

Deliverable D6.5
Guiding Document
on cross-sectoral preparedness and response
to biological and/or chemical terror attack

Collaboration between health, civil protection and security



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Date:	15.10.2024
Version History:	V1, 2024.03.06, (draft structure sent to WP6 partners) V2, 2024.05.03, (draft structure & pilot topic sent to Advisory board) V3, 2024.08.10 (draft full text sent to coordinators) V4, 2024.09.19 (version sent to Quality Assessment) V5, 2024.10.15 (final version uploaded)



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This report arises from the TERROR Joint Action, which has received funding from the European Union through the European Health and Digital Executive Agency of the European Commission, in the framework of the Third Health Programme 2014-2020. The European Commission is not responsible for the content of this report. The sole responsibility for the report lies with the authors, and the European Health and Digital Executive Agency is not responsible for any use that may be made of the information contained herein. The authors are not responsible for any further and future use of the report by third parties and third-party translations.

Consortium - List of partners

Partner no.	Short Name	Name	Country
1	HDIR	HELSEDIREKTORATET	Norway
2	Sciensano	SCIENSANO	Belgium
3	NCIPD	NATIONAL CENTER OF INFECTIOUS AND PARASITIC DISEASES	Bulgaria
4	SUJCHBO	STATNI USTAV JADERNE, CHEMICKE A BIOLOGICKE OCHRANY VVI	Czech Republic
5	HZJZ	HRVATSKI ZAVOD ZA JAVNO ZDRAVSTVO	Croatia
6	MoH-FR	MINISTERE DES AFFAIRES SOCIALES ET DE LA SANTE	France
7	EODY	ETHNIKOS ORGANISMOS DIMOSIAS YGGEIAS	Greece
8	NNK	NEMZETI NEPEGESZSEGUGYI KOZPONT	Hungary
9	INMI	ISTITUTO NAZIONALE PER LE MALATTIE INFETTIVE LAZZARO SPALLANZANI ISTITUTO DI RICOVERO E CURA A CARATTERE SCIENTIFICO	Italy
10	RIVM	RIJKSINSTITUUT VOOR VOLKSGEZONDHEID EN MILIEU	The Netherlands
11	NIJZ	NACIONALNI INSTITUT ZA JAVNO ZDRAVJE	Slovenia
12	MoH-ES	MINISTERIO DE SANIDAD	Spain
13	FOHM	FOLKHALSOMYNDIGHETEN	Sweden
14	DH	DEPARTMENT OF HEALTH. UK HEALTH SECURITY AGENCY	United Kingdom
15	MoH-MT	MINISTRY OF HEALTH - GOVERNMENT OF MALTA	Malta
16	IPHS	INSTITUT ZA ZASTITU ZDRAVLJA SRBIJEDR MILAN JOVANOVIC BATUT	Serbia

Abbreviations

CBRN-e	Chemical, Biological, Radiological, Nuclear and Explosives
CECIS	Common Emergency Communication and Information System
DG ECHO	Directorate General for European Civil Protection and Humanitarian Aid Operations
DG HERA	Directorate General for Health Emergency Preparedness and Response Authority
DG HOME	Directorate General Migration and Home Affairs
ECDC	European Centre for Disease Prevention and Control
EU/EEA	European Union/European Economic Area
EWRS	Early Warnings and Response System
IHR	International Health Regulation
JA TERROR	Joint Action to Strengthen Health Preparedness and Response to Biological and Chemical Terror Attacks
NCC	National Coordination Committee
SIENA	Secure Information Exchange Network Application
SIMEX	Simulation Exercise
SOP	Standard Operating Procedure
SPAR	State Party Self-Assessment Annual Report
TESSy	The European Surveillance System
UCPM	EU Civil Protection Mechanism
WHO	World Health Organisation
WP	Work Package

Impact summary

This guiding document highlights the most strategic actions for senior decision-makers, ensuring they understand the importance of immediate cross-sectoral coordination and legislative support for national preparedness.

- To the author's knowledge and based on a systematic review of available literature online, it is the first time that a guiding document is specifically addressing the collaboration between health, security and civil protection sectors in the preparedness and response to a biological or chemical terror attack.
- Twenty strategic recommendations are provided towards the national level actors in charge of the emergency planning development and implementation, and the incident commanders in charge of the coordination of the preparedness and response to terror attacks and/or incidents with chemical or biological agents.
- The key recommendations are proposed across 4 main chapters referred as: 1. Establish cross-sectoral emergency plans; 2. Enhance information sharing, threats detection and risk assessment; 3. Strengthen preparedness through joint training and exercises; 4. Implement post-incident evaluations to feed plans and legal framework.
- The provided recommendations are based on evidence arising from diverse supportive activities that have been conducted throughout the Joint Action TERROR (2021-2024).
- 31 organisations from 17 participating countries across Europe have been involved in the supportive activities leading to this document.
- Addressing these recommendations, countries will significantly enhance their resilience to high-impact biological or chemical attacks, ensuring that health, security, and civil protection sectors work cohesively to protect public safety and national security.



Executive summary

From 2021 to 2024, the Ministry of Health from Spain and Sciensano, the Health Institute of Belgium have been leading a work package on “Cross-sectoral collaboration: Security, Civil Protection and Health” within the Joint Action TERROR (<https://www.jaterror.eu/>), which aimed to strengthen the preparedness and response to biological or chemical terror attacks. Good practices and facilitating aspects on one hand, and challenges and blocking aspects on the other hand have been identified and collected throughout various activities proposed to the 16 participating countries across Europe. These elements have been compiled and provided the evidence to produce the present guiding document.

This guidance is structured in 4 main chapters, 8 suggested actions and 20 related recommendations.

1. Cross-sectoral emergency planning and governance (3 actions, 6 recommendations)
2. Cross-sectoral surveillance, joint risk assessment and information sharing (2 actions, 4 recommendations)
3. Preparedness and response capacities, training and exercises (2 actions, 6 recommendations)
4. Evaluation and corrective measures (1 action, 4 recommendations)

Main recommendations

This guiding document provides 20 recommendations (R) to improve cross-sectoral preparedness and response to biological and/or chemical terror attack, spread across 4 chapters and 8 suggested actions. These recommendations are summarized in the table below.

CHAPTER 1: CROSS-SECTORAL EMERGENCY PLANNING & GOVERNANCE	
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Action 2: Put a cross-sectoral emergency management structure in place to coordinate the planning and procedures and maintain them up-to-date	
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Action 3: Activate and operationalize the cross-sectoral plan, put chain of command and headquarters into practice, linking the strategic to the operational level	
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CHAPTER 3: PREPAREDNESS AND RESPONSE CAPACITIES, TRAINING AND EXERCISE	
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R 6.2: Design the training program and training delivery methods	52
R 6.3: Assess and evaluate training activities	54
R 6.4: Ensure sustainability and engagement in the training programs	55



Action 7: Develop a national strategic stockpile, with cross-sectoral management and joint procurement procedures

R 7.1: Map the available stocks and record them in an up-to-date inventory	60
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CHAPTER 4: EVALUATION AND CORRECTIVE MEASURES

Action 8: Implement already existing or create ad hoc "evaluation framework" components for event/crisis evaluation

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Introduction

The European Commission co-funds the Joint Action TERROR (JA TERROR), whose main objectives are to address gaps in health preparedness and to strengthen cross-sectoral work with security, civil protection and health sectors response to biological and chemical terror attacks. JA TERROR involves 34 affiliated entities from 16 European partner countries of which 15 are European Union/European Economic Area (EU/EEA) Member States: Belgium, Bulgaria, Croatia, Czech Republic, France, , Greece, Hungary, Italy, Malta, Netherlands, Norway, Slovenia, Spain, and Sweden. Additionally, one candidate country, Serbia, and one ex-Member State, the United Kingdom (UK), are also part of the JA.

JA TERROR is coordinated by the Norwegian Directorate of Health and structured in eight work packages (WP). WP6 "Cross-sectoral collaboration: Security, civil protection and health" is led by the Ministry of Health in Spain and co-led by the National Institute of Public Health, Sciensano, in Belgium. The overall objective of WP6 is to contribute to the improvement of national structures, plans and operational procedures regarding cross-sectoral collaboration in preparedness and response to biological and chemical terror attacks with a potential cross-border impact.

Biological and/or chemical terror attacks are complex and highly impactful situations, requiring the coordinated preparedness and response from several stakeholders across different sectors. Throughout the different activities conducted in WP6, namely an online survey, experts interviews, a tabletop simulation exercise, an online desk research and an expert workshop, a number of associated challenges and blocking aspects have been confirmed, but good practices and facilitating aspects have also been identified. As explained in the Methodology section, the different elements from the different activities have been compiled in 20 recommendations, grouped in 4 main chapters and 8 suggested actions, as presented in the Guidance section itself.

Objectives

The overall objective of this document is to develop guidance on national preparedness and response to biological and/or chemical terror attacks focusing on cross-sectoral collaboration for risk/threat assessments and joint incident management enhancing information sharing between health, civil protection and security sectors.

More specifically, the proposed recommendations address the following targets:

- To clarify and improve the cross-sectoral emergency planning and governance.
- To foster information exchange across sectors, cross-sectoral surveillance and joint risk assessment, developing coordinated networks.
- To build preparedness and response capacities, with special attention to joint stockpiling and common training and exercises across sectors.
- To draw insights from the evaluation of reported joint experiences, promoting the implementation of lessons learnt and corrective measures.

Target audiences

This guiding document targets different audiences, depending on the building blocks proposed, including policy and decision makers from strategic level as well as technical experts from the different sectors. Of note, more specific preparedness and response planning for the health sector has been the focus of JA TERROR WP 5. In the present document, the focus is set on the cross-sectoral collaboration between health, security and civil protection.

Legislative framework

A general overview of the relevant international initiatives and organisations on counterterrorism and CBRN preparedness has been published by Joint Action TERROR WP 4 as Deliverable 4.2 : "EU and international network mapping". More targeted review of the applicable legislative framework for cross-sectoral collaboration has been conducted in the activities of WP6 to support the redaction of this guiding document, as described in the following Methodology section.

Methodology

Underlying evidence

The different actions and recommendations proposed in this guiding document result from subsequent activities that have been conducted throughout the WP6 of JA TERROR. The outcomes from these activities allow for an evidence-based product, where findings and conclusions from different methodologies have been compared. A summary of these performed activities is given below, while the detailed methodology and results from each can be found in the related deliverable from JA TERROR.

