination procedures?**

Flow rate – the number of individuals who can pass through the decontamination procedures or units during a fixed period of time, e.g. 100 individuals per hour.

**k. Are responses to real incidents and emergencies involving decontamination routinely evaluated?**

Please give details of who is responsible for this evaluation, any evaluation methods used and how evaluations are used to improve operating procedures in future incidents.

**Mass casualty decontamination research literature, guidance and policy documents**

Please help us to identify any research literature, national guidance documents or policy documents concerning mass casualty decontamination provision in your country. Please also include any details of documents from other countries or from international sources, including the details of any international stakeholders who you think may be interested in the outcomes of the ORCHIDS project. Please continue on a separate sheet if needed.

**4. Please list any guidance, papers, reports, articles or references you have identified concerning mass casualty decontamination.**

**Mass casualty decontamination procedures for special populations and vulnerable groups**

We would like to identify examples of best-practice and policy concerning the needs of special populations or vulnerable groups in emergency response, particularly regarding mass casualty decontamination procedures. Please provide details of procedures or policy decisions concerning mass casualty decontamination, considering the following definition:

***Special populations or vulnerable groups definition***

Including - pregnant women, immuno-compromised patients, equipment-dependent patients (especially those requiring ventilators), disabled persons requiring wheelchairs or other mechanisms of assistance, nursing home and prison residents, people with various physical challenges, mental health problems, children, the elderly, and persons from different faith groups, and any cultural or language barriers.

**5. Please provide details of mass casualty decontamination provision for special populations and vulnerable groups in your country:**

(please continue on a separate sheet if needed)

Thank you for completing this questionnaire. Please e-mail the completed questionnaire to [vicky.edkins@hpa.org.uk](mailto:vicky.edkins@hpa.org.uk) or use the postal address below.

If you have any queries or would like to discuss any aspect of this questionnaire or the ORCHIDS project please contact Dr Vicky Edkins using the contact details below:

**Dr Vicky Edkins, Research Fellow  
Behavioural Science Research Team  
Building H11, Emergency Response Department  
Health Protection Agency  
Porton Down  
Salisbury  
Wiltshire, UK  
SP4 0JG**

**Telephone: +44 (0)1980 616969  
E-mail: [vicky.edkins@hpa.org.uk](mailto:vicky.edkins@hpa.org.uk)**

## APPENDIX B

### **Mass Casualty Decontamination Survey – cover sheet text**

The aim of the ORCHIDS project is to deliver quantitative evidence on the optimum techniques for dealing with a range of potential contaminants and emergency scenarios requiring the decontamination of large numbers of contaminated casualties. This will be achieved through a programme of applied toxicological research, operational research trials with human volunteers, a mass casualty decontamination exercise and simulation modelling. The approach adopted in the ORCHIDS project marks the first attempt to explore mass casualty decontamination from ‘first principles’. Evidence-based best practice guidelines on mass decontamination procedures will be produced and recommendations for the procurement of second generation mass decontamination response programmes will be generated.

ORCHIDS is an EU-funded project which involves the collaboration of four EU Member State countries: The UK, France, the Czech Republic and Sweden. The project’s partner agencies are: (i) the Health Protection Agency (HPA), UK, (ii) the Centre for Research of Army Medical Services (CRSSA), France, (iii) the Faculty of Military Health Sciences, University of Defence (FMH), Czech Republic and (iv) the CBRN Defence and Security Division, Swedish Defence Research Agency (FOI), Sweden. The project also aims to build a network of stakeholder countries within the EU and beyond. The evidence-based best practice guidelines generated by the ORCHIDS project will be disseminated to these stakeholders.

As part of the review activities for the ORCHIDS project, we are gathering information on individual EU Member States’ policies and procedures for emergencies involving civilian mass casualty decontamination. The attached survey has been distributed to you in the hope that you will help us to achieve an understanding of your country’s emergency response procedures concerning mass casualty decontamination.

We would be extremely grateful if you completed this survey with as much information as you are able to provide. Alternatively, please consider forwarding this to a colleague or contact who could help complete the questionnaire for us. As a thank-you for helping us in this process, you will receive stakeholder status in the ORCHIDS project. As a stakeholder you will receive updates on project activities, recommendations on best practice for mass decontamination and access to the password protected area of the project website – <http://www.orchidsproject.eu>

Once complete, please return the attached questionnaire to: [vicky.edkins@hpa.org.uk](mailto:vicky.edkins@hpa.org.uk)

If you would like any further information on the ORCHIDS project or you would like to register to receive news and updates on the work being carried out as part of the project, please visit our website at:

<http://www.orchidsproject.eu>

If you would like to receive further information on the purpose or content of this questionnaire or any other aspect of the ORCHIDS project, please contact Dr Vicky Edkins using the above e-mail address.

## APPENDIX B

### E-MAIL SENT TO SURVEY RECIPIENTS REQUESTING STAKEHOLDER ENGAGEMENT

Dear.....

I am contacting you in relation to an EU-funded project called ORCHIDS. The aim of ORCHIDS is to determine ways of optimising decontamination processes for emergencies involving large numbers of contaminated casualties. The project involves a programme of applied toxicological research, operational research trials, a mass decontamination exercise and simulation modelling. A crucial part of this project is to gather information on EU Member States' standard policies and procedures for responding to emergencies involving mass casualty decontamination. You have been identified as someone with expertise in this area, and we would like to invite you to become a stakeholder in the ORCHIDS project. Stakeholders will benefit from the dissemination of the ORCHIDS project outputs, guidelines and recommendations as well as receiving regular updates on project activities and events.

As part of this process of stakeholder engagement, we would also like to ask you to help us to complete a questionnaire which is designed to collect information concerning mass casualty decontamination provision in EU Member State countries. This questionnaire is attached to this e-mail, together with a document which provides more information about the ORCHIDS project and the purpose of the questionnaire. You can also find out more about the ORCHIDS project by visiting our website at - [www.orchidsproject.eu](http://www.orchidsproject.eu)

We would be extremely grateful if you would reply by return to this email to confirm that you would like to become a stakeholder in the ORCHIDS project. We would also be grateful if you could complete the questionnaire and return it using the contact details at the end of this e-mail.

If you do not feel able to complete the questionnaire but know of a colleague who would be able to help us, please could you forward this e-mail on to them, copying the email address above, or pass on their contact details to us using this e-mail address.

Your contact details were obtained from a list of people who received training run by the Health Protection Agency in 2008; we hope that you do not object to being contacted. If you do not wish to complete the questionnaire and would not like be contacted again in relation to this matter, please e-mail [vicky.edkins@hpa.org.uk](mailto:vicky.edkins@hpa.org.uk).