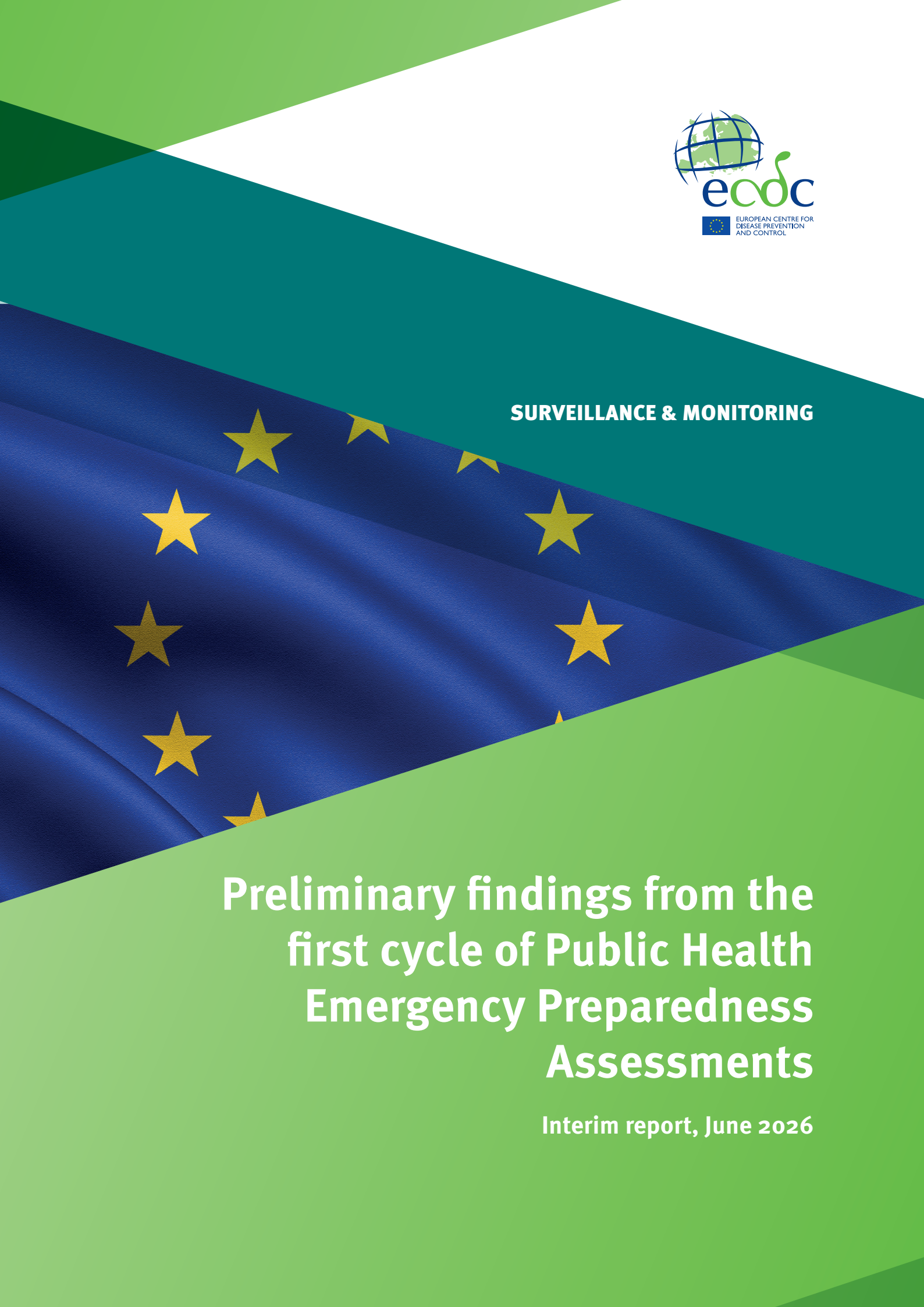

SURVEILLANCE & MONITORING

Preliminary findings from the first cycle of Public Health Emergency Preparedness Assessments

Interim report, June 2026

ECDC SURVEILLANCE & MONITORING

Preliminary findings from the first cycle of Public Health Emergency Preparedness Assessments

Interim report, June 2026

This report of the European Centre for Disease Prevention and Control (ECDC) was coordinated by Adriana Romani, Elisabetta Pierini and Kim Brolin.