Online survey and experts interviews (Deliverable 6.1)

At the start of JA TERROR in 2021, a large online survey was developed and sent to the health competent authorities of the 17 participant countries, who in turn further distributed this to their relevant national contact points in order to map the existing structures for cross-sectoral collaboration between health, security and civil protection in the preparedness and response to biological or chemical terror attacks. 33 answers from 14 countries were collected, analysed and anonymously reported in Deliverable 6.1: "Survey report: Preparedness and response to biological and chemical terror attacks in JA TERROR partner countries".

Complementary to the survey, 19 interviews were conducted online, with one group (10) targeting those that responded the survey, and another group (9) targeting experience in real terrorist attack and countries/sectors which had not responded to the earlier survey. The participants in the second group were selected based on suggestions by JA TERROR consortium partners or met through ECDC Bio Risk Management Training in Valencia (Spain, 2022), and the Simulation Exercise of the European Bullseye project in Madrid and Vught (The Netherlands), 022). Due to confidentiality issues, the report from these interviews was not published but still made available to the European Commission. On top

of this, each country received a factsheet from its own results. Selected anonymous insights from these interviews are also used in this guiding document.

Tabletop Simulation exercise in Madrid, June 2023 (Deliverable 6.2)

Following on the mapping from the survey and interviews, 34 participants from health, security and civil protection, from 12 countries, attended a live tabletop simulation exercise organised in Madrid, 15th of June 2023, to challenge their collaboration facing a two-part scenario involving the release of a chemical agent, first in public transport at national level, next in a mass gathering event at international level.

Gaps, good practices and proposed actions were identified, as assessed by designated evaluators through a checklist during the exercise. These results are published in Deliverable 6.2: "Report from "X-treme Vision": a JA TERROR baseline tabletop simulation exercise at European level on cross-sectoral collaboration in the response to a biological or chemical terror attack held in Madrid, 15th June 2023".

Systematic desk research (Deliverable 6.3)

In 2023, a systematic desk research was launched to review available documents online referring to cross-sectoral collaboration that could be applicable in the context of a chemical or biological terror attack. This review led to the selection of 54 documents out of an initial list of 2748 documents coming from four different databases (Publication office of the European Union, Eurlex, Google Scholar and Scopus). Through an analysis of the selected documents several gaps and challenges, recommendations, good practices, lessons learnt and legal frameworks were identified, as presented in Deliverable D6.3: "Review of the existing framework to assess cross-sectoral and cross-border cooperation in preparedness and response to biological and chemical terror attacks".

Expert workshop in Zagreb, 2023 (Deliverable D6.4)

As a final step leading to the redaction of the present guiding document, a two days' workshop on cross-sectoral collaboration in the response to a biological or chemical terror attack was organized in Zagreb, 29-30th of November 2023, with the attendance of 45 experts from 13 countries, from the three relevant sectors: health, security and civil protection.

Different working sessions allowed participants to share, prioritize and deconstruct key issues observed in their own national experience, in order to identify both facilitating and blocking aspects, aiming at the ideal (or at least a better) situation and the required interventions to reach it. As a final session, the content, structure and audience of this guiding document have been discussed with the experts. All these elements have been published in Deliverable D6.4: "Report of the WP6 workshop on cross-sectoral collaboration Zagreb (CROATIA), 29-30 November 2023".

Writing process

Once the reports of the four underlying activities have been finalized, the WP 6 lead and co-lead team, comprised of the Spanish Ministry of Health, the Health Institute of Belgium Sciensano and its two affiliated entities, the Belgian Ministry of Health and the National Crisis Center, has compared and aggregated the collected information.

Good practices and facilitating aspects on one hand, challenges and blocking aspects on the other hand have been common dimensions investigated during the different activities. As a result, the green and red boxes presented for each recommendation in this document make a direct link to the findings of these previous steps, providing the evidence to formulate this recommendation.

In terms of writing style, following discussion with the WP 6 partners, it was opted for an action-oriented style, to favour a dynamic approach. In the same perspective, checklists were also included. As an important note, this does not imply that this guidance should be read as anything else than what it is meant for : to provide recommendations and propose related actions and good practices. An action or recommendation should never be understood as an obligation : it is up to each country to select relevant aspects, and consider how to implement them, taking the national framework into account. For this reason, the guidance sometimes include different options, as well as concrete examples and possible methodologies picked from the conducted activities, to reflect the several potential modalities.

The grouping of recommendations into selected actions and chapters could be a matter of debate. Relevant audience and topics for this guiding document have been directly discussed with the experts during the workshop in Zagreb. Considering the focus of JA TERROR on the strategic preparedness and response, and remaining close to the topics used during the workshop, (1) emergency planning and governance, (2) cross-sectoral surveillance, joint risk assessment and information sharing, (3) Preparedness and response capacities, training and exercises and (4) evaluation and corrective measures were selected as main chapters, with a maximum of 3 actions in each, to preserve the readability and digestibility.

Each action ends by a checklist, consisting of several questions asking for the presence of several components assessed as important to reach the related recommendations. A "yes" or an existing component should be seen as an element to take into account and disseminate to the relevant partners, while a "no" or an absent component could trigger further initiatives, taking the national context into account.

This guiding document has been reviewed by JA TERROR coordination and evaluation team (WP1 – Health Directorate of Norway and WP3 – European CBRNe Center, Umea University) and shared with WP6 participants and JA TERROR Advisory Board. Dimitrios Iliopoulos, Head of Directorate of E-Health of National Public Health of Greece, has been appointed as quality assessor.

CHAPTER 1: CROSS-SECTORAL EMERGENCY PLANNING & GOVERNANCE

Clear and well-defined emergency planning is the backbone of the preparedness and response cycle. Each country should have a plan describing the major principles for the coordination and management of an emergency at a national level. The Regulation (EU) 2022/2371 describes what “Member States should report to the Commission on prevention, preparedness and response planning at national level and, where applicable, at regional level.”, and specifically request if Member State’s preparedness and response plan or equivalent document(s) ensure specific national coordination mechanisms for preparedness and response in case of an intentional release scenario asking about a governance structure clear and defined– between the health sector and other critical sectors for the management of the response. These requirements are especially true for the scenario of a biological or chemical terror attack, as it will inherently request the coordinated intervention of different sectors: law enforcement for the securing against perpetrators and the crime scene management, health to care for victims and control public health impact and civil protection to provide logistic assistance for disaster risk reduction. Respective responsibilities and mandates, as well as governance and chain of command should be described in a plan to be endorsed by all concerned stakeholders.

Action 1: Write a cross-sectoral plan framed in the National Incidence Management System, clarify roles and responsibilities endorsed by legislative framework

Action 2: Put a cross-sectoral emergency management structure in place to coordinate the planning and procedures and maintain them up-to-date

Action 3: Activate and operationalize the cross-sectoral plan, put chain of command and headquarters into practice, linking the strategic to the operational level

ACTION 1: Write a cross-sectoral plan framed in the national Incidence Management System¹, clarify roles and responsibilities endorsed by legislative framework

Justification of the importance

In our survey, the three sectors unanimously referred to a national cross-sectoral plan specifically addressing biological and chemical terror attacks in only a third of the countries. This specific consideration about plans supported by a legislative framework was identified as an aspect with room for improvement.

In the following expert interviews, it has been confirmed that multiple European countries do not have a specific strategy or national plan in place to prepare for or respond to chemical or biological terrorism. Similarly, certain countries lack specific Standard Operating Procedures (SOPs) for responding to chemical and biological terrorism. Some countries counter this absence of plans and procedures with more general equivalents that focus on cross-sectoral collaboration, supported by a flexible response system.

The SimEx revealed that less than half of the participant countries would activate a cross-sectoral plan for the proposed scenario. It was also mentioned that there was a lack of national strategies for crisis management and response or written procedures with clear roles and responsibilities for each sector or agency.

The desk research evidenced that providing a strategic framework serves as a common umbrella for the integration of multi-sectoral, multi-disciplinary, multi-stakeholders and multi-level approach. Roles and responsibilities need to be clarified, coming along with a formalisation of cross-sectoral collaboration into procedures/plans and legislation, for the entire preparedness and response cycle to cope with biological and/or chemical terror attacks.

During the expert workshop, the availability of a joint plan across sectors was ranked as the first priority issue for the emergency planning and governance and as fourth overall priority for the cross-sectoral collaboration. Cross-sectoral communication on the existing plans followed was also considered as a priority issue.

Recommendations summary

Map the existing relevant stakeholders, available planning and networks. Clarify roles and responsibilities and perform a gap analysis.	p 18
Ensure the availability of a cross-sectoral plan that can deal with chemical or biological terror attacks which is endorsed by a legislative framework	p 20

¹Incidence Management System (IHR SPAR glossary): Emergency management structure and set of protocols that provides an approach to guiding government agencies, the private sector, non-governmental organizations and other actors to work in a coordinated manner primarily to respond to and mitigate the effects of all types of emergencies. The incident management system may also be utilized to support other aspects of emergency management, including preparedness and recovery (also called incident command system).



Recommendations

Recommendation 1.1 - Map the existing relevant stakeholders, available planning and networks. Clarify roles and responsibilities and perform a gap analysis

The different activities in WP6 revealed that knowledge and perception of available planning to face biological or chemical terror attacks can greatly vary across actors and sectors in a same country. The complexity of the crisis response frameworks may be simplified by already knowing who to contact and how to work. It is vital then to both establish and maintain the networks in peacetime, guaranteeing communication between sectors and knowledge of plans or procedures so that it is ready to go when a crisis does happen. Forming a common picture and shared understanding among all the involved stakeholders regarding the existing plans and responsibilities is thus an essential prerequisite.

Possible methodologies

- Develop a survey. The questions from WP6 survey can serve as inspiration (see Annex I of D6.1).
- Organise national cross-sectoral stakeholders’ workshops and meetings involving all sectors to increase awareness of each other’s roles and address and clarify potential grey areas on their responsibilities. In case a survey was previously organised, its results can be discussed live.
- Conduct joint training and exercises to challenge the current planning with concrete scenarios. Materials from the “X-treme Vision” table-top exercise can serve either as a ready-to-use scenario with corresponding injects, or as methodological inspiration for other scenarios (see the Annexes of D6.2).

