



# SHARP

Strengthened International HeAlth  
Regulations & Preparedness in the EU

## WP9 – Chemical Safety and chemical threats

### D9.1: Fact-finding report

May 2021

Tom Gaulton<sup>1</sup>, Eirian Thomas<sup>1</sup>, Anja Jutraz<sup>2</sup>, Katarina Bitenc<sup>2</sup> and Peter  
Otorepec<sup>2</sup>

<sup>1</sup>CRCE, Public Health England

<sup>2</sup>National Institute for Public Health (NIJZ), Slovenia

## Contents

Introduction .....	3
Background .....	4
<b>SPAR Reports</b> .....	4
<b>JEE Reports</b> .....	5
<b>Summary of JEE and SPAR Reports per countries</b> .....	9
<b>Sharp WP5 Workshop: Outcomes for Chemicals</b> .....	10
<b>Gap Analysis Questionnaire</b> .....	11
Results .....	11
<b>Chemical preparedness and response</b> .....	11
<b>Poison Centres and Surveillance</b> .....	14
<b>Existing Mechanisms - Chemical Alerting Systems</b> .....	17
<b>Chemical laboratory analysis</b> .....	17
<b>Chemical laboratory analysis network</b> .....	18
<b>Training Requirements</b> .....	20
Discussion .....	23
Annexes .....	26
<b>Annex 1</b> .....	26
<b>Annex 2</b> .....	35
<b>Annex 3</b> .....	36

## Introduction

This report meets Deliverable 9.1 of Work Package 9: Chemical Safety and Chemical Threats of the EU SHARP Joint Action, as set out in the Grant Agreement. The EU SHARP Joint Action has received funding from the European Union, in the framework of the Third Health Programme (2014-2020).

As part of the chemical safety and chemical threats Work Package 9 (WP9) of the SHARP Joint Action (JA), background information was required to effectively plan the WP9 activities and ensure WP9 outputs were fit for purpose. As part of this information gathering, existing reports pertaining to countries' implementation of the IHR were gathered and analysed. These include recent JEE reports, SPAR reports and other relevant reports of European countries. We also summarise some of the findings of the WP5 workshop on priority areas for development, which identified a few key areas within 4 topics (which included chemicals).

**The objectives of this fact-finding report are to:**

- **Determine which areas within chemicals require further action, with a view to strengthen chemical core capacity implementation under IHR.**
- **To ascertain strengths and gaps of responding countries in their preparedness for chemical incidents (including surveillance capabilities)**
- **To identify priorities for the training materials which will be developed, based on the needs of the questionnaire respondents**
- **To gauge the desirability of respondents to join a chemical laboratory analytical network**

In addition to the background information, this report also presents the results from the chemical gap analysis questionnaire consisting of 49 questions and sent to contact persons from all European countries, initially based on the contact list of SHARP participants. The results of the questionnaire, combined with the background information on current capacity levels in Europe are presented, summarised and discussed in this report.

## Background

Below is a summary of relevant background literature, based on the IHR capacities and capabilities of countries from existing WHO State Party Self-Assessment Annual Reporting (SPAR) reports and Joint External Evaluations (JEE). JEE reports are based on two indicators for chemical events: CE.1 Mechanisms are established and functioning for detecting and responding to chemical events or emergencies and CE.2 Enabling environment is in place for management of chemical events. Based on the scores recommendations for priority actions are defined.

SPAR reports Under the International Health Regulations (IHR) 2005 all States Parties are required to have or develop and maintain minimum core public health capacities to implement the IHR (2005), and report the status of implementation annually, as stipulated in Article 54 of the Regulations.

## SPAR Reports

A table containing the full information extracted from SPAR reports can be found in **Annex 2**.

The SPAR tool consists of 24 indicators for the thirteen IHR capacities needed to detect, assess, notify, report and respond to public health events of national and international concern. For the Chemical events capacity one indicator is used: C 12.1: Resources for Detection and Alert to measure the country's progress towards implementation of IHR capacities. Other capacities, i.e. for legislation and policies, preparedness planning and response for chemical events including emergencies, and strategic coordination, are incorporated into relevant indicators. It is important to note that some of the responsibilities for these capacities fall outside of the health sector, such as in the sectors for environment, labour, agriculture, civil protection, transport and customs. Coordination and collaboration between these sectors is, therefore, important to ensure the timely detection of, and effective response to, potential chemical risks and/or events.

For Indicator C12.1 Resources for detection and alert for EU countries, the average Global capacity is 54, while in Europe, capacity is higher with an average of 68 which means that EU is in yellow zone, where a poisons information service or equivalent national service that performs surveillance for chemical exposures, and for communication of alerts is in place on a 24/7 basis.

Three countries (Georgia, Albania, Malta) are in the red zone (having a score of 20), as surveillance mechanisms and resources for chemical events or poisoning are in development.

20 countries are in the yellow zone, where 10 countries have scored 40 (Surveillance capacity for chemical exposures is available on an ad hoc basis, e.g. a poison information service that operates only during office hours or that only serves part of the country; Access to laboratory capacity for identifying and quantifying exposures to key chemicals of concern is available on an ad hoc basis) and 10 countries have scored 60 (A poisons information service or equivalent national service that performs surveillance for chemical exposures, and for communication of alerts is in place on a 24/7 basis). 29 countries are in green zone, where 20 countries have scored 80 (Access to laboratory that conforms to national quality standard for identifying and quantifying chemical exposures to key chemicals of concern is in place) and 9 countries have scored 100 (An integrated system of public health surveillance linked with environmental monitoring, that captures and assesses data on chemical exposures from multiple sources, is under development or in place). For more information on the SPAR scores and indicators, see the SPAR tool (<https://www.who.int/data/gho/data/indicators/indicator-details/GHO/chemical-events>).

## JEE Reports

The following JEE reports from EU countries are publicly available online:

- Belgium
- Finland
- Latvia
- Lithuania
- Slovenia

While not in the EU, the following European countries also have available JEE reports and these have also been included to get a full picture of the chemical areas which require strengthening in the region:

- Albania
- Moldova
- North Macedonia
- Serbia
- Switzerland and Lichtenstein

The reports were downloaded and the findings from the chemical section are summarised below.

## Summary of Recommendations for Priority Actions - based on JEE Country Reports

Based on the JEE country reports outlined above, the recommendations for priority actions from each country have been summarised under common themes and are presented below:

Coordination/ trainings / awareness:

- **Improve coordination** between all stakeholders involved in chemical events, by integrating the relevant sectors into the national Generic Preparedness Plan.
- **Improve the system on knowledge transfer** between sectors in addition to training that is already successfully implemented. At the same time there is need for raising awareness with regard to legislations that are in place.
- **Training with cross-sectoral involvement** (maintain level of preparedness and update skills).
- Improve awareness at the national level and **prepare a comprehensive, common understanding on chemical safety**, covering all sectors (the general public and stakeholders from the environmental, occupational and food sectors).
- Raise mutual **awareness** and strengthen **interactions and collaboration** between emergency response centres and national institutions.
- Promote joint practical and realistic **simulation exercises**.
- Carry out **regular and more frequent** training and exercises.
- Institute a **regular programme** of training and exercises that includes a national drill on responding to a chemical event.
- Ensure continued improvement of cross-sector coordination through regular exercises **involving various stakeholders**.

Facilities:

- Consider **creating** a poison control centre in line with WHO recommendations.
- **Integrate the poison control centre** into emergency plans and trainings.
- Ensure that funding of the poison control centre is sufficient to maintain its functions (through the provision of specialized personnel, IT infrastructure, etc.).

Resources/ equipment/ capacities:

- **Improve capacity** where resources are reported to be needed and **modernize equipment** (e.g. replace old emergency vehicles).
- Strengthen the **toxicological laboratory capacity**. The toxicological capacity should be strengthened also outside laboratory, for example in units doing risk assessments.
- Identify **capacity gaps** across all relevant sectors. Develop **national capacity-building priorities** for preventing, detecting and responding to chemical events.

- identify **institutions responsible for chemical risk assessment** and rapid risk assessment during chemical emergencies

#### Human capacities:

- **Strengthen** human capacities
- Assign an entity, committee or **agency to lead the development of IHR capacity** for chemicals across sectors.
- Providing **adequate funding** and workforce.
- **Incorporate chemical management and response specialists** into the national health sector workforce strategy.
- Improve capacity for dealing with chemical events and casualties. Emergency response planning and risk assessment should also consider the potential for the presence of multiple hazards, including chemicals and incorporate appropriate precautions and management. If there is presence of multiple hazards, there is usually the lack/scarcity of toxicological data to assess the mixture effects. Knowledge of the mechanism of action is needed for a realistic assessment.

#### Legislations/ strategies/ plans:

- Based on recent events and lessons, **evaluate, revise and exercise the existing national response plan(s)** for chemical events in order to improve immediate response activities and risk communication.
- Develop a **national interdepartmental plan** of response to chemical emergencies that sets out the duties and responsibilities of the relevant services.
- Develop **mechanisms and protocols** to ensure the implementation of legislation, in particular through a regular and timely exchange of information.
- Develop **standardized clinical protocols** for exogenous acute poisoning in adults
- **Update the national chemical profile of defined priority chemical agents.**
- **Developing clinical case-management guidelines** and protocols
- Prepare and exercise the **national multisectoral chemical response plan.**
- Perform a **gap analysis and develop a strategy for planning and responding** to the following expected gaps: Personnel, following the retirement of experts, for example toxicologists; The number of laboratories required; Preserving knowledge of experts on treatment of patients during chemical events.
- **Develop an SOP for response** to public health emergencies with unknown chemical hazards.
- Develop **public health guidelines** or SOPs for chemical incidents.

#### Other:

- Ensuring **access to information** and expertise networks and databases
- **Establish a national chemicals profile and a risk map/register** for chemicals (e.g. production, storage, use, waste, contaminated land, etc.).
- Develop **data management software** for potentially toxic chemical substances following the approval of the Law on Chemical Substances
- **Increase surveillance capacity** and the analytical scope (for detection and verification) of laboratories regarding chemicals and their health effects.
- Appropriate **risk assessment** in different sectors (allocate financial resources and identify priorities).
- **Disaster loss database and sharing** (map the situation and ensure proper data for risk assessment).



## Summary of JEE and SPAR Reports per countries

The table below presents the scores from Indicators from SPAR reports and JEE reports. The highest scores come from Switzerland and Finland, while the lowest scores were recorded in Albania.