Contributing authors
ECDC: Adriana Romani, Barbora Kinross, Carmen Varela Santos, Daniel Palm, Elisabetta Pierini, Ettore Severi, Jessica Beser, Julien Beaute, Kim Brolin, Paul Riley, Sebastiano Lustig, Tamas Bakonyi, Vivian Leung

Health Emergency Preparedness and Response Authority (HERA): Sebastiano Lustig

Acknowledgements
ECDC would like to acknowledge the contributions of all experts who participated in the Public Health Emergency Preparedness Assessment missions. These experts represented a wide range of institutions, including the European Commission, European Union agencies, the World Health Organization, and European Union/European Economic Area countries.

We also extend our sincere thanks to the national experts who supported the assessment in their respective country and actively contributed to the process.

Suggested citation: European Centre for Disease Prevention and Control. Preliminary findings from the first cycle of Public Health Emergency Preparedness Assessments – Interim report, June 2026. Stockholm: ECDC; 2026.

Stockholm, June 2026

ISBN 978-92-9498-891-1
doi: 10.2900/2783956
Catalogue number TQ-01-26-036-EN-N

Contents

1 Introduction

Despite only being operational since 2024, the Public Health Emergency Preparedness Assessments that ECDC conducts have already proven to be a highly valuable activity, helping both countries and the Centre to identify key preparedness and response strengths, challenges and opportunities for improvement. These assessments offer a unique opportunity to develop specific, context-tailored recommendations based on each country's needs and priorities to strengthen health emergency preparedness across the region.

As part of the first cycle of assessments, ECDC conducted country visits to Belgium, Croatia, Estonia, Finland, France, Iceland, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Portugal, Spain and Sweden between May 2024 and September 2025. For these assessments, the four in-depth capacities common to all countries were 'Laboratory', 'Surveillance', 'Health Emergency Management' and 'Antimicrobial resistance and healthcare-associated infections'. The fifth capacity that was most often selected by these countries for an in-depth assessment was 'Zoonotic diseases and threats of environmental origin, including those due to the climate'.

This interim report summarises the main findings of these first 15 ECDC assessment reports, based on a preliminary analysis of these five selected capacities. While there are clear differences in countries' contexts and levels of preparedness and response capacity, the assessments have also revealed numerous common strengths and challenges across many countries. These shared patterns are reflected in the findings presented in this report. With this in mind, the findings do not aim to provide a comprehensive overview of prevention, preparedness and response planning across the EU/EEA but to share a selection of the most frequently observed, critical or illustrative activities.

Although the findings have been aggregated, this report does not intend to flatten or disregard the differences among countries. These differences are recognised and valued within each individual country report.[1] Each assessment and subsequent report are unique, as they reflect the specific context of the country, the composition of the assessment team and the circumstances at the time of the country visit. This interim synthesis therefore aims to present preliminary observations and share examples of effective approaches and opportunities for improvement that could be of interest to several EU/EEA countries.

Several inherent limitations should be taken into account when reading this report:

- **Qualitative nature of the assessment:** The Public Health Emergency Preparedness Assessment process is not an audit. It relies on a qualitative assessment guided by structured questions. This approach allows flexibility and encourages open discussion. It may also lead to variations in the depth or emphasis placed on specific aspects.
- **Country-specific contexts:** Each country has distinct characteristics, including the public health structures, political and administrative setting, preparedness needs, and individual approaches to the assessment. These contextual differences influence both the discussions and the findings.
- **Methodological refinement over time:** As the cycle progressed, the methodology was gradually refined. Improvements in tools, clearer guidance and lessons learned from earlier assessments may have resulted in subtle variations across assessments that were conducted at different times.
- **Variation in assessment teams:** While all assessment team members are experts in their fields and are trained in the methodology and soft skills required for the process, they naturally bring different professional backgrounds, experiences and perspectives. These human factors may have introduced subtle differences in the way discussions were conducted and findings are presented.
- **Language considerations:** Assessments are conducted in English and/or in the country's chosen language with interpretation support. Language nuances or translation dynamics may influence the precision or clarity of certain exchanges.

A full list of limitations can be found in the Conclusion.