Good practices and facilitating aspects	References
Police, civil protection specialized operational units and the fire and rescue services are the most referred entities in the reported plans and should be involved in the process	Survey
Healthcare-hospitals/specialized care, food and water safety, and public health are the health entities most frequently reported in the plans, along with political bodies and emergency call-center 112. These should be also key actors to involve	Survey
In small countries, key stakeholders from different sectors and agencies know each other. Strong personal relationships among key people from different sectors is a facilitating aspect. (The collaboration should however be framed into written plans and SOPs)	SimEx



A solid legal framework, with the roles and responsibilities embedded in the preparedness legislation (mandatory and legally binding plans)	SimEx, desk research, Expert workshop
Lessons learnt during incidents and regular reports to feed the roles descriptions	Expert workshop
Clearly identify focal points/experts for the different sectors and on different levels	Expert workshop
Challenges and blocking aspects	References
Data confidentiality, mostly within the security sector, makes some plans and procedures hidden for the other sectors	Expert workshop
The complexity of crisis response structures often leads to interlinkage and overlap of roles and competencies	Desk research
Several entities, such as funeral services, mass media, energy, telecommunications, consular emergencies, transport customs, industry or private sector, pharmaceutical agencies, seem to be absent from most plans and could constitute a gap	Survey
Lack of harmonization across sectors and decision levels	Desk research
The planning framework differs from country to country, and can include either general preparedness plans, CBRN plans, and/or antiterrorist plans. This makes a wide range of possible types of plans to consider in the mapping	SimEx, Desk research



Recommendation 1.2 - Ensure the availability of a cross-sectoral plan that can deal with chemical or biological terror attacks which is endorsed by a legislative framework

In light of the conducted gaps analysis, the main issues should be transmitted to the relevant entities which are responsible of the emergency planning. The right balance has to be achieved between specificity, namely the capacity to correctly address considered issues and scenarios, and flexibility, as a plan cannot be written for each and every CBRN situation and efficiency must be preserved. Two main directions can be opted for, and it is to each country to see which one adapts better to its situation.

Possible methodologies

Option 1.2A: A plan that specifically addresses chemical or biological terror attacks

A national cross-sectoral plan specifically addressing the biological and chemical terror attacks scenario will allow to clearly and explicitly mention the roles and responsibilities during the response to such events. It also allows to include the specific aspects linked to the intentional and criminal nature, namely the law enforcement and judicial aspects. Implementation in legislation will be key.

Examples

- Such a specific national cross-sectoral plan is available for example in Belgium, the Netherlands or Slovenia.
- The UK has developed several specific strategies, such as the Biological Security Strategy and CONTEST strategy on counter terrorism²².

Identified good practices and facilitating aspects

References

Formalise the plan, the responsibilities and the collaboration duties in a legal framework. This legal framework should ideally be extended to the local level and across sectors	Expert workshop, Desk research
Writing responsibility can be delegated to relevant experts from the three sectors, to make sure certain aspects are adequately addressed. The plan could even describe how stakeholders have been consulted in the development of it	Expert workshop, Desk research
The plan should be in line with the existing national plans and international regulations, such as the IHR	Expert workshop

²² Home Office. (2011). CONTEST: The United Kingdom’s Strategy for Countering Terrorism.

Identified challenges and blocking aspects	References
The framework of preparedness and response for chemical agents tends to be less developed and there is less experience than for biological agents in the health sector and the opposite for the civil protection and security sectors	SimEx
Unknown origin initially requires adequate generic plans, asking to check how generic versus specific plans connect to each other	Expert workshop
Preparedness and response framework might differ for biological versus chemical incidents. Both scenarios need to be considered in the mapping	SimEx, Expert workshop
EU Member States have different experience of the chemical or biological terrorist threat due to different factors (history of attacks, geographical situation, political structure, etc), leading to different priorities	Desk research

Option 1.2 B: A generic emergency planning which adequately covers the response to chemical or biological terror attacks

Handling a biological or chemical terror attack as close to more common emergencies as possible makes it much easier for the emergency services to know how to act. More specifically this means that teams and procedures should not be changed more than absolutely necessary. When people can rely on fairly usual operations, they will better know how to handle the ongoing situation. It will be very important to check that all the requirements and specificities are correctly handled and taken into account.

Examples

- In Sweden, there is a general structure for crisis management, based on three general principles: the principles of responsibility, parity and proximity. As such, the response to crises situations should be conducted as similarly as possible to the management of minor/daily events. In addition, according to national legislation, public authorities have to collaborate in the planning and management of events.
- The Lithuanian State Emergency Management Plan is multihazard and clearly outlines lead and supporting institutions for these threat types³. The mechanism for cross-sectoral collaboration between public health and law enforcement is set by the Law on the Civil Protection and legal acts.

³ Joint external evaluation of IHR core capacities of the Republic of Lithuania. Geneva: World Health Organization; 2019 (WHO/WHE/CPI/2019.35).



Identified good practices and facilitating aspects	References
Considering common generic emergency and disaster reduction planning, the civil protection will have a key role, if not the lead.	Expert workshop
Develop interoperable standardized procedures (at least at national level, and ideally at international level), avoid duplication.	Expert workshop, SimEx, Desk research
Foresee a system to contact experts and specialised services which does not replace the normal response structure, but adds to it.	Expert interviews
Try to improve existing structures and tools, instead of creating new ones, to reduce complexity.	Desk research, Expert interviews

Identified challenges and blocking aspects	References
Planning is too much under a single ministry. Ensure that the needs of the other sectors are sufficiently addressed	Expert workshop
Specific aspects relating to cross-sectoral collaboration, biological or chemical agents, terrorism, or the combination of these might be overlooked. Make sure all relevant scenarios are covered.	Expert workshop



Checklist

Did you involve the three sectors, health, security and civil protection, in the mapping?	
Did you involve both the strategical and the operational levels in the mapping?	
Did you involve both the national and the regional / local levels in the mapping?	
In case of available mapping, is it still up-to-date?	
Are terms of reference of the institution, body, entity clearly established in the regulation or other bilateral or multilateral agreements under the light of cross-sectoral collaboration in case of terrorist attack with chem/bio agents?	
Are the roles and responsibilities clear for each actor?	
Is the allocation of roles and competences of all the needed profiles clear and adequate to address all the identified preparedness and response components?	
Do you have a list of key focal points, contact details at each institution defined according to the threat type (at least, if chemical or biological)?	
Have all the involved stakeholders been consulted to review the plan?	
Is there any legal framework or cross-sectoral agreement where the preparedness and response plan for intentional attack with bio or chemical agent is underpinned?	
If multiple plans are referred to, is there no differing or conflicting approaches?	
Have all the involved stakeholders been consulted to review the plan?	
Has the plan been endorsed by the concerned authorities?	
If multiple plans are referred to, is there no differing or conflicting approaches?	
Has the applicability of the broader plans been challenged through biological or chemical terror attack scenarios and exercises?	
Are there available readiness plans with a cross sectoral /multidisciplinary approach?	



ACTION 2: Put a cross-sectoral emergency management structure in place to coordinate the planning and procedures and maintain them up-to-date

Justification of the importance

In the survey analysis, having a national crisis coordination committee was identified as a good practice in place. Nevertheless, a large majority of responders indicated *ad hoc* structures rather than permanent national crisis coordination centre. It was also mentioned that the legal framework should define an Incidence Management System where all stakeholders at all levels should be considered, even considering relevant actors *ad hoc*. Interagency committee to discuss CBRN issues was also suggested during the expert interviews.

In the SimEx, most than half of the countries activated a cross-sectoral crisis coordination committee for the management of the scenario in the exercise.

The desk research identified good practices most often linked to the topics of structure, including the creation of specific committees for coordination, verification of interoperability and joint risk assessments.

During the workshop, the updates of the plans, including technological advancement, were identified as one of the issues regarding the emergency planning.

Recommendations summary

Ensure a crisis coordination committee or equivalent structure is in place to coordinate cross-sectoral emergency planning	<i>p 25</i>
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Recommendations

Recommendation 2.1 – Ensure a crisis coordination committee or equivalent structure is in place to coordinate cross-sectoral emergency planning

The different sectors need an environment to meet, discuss and decide together. Even more, designated transversal structure not belonging to a single sector/ministry can favour impartial consideration of each sector’s interests and needs in the emergency planning.

Possible methodologies

Option 2.1 A: A permanent and dedicated National Coordination Committee is set up

Setting up a permanent and dedicated committee with the national planning for CBRN terrorism in its prerogatives will allocate more resources to the related preparedness & response planning and guarantee a continuous overseeing of the activities in relation with the plan(s). Nevertheless, this committee should be sufficiently connected to the 3 sectors (among others) and be recognised by them through clear mandate for its activities.

Examples

- Finland has set up a multisectoral virtual emergency operations centre that is constantly active, enabling a rapid coordination of the response of several sectors at several levels and an efficient use of resources.
- Belgium has a National Crisis Centre which is responsible of the emergency plans and hosts a specialized CBRN Expertise Center that helps the national and local response with a cross-sectoral basis.

Identified good practices and facilitating aspects	References
The National Coordination Committee (NCC) should be multidisciplinary, reaching the multiple relevant levels and the operational level	Desk Research, Expert workshop
A high-level (central) authority above ministries can facilitate the coordination	Expert workshop
The NCC should be connected to relevant international committees, e.g., CBRN Security Advisory Group or Health Security Committee, to understand cross-border and intercountry coordinated actions	SimEx, Desk research
The NCC should be able to evaluate country capacity to prevent, detect and rapidly respond to public health threats, independently of its origin (develop holistic vision)	Desk Research
Foresee a system to contact experts and specialised services which does not replace the normal response structure, but adds to it	Expert interviews



In an ideal situation a national agency for crisis management at the highest level would be a key structure for good cross sectoral collaboration

Expert workshop

Need to have a specific interagency committee to discuss CBRN aspects more in depth and detail

Expert Interviews

Accountability for governance could be guaranteed by a dedicated agency/officer

Expert workshop

Identified challenges and blocking aspects

References

Gap between the strategic and operational level if the NCC is too high level

Expert workshop

The coordination of the response in case of event escalation, the integration of the judicial response in the different sectors response aspects, especially regarding the health and the civil protection sectors

Survey

Crisis management structures must be able to adapt to changes (methods or means used) in order to take advantage of these new opportunities and respond to new types of threats and challenges in the best possible way

Desk research

Option 2.1 B: An *ad hoc* crisis coordination committee(s) is activated

In case broader and more generic structures already exist for emergency planning, it could be decided that the planning for chemical and biological terror attack scenario is only considered through *ad hoc* committee(s). This could be justified by savings on resources for a very infrequent scenario, trying to rely as much as possible on structures for other types of incidents. Of course, attention should be paid that the required planning and coordination in case of a CB terror attack scenario is not overlooked.