Country/ indicators	SPAR - Chemical Events 2019	JEE REPORTS – JOINT EXTERNAL EVALUATION OF IHR CORE CAPACITIES	
	Indicator: C.12.1 Resources for detection and alert	Indicator: CE.1 Mechanisms are established and functioning for detecting and responding to chemical events or emergencies	Indicator: CE.2 Enabling environment is in place for management of chemical events -
Slovenia	<b>80</b> - Access to laboratory that conforms to national quality standard for identifying and quantifying chemical exposures to key chemicals of concern is in place	<b>Score 4: Demonstrated capacity:</b> Timely and systematic information exchange between appropriate chemical units, surveillance units and other relevant sectors about urgent chemical events and potential chemical risks and their response	<b>Score 3: Developed capacity:</b> An emergency response plan that defines the roles and responsibilities of relevant agencies in place including inventory of major hazard sites and facilities
Belgium	<b>80</b> - Access to laboratory that conforms to national quality standard for identifying and quantifying chemical exposures to key chemicals of concern is in place	<b>Score 5: Sustainable capacity:</b> Adequately resourced poison centre (s) are in place	<b>Score 5: Sustainable capacity:</b> A chemical event response plan has been tested through occurrence of real event or through simulation exercise and is updated as needed
Finland	<b>100</b> - An integrated system of public health surveillance linked with environmental monitoring, that captures and assesses data on chemical exposures from multiple sources, is under development or in place	<b>Score 4: Demonstrated capacity:</b> Timely and systematic information exchange between appropriate chemical units, surveillance units and other relevant sectors about urgent chemical events and potential chemical risks and their response	<b>Score 4: Demonstrated capacity:</b> Functional mechanisms for multisectoral collaborations for chemical events are in place including involvement in international chemical/toxicological networks. E.g. INTOX?
Latvia	<b>60</b> - A poisons information service or equivalent national service that performs surveillance for chemical exposures, and for communication of alerts is in place on a 24/7 basis	<b>Score 2: Limited capacity:</b> Guidelines or manuals on the surveillance, assessment and management of chemical events, intoxication and poisoning are available	<b>Score 4: Demonstrated capacity:</b> Functional mechanisms for multisectoral collaborations for chemical events are in place including involvement in international chemical/toxicological networks. E.g. INTOX?
Lithuania	<b>80</b> - Access to laboratory that conforms to national quality standard for identifying and quantifying chemical exposures to key chemicals of concern is in place	<b>Score 3: Developed capacity:</b> Surveillance is in place for chemical events, intoxication, and poisonings with laboratory capacity or access to laboratory capacity to confirm priority chemical events	<b>Score 4: Demonstrated capacity:</b> Functional mechanisms for multisectoral collaborations for chemical events are in place including involvement in international chemical/toxicological networks. E.g. INTOX?
Albania	<b>20</b> - Surveillance mechanisms and resources for chemical events or poisoning are under development	<b>Score 2: Limited capacity:</b> Guidelines or manuals on the surveillance, assessment and management of chemical events, intoxication and poisoning are available	<b>Score 2: Limited capacity:</b> National policies or plans or legislation for chemical event surveillance alert and response exist
Moldova	<b>40</b> - Surveillance capacity for chemical exposures is available on an ad hoc basis, e.g. a poison information service that operates only during office hours or that only serves part of the country AND Access to laboratory capacity for identifying and quantifying exposures to key chemicals of concern is available on an ad hoc basis	<b>Score 3: Developed capacity:</b> Surveillance is in place for chemical events, intoxication, and poisonings with laboratory capacity or access to laboratory capacity to confirm priority chemical events	<b>Score 2: Limited capacity:</b> National policies or plans or legislation for chemical event surveillance alert and response exist
North Macedonia	<b>40</b> - Surveillance capacity for chemical exposures is available on an ad hoc basis, e.g. a poison information service that operates only during office hours or that only serves part of the country AND Access to laboratory capacity for identifying and	<b>Score 2: Limited capacity:</b> Guidelines or manuals on the surveillance, assessment and management of chemical events, intoxication and poisoning are available	<b>Score 2: Limited capacity:</b> National policies or plans or legislation for chemical event surveillance alert and response exist

	quantifying exposures to key chemicals of concern is available on an ad hoc basis		
Serbia		<b>Score 3: Developed capacity:</b> Surveillance is in place for chemical events, intoxication, and poisonings with laboratory capacity or access to laboratory capacity to confirm priority chemical events	<b>Score 2: Limited capacity:</b> National policies or plans or legislation for chemical event surveillance alert and response exist
Switzerland and Lichtenstein	<b>Switzerland 100</b> - An integrated system of public health surveillance linked with environmental monitoring, that captures and assesses data on chemical exposures from multiple sources, is under development or in place	<b>Score 5: Sustainable capacity:</b> Adequately resourced poison centre (s) are in place	<b>Score 4: Demonstrated capacity:</b> Functional mechanisms for multisectoral collaborations for chemical events are in place including involvement in international chemical/toxicological networks. E.g. INTOX?

Table 1: summary of JEE and SPAR reports

## Sharp WP5 Workshop: Outcomes for Chemicals

In January 2020, a WP5 workshop was held in Riga, Latvia on IHR Core Capacity Strengthening and Assessment. The areas prioritised for discussion were: AMR Stewardship, Risk Communication, Chemicals and Biosafety and Biosecurity. The aim of the discussions which took place in the workshop were to summarise progress and current challenges for IHR areas of (AMR, Chemicals, Risk Communication and Biosafety and Biosecurity) in the context of the countries present and related to the IHR and JEE standards.

Following the workshop, the group discussions identified the following priority action points common to the countries represented at the workshop:

- Improve interconnections for chemical surveillance to better monitor and identify problems.
- Establish or strengthen networks between industry and public health response.
- Improve health sector involvement both in data exchange for example, with poison control centres and in the operational management of chemical emergencies and non-emergencies.
- Map laboratory capacity in countries to determine areas for improvement.
- Establish communications between persons and organisations with chemical expertise horizontally across sectors and vertically from local to national levels.

## Gap Analysis Questionnaire

The questionnaire was written in the SelectSurvey online platform, hosted by PHE and consisted of 49 questions. The questionnaire was sent out to a list of contacts, formed through the contact lists of the SHARP and Healthy Gateways Joint Actions and covering all Member States. Contacts were asked to recommend an alternative, suitable contact from their organisation if they thought they could not participate.

The questionnaire was divided into sections as follows:

1. Introduction page
2. Personal information
3. Focal points
4. Preparedness and response
5. Surveillance
6. Existing mechanisms/resources
7. Chemical laboratory analysis network
8. Training requirements
9. Contact information for follow-up

A link was provided to all participants to access the questionnaire online and participation and communication was initiated and managed by NIJZ WP9 colleagues. For a full list of the questions asked, please see **Annex 3**.

## Results

This section will present an overview of the answers received from respondents and summarise the main points from each section. Some points to consider taking further are presented at the end, based on the other WP9 activities they relate to. For a full list of all the questionnaire answers received, please see **Annex 4**. In total, over 90 people viewed the questionnaire with 19 completing it, these respondents represented 14 countries and 17 organisations within Europe. In the results below, the responses on personal/organisational/country details have been omitted and will begin at section 4: preparedness and response.

### Chemical preparedness and response

Regarding chemical preparedness plans, 59% of respondents said that there are such plans available in their country or region. There are available different plans and guidance, for example Exceptional Situations Related to Environmental Health, plans at county level, preparedness plan as part of environmental protection legislation, National Risk Assessments etc. (view the following link for one example:

[https://ec.europa.eu/health/sites/health/files/preparedness\\_response/docs/gpp\\_tech\\_nical\\_guidance\\_document\\_april2011\\_fi.pdf](https://ec.europa.eu/health/sites/health/files/preparedness_response/docs/gpp_tech_nical_guidance_document_april2011_fi.pdf).

Regarding testing chemical incidents through real events or simulation exercises, 75% respondents said that in their country, the preparedness/response to chemical incidents has been tested through occurrence or real event(s) and 71% of respondents said that in their country, the preparedness/response to chemical incidents has been tested through a simulation exercise. Only 37% said that in their country, the preparedness/response to chemical incidents has been tested through occurrence of real event(s) or a simulation exercise (Figure 1).

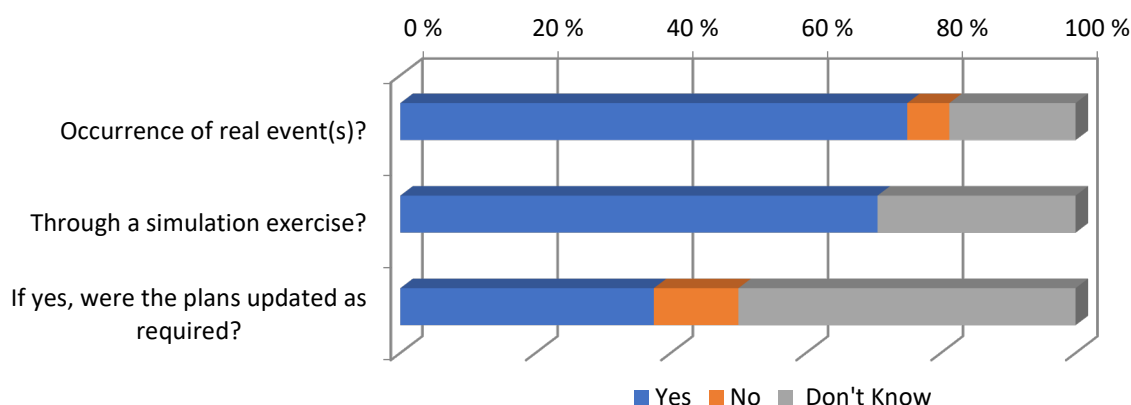


Figure 1: Q10: In your country, has the preparedness/response to chemical incidents been tested through real events or simulation exercises?

When asked further about the chemical preparedness plan, 65% of respondents said that the preparedness plan provides a mechanism for communication and multi-sectoral cooperation between the different agencies who might be involved in a chemical incident.

When asked about recording the potential chemical hazards, 62% respondents said that there is a list of priority chemicals of concern in their country (for example [https://www.who.int/ipcs/assessment/public\\_health/chemicals\\_phc/en/](https://www.who.int/ipcs/assessment/public_health/chemicals_phc/en/)).

Regarding hazardous facilities, (e.g. SEVESO sites), 62% respondents said that there is an inventory of major hazards/facilities that could be a source of chemical emergencies available in their country (e.g., chemical/fuel production or storage sites).

Regarding whether organisations share good practice and lessons learned following chemical events: 88% (14/16) would share results with other organisations in the

country, 50% (8/16) would share with organisations in other countries while 88% (14/16) thought it would be useful to share information on chemical incidents.

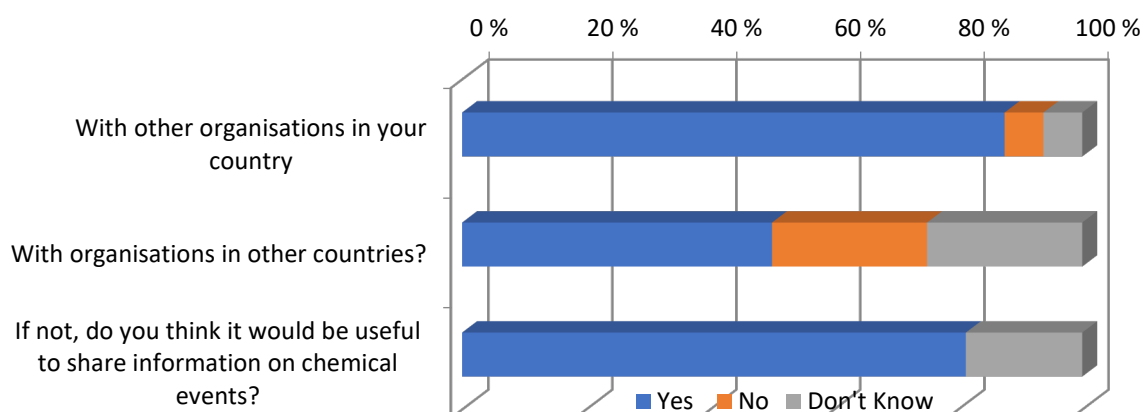


Figure 2. Q16: Does your organisation share good practice and lessons learned following chemical events

In addition, 62% of respondents undertake training or exercising with their neighbouring country/countries while 13% did not. Some respondents provided a brief description of these joint trainings or exercises with their neighbouring countries, examples include: International Exercises (e.g. Quicksilver and Quicksilver Plus) and DG ECHO exercises.