Background

Public Health Emergency Preparedness Assessments (PHEPAs) are conducted by the European Centre for Disease Prevention and Control in all 30 European Union/European Economic Area (EU/EEA) countries every three years, in accordance with Article 8 of Regulation (EU) 2022/2371 of the European Parliament and of the Council of 23 November 2022 on serious cross-border threats to health, which repeals Decision No 1082/2013/EU[2]. The aim of this activity is to assess the status of prevention, preparedness and response planning in each EU/EEA country based on 16 core capacities.

[1] Some countries have chosen to make their country report available on the ECDC website, at: https://www.ecdc.europa.eu/en/about-ecdc/what-we-do/public-health-emergency-preparedness-assessments

[2] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32022R2371

As per the Regulation, each assessment is based on information reported by countries through the Article 7 template[3], including the most recent State Party Self-Assessment Annual Report[4], and follows the procedures, standards and criteria outlined in the Delegated regulation 2024/1232 that supplements Regulation (EU) 2022/2371 regarding the implementation of Article 8[5].

Each PHEPA consists of a desk review and a country visit, and results in the production of a country report. The assessment report summarises the main findings across the 16 capacities, with a particular focus on five capacities that are assessed in depth, four common to all assessments and one selected by the country, as per the PHEPA methodology[6]. Key recommendations are formulated for each capacity. Countries are expected to incorporate these recommendations into a national action plan and implement them to further strengthen national preparedness. The assessments focus specifically on public health emergencies; therefore, the capacities are not analysed to their full extent, but with a focus on aspects relevant to preparedness and response to health threats.

[3] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32023R1808#ntr1-L_2023234EN.01010701-E0001

[4] https://www.who.int/emergencies/operations/international-health-regulations-monitoring-evaluation-framework/states-parties-self-assessment-annual-reporting

[5] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L_202401232

[6] https://www.ecdc.europa.eu/en/publications-data/guide-countries-undergoing-ecdc-public-health-emergency-preparedness-assessment

2 Methods

A structured approach was used to extract and analyse the findings from the first 15 Public Health Emergency Preparedness Assessment reports to ensure consistency across findings. A team of ECDC experts was responsible for extracting and compiling the main findings across these reports, for each capacity.

The analysis followed a three-step process:

i. **Extract findings from each country report** – For each of the assessed capacities, strengths, challenges and recommendations were extracted from all 15 country reports. These elements were compiled into a dedicated database for each capacity. The classification of findings as either strengths or challenges relied on the professional judgement of the experts involved. Transparent documentation and efforts to ensure balance and consistency were made to mitigate subjectivity; however, a degree of subjectivity is inherent to the process. Examples of effective approaches were also identified.

ii. **Aggregate country-specific findings** – The country-specific findings within each dedicated capacity were aggregated into a set of categories that were created based on observed themes. Experts applied their professional judgement to determine whether specific findings fit into one of the identified categories, to avoid creating new categories for each nuance. This approach ensured the aggregation of findings while maintaining the integrity of country-specific insights.

iii. **Synthesise and revise the most relevant findings** – The aggregated findings in each capacity category were reviewed in detail, particularly those that recurred most often. Expert appraisal and consolidation for each capacity was conducted at ECDC through dedicated discussions and meetings among subject matter experts. The outcomes of these analyses are presented in the next section (3. Progress overview). The most frequently observed recommendations were synthetised and presented as 'improvement opportunities' in this report. These are not intended as specific recommendations for all countries; rather, they reflect commonly recurring recommendations that individual countries may consider, as appropriate and relevant to their specific context.

3 Progress overview

This monitoring report summarises the interim findings from the five capacities reviewed in depth during the first 15 Public Health Emergency Preparedness Assessments:

- Health Emergency Management;
- Laboratory;
- Surveillance;
- Antimicrobial resistance and healthcare-associated infections; and
- Zoonotic diseases and threats of environmental origin, including those due to the climate.

The findings are presented by capacity. Each capacity section begins with a short introduction, followed by 'General observations', which includes the key aspects identified during the assessments. Following this, findings are presented structured into the main categories identified during the aggregated analysis and are further organised into the following subcategories: 'Strengths', 'Challenges', 'Examples of effective approaches'[7] and 'Improvement opportunities'.