Examples

- The cross-government coordination Cabinet Officer Briefing Room (COBR) in the UK.
- *Ad hoc* joint political coordination in Germany, depending on the specifics of the situation, but trying to handle the crisis as close to normal incidents as possible, with stakeholders keeping their usual responsibilities



Identified good practices and facilitating aspects	References
Preserving responsibilities as close to other incidents as possible make them more efficient and easier to be trained and endorsed	Expert interviews

Identified challenges and blocking aspects	References
The possibility to form a national vision and strategy	Expert interviews
Response coordination and situation reports development when the event escalates	Survey



Checklist

Is there an interagency coordination mechanism in place for incident management at high strategical level, linked to the bio/chem counter terrorism plans underpinned in a legal framework?	
Does the multisectoral team in charge of the interagency mechanism have clear terms of reference, and well-established roles and responsibilities?	
Are the different sectors and different levels, from national to local, represented at the NCC and aware of its mandates?	
Is the NCC sufficiently connected to the operational and regional/local levels?	
Does the NCC have access to all relevant information (also considering clearance to access sensitive information)?	
Is the <i>ad hoc</i> structure sufficiently trained through effective activation or exercises?	
Are the interactions of the <i>ad hoc</i> structure with the permanent structures well defined, e.g. through focal points?	
Is there a specific budget and resources available for a permanent or an ad hoc crisis coordination committee functioning?	



ACTION 3: Activate and operationalize the cross-sectoral plan, put chain of command and headquarters into practice, linking the strategic to the operational level

Justification of the importance

Results from the survey revealed that there is no agreement regarding which sector is in charge of the plan activation, taking into account that a minority of respondents had activated the plan in the last 5 years. During the expert interviews it was mentioned that it is important to know who is involved in crisis management in the different sectors, how their processes work and how interactions across sectors can happen.

During the SimEx, less than the half of the participating countries activated a cross-sectoral plan and the flow of information between the operational level and the strategic level was not clear. On the other hand, several countries stated that the chain of command in each sector was clear in case of scaling up the response.

The operationalization of the plan (up to the different sectors and the local level) was ranked as the 3rd main issue regarding cross-sectoral emergency planning during the expert workshop. It was also mentioned that information exchange sometimes only happens on a too high level even if information usually goes up in a vertical system from local to national and then to international level, but not necessarily going backwards to the local level.

Recommendations summary

Ensure an integrated chain of command across sectors and organisational levels for different scenarios	p 30
Draw up cross-sectoral standard operational procedures to implement the plan	p 32
Put the plan into practice through exercises or real-life events	p 34

Recommendations

Recommendation 3.1 – Ensure an integrated chain of command across sectors and organisational levels for different scenarios

Each sector includes a wide variety of stakeholders, with different hierarchical chains. Efficient and integrated incident management is only possible if the commanders from each sector communicate and act together. This joint management should happen from the operational command post on the scene, up to the strategic decisional level, and even political level. These different organisation levels must in turn, also connect to each other, forming an integrated chain of command, across sectors and across organisation levels. On the other hand, sometimes decisions made at the highest level may slow down reaction time, which should be avoided. So, working as close to the crisis as possible is recommended.

Possible methodologies

Depending on the country organisation and available resources, a rationale for escalation mechanism has to be defined between the initial responsibility of the local authorities in the proximity of the event (on-scene command post), and the upscaling to a central and vertical national governance.

- As recommended in the Sendai Framework for Disaster Risk Reduction: Establish and strengthen government coordination forums composed of relevant stakeholders at the national and local levels, including designated focal points. Responsibilities need to be clearly assigned through laws, regulations, standards and procedures.

Identified good practices and facilitating aspects	References
The chain of command and upscaling should be described in a (legally binding) plan	SimEx
In case of cross-border threat, national governance should ensure timely collaboration with the Commission, the Council, the Health Security Committee (HSC) and the relevant Union agencies or bodies	Desk research, Regulation (EU) 2022/2371
Don't always let decisions be made at the highest possible level, this will slow down response and information sharing	Expert Interviews
Accountability for governance could be guaranteed by a dedicated agency/officer	Expert workshop
There needs to be a coordinated effort on the flow of information and on who is in charge to make certain decisions	Expert workshop
Information should be shared horizontally, as well as vertically	Expert workshop
Sendai Framework for Disaster Risk Reduction 2015 – 2030 promotes the further development and dissemination of instruments, such as	Desk research



standards, codes, operational guides and other guidance instruments, to support coordinated action in disaster preparedness and response

IHR core capacity (A.6) refers to the creation of cross-sectoral teams to respond to events

Desk research

Identified challenges and blocking aspects

References

Matching political and operational agenda

Expert workshop

Being able to percolate to the local (operational) level

Expert workshop

Lack/inconsistency of integration of recommendations/guidance's across political levels

Desk research

Uncertainty on who is in charge to make a decision, or who has the right to release certain information, leading to delays and confusion

Expert workshop

Recommendation 3.2 - Draw up cross-sectoral standard operational procedures to implement the plan

As it is recommended to link the emergency plan to a legislative framework, its format will most likely not be suited for detailed operational procedures, which are also subject to more frequent updates (capacities, equipment, ...) than a national strategic plan can afford. While having procedures is vital to a well-functioning crisis management system, these procedures cannot be too heavy. Speed is as important as clarity when it comes to having good procedures, so the bureaucratic involvement should be limited to a minimum. Therefore, the plan itself should be complemented with concrete procedures covering the specific aspects of cross-sectoral collaboration in terms of responsibilities and competencies and translate the plan into practical management guidelines for each stakeholder.

Possible methodologies

- Bring the sectors and actors mentioned in the plan around the table through a permanent or *ad hoc* cross-sectoral committee. Know each other, collect, discuss and link respective operational procedures.
- Operationalized strategies can be laid out in different kinds of cross-sectoral procedures: particular event/scenario procedures, territorial/regional procedures, ... Make them interoperative in order to improve future interaction during a crisis.

Examples

- UK Joint Emergency Services Interoperability Programme (JESIP)
- The National Crisis Center in Belgium is developing an operational doctrine to establish procedures to guide cooperation between sectors on the scene of the incident
- In Slovenia, the Inter-Ministerial Emergency Planning Committee has the authority to align plans and systems to achieve optimal outcomes. In that regard SOP's have been established and coordinated with different stakeholders.

Identified good practices and facilitating aspects	References
Foster if possible civil-military cooperation	Expert workshop
Conduct regular meetings including all relevant sectors in peacetime to better know each other's roles and responsibilities and to raise awareness of each other's procedures.	SimEx
Be involved in the planning phase of the other sectors and include them in your own planning phase	Expert interviews
Interpersonal relations allow for faster communication between sectors	Expert interviews
Ensuring interoperability of the different procedures	Expert workshop



Identified challenges and blocking aspects	References
Emergency planners are at the strategic level and there is a lack of communication from the upper to the lower levels	Expert interviews
The operational incident management procedure is not sufficiently trained and exercised to be well-known	SimEx
There is a lack of national strategies for crisis management and response or written procedures with clear roles and responsibilities for each sector or agency.	SimEx
Reluctance to speak to other sectors because there is no trust	Workshop
Too many plans will lead to delays, overcomplications and contradicting actions	Expert Interviews
The information flow and escalation cascade are not sufficiently included in the planning.	Survey, Desk research
Lack of procedures makes it difficult to introduce new people in a system	Expert Interviews
Lack of integration of the judicial response in the health and civil protection sectors. Make sure judicial aspects are taken into account. <i>Example: No strategy for secured health care of perpetrators</i>	Survey



Recommendation 3.3 - Put the plan into practice through exercises or real-life events

Due to their very low frequency, CBRN events, even more with terrorist origin, tend to remain distant from responders' daily practice. If one wants to avoid that a plan remains theoretical and insufficiently known and endorsed, regular exercises must be put in place. This will be the only way to make sure that the plan is correctly addressing the needs for an efficient response.

Possible methodologies

- Tabletop exercise (See for example methodology and annexes of D6.2)
- Online drill exercise (See for example methodology and annexes of D6.6)
- Field exercise

Examples

- ECDC's Handbook on simulation exercises in EU public health settings ⁴
- Case studies, Exercises, LEarning, Surveys and Training across Europe (CELESTE & CELESTE II framework contracts), such as the Chimera exercise

Identified good practices and facilitating aspects	References
Roles and responsibilities are clearly predefined in the plan(s).	Expert workshop
Make exercises and train-the-trainer sessions mandatory.	Expert workshop
Identified challenges and blocking aspects	References
Lack of operationalization and interoperability	Expert workshop
Lack of time and/or dedicated funding	Expert workshop

⁴ <https://www.ecdc.europa.eu/en/publications-data/handbook-simulation-exercises-eu-public-health-settings>



Checklist

Are the three sectors represented in the chain of command for generic or CBRN events?	
Is there a defined escalation and activation mechanism from the local level up to the national level?	
Are the notification and coordination mechanisms between the national governance and the EU level (for EU countries) well established?	
Are the responsibilities clearly assigned in the national legal and institutional framework?	
Is there a way to make sure information is distributed horizontally, as well as vertically in all the systems?	
Is everyone in agreement with how the command structure will work in the different scenarios?	
Has the applicability of the broader plans been challenged through biological or chemical terror attack scenarios and exercises?	
Is it clear who needs to be contacted, when, and from which sector?	
Are stakeholders of the chain of command aware of available plans and procedures and have a defined a consistent strategy including prevention, mitigation, preparedness, response, recovery and rehabilitation?	
What are the standard operating procedures in place for all services mentioned in the plan? Are there coherent with the plan? Is there any gap?	
Are there joint operation and communication principles applied?	
Is information sharing across sectors considered in crisis management for an intentional event?	
Are the escalation mechanisms (from local to national or even international levels) incorporated?	
Are the operational principles and procedures aligned with the effective resources and capacities?	
Are the lessons learnt from incidents and exercises sufficiently taken into account?	
Are the judicial aspects (crime scene management) sufficiently taken into account and included in SOPs?	



Is there an agreement on the definitions of different words being used by everyone?	
Is there protocols for cross-sectoral response control activities with pharmaceutical and non-pharmaceutical countermeasures for an all -hazards approach?	
Has the plan been activated in the context of the occurrence of real events in the last 5 years?	
Are the triggers and activation conditions of the <i>ad hoc</i> structures clear enough?	
Are there financial and human resources available to be allocated to the development and implementation of cross-sectoral preparedness & response plan toward C & B terror attacks (coordination, training, exercises)?	

CHAPTER 2: CROSS-SECTORAL SURVEILLANCE, JOINT RISK ASSESSMENT AND INFORMATION SHARING

Biological and chemical risks, as well as terrorist threats can arise from a wide range of scenarios and sources. Each sector is used to have its own surveillance networks and information sharing channels. Defined coordination and information sharing mechanisms, bridging existing tools or creating new ones, are essential to reach an efficient early detection and risk assessment system, in order to trigger a rapid response.