When asked about the recording of chemical incidents and exposures, 54% of respondents said that there is a record available of chemical incidents/exposures which occur in their country. The record is held on a spreadsheet (1 response), in a database (6 responses) or other another method (e.g. Excel format register, 2 responses).

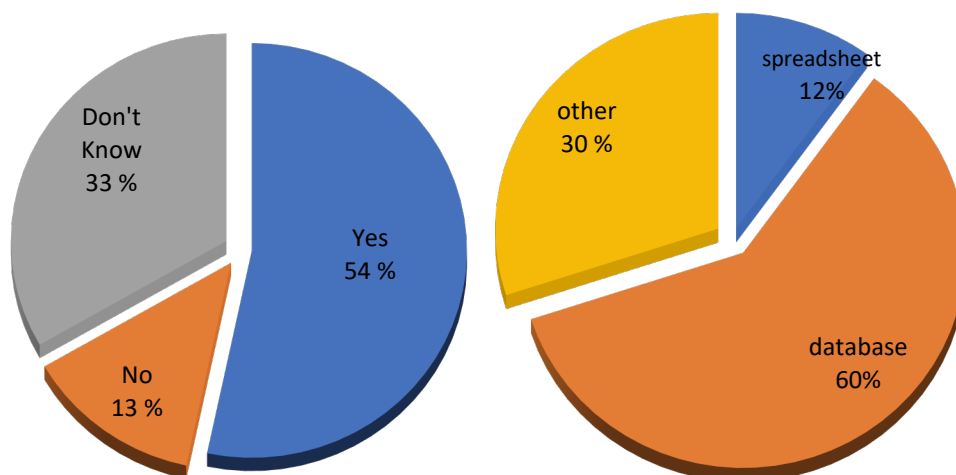


Figure 3. Q18: Is there a record available of chemical incidents/exposures which occur in your country? (left). Q19: How is this record held? (Right).

## Poison Centres and Surveillance

93% of respondents said that there is a Poison Centre in their country and went on to provide additional information about the Poison Centre, the numbered points below correspond to Figure 4.

1. Are they involved in chemical incident/exposure surveillance? **7 yes, 3 no, 3 don't know**
2. Do they provide this information to the national/regional public health agency? **9 yes, 1 no, 3 don't know**
3. Do they take calls from the public? **10 yes, 1 no, 2 don't know**
4. Do they take calls from other health professionals? **12 yes, 0 no, 1 don't know**

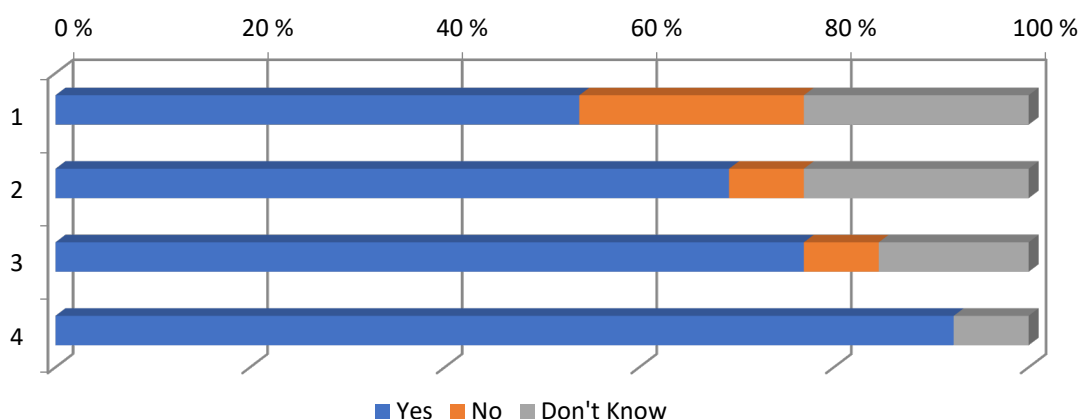


Figure 4. Q21: If you have a poison centre in your country: (1) Are they involved in chemical incident/exposure surveillance?; (2) Do they provide this information to the national/regional public health agency?; (3) Do they take calls from the public?; (4) Do they take calls from other health professionals?

Respondents were then asked if their organisation:

- conducts surveillance for chemical incidents: **(50% Yes)**
- conducts surveillance for chemical exposures: **(50% Yes)**
- conducts surveillance on health outcomes resulting from chemical exposures: **(43% Yes)**

Some respondents provided additional details on surveillance:

For chemical incidents:

- “Ministry of Interior monitors all emergencies that have been declared to the release of dangerous goods into the environment”
- “Expert readiness 24/7. Weekly activation reports. Annual report for the Ministry of Health”

For chemical exposures:

- “pesticides in water and baby food, benzene in food, heavy metals in water and food, air pollution”
- “In cases requested by police, fire and rescue service or local authorities Control chemical laboratories conduct one-off or even long-term monitoring of chemicals in the environment (air, soil and water)”
- “participation in the national network of laboratories: analyses for the identification of unknown products involved in the exposure of a group of people or the population”
- “In the case of chemical accidents, so far in theory”

For the resulting health outcomes due to chemical exposures:

- “The Epidemiology Center is involved in the monitoring of health effects. If needed, it conducts investigations to determine the origin of these health effects (water, air, soil analyses, etc.) if it suspects a particular chemical.”
- “Again in theory. We would be involved in the event if a decision is made to implement this.”

Lastly, 36% of respondents said that their country operates an Environmental Public Health Tracking system related to chemicals, or have equivalent components of such a system. Additional responses include:

- Maintain a database on importation of certain chemical, medicinal products etc
- Ministry of Environmental protection collect data of chemicals hazards of all health and environmental hazardous classified chemicals submitted to the

Integrated Chemicals Register from all producers and importers of chemicals from the market

## Types of Chemical surveillance

Respondents said that there are following types of chemical surveillance carried out in their country:

1. Event-based surveillance (EBS): **9 yes, 3 no, 2 don't know**
2. Indicator-based surveillance (IBS): **4 yes, 5 no, 5 don't know**
3. Syndromic surveillance: **5 yes, 5 no, 4 don't know**
4. Toxicosurveillance/Toxicovigilance: **8 yes, 3 no, 3 don't know**

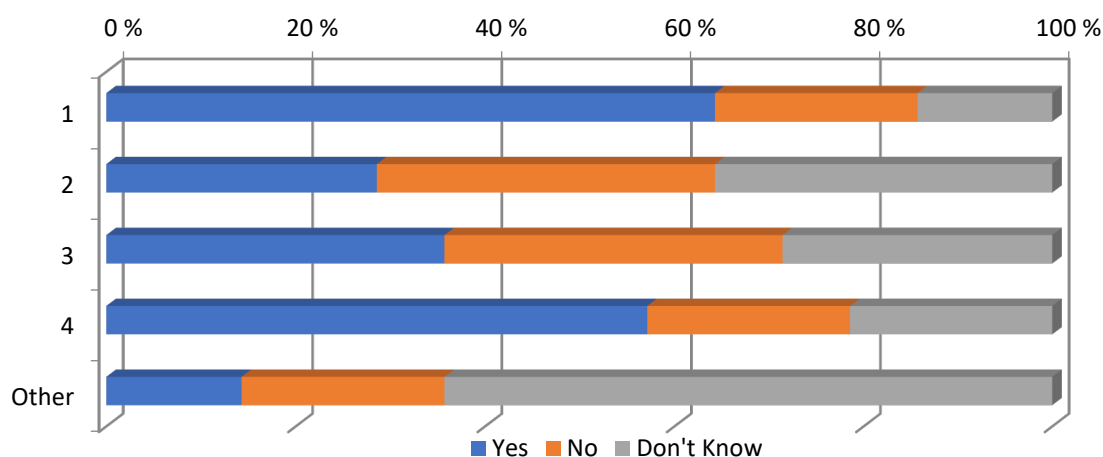


Figure 5: Are any of the following types of chemical surveillance carried out in your country? (1) Event-based surveillance (EBS, defined as the organised collection, monitoring, assessment and interpretation of mainly unstructured ad-hoc information regarding health events or risks, which may represent an acute risk to human health.); (2) Indicator-based surveillance (IBS, the systematic (regular) collection, monitoring, analysis and interpretation of structured data, i.e. of indicators produced by a number of well-identified, mostly health-based, formal sources); (3) Syndromic surveillance (a method of surveillance that uses health-related data based on clinical observations rather than laboratory confirmation of diagnoses. Syndromic surveillance is used in order to detect outbreaks earlier than would otherwise be possible with laboratory diagnosis-based methods. Case definitions used for syndromic surveillance are based on clinical signs and symptoms, rather than on specific laboratory criteria for confirmation of the causative agent); (4) Toxicosurveillance/Toxicovigilance (Toxicovigilance can reveal whether there is an emerging toxicological problem resulting from, for example, the reformulation of a product or a change to its packaging or labelling, the availability of a new drug of abuse, or an environmental contamination)

When asked, only 29% of respondents said that there are plans for implementing any of the above surveillance types in their country. 72% of respondents said that those who perform chemical surveillance, exchange information with those who are responsible for managing the alerting and response to chemical incidents. Additional details included:



- “Control chemical laboratories are in contact either directly or through ministry of interior with local authorities, public health authorities, environmental inspection and other relevant authorities”

50% of respondents said that their organisation (or another organisation in their country) have the capacity to undertake biomonitoring following a chemical incident/exposure. While Lead was mentioned as an example, for others whether biomonitoring was undertaken or not depended on the chemical.

## Existing Mechanisms - Chemical Alerting Systems

77% of respondents are aware of the Rapid Alerting System for Chemicals (RASCHEM), 31% of respondents' organizations have access to RASCHEM and 77% of respondents think there is a need for RASCHEM or a similar alerting and reporting system for chemicals. Some respondents explained why they think there is a need for RASCHEM or a similar alerting and reporting system for chemicals:

- “It allows for standardized exchange of information on PHEIC”
- “It seems to be important to exchange information's between countries to alert more quickly when a hazard is identified”
- “It is important to know information on time”
- “I think it should be easily included in the EWRS. Just for warning. (eg release of "x" gas in "y" country. the smell is perceptible in the air.”
- “They would strengthen surveillance and information sharing on chemical threats and hazards”

In addition, 46% of respondents were aware of any other alerting systems which can be used to share chemical incident/poisoning information. These include:

- IAN - industrial accident notification system
- CECIS common emergency communication and information system
- RASFF
- WHO -Event Information System,
- WHO Global Chemicals and Health Network
- Civil protection mechanism, SCHEER-working group on RRA
- The IAN system is related to SEVESO operators and the rapid exchange of information at the interstate level, in the sense that when an accident occurs in the territory of one country whose effects can be transmitted and cause damage in the territory of another country. In that case, quick information is necessary to assure the country affected by the transboundary effects of the accident to also implement certain protection measures
- RASFF system for incidents related to the food system

## Chemical laboratory analysis

Regarding capacity for chemical laboratory analysis, 62% of respondents said that there are facilities available in their organisation for the identification of chemicals, during an incident. 77% of respondents said that there are facilities available in their organisation for environmental sampling of chemicals, following an incident and only 39% said that there are facilities available in their organisation for clinical sampling of chemicals, following an incident.