3.1 Health emergency management

The 'Health emergency management' capacity is split into two parts to address two separate aspects of this area: 'i. Management of health emergency response' and 'ii. Emergency logistic and supply chain management'. Within these two parts, the findings follow the same structure as described previously and used in the other capacities.

i. Management of health emergency response

The 'Management of health emergency response' section under the 'Health emergency management' capacity focuses on national prevention, preparedness and response planning to enable countries to be prepared and operationally ready to respond to any public health emergency. Risk-based plans for public health emergency preparedness and response, robust emergency management structures and mobilisation of resources during an emergency are critical for timely response. The routine testing of plans through evaluation and exercises, followed by regular review and updating, is a key component of effective health emergency management.

General observations

The ways that countries achieve the objectives of effective health emergency management vary considerably across countries and depend on each national context. The assessment process therefore focuses on whether the objectives are achieved, rather than on the specific means by which they are attained, recognising that approaches differ according to country-specific circumstances.

Health emergency management is a broad area that provides a framework for many of the other assessed capacities, such as health service provision, human resources, International Health Regulations implementation and health security at points of entry. Details important to the assessment of health emergency management can therefore also arise when these other capacities are considered.

The analysis of aggregated findings indicated that increasing and formalising collaboration and communication between sectors and administrative levels within a country was often mentioned as an area for improvement. This appeared in relation to both planning and responding to public health emergencies.

Military threats are ever more central in the current global landscape. This is noticeable in terms of where resources and priorities are being directed. Hence, civil-military collaboration – including joint exercises and a common understanding of the relevant terminology – is increasingly important.

3.1.1 Prevention, preparedness and response planning

Following the COVID-19 pandemic, many countries recognised the need to revise their prevention, preparedness and response strategies for public health emergencies. Although threat-specific pandemic influenza plans proved useful during COVID-19, they were not flexible enough to address the wider range of challenges encountered. In response, numerous EU/EEA countries have developed, or are currently developing, more adaptable, generic prevention preparedness and response plans. These include all-hazards frameworks or broader pathogen-grouped plans, such as pandemic preparedness plans covering respiratory viruses, as part of their overall prevention, preparedness and response planning architecture.

[7] The country is only named where prior authorisation has been obtained.

Any newly developed plan or framework should be formally endorsed through appropriate legal processes and must clearly outline mechanisms for cross-sectoral collaboration during a public health emergency. Responsibility for the development and maintenance of such plans may vary across countries, but prevention, preparedness and response planning should consistently encompass all administrative levels. It is essential that these plans are regularly tested and updated through exercises (e.g. tabletop exercises, simulation exercises, stress tests, etc.). When plans are activated during real events, in-action or after-action reviews should be conducted to assess performance and identify necessary revisions.

In addition, countries should maintain a national preparedness and response plan or equivalent document that ensures a clearly defined nation-wide coordination mechanism in the event of an intentional release scenario. This should include an explicit governance structure outlining the roles and responsibilities of the health sector and other critical sectors in coordinating the response.

Strengths

- Over half of the assessed countries have or are developing more generic strategic and operational plans for public health emergencies that are harmonised across administrative levels (local, regional and national), as part of their prevention, preparedness and response planning.
- In a few countries, civil protection and civil-military collaboration are emphasised. This appears most often in plans for intentional release situations, where close co-operation across the civil-military interface is necessary.

Challenges

- In several countries, prevention, preparedness and response plans (or equivalent documents) cover the strategic aspects only. These countries need to develop complementary operational plans that translate the national strategies and policies into concrete implementable procedures. Ideally, these would be generic plans that include standard operating procedures. Event/disease-specific plans could also be created where risk profiling has indicated a high level of risk. The operational plans also need to link across sectors, where appropriate, and be harmonised across all levels.

Examples of effective approaches

- In Estonia, the local, regional and national plans are interlinked and complementary to each other. The scope of plans range from strategic to threat-specific plans.