The surveillance and information sharing systems will be equipped with digital online platforms, which would be managed at state level by a network's coordinating body, with regulated and secure access for the parties required to exchange and store data. The necessary interoperability, security and traceability of the data should also be guaranteed.

Action 4: Ensure a national surveillance network coordinated with any other network for cross-sectoral surveillance, threat detection, joint risk assessment and crisis management

Action 5: Develop cross-sectoral information sharing tools or platforms



ACTION 4: Ensure a national surveillance network coordinated with any other network for cross-sectoral surveillance, threat detection, joint risk assessment and crisis management

Justification of the importance

The survey showed that cross-sectoral surveillance, intelligence activities, threat detection and early warning should be improved. The advantage of formalizing a network to access laboratory facilities for sampling an analysis of biological or chemical agents was also reported.

Joint risk assessment was developed in more than half of the countries at a very early stage of the SimEx scenario.

During the workshop, experts emphasized that when sectors bring together their specific approaches and pieces of information, the whole is more than the sum of the parts. It was proposed to have surveillance systems connected through one national authority, in order to have shared vision and goal regarding early threat detection and preparedness. This includes intelligence sharing, threat categorization and scenario development. Joint risk assessment was also mentioned as a priority to provide a timely summary about the likelihood and impact of a biological or chemical threat related to a specific event that might be intentional. This allows informed decisions that have considered potential options to prevent and mitigate human, environmental and infrastructure damages.

Recommendations summary

Develop specific cross-sectoral surveillance protocols with case-definitions for early detection and notification for biological and chemical threats	<i>p 39</i>
Develop standard operational procedures for cross-sectoral risk assessment and threat categorization following a common methodology	<i>p 40</i>
Integrate specific laboratory stakeholders in the surveillance /alert network	<i>p 42</i>

Recommendations

Recommendation 4.1 - Develop specific cross-sectoral surveillance protocols with case-definitions for early detection and notification for biological and chemical threats

Each sector has its own threat and risk surveillance networks and protocols. Since a threat of chemical or biological terror attack requires the early intervention of different sectors, it is essential that surveillance, signal detection and early warning protocols are shared across (relevant authorities with due security authorization of the) sectors. This includes clear case definitions for certain threats and risks to trigger further actions, and early notification of all the required stakeholders for these actions.

Possible methodologies

- Organise national or regional meetings on cross-sectoral surveillance involving all sectors to increase awareness of each other’s roles and address and clarify potential grey areas on their responsibilities.
- Create working groups counting with stakeholders from the surveillance advisory committees that may already exist in each of the sectors to deal with specific intentional threats and work on case-definition procedures and notification criteria among sectors.
- Conduct exercises to challenge the current surveillance system with concrete scenarios.

Identified good practices and facilitating aspects	References
Interoperability and interconnected surveillance systems (under one national authority)	Expert workshop
The EU Global strategy which gives a common European vision on threats	Desk research
Regular contact meetings and information exchange system across sectors	Survey
Improve existing structures and tools, instead of creating new ones, to reduce complexity	Desk research, Expert interviews

Identified challenges and blocking aspects	References
Gaps in information sharing at national level tracking the movement of substances through early detection systems/platforms, and communicating to neighbour countries	Expert workshop
The availability of an online platform to monitor the relevant logistic aspects to be improved	Survey
Competing priorities for funding	Expert workshop



Recommendation 4.2 - Develop standard operational procedures for cross-sectoral risk assessment and threat categorization following a common methodology

Once shared protocols and networks for surveillance have been established, the next important step will be to assess and categorize the threat signals. Each sector will have its own indicators and subsequent actions to undertake, so that concerted standard procedures for joint risk assessment need to be defined and agreed including the methodology.

Possible methodologies

- Create multisectoral working groups to meet on a regular basis with the aim of:
 - o Systematic exchange of information related to public health risks and threats in the country.
 - o The development of a common methodology for risk assessment based on already existing procedures or protocols for each of the sectors and each of field of expertise (chemical and biological) and establish thresholds to trigger the notification.
- Engage high level forums, by organizing workshops, webinars and conferences, where training experts and senior staff representatives from each sector might discuss risk assessment methodology for common cross-sectoral risk assessment and different levels of risk in proposed scenarios using realistic scenarios (bioterrorism incidents, with bio/chem threats), case studies or lessons learnt to facilitate discussions. This shared taxonomy ensures consistent understanding and response across sectors for further.

Examples

- The WHO's "Multisectoral Preparedness Coordination Framework" targets policy-makers, decision-makers, and stakeholders involved in health emergency preparedness and several disaster risk management frameworks are mentioned.
- The Benelux Region has undertaken an identification and assessment of cross-border risks across the Benelux countries and the German region of North Rhine- Westphalia; while this exercise does not influence the outcomes of risk assessments at national level, it offers a reflection on the regional dimension of key disaster risks.

Identified good practices and facilitating aspects	References
Standardization of capabilities adapted to current risks evaluation	Expert workshop
"The risk assessment shall be carried out in the case of a threat referred to in Article 2(1) of this Regulation in cooperation with the European Union Agency for Law Enforcement Cooperation (Europol) where the serious cross-border threat to health emanates from terrorist or criminal activity..." Regulation (EU) 2022/2371 of the European Parliament and of the Council of 23 November 2022 on serious cross-border threats to health	Desk research



Clarify risk assessment and evaluation protocols, taking the event nature (variety of scenarios) and the different required experts into account

Expert workshop

Identified challenges and blocking aspects	References
Lack of dedicated funding and well-trained personnel	Expert workshop
Lack of procedures to conduct joint risk assessments and lack of vulnerability mapping	Expert workshop
Lack of holistic vision on the threat. Different visions on the threat among actors	Desk research
There is an inherent weakness to the system if the different sectors don't work together and don't have clear procedures on mapping risk together	Expert workshop



Recommendation 4.3 - Integrate specific laboratory stakeholders in the surveillance /alert network

The survey showed that cross sectoral surveillance, intelligence activities, threat detection and early warning should be improved by formalizing a network with laboratory facilities for sampling and analysing biological or chemical sample. Sampling and detection capacities from both health and civil protection sectors, but also often Defense (e.g. OPCW designated lab⁵), must be connected and efficiently work together through established sample flow.

Possible methodologies

- Map existing labs and lab networks. Establish missing connections in order to clarify possible sample flows among detection and analysis stakeholders at national level, formalizing if possible these flows into procedures (e.g. suspicious objects procedure)
- Connect these lab networks to the stakeholders in charge of the surveillance, to ensure proper communication and interpretation of the lab results in the perspective of the risk assessment

Examples

- The Laboratories Network for intentional biological alerts (RELAB, Spain).
- The Finish Biosafety and Biosecurity Network offers a platform for collaboration on biosecurity and biosafety including education activities.
- The EuroBioTox project has gathered an international network of labs to establish validated procedures for the detection and identification of biological toxins ⁶

Identified good practices and facilitating aspects	References
Network/arrangement to access laboratory facilities and mobile laboratories available for both bio and chemical agents, including toxicology laboratory	Survey
Some referred that there is a sector specific national strategy for Civil protection, mainly for on-the-scene measurements and mobile labs	Survey

Identified challenges and blocking aspects	References
Suboptimal laboratory capacities related to certain chemicals	SimEx
There is a lack of national strategy for the transport of highly dangerous bio/chem materials	Survey

⁵ <https://www.opcw.org/designated-laboratories>

⁶ <https://www.eurobiotox.eu/>



Checklist

Do you have a list of relevant national laws, that serves as frame for cross-sectoral surveillance for biological or chemical threats?	
Are there well-defined terms of reference of roles and responsibilities for all the needed profiles to be enrolled for an efficient joint risk detection and assessment?	
Do you have bilateral agreements & SOPs for collaboration in surveillance and threat detection among the listed stakeholders?	
Has the functioning of the integrated surveillance system been proved through effective incidents or exercises?	
Do you have regular meetings involving the three sectors to discuss cross-sectoral approach for information sharing about potential signals and threats findings?	
Are there multidisciplinary teams with experience from the different sectors able to tackle complex challenges effectively and to develop updated risk assessment procedures?	
Are relevant stakeholders from the different sectors engaged for the risk assessment guidelines development? Are there regular meetings to review the common risk assessment methods?	
Are the sources from the different sectors to feed the integrated surveillance system clearly defined?	
Are the institutions and collaborative mechanisms clearly defined to assure the verification of signal process, identifying sources for other threats detection, integrate the results of investigations to improve existing protocols and SOPs, or to set up new ones?	
Is there a common vision for developing case-definitions for bio and chemical, from major to minor events?	
Are the cross-sectoral protocols updated with currently identified risks?	
Are there common criteria to trigger the notification of a chemical or biological threat and its potential intentionality (risk levels well established)?	
Is there an inventory of risks (chemical industries, bio wasting storage zones, transport of chem or bio hazards, ...) available?	
Have you mapped the industries that utilize dual-use chemicals or precursors of chemicals of concern?	



Have you mapped the industries that utilize biological pathogens of concern?	
Have you mapped the main industrial transport and waste generation of potentially hazardous biological or chemical agents?	
Is there a list of priority chemicals of concern available?	
Is there a list of priority bio agents of concern available?	
Have you mapped the reference laboratories dealing with the specific chemicals of concern?	
Have you mapped the reference laboratories dealing with the specific biological agents of concern?	
Have you mapped the relevant laboratories (public or private) able to characterize unknown substances (bio/chem)?	
Is there a network involving all the relevant reference laboratories dealing with chemical, biological including poison centres, public and private, linked to the national integrated surveillance system?	
Are there agreements in place with other countries and their reference laboratories for samples sending?	



ACTION 5: Develop cross-sectoral information sharing tools or platforms

Justification of the importance

During the expert workshop the need was shared to have a national level electronic platform for information sharing across sectors in order to share surveillance data and early alerts to be managed, taking inspiration from and linking to the European tools as the Early Warnings and Response System (EWRS) and the Common Emergency Communication and Information System (CECIS), or the Secure Information Exchange Network Application (SIENA). . During the workshop but also the interviews, it was equally advised to develop this platform using a common or at least interoperable technical language giving the opportunity to include external partners / experts when needed. Knowing who to contact but also how will decomplexify the crisis response. It was strongly advised to both establish and maintain this network in peacetime, so that it is ready to go when a crisis does happen. However, resources for information sharing are often missing and this was a key issue for many participants.