Respondents provided following answers about the mechanisms in their country for identifying a chemical, following an incident. These include:

- fire and rescue service or control chemical laboratory is dispatched to the emergency, the sampling and analysis is either done on-site or in a lab
- In case of incident the Fire and Rescue service with express detection methods ensure first identification of the chemical, if necessary, in some cases
- Use of networks: Samples are sent to the different laboratories in the network, which must give a first rapid response within 24 h
- We have detection capacities to support in these issues
- Local authorities and labs
- the general inspectorate of emergencies collects air samples, other samples that are, seals them and sends them to the laboratory
- 2 mobile laboratories (initial measures), analytical laboratories for chemical samples (environmental, human)
- Sampling and analysis either at regional level (hand-held instruments) by fire services
- Sampling and analysing of collected samples from accident sited based on information of types of chemicals storage or produces in facilities

Three respondents answered “don’t know”.

62% respondents said that their organization could access laboratory facilities through agreements with other organisations and only 39% said that their organization could access laboratory facilities through agreements with other countries. Respondents explained more in detail the arrangements:

- Agreement with Ministry of Defense allowing to use military resources for sampling and analysis if needed
- Links with local and national hospital labs
- SEVESO directives
- collaboration agreement with other national research organisations

## Chemical laboratory analysis network

When asked whether their organisation was currently part of a chemical laboratory analysis network, only 23% respondents' organizations responded 'Yes'. Some examples of chemical laboratory analysis network are: METROFOOD, EU level networks, EURL national laboratory, <https://www.legifrance.gouv.fr/circulaire/id/38195>.

When asked additional questions about European chemical laboratory analysis network:

- **Would you be able to assist neighbouring countries in analysing chemical samples?** 6 respondents said yes, 2 no, 5 don't know
- **Would you be interested in joining a chemical laboratory analysis network, made up of institutes/organisations with the capability to analyse and identify a variety of chemical agents?** 9 respondents said yes, 1 no, 3 don't know
- **Would you be interested in joining this network to submit samples for testing? (this does not require that you have analytical capacity yourself)** 9 respondents said yes, 0 no, 4 don't know
- **Would you be interested in joining this network as a contributor? (this requires analytical capacity)** 8 respondents said yes, 1 no, 4 don't know
- **Do you think laboratories would need some form of accreditation to be involved in this network?** 8 respondents said yes, 3 no, 1 don't know

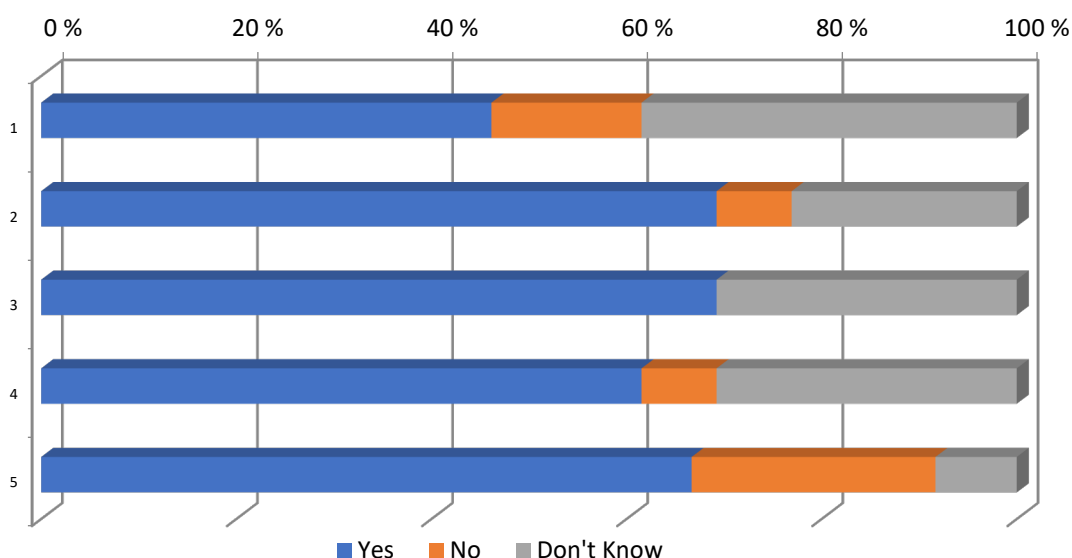


Figure 6: European chemical laboratory analysis network: (1) Would you be able to assist neighbouring countries in analysing chemical samples? (2) Would you be interested in joining a chemical laboratory analysis network, made up of

*institutes/organisations with the capability to analyse and identify a variety of chemical agents? (3) Would you be interested in joining this network to submit samples for testing? (this does not require that you have analytical capacity yourself) (4) Would you be interested in joining this network as a contributor? (this requires analytical capacity) (5) Do you think laboratories would need some form of accreditation to be involved in this network?*

50% of respondents are not sure about joining a European chemical laboratory analysis network, only 8% find it highly feasible. Respondents explained their decision about joining a European chemical laboratory analysis network as follows:

- “I don’t have enough information about the initiative, also our focus might be slightly different than Public Health Authorities”
- “The laboratories exist but a ministerial decision is required for them to participate in this network.”
- “No formal analysis system exists and no access to additional resources”
- “NIPH does not have such a laboratory. We have National Laboratory of Health, Environment and Food.”
- “Not the lead agency or competent authority for chemical laboratory analysis”
- “participation in new networks must be decided on case-by-case basis depending on their focus and on available resources & methods”

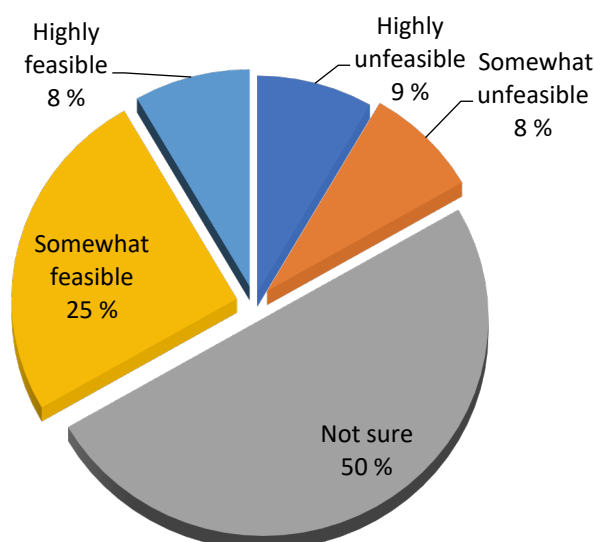


Figure 7: Joining a European chemical laboratory analysis network

## Training Requirements

When asked if gaps had been identified in their countries’ chemical incident preparedness which would benefit from further training, 75% of respondents said ‘Yes’ and provided the following follow-up answers:

- “chemical incidents are rare in occurrence, additional training and education is always welcome”,
- “time to get samples to the laboratory”,
- “Communication, clarity of responsibilities of responders, use of decontamination, routine surveillance and analysis”,
- “Mulisectoral cooperation and coordination”,
- “disposal of leaked chemicals and contaminated soil”

When asked to rank the following topics on importance, respondents listed them as follows:

- Surveillance of chemical incidents: **42% very important**
- Existing mechanisms/materials for chemical incident preparedness: **50% very important**
- Plans for preparedness/response to chemical incidents and Hazard characterisation: **50% very important**
- public health management of chemical incidents. **58% very important**
- Hazard characterisation: **50% very important**
- Risk assessments: **67% very important**
- Recovery from chemical incidents: **67% very important**

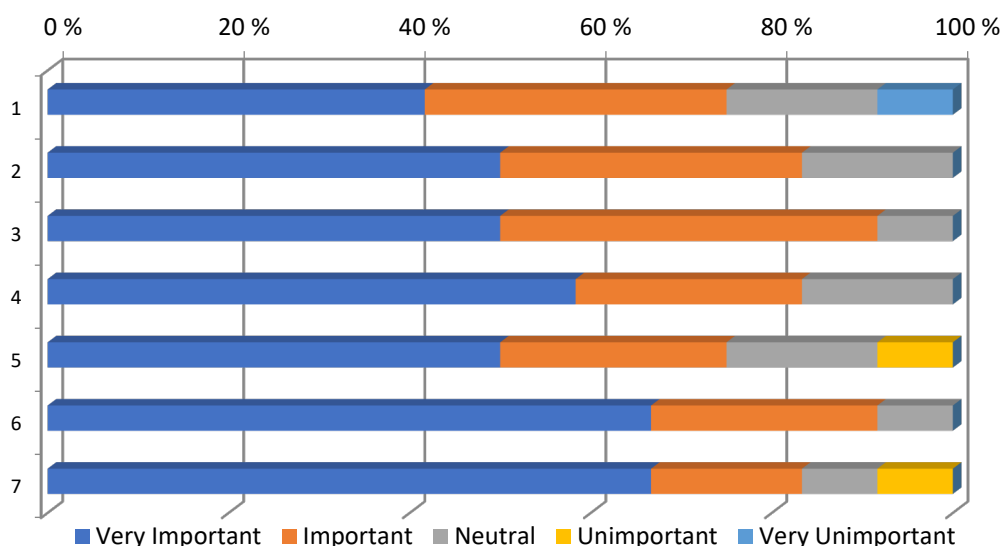


Figure 8: Regarding training materials for chemicals, what training material topics would be most beneficial? Please select how important each training topic is: (1) Surveillance of chemical incidents; (2) Existing mechanisms/materials for chemical incident preparedness; (3) Plans for preparedness/response to chemical incidents; (4) Public Health Management of chemical incidents; (5) Hazard characterisation; (6) Risk assessments; (7) Recovery from chemical incidents

When asked to provide additional chemical topics which respondents would like to receive training materials for, the following answers were provided:

- Detection of chemicals,
- Decontamination of exposed persons,
- Practical guide models,
- Accessing or establishing a virtual Poison Centre,
- Strengthening collaboration,
- Sampling strategies and
- Risk assessment practices.
- Endocrine disrupting compounds
- Cumulative exposure, i.e. mixture effects (especially synergistic response)

Respondents also indicated which forms of training material they would find most useful. The top answers (according to the highest percentage for 'very useful') were:

- Live exercises,
- Guidance/standard operating procedures (SOPs) and
- E-learning materials as the most useful training materials.

Other useful materials suggested include:

- Interactive activities (for groups) and chemical incident scenarios (e.g. for exercises)
- Case studies of chemical incidents,
- Presentations (e.g. PowerPoint) and
- Interactive activities (for individuals).

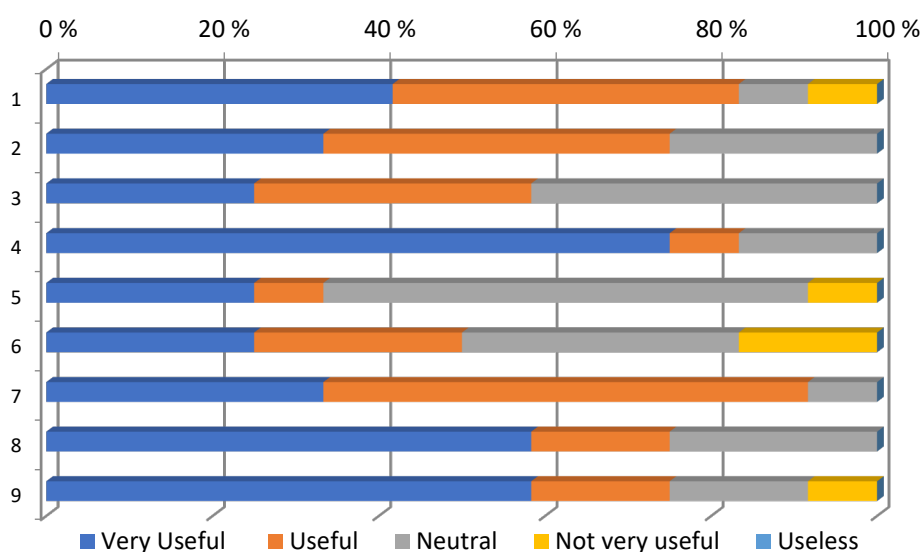


Figure 9: Please indicate which forms of training material are most useful to you: (1) Case studies of chemical incidents; (2) Chemical incident scenarios (e.g. for exercises); (3) Table-top exercises; (4) Live exercises; (5) Presentations (e.g. PowerPoint);

*(6) Interactive activities (for individuals); (7) Interactive activities (for groups); (8) Guidance/Standard Operating Procedures (SOPs); (9) E-learning materials*

## Discussion

This report has outlined in the background an overview of current gaps and strengths of IHR capacities in Europe in the form of JEE and SPAR reports. The summarised results of the gap analysis questionnaire were also presented, which provided details about the capacities in place, highlighting some of the strengths and gaps which exist in the countries represented by the questionnaire respondents.