Improvement opportunities

- Prevention, preparedness and response plans should be strengthened by developing, finalising or updating their contents to ensure they are comprehensive and fully operational. This includes creating any missing operational components, such as hazard-specific plans and detailed standard operating procedures.
- Prevention, preparedness and response plans should clearly articulate and formalise how coordination and collaboration will take place across sectors and administrative levels. Defining these mechanisms within the plan's framework will support strong communication and coordination between all actors in emergencies.
- Relevant legislation should be reviewed and updated to incorporate a requirement to regularly analyse the preparedness framework. This framework must be multi-hazard and multi-sectoral, applicable to all administrative levels, and include a clear description of the roles and responsibilities of all relevant institutions and actors.

3.1.2 Risk profiling

Risk profiling is the forward-looking mapping of all potential public health risks, including those that could pose a serious cross-border threat to health. It aims to provide an understanding of the overall risk landscape and to give a broader strategic overview of a country's full spectrum of public health risks, including biological, environmental, chemical, radiological and other hazards. The risk profiling process should involve all relevant parties and rank risks based on an agreed criteria such as likelihood, impact or preparedness gaps. The results provide a basis for the country's threat-specific plans and can also feed into threat-specific rapid risk assessments[8].

Strengths

- Most of the assessed countries are performing risk profiling at regular intervals, and this process covers either all or some administrative levels (national, regional and local).

Challenges

[8] Threat-specific rapid risk assessments are a systematic process used to identify, analyse and evaluate the likelihood and impact of a specific imminent public health threat. ECDC has produced 'Operational guidance on rapid risk assessment methodology': https://www.ecdc.europa.eu/en/publications-data/operational-guidance-rapid-risk-assessment-methodology.

- One third of the assessed countries have not fully defined, formalised or routinely conducted the risk profiling process, and the activity is not multi-sectoral.
- In some countries, there is a lack of routine involvement of the health sector. A multi-sectoral approach to risk profiling is essential to ensure comprehensive identification of public health threats, accurate assessment of vulnerabilities and capacities, and the development of feasible and coordinated prevention and response measures across all relevant sectors.

Examples of effective approaches

- In Estonia, regular health emergency risk profiling occurs at local, regional and national levels, as defined by legislation. At the local level, hospitals are required to update their contingency plans annually under the supervision of the Health Board. At the regional level, the Rescue Board chairs crisis committees that conduct regional risk profiling. At the national level, the Health Board participates in the national risk profiling, which happens every other year. Based on the national risk analysis, the Health Board prepares analyses of prioritised health threats such as epidemics and mass-poisoning events.
- In Norway, all administrative levels are required to develop their own risk and vulnerability analyses based on the national ones, taking local circumstances into consideration. These entities prepare an emergency plan for the health and care services or social services they are responsible for providing or overseeing.

Improvement opportunities

- A formal risk-profiling process should be established and supported by clear standard operating procedures that outline how assessments are conducted. This process needs to be all-hazard, multi-sectoral and include all relevant sectors to ensure a comprehensive understanding of potential risks.
- Risk-profiling outcomes should be routinely updated. During this process, identified risks should be systematically ranked to directly inform the development of hazard-specific plans and the identification of training needs.

3.1.3 Incident management systems and Emergency Operations Centres

A country's incident management system (IMS) should link the public health sector with other sectors involved in health emergency preparedness and response planning. The system should fully define crisis management roles during health emergencies, taking into account all relevant sectors and all administrative levels in the country. The IMS (or equivalent system) should also be scalable (i.e. feasible for day-to-day events as well as large-scale events). An Emergency Operations Centre (EOC) or equivalent structure should be an integral part of the IMS, providing both a physical space and standard operating procedures for responding to public health emergencies.

Strengths

- All assessed countries have an IMS, to varying degrees. In smaller countries, this can be informal and dependant on personal communication rather than formalised. In some countries, the IMS is mentioned in a legal act.
- Many countries updated their IMS based on experiences during the COVID-19 pandemic.
- Several countries describe a physical EOC structure with 24/7 capacity that is both flexible and scalable.
- Most countries' systems allow for cross-sectoral collaboration and communication.

Challenges

- While all assessed countries have some degree of an IMS, many are lacking certain aspects – such as a designated or formalised EOC or IMS – and there is often a lack of clarity surrounding roles and responsibilities across sectors and levels.