Recommendations summary

Develop a platform or strengthen already existing systems to ensure interoperable information sharing between sectors	p 46
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Recommendations

Recommendation 5.1 - Develop a platform or strengthen already existing systems to ensure interoperable information sharing between sectors

This (network of) platform(s) should include all relevant actors, both horizontally and vertically, to perform efficient risk assessment (including epidemiological intelligence information) and risk management (including early alert system) during whole preparedness and response cycle (peacetime and crises). Data collection and real time communication on the platform could be used for information sharing on capacities, research, incidents, activities, early warning and plans. Therefore, adequate tools need to be developed, be regularly trained, used, and be functional for both normal and sensitive information. Existing electronic platforms for information sharing between different sectors should allow to have interconnected surveillance and information sharing systems.

Possible methodologies

- A new platform can be developed under a central authority
- The platforms belonging to each sector can be connected and interoperability ensured in order to share information across sectors, designating focal points and guarantying adequate access if needed

Of note, Deliverable 7.2 of JA TERROR WP7 provides a technical document describing the attributes/requirements of a tangible secure platform that can be used to rapidly exchange information between sectors at both national and EU level.

Examples

Several platforms exist at European level:

- Security: Secure Information Exchange Network Application (SIENA)⁷.
- Health: Early Warnings and Response System (EWRS)⁸, The European Surveillance System (TESSy)⁹ and Event Information Site (EIS) - International Health Regulation (IHR)
- Civil Protection: Common Emergency Communication and Information System (CECIS)¹⁰

⁷ <https://www.europol.europa.eu/operations-services-and-innovation/services-support/information-exchange/secure-information-exchange-network-application-siena>

⁸ <https://www.ecdc.europa.eu/en/publications-data/early-warning-and-response-system-european-union-ewrs>

⁹ <https://www.ecdc.europa.eu/en/publications-data/european-surveillance-system-tessy>

¹⁰ https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/emergency-response-coordination-centre-ercc_en



Identified good practices and facilitating aspects	References
Have the ability to include external partners / experts when needed in your information sharing system	Expert Interviews
Train the people in charge of feeding / compiling the existing information sharing web portal to avoid information overload (by filtering, synthesizing and structuring)	Expert workshop
Direct hotlines for easy connection to supporting units	Expert Interviews
Don't make the tools too specific, but make them adaptable enough to be used outside of crisis management. This will make sure people are familiar with them even in peace time	Expert workshop
Identified challenges and blocking aspects	References
There is a clear lack of tools to share information between sectors, and if they do exist, they can often not be used for sensitive (classified) information	Expert workshop
Lack of intelligence structure for information gathering on certain threats	Expert Interviews



Checklist

Is the system enough secured to share sensitive information?	
Can external partners be included with access to certain features without compromising the use and security of the tool?	
Has there been a consideration for logistical management of this platform?	
Are enough people trained in compiling the existing information in a good format?	
Is there a shared platform for threat management in place with adequate access for all levels (operational, mid-level, strategic)?	
Is the interoperability of the different sectors' systems guaranteed in case a common/integrated information sharing system is not in place?	
Are there clear communication flows among institutions at the different levels established in official documents (national laws, bilateral or multilateral agreements, etc)?	
Is there a formal channel for communication and coordination among sectors, for risk mapping and information sharing about detected events?	
Is there a threat intelligence sharing platform in place?	

CHAPTER 3: PREPAREDNESS AND RESPONSE CAPACITIES, TRAINING AND EXERCISE

Cross-sectoral capacity building is critical for enhancing effectiveness and efficiency when public health, security and civil protection have to work together. High quality cross-sectoral training in peacetime will result in an improved and enhanced response to emergencies and crises. The frequency of multisectoral training exercises is often too low, as it requires not only to be informed about training planned in other sectors, but also to plan and organize joint training together. Existing trainings and responsible organizing institutions should first be mapped, as they vary across countries and sectors (governmental institutions, international organizations, local entities or private companies). Next, sustainable training programmes must be designed, considering the needs and lessons learnt, in order to attract enough engagement and mobilize enough resources.

The planning process for preparedness and response capabilities to address bio/chemical threats in the context of a terror attack also includes the development of a strategic reserve of medicines, vaccines, medical devices and personal protective equipment that allows for a timely and appropriate response to the health problems we have to face. The efficiency of this process needs a common and cross-sectoral approach for the development of the stockpile but also of the logistical management of it.

Action 6: Facilitate sustainable multisectoral training to develop an adequate level of professional skills

Action 7: Develop a national strategic stockpile, with cross-sectoral management and joint procurement procedures



ACTION 6: Facilitate sustainable multisectoral training to develop an adequate level of professional skills

Justification of the importance

In our survey, a majority of countries referred to organizing relevant trainings to biological or chemical terror attack scenarios, but only a few of them reported a cross-sectoral component for the three sectors, making cross-sectoral training one of the main aspects with room for improvement.

Several of the interviewed experts indicated that services in their country have little or no cross-sectoral training and/or exercises. In certain cases, this specific lack of multidisciplinary cooperation relates to an absence of national training facilities due to the relatively small size of the country. In other cases, it could be attributed to more narrow monodisciplinary views on national preparedness.

Joint training and exercises at national level was also one of the proposed actions for improvement during the debriefing of the organized SimEx, to increase awareness of each other's roles and address and clarify potential grey areas on their responsibilities.

The desk research identified the following challenges regarding the theme of the training: the need for more transversal exercise/training activities at both sectoral and political levels, and the need to formalize the use of the results from these exercise/training activities.

Finally, during the expert workshop, it was emphasized the importance to feed training and exercises with lessons learnt, embedding the noticed gaps to try to improve them. Training and exercises should be regular and even mandatory.

Recommendations summary

Map already existing multisectoral trainings and conduct needs assessment	<i>p 51</i>
Design the training program and training delivery methods	<i>p 53</i>
Assess and evaluate training activities	<i>p 55</i>
Ensure sustainability and engagement in the training programs	<i>p 56</i>

Recommendations

Recommendation 6.1 - Map already existing multisectoral trainings and conduct needs assessment

Mapping already existing multisectoral trainings is a crucial step in developing a comprehensive and effective training program targeting the three sectors. By mapping existing trainings, those responsible can identify areas where multisectoral training is lacking or insufficient, ensuring that proposed training programs address these gaps. This process helps to avoid duplication of efforts by recognizing existing programs that already cover certain skills or topics, leading to more efficient use of resources and enabling better strategic planning for future training development.

Possible methodologies

- Use multiple data collection methods in the needs assessment process with clear objectives and deep involvement from key stakeholders:
 - o Surveys and questionnaires are good to gather quantitative data on training needs from a large number of participants.
 - o One-on-one or group interviews are good to gain deeper insights and qualitative data.
 - o Multisectoral focus groups are useful to explore specific issues in detail and foster discussions among sectors.
- Connect together the different existing training centers.

Examples

The following examples rather concern the training of first responders, but might inspire analogue methodologies for the strategic level :

- A European Network of CBRN Training Centers (eNOTICE) has been established through H2020 project funding ¹¹.
- The European MELODY project developed training modules for CBRN first responders¹²

Identified good practices and facilitating aspects	References
In multiple countries, conferences that engage scientists, practitioners and policymakers can act as good mechanism to bridge science and practice	Desk research
Prioritize training needs based on factors such as urgency, impact or feasibility. Get close the identified gaps and embed them into training	Expert workshop
Mobilize funds devoted to exercises	Expert workshop

¹¹ <https://www.h2020-enotice.eu/>

¹² <https://melodytraining.wixsite.com/melody>



Identified challenges and blocking aspects	References
Lack of awareness of decision makers regarding training at EU level	Expert workshop
Joint training & exercises are not always included in the regulations as mandatory	Expert workshop



Recommendation 6.2 - Design the training program and training delivery methods

Designing an effective training program requires a structured approach that includes defining objectives, developing content, selecting delivery methods and evaluating outcomes. This step is crucial for ensuring that training programs are effective, engaging and aligned with the learning objectives and needs of participants from the three sectors. By linking methods to learning objectives and styles, optimizing resources and facilitating practical application of skills, organizations can create useful and effective training experiences that meet the needs of participants. Moreover, joint training and capacity building activities contribute to know each other's way of working, building trust and harmonize language and methods.

During the expert workshop, one of the key issues prioritized was the planning of joint exercises at local, regional, and national levels.

Possible methodologies

- Foresee cross-sectoral training to enhance skills and knowledge, common methods for core capacity building and promoting an environment of collaboration through workshops and simulations.
- Design activities that require active participation, such as group work, discussions, and hands-on practice.

Examples

- Decision No 1313/2013/EU (Art. 13.1): The Commission shall within the Union Civil Protection Mechanism carry out the following tasks in the field of training, exercises, lessons learnt and knowledge dissemination: set up and manage a training programme for civil protection and emergency management personnel on prevention of, preparedness for and response to disasters.
- The Joint Doctrine for Interoperability framework (JESIP) of United Kingdom, sets out a standard approach to multi-agency working, along with training and awareness products for responding organisations to train their staff.

Identified good practices and facilitating aspects	References
All relevant stakeholders should be engaged early in the process to gather their views perspectives and guarantee their commitment	Expert workshop, Desk research
Feed training and exercises with lessons learnt. The training needs assessment finding have to be taken into account when designing the training programme	Expert workshop
After event reviews to feed the plans, protocols and SOPs	Expert workshop
Establish clear, measurable learning objectives that specify what participants should know or be able to do after the training	Expert workshop



Identified challenges and blocking aspects	References
Each sector may have its own priorities and goals, making it challenging to align efforts and resources for multisectoral training initiatives.	Expert workshop
Difficulty in coordinating schedules and allocating sufficient time for training sessions that involve participants from multiple sectors.	Expert workshop
Considering that CBRNe events are rare events, it is important to use realistic scenarios to foster the preparedness. Situation in the neighbour countries should be considered.	Expert workshop
The specifics of a CB terror attack scenario should be sufficiently anticipated and trained	Expert interviews
Frequent personnel rotations (making the network vulnerable when people leave) – a system to quickly onboard new people with clear procedures and steps would be of added (e.g. mentor system per agency or in the network itself)	Expert interviews

Recommendation 6.3. - Assess and evaluate training activities

Cross-sectoral training evaluation is a critical process that assesses the effectiveness of training programs across different sectors. Throughout the discussions during the expert workshop several participants stated that they feel their sector’s needs are not taken into account in such trainings.

Possible methodologies

- Include the evaluation procedure and criteria in the design of the training and exercises.
- Designate (internal and external) evaluators to follow the training and exercises and report on it.
- Introduce accountability through appointed responsible for training assessment and evaluation.