Regarding chemical preparedness plans, the majority of respondents had preparedness plans, which are tested either through real events or exercises. However, there is a gap that only 39% of respondents said the plans were updated following the outcomes of the exercises/real events. Most of these plans also involve a mechanism for multi-sectoral cooperation. Regarding whether organisations share good practice and lessons learned following chemical events, almost 90% of respondents would share results with other organisations in the country. However, only 50% would share information with organisations in other countries, which could be improved. When asked about the recording of chemical incidents and exposures, 54% of respondents said that there is a record available of chemical incidents/exposures which occur in their country. The results suggest that there is a need for more countries/organisations to keep a record of the chemical incidents that occur and a need for all countries/organisations to make more effort to be more collaborative when it comes to chemical incidents and be more open with sharing information. WP9 will produce Guidance to assist countries/organisations with strengthening their preparedness for chemical incidents, as well as training materials used to increase awareness and background on a variety of issues related to chemical incidents.

Over half of respondents said that the Poison Centres in their countries were involved in the surveillance of chemical incidents/exposures and most of these provide the information to their national public health agency. Half of the respondents said that their organisation conducts surveillance for chemical incidents and chemical hazards, which could and should be improved. From the questionnaire, the most common form of surveillance being implemented is event-based surveillance (EBS - 64%), with indicator-based surveillance (IBS) being the least common (29%). When asked, only 29% of respondents said that there are plans for implementing other forms of surveillance they currently do not do. This shows that current surveillance programs could be more integrated, work in collaboration with poison centres and utilise different

forms of surveillance to create a more comprehensive approach to chemical incident surveillance. This is in line with the WP5 IHR workshop outcome: Improve interconnections for chemical surveillance to better monitor and identify problems. It is also in-line with WP9 activities on surveillance, where guidance on performing surveillance for chemical incidents will be produced. WP9 will also conduct a literature review on surveillance of chemical incidents, which would raise awareness of the issue as well as providing background for those who conduct surveillance or those who are thinking about conducting surveillance.

The majority of respondents (77%) are aware of the Rapid Alerting System for Chemicals (RASCHEM) and think there is a need for RASCHEM or a similar alerting and reporting system for chemicals. However, only 31% of respondents' organizations have access to RASCHEM. In addition, less than half of respondents were aware of other alerting systems which can be used to share chemical incident/poisoning information. This highlights an important gap in alerting and reporting of chemical incidents, as a RASCHEM-type system is important, there are few alternatives that people are aware of and RASCHEM is not currently active. In WP9 there are plans to produce guidance on dealing with cross-border chemical health threats, including involving with the SCHEER committee, which will signpost and support stakeholders in sharing information regarding chemical incidents.

Only 23% of respondents' organisations are currently part of a chemical laboratory analysis network, however the majority of responses were positive about such a network, with over half saying they would be interested in joining a network, submitting samples for testing and performing the tests themselves. Further details are required as only 8% of responses said that a network was highly feasible, as different organisations have different focusses and have varying levels of authority to join such a network (some would require government/ministry sign-off to proceed). The results of this section of the questionnaire will be explored in more detail in a follow-up report on the desirability and feasibility of establishing a chemical laboratory analysis network. This will be the first steps in working towards the WP5 workshop goal of mapping laboratory capacity in countries to determine areas for improvement.

When asked if gaps had been identified in their countries' chemical incident preparedness which would benefit from further training, 75% of respondents said 'Yes' and listed 'risk assessments' and 'recovery from chemical incidents' as the most important training topics. These topics were also highlighted in the JEE recommendations and will be addressed in the training materials that will be produced for chemical training workshops. Respondents also indicated which forms of training material they would find most useful (based on those which scored the most 'very useful' ratings), these were Live exercises, Guidance/standard operating procedures (SOPs) and E-learning materials. These types of training material were already



planned to be produced and it is good to know that they are relevant and will be useful for stakeholders.

## Next Steps

The majority of the activities to be conducted in WP9 remain relevant and fit for purpose, as they tie-in with most of the issues raised recommendations from the JEE/SPAR Reports, some of the priority areas identified in the WP5 workshop and the gaps outlined by the questionnaire answers. However, some of our planned outputs may need to be adapted to better suit the needs of EU stakeholders. For instance, we had not anticipated such an appetite for Recovery from chemical incidents as a topic, there were no plans to include this in the training materials but given the answers received, we will ensure that this is covered in the training materials but also in the Guidance WP9 will produce. It would be difficult and not necessarily possible to try and draw conclusions between the results of the questionnaire and the SPAR/JEE background information as they rarely look at the same issues, we have tried to point out overlapping areas where they exist and how this relates to the planned activities of WP9. Nonetheless it has been useful to receive feedback from SHARP stakeholders about the state of play regarding chemical incidents in their countries.

## Annexes

### Annex 1 – Full list of strengths, challenges and recommendations, from the Chemical section of JEE reports available from European countries

	Recommendations for priority actions	Indicators and scores			
		CE.1 Mechanisms are established and functioning for detecting and responding to chemical events or emergencies		CE.2 Enabling environment is in place for management of chemical events -	
		Strengths/best practices	Areas that need strengthening/challenges	Strengths/best practices	Areas that need strengthening/challenges
<b>Slovenia</b>	<p>Based on recent events and lessons, evaluate, revise and exercise the existing national response plan(s) for chemical events in order to improve immediate response activities and risk communication.</p> <p>Formalize the routine sharing of case-based information regarding chemical events in order to improve the overall national risk assessment.</p>	<p>- Score 4</p> <p>A chemicals information system and emergency response plans are in place and are used by key ministries (Ministry of the Environment and Spatial Planning; Ministry of Defence; Poison Control Centre).</p> <p>An emergency notification and information system is in place (via 112).</p> <p>Monitoring capabilities are established for the environment, health, food and feed.</p> <p>Slovenia has a Poison Centre in the University Medical Centre, Ljubljana.</p>	<p>Improvements are needed to the risk assessment protocols to coordinate local and regional information with national input as needed.</p> <p>Communication with the public during and immediately after a chemical event could be improved.</p> <p>Systematic connections should be made between the reporting of chemical events/intoxication, public health risk assessments, and chemical event surveillance.</p>	<p>Score 3</p> <p>Strong national regulation exists for chemical materials.</p> <p>Slovenia maintains registers of sites with chemical event potential.</p> <p>EU-based chemicals management legislation is in place.</p> <p>There is a high level of sensitivity to environment- and health-related issues across Slovenian society.</p>	<p>Local awareness, understanding, and preparedness for chemical hazards should be strengthened.</p> <p>Greater involvement of all sectors and private business is needed in national public health preparedness for chemical events, and development of improved response plans that cover a variety of scenarios.</p>
<b>Belgium</b>	<p>Improve coordination between all stakeholders involved in chemical events, by integrating the relevant sectors into the national Generic Preparedness Plan. Integrate the Poison Control Centre into emergency plans and trainings. Ensure that funding of the Poison Control Centre is sufficient to maintain its functions (through the provision of specialized personnel, IT infrastructure, etc.).</p>	<p>Score 5</p> <p>The National Poison Centre has capacity for event detection through wide access to the public and medical professionals (sentinel surveillance).</p> <p>Highly qualified and experienced staff are prepared for detection of significant chemical incidents.</p> <p>The Poison Centre provides quick, centralized</p>	<p>The workload of staff at the Poison Control Centre should be reduced, to ensure the sustainability of a permanent response unit.</p> <p>Highly demanding jobs make recruitment difficult, and bilingual professionals are difficult to find. Consideration should be given to better working conditions and more attractive professional packages. Well-defined roles in disaster preparedness and management are required.</p>	<p>Score 5</p> <p>There is a well organized and functional emergency system.</p> <p>The Poison Centre has access to the composition of dangerous chemicals.</p> <p>Belgium is involved in international chemical and toxicological networks (e.g. the INTOX network).</p> <p>Belgium has access to international networks of experts, and good general international cooperation and exchange of experience and resources.</p>	<p>As Belgium has a very complex governmental system and many different regulations, it is possible for several authorities to be involved in the same chemical incidents (e.g. water contamination). Systems for managing these situations need to be clarified.</p> <p>The Poisons Centre has no well-defined role in disaster planning, and is currently not systematically involved in training and exercising. The Centre must be officially integrated into existing</p>

		<p>availability to antidotes.</p> <p>The Poison Centre is involved in the activities of the EAPCCT (European Association of Poison Centres and Clinical Toxicologists).</p> <p>IT tools are available for monitoring chemical incidents or unusual or increasing numbers of incidents based on call records.</p> <p>Use of the Poisons Centre Training Manual produced by the WHO International Programme on Chemical Safety (IPCS) INTOX Network as guideline for training new staff members.</p> <p>Compliance with 'Good distributing practice'.</p> <p>International collaboration with other poison control centres.</p> <p>Exchange of experiences in yearly meetings</p>	<p>As an independent organisation, the Poison Centre has no formal links with other stakeholders.</p> <p>Answering capacity in case of disasters should be expanded.</p> <p>Cooperation between stakeholders needs to be stimulated, and its legal basis improved and clarified.</p> <p>Coordination between different intervening organisms should be improved.</p> <p>An internal plan to extend functional capacity should be developed and tested.</p>		<p>disaster plans and should participate in exercises.</p> <p>More attention should be paid to the need for stakeholders to learn to work together. Working procedures must be harmonized.</p> <p>All available information should be centralized.</p> <p>Financial resources should be adapted to these requirements.</p>
<b>Finland</b>	<p>Improve awareness at the national level and prepare a comprehensive, common understanding on chemical safety in Finland, covering all sectors (the general public and stakeholders from the environmental, occupational and food sectors).</p> <p>Perform a gap analysis and develop a strategy for planning and responding to the following expected gaps: Personnel, following the retirement of experts, for example toxicologists; The</p>	<p><b>Score 4</b></p> <p>Strong networks between authorities, experts and different sectors at the national level. These networks include both safety and security experts. This forms a basis for information flow between authorities and experts.</p> <p>Surveillance systems, including laboratory capacity for surveillance. Advice is available at all times on chemical events.</p>	<p>A comprehensive, common understanding of chemical safety in Finland is needed in all sectors.</p> <p>A comprehensive, up-to-date overview of the current knowledge and expertise of local actors on chemical hazards. This includes information on needs for additional training locally/regionally.</p> <p>Given the rarity of large-scale incidents, there is a need for more frequent, multisectoral exercises covering these types of incident (an accident involving a vehicle transporting chemicals, for example).</p>	<p><b>Score 4</b></p> <p>Comprehensive legislation and an up-to-date chemical strategy that considers chemical, biological, radiological and nuclear defence security aspects.</p> <p>Multisectoral collaborative networks in place of a single coordinating body.</p> <p>Active involvement in EU networks and working groups related to chemical safety.</p> <p>Strategies have been developed in collaboration with multiple sectors and with all relevant actors including the chemical industry and</p>	<p>Responding to changes in the public communication environment in order to ensure effective, reliable communication and prevent the spread of disinformation in the case of chemical events.</p> <p>The management of cases with long-term consequences, which are usually managed on a case-by-case basis due to their infrequency. This may require guidelines and an allocated budget.</p> <p>General guidelines are available for local and regional authorities on preparedness planning for chemical incidents. However, there is a need for an up-to-</p>

	<p>number of laboratories required; Preserving knowledge of experts on treatment of patients during chemical events.</p> <p>Improve arrangements for ensuring awareness of situations, and improving the information flow and understanding among all organizations taking part in the response to acute chemical incidents.</p>	<p>A well-functioning poison information centre.</p> <p>Networks such as the Finnish Centre of Excellence for Serious Chemical Threats, which includes both safety and security experts. Safety experts are involved also in chemical, biological, radiological and nuclear defence networks.</p> <p>Finnish defence forces can provide assistance with the management of chemical events when needed.</p> <p>Mutual agreements on collaboration at the national level and regional levels.</p>	<p>Improved information flow and situational awareness among all relevant authorities and experts in the event of an acute chemical incident.</p> <p>Recent budget cuts have caused significant reductions in human resources.</p> <p>Minimal resources for research and development may result in a reliance on the EU in the chemical safety arena.</p> <p>Outsourcing of chemical analyses could cause problems in future. There is no national strategy or agreement on the minimum level of capacity.</p>	<p>nongovernmental organizations.</p>	<p>date overview of the current knowledge, expertise and training needs locally and regionally.</p>
<b>Latvia</b>	<p>Improve capacity where resources are reported to be needed and modernize equipment (e.g. replace old emergency vehicles).</p> <p>Improve the system on knowledge transfer between sectors in addition to training that is already successfully implemented. At the same time there is need for raising awareness with regard to legislations that are in place.</p> <p>There are some areas where the sufficiency level is below 10% of the designated national minimum. These minimum requirements should at least be met.</p> <p>Training with cross-sectoral involvement (maintain level of preparedness and update skills).</p> <p>Appropriate risk assessment in different sectors (allocate</p>	<p><b>Score 2</b></p> <p>National legislation in place.</p> <p>Civil protection plans (Hazardous objects, municipal level and state level).</p> <p>SFRS has developed internal regulation and professional training developed to manage chemical hazards.</p> <p>Developed occupational safety requirements in case of chemical accident including management.</p> <p>Internal institutional regulation in occupational safety requirements during response actions in chemical accidents.</p> <p>Gained experience from previous disasters (implementation of lessons learnt).</p> <p>Regular fire safety and civil protection</p>	<p>Clear understanding on stakeholder tasks (cross-sectoral co-operation mechanisms).</p> <p>Raise awareness of current capacity and knowledge of all stakeholders regarding different phases of chemical emergencies.</p> <p>Methodology to carry out clean-up procedures in special environments (e.g. shoreline) and organisms (e.g. contaminated animals).</p> <p>Laboratory capacity for confirmatory analyses should be established.</p> <p>Regular knowledge transfer between sectors.</p> <p>To establish common risk assessment methodology.</p> <p>To create comprehensive disaster event database and ensure exchange of data and knowledge.</p>	<p><b>Score 4</b></p> <p>Regulations for safety measures of hazardous objects and sites.</p> <p>Regular fire safety and civil protection inspections.</p> <p>Plans and procedures for all stakeholders are tested by regular exercises.</p> <p>SFRS procedures and practical performance are tested jointly with hazardous objects regular exercises.</p> <p>Gained experience from previous disasters (implementation of lessons learnt).</p>	<p>Provision of training ground area.</p> <p>Software or electronic applications for chemical dispersion and release, safety measures, hazard modelling.</p> <p>Sufficiency of rescue service units with capacity to respond to chemical emergencies.</p> <p>Experience in different meteorological and environmental conditions.</p> <p>Receiving and providing international assistance.</p> <p>Ensure host nation support during emergency.</p> <p>Amend sufficient capacities, modern equipment, and human resources (qualified personnel).</p>

	<p>financial resources and identify priorities).</p> <p>Disaster loss database and sharing (map the situation and ensure proper data for risk assessment).</p>	<p>inspections carried out regularly.</p>			
<b>Lithuania</b>	<p>Ensure continued improvement of cross-sector coordination through regular exercises involving various stakeholders.</p> <p>Strengthen the toxicological laboratory capacity.</p> <p>Develop an SOP for response to public health emergencies with unknown chemical hazards.</p> <p>Strengthen poison centres capacity by:</p> <p>Developing clinical case-management guidelines and protocols</p> <p>Ensuring access to information and expertise networks and databases</p> <p>Providing adequate funding and workforce.</p>	<p><b>Score 3</b></p> <p>The surveillance, assessment and management of chemical events are described not only in the guidelines, but laws and orders of ministries.</p> <p>Poison Information Bureau (poison centre) provides information for public and professionals (including health professionals) 24/7. Consultations in poison centre are provided by clinical toxicology doctors.</p> <p>The Integrated Computerized Information System for Environmental Management (AIVIKS) contains information provides real time air quality mapping system, as well as for water, landscape, and waste management, and climate change related implications.</p> <p>Rapid Alert System for Chemicals, available databases on managing chemical risks (e.g., TOXINZ).</p>	<p>Establishing capacities for clinical toxicology laboratories</p> <p>Sustainable financing for supporting adequate level of preparedness and response to chemical accidents and emergencies (i.e. human resources, laboratory equipment and consumables, digitalizing operations of poison centers, etc.)</p>	<p><b>Score 4</b></p> <p>A strong legal framework for safe management of chemicals is established, including the Law of Civil protection, Law on Chemical Substances and Preparations, Regulations on Prevention of and Response to an Investigation of Industrial Accidents, Inspection Programme of Hazardous Establishments, etc.</p> <p>The State Emergency Management Plan is established and tested through simulation exercises.</p> <p>A compulsory registration, licensing, reporting of the use of hazardous substances by industrial and commercial sectors, which are subject to regular state inspections.</p>	<p>An emergency response plan for a scenario involving unknown hazardous substance is not developed.</p> <p>Strengthened cross-sector coordination and establishing closer links between civil and defense sector, especially with regard to joint preparedness strengthening activities, i.e. full-scale exercises, etc.</p>
<b>Albania</b>	<p>Develop mechanisms and protocols to ensure the implementation of legislation, in particular through a regular and timely exchange of information.</p> <p>Strengthen human capacities in the Ministry of Health, and identify institutions responsible for chemical risk assessment and rapid risk assessment during chemical emergencies.</p>	<p><b>Score 2</b></p> <p>Most international legally binding (conventions) and voluntary agreements such as the Strategic Approach to International Chemicals Management (SAICM)<sup>10</sup> are ratified and their implementation is in a progress.</p> <p>A national assessment of chemical safety has been performed and</p>	<p>There is a need to establish a coordination mechanism for regular exchange of information (preferably online) between agencies involved in chemicals management.</p> <p>Decontamination facilities, PPE and antidotes should be in place and correspond to the need identified through assessment of hazards and risks.</p> <p>Particular attention should be paid to creating infrastructure and</p>	<p><b>Score 2</b></p> <p>The country has created a legislative basis for chemicals management in general and for management of chemical emergencies; the legislation defines the roles and responsibilities of stakeholders.</p> <p>A CBRN plan is under development, and the Ministry of Health is involved in planning the public health response to chemical emergencies.</p>	<p>There is a need to establish and regularly update an inventory of hazardous sites and activities as well as an inventory of hazardous chemicals; these inventories should be freely accessible to stakeholders.</p> <p>Risk assessment and exposure scenarios for chemical health hazards for potentially exposed populations should be developed based on risk assessment of hazardous sites and activities.</p>

	<p>Consider creating a poison control centre in line with WHO recommendations.</p>	<p>the results have been made public.</p> <p>A national infrastructure for chemicals management has gained legal approval.</p> <p>Environmental monitoring of chemicals in air and water, and food monitoring for indicator chemicals are conducted.</p> <p>There is a specialized centre for treatment of poisonings at the central level, and basic capacities in regional hospitals.</p>	<p>strengthening human resources in the health system, including considerations on establishing a poison control centre.</p>	<p>The law on chemicals management stipulates establishment of an intersectoral committee on chemical safety.</p>	<p>There is a need to establish mechanisms for detecting and responding to chemical events.</p> <p>A simulation exercise should be organized once the national CBRN plan has been adopted.</p> <p>Cooperation with international networks (e.g. the European poison centres network, the WHO Chemical Risk Assessment Network and the SEEHN) should be strengthened.</p>
<b>Moldova</b>	<p>Develop data management software for potentially toxic chemical substances following the approval of the Law on Chemical Substances.</p> <p>Develop a national interdepartmental plan of response to chemical emergencies that sets out the duties and responsibilities of the relevant services.</p> <p>Develop standardized clinical protocols for exogenous acute poisoning in adults.</p> <p>Institute a regular programme of training and exercises that includes a national drill on responding to a chemical event.</p> <p>Make the planned national poison centre operational.</p>	<p><b>Score 3</b></p> <p>A system is place for the hygienic surveillance of chemical events and acute and chronic intoxications.</p> <p>MoHLSP Order No 906 of 30 November 2015 regulates the duties of various authorities in case of acute poisoning of chemical aetiology.</p> <p>A standardized clinical protocol is approved for exogenous acute poisonings of children.</p> <p>Laboratory facilities are available for the confirmation of chemical events.</p> <p>Two national toxicology units provide diagnosis and treatment for acute intoxications with chemicals.</p> <p>There is daily collection and reporting to decision-makers on cases of chemical exogenous non- professional acute poisonings.</p> <p>Public health professionals set</p>	<p>There is a shortage of well-trained professional staff with chemicals expertise.</p> <p>There is a need for instruction on hygienic surveillance, monitoring, assessment and management of chemical events.</p> <p>Financial resources are required for management of activities that pose public health dangers of chemical origin, which need expensive measures and specific equipment.</p> <p>Because of limited budgets, accredited laboratories have a limited number of reagents/standards.</p> <p>There is no list of standardized clinical protocols for exogenous acute intoxication in adults.</p> <p>There is a lack of software regarding potentially toxic chemicals that lead to acute intoxications.</p> <p>There is currently no toxicology information centre/poisons centre.</p>	<p><b>Score 2</b></p> <p>The National Public Health Agency has a preparedness and response plan for emergency situations, developed and approved in 2014, which is annually updated.</p> <p>A programme is in place that outlines strategic directions for the management of chemicals, including waste. It is set into the National Development Strategy for 2008-2011, as approved by Law No 295 of 21 December 2007.</p> <p>There are guidelines on healthcare facility teams intervening in public health emergencies, developed in order to ensure a high level of emergency preparedness in healthcare facilities.</p> <p>The National Report on State Surveillance of Public Health in the Republic of Moldova is drafted annually on the basis of district and municipal data, and includes a section on chemical safety and toxicology.</p>	<p>There is no separate national inter-departmental plan of response to chemical emergencies that sets out the duties and responsibilities of relevant services.</p> <p>There is a need to update SOPs for specific chemical interventions in the plan (providing health care to exposed people, decontamination of premises and people, etc.).</p> <p>There is a need for stronger capacity for assessment and management of risks related to chemical events.</p> <p>Communication related to chemical events should be improved.</p> <p>There are currently no approved guides on the assessment and management of risks related to chemical events.</p> <p>No national register of potentially toxic chemicals has yet been developed.</p>