Identified good practices and facilitating aspects	References
Accountability for after action evaluation and feed training and exercises with lessons learnt	SimEx
Involve stakeholders throughout the evaluation process to ensure expectations are met	Expert workshop

Identified challenges and blocking aspects	References
Undefined Goals: When training objectives are not clearly defined, it becomes difficult to measure whether they have been achieved	Expert workshop
Ineffective surveys, tests, or assessment tools can result in unreliable data	Expert workshop
Participants who are not engaged or motivated may provide inaccurate or unhelpful feedback	Expert workshop
Variations in how the training is delivered across different groups or locations can affect the evaluation's comparability	Expert workshop



Recommendation 6.4. - Ensure sustainability and engagement in the training programs

Promoting sustainable training programs involves designing, implementing, and maintaining initiatives that not only address immediate training needs but also contribute to long-term development goals.

The lack of funding often limits the ability to develop and implement sustainable training programs, impacting the overall effectiveness and preparedness of all three sectors. The lack of resources limits the opportunity for actors from each of the sectors to participate in trainings, ultimately affecting the readiness and response capabilities at the different levels.

Additionally, lessons learnt during training sessions are sometimes not adequately integrated into future activities, while this could justify their relevance.

Possible methodologies

- Those in charge of the CBRN training (centers) should be in connection with those in charge of the emergency planning and incident management, in order to mobilize enough training resources to adequately put long-term training plan in place, and address the needs of the responders.
- Consider if training and exercise programs can be made mandatory through required certification for the target audience.
- Design the training addressed to different levels: decision makers, technical level (strategic and operational) and keep the trainers up-to-date with training of trainers.

Identified good practices and facilitating aspects	References
Scalability: Design the program so it can be scaled up or adapted to different regions or sectors	Expert workshop
Resource Mobilization: Secure funding from diverse sources, promote staff retention	Expert workshop
Institutional Support: Ensure ongoing support from institutions to maintain the program’s momentum and relevance	Expert workshop
Knowledge Sharing: Create platforms for sharing best practices, research findings, and success stories to keep participants engaged and build a community of practice	Expert workshop

Identified challenges and blocking aspects	References
Limited Financial Resources: Insufficient funding can affect the implementation and sustainability	Expert workshop



Rigid institutional frameworks can slow down decision-making and implementation processes

Expert workshop

Inadequate monitoring and evaluation systems can hinder the assessment of program impact and the identification of areas for improvement.

Expert workshop

Without proper follow-up, the impact of the training need assessment and subsequent training programs may not be evaluated or sustained

Expert workshop



Checklist

Do you have a detailed inventory of existing multisectoral training programs, including their content, methods, target audience and outcomes?	
Do you liaise with stakeholders to collect their views and feedback on existing trainings and their usefulness?	
Do you collect information on the target audience, participation and impact of existing programs?	
Do you document best practices, lessons learnt and areas of improvement from existing trainings?	
Do you develop an action plan to integrate the findings into the design and implementation of new training programs?	
Have you defined learning objectives?	
Do you develop the content that covers all necessary topics?	
Do you combine various training methods (presentations, case studies, simulations, group discussions) to address different learning styles and engage different audiences?	
Have you planned the logistics: scheduling, venue, resources....?	
Do you train the trainers and conduct a pilot session to test the training program and gather feedback for improvements?	
Do you take into account key lessons learnt from incidents and exercises are taking into account to feed training materials and scenario -based exercises?	
Do you plan evaluation objectives, what the evaluation aims to achieve?	
Do you design robust evaluation tools and data collection methods in order to gather participant's feedback on the training content, delivery and overall experience: surveys and questionnaires, interviews...?	
Do you develop detailed reports summarizing the evaluation findings, including strengths, weaknesses, and recommendations?	
Do you develop plans to address identified issues and improve future training programs?	
Do you develop a sustainability strategy for ongoing funding and support?	
Do you have institutional commitment and support for program continuation?	



Do you involve diverse stakeholders in the planning, implementation, and evaluation phases to ensure commitment, relevance, and sustainability?	
Do you have a roster of skilled trainers who can deliver high-quality training and ensure continuity beyond initial program implementation?	
Have you exercised relevant plan(s) in the last 2 years?	
Is there a regular exercise planning in place?	



ACTION 7: Develop a national strategic stockpile, with cross-sectoral management and joint procurement procedures

Justification of the importance

In our survey, few countries reported to having a stockpiling and distribution strategy, while none of the countries reported cross-sectoral platform to monitor logistics. In addition to this, few responders reported having a national cross-sectoral online platform to monitor the relevant logistic aspects such as the available medical stockpiles, but this information was not shared by the three sectors in any country.

During the SimEx debriefing, national strategic stockpiles development was among the proposed actions for improvement.

The management of stockpiles across sectors (central stocks) was identified as one of the main issues during the expert workshop.

Recommendations summary

Map the available stocks and record them in an up-to-date inventory	<i>p 61</i>
Develop shared stocks and a joint investment and procurement strategy	<i>p 62</i>

Recommendations

Recommendation 7.1 - Map the available stocks and record them in an up-to-date inventory

CBRN events require specific material and countermeasures, such as (specialised) personal protective equipment, medical countermeasures, decontamination kits, detection devices ... This material is often expensive and available in limited amounts by the manufacturers. It also requires enough training to use it. Altogether, an anticipative stockpiling strategy is recommended, but available budget will often be the limiting factor. As some material might be shared across sectors - e.g. protective equipment for responders from any sector, decontamination or detection material to be used by both health and civil protection, it is important to collect information on available stocks in each sector and centralize this information in a database accessible to crisis managers from the 3 sectors.

Possible methodologies

- Perform capacities and stock inventory through a survey. Recipients must be carefully selected so that information can be collected on all existing stocks (across sectors and organisational levels).
- Identify/develop a shared access and management tool accessible for all relevant stakeholders, with adequate interoperability (including common technical language) and trained staff (including focal points) to encode and synthesize the data. The data must be easy to update.

Examples

- As an upgrade of the EU Civil Protection Mechanism (UCPM), rescEU was established as a reserve of European capacities, fully funded by the EU, including stockpiling ¹³

Identified good practices and facilitating aspects	References
Vision and access on resources stocks should be shared across sectors	Expert workshop
An online platform should be accessible for all 3 sectors to record and consult the available material	Expert workshop
The health sector has a national strategy for medical countermeasures, laboratory facilities and mobile laboratories in most countries. Consider it in the process	Survey

Identified challenges and blocking aspects	References
Actors have little knowledge on the stocks in other sectors	Expert interviews

¹³ https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/resceu_en

Recommendation 7.2 - Develop shared stocks and a joint investment and procurement strategy

Once the picture of the available stocks has been consolidated, both shared and missing resources should be identified. Demonstrating a shared interest and setting up joint investment procedures, with a view to managing common stocks, will be the best solution for rationalising costs and maintaining rotating stocks.

Possible methodologies

- Develop central stocks with management procedure across sectors. A government agency can be appointed (or eventually created) for the strategic stockpiling coordination (global inter-sector and national governance), but operational coordination and implementation must be also ensured, e.g. by the civil protection.
- Stockpiling remains mainly handled regionally or per agency. National stockpiles complement those of the regional authorities.
- Clarify the procedure(s) to use European capacities, mainly the UCPM and RescEU mechanism and HERA's stockpiling.

Examples

- The Emergency Response Coordination Centre (ERCC) coordinates the delivery of RescEU capacities ¹⁴.
- DG HERA's mandate include the procurement and stockpiling of medical countermeasures such as medicines, vaccines, and personal protective equipment through different procurement mechanisms, including by acting as a central purchasing body for Member States ¹⁵.

Identified good practices and facilitating aspects	References
Stocks are available at adequate organisational level (regional and national levels coordination)	Expert interviews
Develop stockpiles of material that can be used for several hazards and scenario (all-hazards approach and interoperable material)	SimEx, Expert workshop
Manage stockpiling on a complementary way and in coordination with other Union instruments and bodies	Desk research (REGULATION (EU) 2021/522)
Develop clear procurement procedure(s)	Expert workshop

¹⁴https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/emergency-response-coordination-centre-ercc_en

¹⁵https://health.ec.europa.eu/health-emergency-preparedness-and-response-hera/preparedness/procurement-and-stockpiling_en



Identified challenges and blocking aspects	References
Suboptimal national strategy (for medical countermeasures and protective equipment stockpiling)	SimEx
Insufficient funding of stockpiles, due to both specific and rare events and high costs of material	Expert workshop
Inadequate procurement timing	Expert workshop
Limits of production for specific material	Expert workshop



Checklist

<p>Have you considered the following components for the stockpiling?</p> <ul style="list-style-type: none"> - Decontamination material - Personal protective equipment - Medical countermeasures - On-the-scene sampling and detection equipment - Specialized lab analysis and monitoring equipment 	
<p>Have you cross-checked the common needs across sectors and the possibility of shared use?</p>	
<p>Have you compiled the available information in a tool accessible for all relevant stakeholders?</p>	
<p>Do the responders identify lack of certain equipment?</p>	
<p>Is the information up-to-date and is there an update mechanism in place?</p>	
<p>Can all required stakeholders efficiently use the shared resources across sectors?</p>	
<p>Is an adequate material procurement and deployment timing possible?</p>	
<p>Can the different actors and sectors access adequate material for their missions?</p>	

CHAPTER 4: EVALUATION AND CORRECTIVE MEASURES

Post incident joint evaluation was raised as one of the attention points of the Mapping Survey. Following a terror attack involving biological or chemical agents, evaluation of cross sectoral collaboration is critical. Rapid identification and response can make the difference in the impact of the attack. Public health agencies can swiftly identify affected individuals, assess exposure risks, and initiate medical interventions. Law enforcement and security agencies play a crucial role in securing the affected area, preventing further harm, and apprehending perpetrators. Civil protection agencies coordinate emergency services and potential decontamination. Collaborating across these sectors ensures a coordinated, efficient, and timely response process.

Effective collaboration ensures transparent communication, accurate information dissemination, and coordinated messaging. Law enforcement and security agencies can address safety concerns, while public health agencies provide guidance on health risks and protective measures. Civil protection agencies engage communities, fostering resilience and promoting recovery. Define the responsibilities during the post-incident phase is part of the preparedness and needs to be established in advance.

In summary, cross-sectoral collaboration during the post-incident phase enhances preparedness, response, and community resilience in the face of intentional biological or chemical attacks.