		<p>maintenance action codes (MAC) in foodstuffs and other household products.</p> <p>In order to ensure a high level of preparedness in healthcare facilities, Guidelines have been implemented for healthcare facility teams intervening in public health emergencies.</p>			
<b>North Macedonia</b>	<p>Identify capacity gaps across all relevant sectors. Develop national capacity-building priorities for preventing, detecting and responding to chemical events.</p> <p>Assign an entity, committee or agency to lead the development of IHR capacity for chemicals across sectors.</p> <p>Establish a national chemicals profile and a risk map/register for chemicals (e.g. production, storage, use, waste, contaminated land, etc.).</p> <p>Increase surveillance capacity and the analytical scope (for detection and verification) of laboratories regarding chemicals and their health effects.</p> <p>Improve capacity for dealing with chemical events and casualties. Emergency response planning and risk assessment should also consider the potential for the presence of multiple hazards, including chemicals and incorporate appropriate precautions and management.</p>	<p><b>Score 2</b></p> <p>A national plan has been established for preparedness and response of the health system when dealing with emergencies, crisis situations and disasters.</p> <p>Guidelines and SOPs have been established for coordinating responses to events involving chemicals.</p> <p>National monitoring systems have been established for ambient air quality, water quality, food and non-food consumer products.</p> <p>The Macedonian Toxicological Information Centre collects data on health effects caused by chemicals and provides a poisons information service.</p>	<p>Intersectoral stakeholder communication and cooperation should be improved, particularly during periods outside emergency event responses.</p> <p>Surveillance systems should be improved/established for a greater number of stakeholder sectors and should aim to include event-based and syndromic surveillance systems to facilitate early detection.</p> <p>There should be regular reporting of surveillance data.</p> <p>The analytical scope of laboratories should be increased to improve detection and verification capacity, utilizing existing resources where possible.</p> <p>Responses to chemical events should be tested and assessed regularly under realistic scenario conditions, through evaluation exercises.</p> <p>A chemical information system/database should be established and made accessible at all times.</p> <p>Civilian first responders and emergency medical staff should receive training, equipment and resources to deal with the casualties of chemical incidents.</p> <p>There is no civilian structure or capacity for response and decontamination following a chemical emergency</p>	<p><b>Score 2</b></p> <p>Legislation has been enacted to control and manage chemicals and protect health and the environment. Relevant international conventions and agreements have been ratified.</p> <p>A national strategy has been established for preventing the proliferation of weapons of mass destruction and protecting against CBRN threats.</p> <p>A national preparedness and response plan for emergencies, crisis situations and disasters has been established and clearly defines the roles and responsibilities of stakeholders, a coordinating body and a communication process. SOPs have also been drawn up.</p> <p>Emergency funds are provided by central government or in cases of emergency, agreements have been made for provision of international support where required.</p> <p>Regulatory standards and registers are established for the control and management of chemical risks/sources in some sectors and applications (such as for major hazardous sites, land use planning, water and food quality, pollution prevention and control, etc.), but knowledge gaps remain. A register of entities working with</p>	<p>Agency/sector roles, responsibilities and expectations relating to chemicals and IHR implementation should be clearly defined, to include raising awareness of the importance of each sector in a functional multisectoral system to protect health.</p> <p>An entity or committee to lead development of and/or strengthen capacity across the sectors should be considered.</p> <p>A national chemicals profile and a risk map/register for chemicals do not exist (e.g. for production, storage, use, waste, contaminated land, etc.).</p> <p>Intersectoral stakeholder communication and cooperation should be improved, particularly during periods outside emergency event response.</p> <p>There is a need to establish an integrated chemical information and registry system that is available at all times and which is regularly updated.</p> <p>There is a need to improve implementation and regulation of legislation relating to all sectors relevant to chemicals.</p> <p>Risk communication with the public should be improved.</p>

			(currently only the military has this capacity). Capacity for dealing with chemical events should be strengthened and should include planning for surge events.	chemicals/precursors has been established.	
			Emergency response planning and risk assessment should consider the potential for the presence of multiple hazards, including chemicals and should incorporate appropriate precautions and management.	Interdepartmental consultation/communication between the MOH and the Ministry of the Environment and Physical Planning is required when a land use planning application proposes development of an industrial facility.	
<b>Serbia</b>	<p>Update the national chemical profile of defined priority chemical agents.</p> <p>Finalize and exercise the national multisectoral chemical response plan.</p> <p>Incorporate chemical management and response specialists into the national health sector workforce strategy.</p> <p>Establish the mandated Joint Entity for Integrated Chemicals Management organization and a centralized information-exchange mechanism to share information about chemical events among this multisectoral organization.</p>	<p><b>Score 3</b></p> <p>Chemical facility operators conduct continuous surveillance and assessment of any releases of chemicals, promptly notify all competent chemical services agencies and the public, and implement emergency measures.</p> <p>Military Medical Academy – National Poison Control Center maintains case management guidelines for poisoning cases and makes available consultations as needed to the civilian sector.</p> <p>Priority chemicals have been identified through inventories of facilities that meet the European Union Seveso III Directive, through the national registry of pollutants and through the national chemicals registry.</p> <p>The 24 regional public health institutes have laboratory capacity to test clinical samples for common analytes; European Union laboratories provide additional analytical capacity beyond that present domestically.</p>	No mechanisms exist to facilitate rapid exchange of information about chemical events among chemical units, surveillance units and other relevant sectors.	<p><b>Score 2</b></p> <p>Response plans exist for individual chemical facilities.</p> <p>A national response plan has been drafted to address two major scenarios for large-scale chemical release.</p>	<p>Although national pollutant and chemical registries exist, a chemical profile of the country has not been updated since 2008.</p> <p>The draft national chemical response plan has not yet been promulgated and exercised.</p> <p>No multisectoral coordination mechanism to manage chemical events exists; although Article 7 of the Law on Chemicals provides for the establishment of a Joint Entity for Integrated Chemicals Management, this entity has not yet been established.</p> <p>No evaluation mechanism exists to assess the effectiveness of chemical response activities.</p>



		Chemical management staff have completed training in the risk assessment of physical- chemical, ecotoxicological and toxicological properties of chemicals.			
<b>Switzerland and Lichtenstein</b>	<p><b>Switzerland</b></p> <p>Continue and strengthen close cooperation between the Federal Chemistry Expert Network (FVC) and its partners.</p> <p>Raise mutual awareness and strengthen interactions and collaboration between cantonal emergency response centres and national institutions.</p> <p>As far as is reasonably feasible, promote joint practical and realistic simulation exercises between Confederation and Cantonal levels.</p> <p>Complete the IMGS project to develop the existing chemistry database (IGS) with a module for sharing information within an event (implementation planned for 2019).</p> <p>Ensure that the Swiss Toxicology Centre (ToxInfo Suisse) has access to appropriate redundancy of communication systems in emergency situations, and established, long term, stable resources for the centre.</p> <p><b>Lichtenstein</b></p> <p>Develop public health guidelines or SOPs for chemical incidents.</p>	<p><b>Score 5</b></p> <p>Switzerland has well established chemical safety guidance at operational, cantonal level—including for Liechtenstein, which also has access to surveillance and laboratory capacity (though there may be need to share facilities among groups of cantons).</p> <p>A hazmat handbook exists (for the Firefighting Society); the Major Accident Ordinance provides applications and aids; and internal documents exist at operational levels.</p> <p>Mechanisms are in place for information exchange among cantons and with the various responsible federal authorities.</p> <p>Health professions have rapid access to adapted information 24/7/365 via the national poison centre, which has a countrywide short telephone number (145).</p> <p>Highly specialised laboratory facilities are available through the Spiez Centre, particularly in the event of a terrorist attack.</p>	<p>Continued and strengthened close cooperation between the Federal Chemistry Expert Network (FVC) and their partners could enhance Swiss capacity.</p> <p>While there are hindrances to organising realistic simulation exercises, mainly due to lack of human resources, further exercising would raise mutual awareness and strengthen interactions and collaboration between cantonal emergency response centres and the national institutions.</p> <p>The planned goals of realising the IMGS project in 2019 and the development of the IGS chemistry database with a module for sharing information within an event should be encouraged.</p>	<p><b>Score 4</b></p> <p>Legislation for management of chemical events is in place and there is good cooperation between the FVC and its partners.</p> <p>The MAO establishes the basis for strong and well coordinated cooperation between all involved stakeholders in the area of major accidents prevention in Switzerland.</p> <p>There are inventories of major hazard facilities (FOEN). At local level, there are five support pillars for chemical emergency response: the fire brigade (including hazmat), the police, the medical professions, civil protection, and related infrastructure. Additionally, there is the National Poison centre, NEOC, and the FCV.</p> <p>Coordination and exchange of information takes place among cantons and between federal agencies. Information flows from the event scene to the cantonal emergency response centres and then to the NEOC.</p> <p>Internationally, there is collaboration with the European Union and international conventions such as UN/ECE, and international professional toxicological societies.</p>	<p>Systematic collection and analysis of data on chemical events could enhance future response capabilities.</p> <p>Joint cross-sectoral exercises should be promoted.</p> <p>Horizontal contact between relevant offices, as well as enhanced vertical contacts, could raise awareness of chemical events issues in cantons.</p> <p>Better and more rapid information flow should be encouraged.</p> <p>In the event of a major disaster, when normal communication systems cease functioning, the poison information centre should have access to an appropriate redundancy of communication systems.</p> <p>Only two thirds of the resources of the centre are currently secured through agreements: a longer-term, stable resource basis for the centre is desirable.</p>

	Carry out regular and more frequent training and exercises.				
--	---	--	--	--	--

Table 2: Summary of JEE reports for selected countries

## Annex 2 – Summary of SPAR reports from European countries

**SPAR - State Parties Self-Assessment Scores per Capacities & Indicators Yearly**  
Capacity 12

**Chemical Events**

			Score per Indicator	Total
			C.12.1	C.12
AVG Global Capacity			54	54
EURO			68	68
Data Received	Region	State Party of IHR	C.12.1	C.12
Yes	EURO	Georgia	20	20
Yes	EURO	Albania	20	20
Yes	EURO	Malta	20	20
Yes	EURO	Kyrgyzstan	40	40
Yes	EURO	Uzbekistan	40	40
Yes	EURO	Bosnia and Herzegovina	40	40
Yes	EURO	Bulgaria	40	40
Yes	EURO	Monaco	40	40
Yes	EURO	Montenegro	40	40
Yes	EURO	North Macedonia	40	40
Yes	EURO	Republic of Moldova	40	40
Yes	EURO	Romania	40	40
Yes	EURO	Ukraine	40	40
Yes	EURO	Tajikistan	60	60
Yes	EURO	Turkmenistan	60	60
Yes	EURO	Austria	60	60
Yes	EURO	Greece	60	60
Yes	EURO	Hungary	60	60
Yes	EURO	Iceland	60	60
Yes	EURO	Ireland	60	60
Yes	EURO	Italy	60	60
Yes	EURO	Latvia	60	60
Yes	EURO	Slovakia	60	60
Yes	EURO	Armenia	80	80
Yes	EURO	Kazakhstan	80	80
Yes	EURO	Turkey	80	80
Yes	EURO	Belgium	80	80
Yes	EURO	Croatia	80	80
Yes	EURO	Czech Republic	80	80
Yes	EURO	Estonia	80	80
Yes	EURO	Germany	80	80
Yes	EURO	Lithuania	80	80
Yes	EURO	Luxembourg	80	80
Yes	EURO	Netherlands	80	80
Yes	EURO	Norway	80	80
Yes	EURO	Poland	80	80
Yes	EURO	Portugal	80	80
Yes	EURO	Serbia	80	80
Yes	EURO	Slovenia	80	80
Yes	EURO	Spain	80	80
Yes	EURO	Sweden	80	80
Yes	EURO	United Kingdom of Great	80	80
Yes	EURO	Azerbaijan	100	100
Yes	EURO	Cyprus	100	100
Yes	EURO	Israel	100	100
Yes	EURO	Denmark	100	100
Yes	EURO	Finland	100	100
Yes	EURO	France	100	100
Yes	EURO	Liechtenstein	100	100
Yes	EURO	Russian Federation	100	100
Yes	EURO	Switzerland	100	100
Yes	EURO	Andorra		no data
no	EURO	Belarus		no data
no	EURO	Holy See		no data
no	EURO	San Marino		no data