Action 8: Implement already existing or create ad hoc "evaluation framework" components for event/crisis evaluation



ACTION 8: Implement already existing or create *ad hoc* “evaluation framework” components for event/crisis evaluation

Justification of importance

The post-incident phase is sometimes the forgotten part of the preparedness and response cycle. The systematic desk research identified that the lack of joint evaluation is one of the key challenges impacting the preparedness and response capacity. The joint external evaluations (JEE) from WHO in the framework of the International Health Regulations constituted several of the selected useful references providing very useful information.

Further during the expert workshop, accountability for after action evaluation was reported as an important facilitating aspect to further improve the plans, protocols and SOPs, putting lessons in practice across sectors.

Recommendations summary

Map existing evaluation instruments/frameworks/tools for bio or chem events	<i>p 67</i>
Develop a network of external/internal/private stakeholders for after event evaluation (multidisciplinary incident evaluation)	<i>p 69</i>
Organize national and international workshops to share lessons learnt and consider legal consequences	<i>p 70</i>
Update the plan and procedures according to lessons-learned from exercises and incidents, as well as changes in the relevant regulatory framework	<i>p 71</i>



Recommendations

Recommendation 8.1 - Map existing evaluation instruments/frameworks/tools for bio or chem events

Measuring the effectiveness of cross-sectoral collaboration in response to a terror attack is a complex task due to the fact that many different elements and factors can influence the outcomes. In emergency response, different elements of each of the sectors among their own systems interact. To add to the complexity, there is no set of clear indicators agreed on how to measure a response. First, existing evaluation frameworks need to be mapped.

Possible methodologies

- Engage with stakeholders responsible of areas in the field of crisis preparedness and response (law enforcement, security, civil protection, health care, public health,...) but also including the public (through associations, neighbourhood organizations, non-governmental organizations or trusted institutions working at local level) and organize interviews, meetings, workshops, focus groups, with all of them in order to create a list of tools and frameworks available for evaluation.
- Refer to previous incidents' recovery phase during these contacts, and also review the available documentation regarding the evaluation of the management of these past events.
- A cross-sectoral survey to assess cross-sectoral collaboration aspects may provide key information for plans and procedures evaluation and improvements (how sectors coordinate, share resources, align objectives, share a common understanding of threats categorization, ...).

Examples

- The IHR Monitoring and Evaluation framework, which consists of four complementary components (SPAR, JEE, simulation exercises and After-Action Reviews (AAR)) helps to provide a comprehensive overview of the status of preparedness and response capacities as well as providing a basis for evidence-based policy-making.

Identified good practices and facilitating aspects	References
After event reviews or evaluations to feed the plans, protocols and SOPs	Expert workshop, Desk research
Independent board for evaluation, consisting of various experts	Expert workshop
New legislation after incidents	Expert workshop



Identified challenges and blocking aspects	References
The responsibilities during the post-incident /recovery phase are one of the unclear aspects in the majority of countries	Survey
Lack of initiative, standard procedures, and possible legal consequences prevent openness during the evaluation process	Expert workshop

Recommendation 8.2 - Develop a network of external/internal/private stakeholders for after event evaluation (multidisciplinary incident evaluation)

Once the different existing evaluation systems have been mapped, creating or at least strengthening cross-sectoral stakeholders' networks may contribute to have a more comprehensive methodology to cope with the after event evaluation. This might also contribute to improving the cross-sectoral collaboration.

Possible methodologies

- Set up a network (or a roster) of experts for after incident evaluation, able to make recommendations and propose SOPs, protocols, plans, strategies, legal framework changes in case of need.
- Define the framework and the expected outcomes of the evaluation process to feed the plans and procedures, improve the roles and responsibilities definition, and to step up for backing into normal life after the event as part of the recovery road map.

Identified good practices and facilitating aspects	References
Multidisciplinary strategic committee	Expert workshop
Multi-agency debriefing	Expert workshop
Local multidisciplinary evaluation	Expert workshop

Identified challenges and blocking aspects	References
Clear responsibilities and a roadmap for the post-incident /recovery phase is evidenced as a point of attention	Survey
Lack of an external evaluator	Expert workshop
No legal consequences for not performing an evaluation	Expert workshop
Lack of training time. Lack of capacities	Expert workshop
Political evaluations demand attention and time	Expert workshop



Recommendation 8.3 - Organize national and international workshops to share lessons learnt and consider legal consequences

Once established, the network of stakeholders for after event evaluation should be activated every time a relevant incident or exercise has happened. By gathering together, this entity should conduct systematic evaluation process, preferably following established procedure/plan, in the perspective of a positive and constructive culture of evaluation.

Possible methodologies

- Identify key stakeholders to be part of the workshop/meeting/ conference, invite relevant keynote speaker to attract participants.
- Design the workshop/ meeting/conference content according to the objectives and expected outcomes as well as to the target audience. If the format chosen is a workshop, ensure that trained facilitators will animate discussions and extract key conclusions, lessons learnt and improving aspects to feed the plans, procedures and legislation in case of need.
- Disseminate the results through adequate channels and adapt the messages to be addressed to specific target audience.

Identified good practices and facilitating aspects	References
How to take advantage of lessons learnt from other sectors, other countries	Expert workshop
Regular reports. Triangulate reports	Expert workshop

Identified challenges and blocking aspects	References
Exchange of debriefing information between health and security happens at a very (too) high level	Expert workshop



Recommendation 8.4 - Update the plan and procedures according to lessons-learned from exercises and incidents, as well as changes in the relevant regulatory framework

An outdated plan conflicting with the reality in the field will not be endorsed. As already outlined in recommendation 3.3, practical application of the plan through exercises is very important. It is equally important that lessons learnt from these exercises, as well as real events that might have occurred, are taken into account to consider if an update of the plan is required. Other reasons to update the plan might be changes in the regulatory framework or in the available resources or technologies.

Possible methodologies

- After-action reviews and incident/exercise debriefing reports from the established evaluation network should be shared to the emergency planning authorities.
- In case incident or exercise did not happen recently, emergency planning authorities can also foresee a default opportunity to revise existing plan, by gathering the concerned stakeholders, organizing a survey or an exercise.

Consequently, these authorities should consider possible modifications of the emergency planning, taking the legislative framework and available resources into account. The adequate documentation level to include these updates should also be assessed (strategic plans versus operational procedures), also considering the procedure that the update represent.

Examples

- Strategies in UK such as the Biological Security Strategy and CONTEST strategy on counter terrorism are regularly reviewed and updated
- Finland applies a comprehensive and adaptive approach allowing for the possibility of evaluating plans and procedures on the basis of updated risk analyses and cross-sectoral activities (e.g. exercises),

Identified good practices and facilitating aspects	References
Plans are revisited on a regular basis	Expert workshop
Take lessons learnt from exercises and incidents into account to review/feed the plans and regulation in case of need	Expert workshop
Take the new technological advancements and novel threats into account	Expert workshop, Expert interviews, JA TERROR WP8

Identified challenges and blocking aspects	References
The lack of exercises and/or communication across sectors makes it difficult to identify possible needs for updates	Expert workshop
Lack of update of the EU framework	Expert workshop



Checklist

Are there evaluation tools and instruments for biological and chemical events?	
Is there an established evaluation framework with a set of harmonized, internationally accepted indicators? (e.g. measure of the information sharing frequency, joint planning sessions attendance, cross-sectoral projects or actions developed)	
Is there a list of potential candidates for setting up an evaluation team, considering engaging representatives from each sector and also social agents and civil society exposed to the event?	
Is it foreseen the development of an action plan for implementing corrective measures?	
Are terms of reference of the evaluators defined to ensure that all sectors are involved?	
Is there a forum or a mechanism to disseminate the lessons learnt? (e.g. workshop, meeting, conference)	
Have you defined the right people to eventually change the legislation based on the evaluation results? (e.g. senators, lawyers, lobby groups, etc...)	
Are evaluation results being communicated in an adequate and effective way to generate changes and improvements in plans, protocols, incident management system, public behaviour, infrastructures, among others, and ultimately, legal framework if needed?	
Is the applicability of the plan and procedures confirmed through effective incidents management or exercises?	
Are there any lessons learnt from conducted exercises or effective events since the publication of the plan that would require an update?	
Is the plan able to cope with scenarios taking latest risk analyses and new technological developments into account?	

Final considerations

This guiding document presents 20 recommendations to improve cross-sectoral collaboration between health, security and civil protection in the preparedness and response to biological or chemical terror attack, spread across 4 chapters: (i) cross-sectoral emergency planning and governance, (ii) cross-sectoral surveillance, joint risk assessment and information sharing, (iii) preparedness and response capacities, training and exercise and (iv) evaluation and corrective measures. The authors have opted for an action-oriented style, including checklists, possible methodologies and examples, in order to stimulate possible implementation through concrete activities.

Nevertheless, each country has its own context in the fields of public health, security and crisis preparedness (interior affairs) policies, considering its own legal framework and organisation. Therefore, the actions and recommendations included in this document should be read as guidance and are intentionally kept flexible and broad, proposing different options, possible methodologies or examples. Each reader should assess which recommendations apply for his/her own country, and engage with the relevant national stakeholders to confirm interest and discuss possible implementation.

Strengths and weaknesses

The authors of this guiding document believe it has several strengths.

First of all, JA TERROR has involved a large number (16) of countries, providing a large coverage of the national situations across Europe.

Secondly, it is to their knowledge and as suggested by the conducted desk research, the first guidance to specifically address the cross-sectoral collaboration between health, security and civil protection, in the specific context of a biological or chemical terror attacks. Previously, recommendations on that matter have often been expressed in a very broad sense, with few explicit elements dealing with cross-sectoral collaboration between public health, civil protection and security, and even less in a terrorist and/or chemical or biological context.

Finally, the various underlying activities have allowed to compare findings from different methodologies, which has strengthened the evidence for the common elements.

Naturally, this document also has some limitations that should be taken into account.

JA TERROR was launched by HaDea (formerly CHAFEA) in the framework of the Third Health Programme 2014-2020. Consequently, competent authorities were exclusively appointed from the health sector. Numerous efforts have been done to attract affiliated entities and external stakeholders from the civil protection and security sectors. Nevertheless, this relied on the existing contacts from the competent authorities, and key activities have been led by the health sector. An Advisory Board which includes DG HOME, Europol or DG ECHO, among others, was set-up at a late stage of the project, and timely feedback from its members was not always possible. As a consequence, this document can be understood as an initiative from the health sector to better collaborate with civil protection and law enforcement.



The authors hope that publishing this guiding document will contribute to further facilitate and foster cross-sectoral collaboration, in future projects and for the preparedness and response of Europe to face potentially very high impact events, such as a biological or chemical terror attack.