Table 3: Capacity 12 – Chemical events: Indicator C.12 (source: <https://extranet.who.int/sph/spar?region=All&country=319>)

## Annex 3 – Full list of 49 questions used in the questionnaire

### About you

1. Name\*
2. Country\*
3. Organisation\*
4. Occupation/job title\*
5. Email address\*
6. Phone Number (optional)
7. Who is the IHR National Focal Point (NFP) in your country?  
(If you are not sure, please answer: don't know)\*
8. If there is a separate lead organisation/Focal Point for Chemicals, please specify.  
(if not, please put 'not applicable')\*
9. Are there any national chemical preparedness plans available in your country/region? \*  
Please answer: Yes/No/Don't Know
10. In your country, has the preparedness/response to chemical incidents been tested through:  
\*
  - Occurrence of real event(s)?
  - Or through a simulation exercise?

- If yes, were the plans updated as required?

Please answer: Yes/No/Don't Know

11. Does the preparedness plan provide a mechanism for communication and multi-sectoral cooperation between the different agencies who might be involved in a chemical incident?

\*

Please answer: Yes/No/Don't Know

12. Is there a list of priority chemicals of concern in your country?

*A list of priority chemicals are those which are produced, transported, used or stored in high volumes in your country and carry a risk to public health. An example of a global list from WHO can be found here:*

*[https://www.who.int/ipcs/assessment/public\\_health/chemicals\\_phc/en/](https://www.who.int/ipcs/assessment/public_health/chemicals_phc/en/)\**

Please answer: Yes/No/Don't Know

13. Is there an inventory of major hazards/facilities that could be a source of chemical emergencies available (e.g. chemical/fuel production or storage sites)?\*

Please answer: Yes/No/Don't Know

14. Are there designated organisations with experts who can provide advice in the event of a chemical incident? If so, please provide examples of the types of expertise you can access. Otherwise please enter 'no' if not, or 'don't know' in the box below. Enter at least 1 response and no more than 10 responses.

15. Could you share with us examples of any chemical incidents in your country, including a brief description of your response?

*We are particularly interested in incidents of public health concern. Please provide a web link if available.*

16. Does your organisation share good practice and lessons learned following chemical events;\*

- With other organisations in your country?
- With organisations in other countries?
  
- If not, do you think it would be useful to share information on chemical events?

Please answer: Yes/No/Don't Know

17. Does your country ever undertake training or exercising with your neighbouring country/countries?\*

Please answer: Yes/No/Don't Know

18. Is there a record available of chemical incidents/exposures which occur in your country?

*A chemical incident is defined as an uncontrolled release of a chemical which results in harm to two or more members of the public \**

Please answer: Yes/No/Don't Know

19. If Yes, how is this record held?

- on a spreadsheet
- in a database
- in a formal surveillance system
- other

20.

Is there a Poison Centre in your country? \*

*What is a poisons centre? WHO: A poisons centre is a specialized unit that advises on, and assists with, the prevention, diagnosis and management of poisoning. The structure and function of poisons centres varies around the world, however, at a minimum a poisons centre is an information service. Some poisons centres may also include a toxicology laboratory and/or a clinical treatment unit.*

Please answer: Yes/No/Don't Know

21. If you have a poison centre in your country:

Are they involved in chemical incident/exposure surveillance?

Do they provide this information to the national/regional public health agency?

Do they take calls from the public?

Do they take calls from other health professionals?

Please answer: Yes/No/Don't Know

22. Does your organisation conduct surveillance for chemical incidents?\*

Please answer: Yes/No/Don't Know

23. Does your organisation conduct surveillance for chemical exposures?\*

Please answer: Yes/No/Don't Know

24. Does your organisation conduct surveillance on the resulting health outcomes due to chemical exposures?\*

Please answer: Yes/No/Don't Know

25. Does your country operate an Environmental Public Health Tracking system related to chemicals, or have equivalent components of such a system?

*Environmental Public Health Tracking (EPHT) involves the ongoing collection, integration, analysis and interpretation of data about environmental hazards, exposure to those hazards and the related human health effects. This includes chemical hazards, chemical exposures and chemical health effects.\**

Please answer: Yes/No/Don't Know

26. Are any of the following types of chemical surveillance carried out in your country?\*

- *Event-based surveillance (EBS, defined as the organised collection, monitoring, assessment and interpretation of mainly unstructured ad-hoc information regarding health events or risks, which may represent an acute risk to human health.)*
- *Indicator-based surveillance (IBS, the systematic (regular) collection, monitoring, analysis and interpretation of structured data, i.e. of indicators produced by a number of well-identified, mostly health-based, formal sources)*
- *Syndromic surveillance (a method of surveillance that uses health-related data based on clinical observations rather than laboratory confirmation of diagnoses. Syndromic surveillance is used in order to detect outbreaks earlier than would otherwise be possible with laboratory diagnosis-based methods. Case definitions used for syndromic surveillance are based on clinical signs and symptoms, rather than on specific laboratory criteria for confirmation of the causative agent)*
- *Toxicosurveillance/Toxicovigilance (Toxicovigilance can reveal whether there is an emerging toxicological problem resulting from, for example, the reformulation of a product or a change to its packaging or labelling, the availability of a new drug of abuse, or an environmental contamination)*
- *Other*

Please answer: Yes/No/Don't Know to the above

27. Are there plans for implementing any of the above surveillance types in your country?\*

Please answer: Yes/No/Don't Know

28. Do those who perform chemical surveillance exchange information with those who are responsible for managing the alerting and response to chemical incidents?\*

Please answer: Yes/No/Don't Know

29. Does your organisation (or another organisation on your country) have the capacity to undertake biomonitoring following a chemical incident/exposure?  
*(biomonitoring is the direct measurement of people's exposure to toxic substances in the environment by measuring the substances or their metabolites in human specimens, such as blood or urine) \**

Please answer: Yes/No/Don't Know

### **Existing mechanisms/material**

*This page asks some questions on the RASCHEM system. The Rapid Alert System for Chemicals (RASCHEM) is owned by the EC and was developed to allow EU Poisons Centres and National Public Health Authorities to communicate and exchange details of unusual poisoning cases, mass intoxications and chemical incidents.*

*The use of standard terms (e.g. clinical effects) facilitates identification of similar cases reported to the system and data analysis of the platform content. The exchange of information between different organisations and countries can improve early detection of trends and cross-border incidents. Should an event develop into a potential Public Health Emergency of International Concern (PHEIC), then this would be notified via the designated National Focal Point.*

30. Are you aware of RASCHEM?\*

Please answer: Yes/No

31. Does your organisation have access to RASCHEM country?\*

Please answer: Yes/No/Don't Know

32. Do you think there is a need for RASCHEM or a similar alerting and reporting system for chemicals?\*

Please answer: Yes/No/Don't know

33. Are you aware of any other alerting systems which can be used to share chemical incident/poisoning information? (if reporting to EWRS is not yet required)\*

Please answer: Yes/No/Don't know



34. Are you aware of any other existing mechanisms or materials which may help other countries prepare and respond to chemical incidents? If yes, please provide details below or otherwise, please answer 'no' or 'don't know'.\*

## Chemical Laboratory Analysis Network

35. Are there facilities available in your organisation for the identification of chemicals, during an incident?\*

Please answer: Yes/No/Don't know

36. Are there facilities available in your organisation for environmental sampling of chemicals, following an incident?\*

Please answer: Yes/No/Don't know

37. Are there facilities available in your organisation for clinical sampling of chemicals, following an incident?\*

Please answer: Yes/No/Don't know

38. What is the mechanism in your country for identifying a chemical, following an incident? Please describe briefly, or if you are not sure, put 'don't know':\*

39. Can your organisation access laboratory facilities through agreements with other organisations?\*

Please answer: Yes/No/Don't know

40. Can your country access laboratory facilities through agreements with other countries?\*

Please answer: Yes/No/Don't know

41. Is your organisation currently part of a chemical laboratory analysis network?\*

Please answer: Yes/No/Don't know

42. European chemical laboratory analysis network:\*

- Would you be able to assist neighbouring countries in analysing chemical samples?
- Would you be interested in joining a chemical laboratory analysis network, made up of institutes/organisations with the capability to analyse and identify a variety of chemical agents?
- Would you be interested in joining this network to submit samples for testing? (this does not require that you have analytical capacity yourself)
- Would you be interested in joining this network as a contributor? (this requires analytical capacity)

- Do you think laboratories would need some form of accreditation to be involved in this network?

Please answer: Yes/No/Don't know to the above

43. Joining a European chemical laboratory analysis network: How feasible would it be for your organisation to join a chemical analysis network?

- Highly unfeasible
- Somewhat unfeasible
- Not sure
- Somewhat feasible
- Highly feasible

## Training requirements

44. Have any gaps been identified in your country's chemical incident preparedness which would benefit from further training?\*

Please answer: Yes/No/Don't know

45. Regarding training materials for chemicals, what training material topics would be most beneficial?\*

*Please select how important each training topic (A – G) is using the following options:*

- Very Important
- Important
- Neutral
- Unimportant
- Very Unimportant

A. Surveillance of chemical incidents

B. Existing mechanisms/materials for chemical incident preparedness

C. Plans for preparedness/response to chemical incidents

D. Public Health Management of chemical incidents

E. Hazard characterisation

F. Risk assessments

## G. Recovery from chemical incidents

46. Please list any other chemical topics which you would like to receive training materials for:

*Enter at least 1 response and no more than 10 responses. If you do not wish to add any more, please enter 'don't know'*

47. Please indicate which forms of training material are most useful to you: \*

*Please select how important each training material type (A – I) is using the following options*

- Very Useful
- Useful
- Neutral
- Not very useful
- Not useful at all

A. Case studies of chemical incidents

B. Chemical incident scenarios (e.g. for exercises)

C. Table-top exercises

D. Live exercises

E. Presentations (e.g. PowerPoint)

F. Interactive activities (for individuals)

G. Interactive activities (for groups)

H. Guidance/Standard Operating Procedures (SOPs)

I. E-learning materials

48. We may want to follow up with you about some further details in this questionnaire.

Please select from the options below if you are happy to be contacted for further questions:\*

Yes/No

49. If you do not want to be contacted, is there someone else who we may be able to speak to about these questions further? please provide an email address for an alternative contact:

*The content of this report represents the views of the author only and is his/her sole responsibility; it cannot be considered to reflect the views of the European Commission and/or the Consumers, Health, Agriculture and Food Executive Agency or any other body of the European Union. The European Commission and the Agency do not accept any responsibility for use that may be made of the information it contains.*