Examples of effective approaches

- In Sweden, there is a formal mechanism in place for regions to collaborate with and request support from each other. The IMS in Sweden links public health with other sectors involved in health preparedness and response planning. A system of duty officers (24/7) is in place within the government offices and at national authorities, county administrative boards, regions and municipalities. Duty officers are responsible for initiating and coordinating the initial crisis management by detecting and verifying any extraordinary situation (within their jurisdiction). Coordination is maintained across sectors and administrative levels during weekly meetings between duty officers at the national level, as well as between national- and regional-level (county) medical officers.

Improvement opportunities

- IMS should be formalised, with clear operational management roles and mechanisms that support strong collaboration between local, regional and national administrative levels, across sectors.
- EOCs should be established in organisations involved in response to improve coordination, along with corresponding procedures and digital tools for situational awareness to significantly enhance coordination and operational efficiency during crises.

3.1.4 Public health and social measures

Public health and social measures (PHSMs), in the context of the EU Regulation on serious cross-border threats to health, are non-pharmaceutical measures adopted and implemented by EU/EEA countries at national, regional or local levels. They serve to prevent, prepare for and respond to serious cross-border threats to health, with the objective of limiting transmission, reducing morbidity and mortality, protecting health system capacity, and mitigating broader societal impacts. National public health authorities enact PHSMs in coordination with other countries and relevant EU mechanisms. To support decision-making for the implementation of PHSMs during a public health emergency, national mechanisms should be formalised, multidisciplinary and cross-sectoral. In addition, the process should contain provisions for monitoring and evaluating the timeliness and effectiveness of PHSM implementation.

Strengths

- A few countries have a multidisciplinary process in place for the implementation of PHSMs and, in some cases, this also includes evaluation of the measures. The levels of formalisation of this process varies between countries.

Challenges

- In several of the assessed countries, the mechanism for decision-making, implementation and evaluation of PHSMs is ad hoc and does not include all relevant stakeholders. Adequate systems for data collection and evaluation of PHSMs is lacking in many countries.

Examples of effective approaches

- In some countries – including Portugal, Sweden and Lithuania – PHSMs during the COVID-19 pandemic were assessed and evaluated through after-action reviews.

Improvement opportunities

- A multidisciplinary mechanism should be established to monitor and evaluate the implementation of PHSMs. This mechanism should collect key data – such as effectiveness, timeliness, and overall impact – to assess how well measures are performing in real time. By generating structured evidence, this process will significantly strengthen future planning and preparedness for events that may require PHSMs, ensuring that decisions are informed, timely and context appropriate.

3.1.5 Exercises and after-action reviews

Simulation exercises (SimExs) are a core element of public health emergency preparedness and response in the EU/EEA. They enable authorities and other stakeholders to test plans and procedures, strengthen coordination and ensure readiness to respond effectively to serious cross-border threats to health using a simulated event to test specific aspects of the response. They also provide an important basis for the subsequent update and revision of legislation and of both strategic and operational plans.

After-action reviews (AARs) are conducted after a public health event has ended. They bring together all relevant stakeholders to understand what actually happened and identify instances of best practice and pain points, with the aim of generating concrete recommendations to improve response.

Strengths

- Approximately half of the assessed countries conduct regular exercises. These have various scopes in terms of topics and what sectors and levels are included.

Challenges

- A few countries report that there is no specific legislation for training or exercises related to public health emergencies.
- Several countries mention an increased focus on military threats due to the shifting global landscape. This results in a greater proportion of exercises being conducted with a civil contingency focus rather than a public health focus.
- There appears to be no consistent culture of conducting after-action reviews after real events to identify areas for improvement, despite some countries conducting AARs occasionally.

Improvement opportunities

- A structured exercise programme should be developed to systematically test the prevention, preparedness and response plans. This includes assessing needs, continuing the exercise cycle, and further developing the programme to include all sectors and administrative levels.
- A dedicated and sustainable funding mechanism should be established, as it is essential to ensure continuity of these exercises.
- Organisations should be encouraged to routinely conduct AARs following any event that triggers a response. The complexity of each AAR should be tailored to the scale and complexity of the event, ensuring that lessons learned are captured in a practical and appropriate manner.
- Training in strategic decision-making during public health emergencies should be provided as a complementary component to existing training programmes.

3.1.6 Cross-border collaboration and mutual aid

Cross-border mutual aid is the sharing of resources or other forms of support across national borders including between cross-border interregional levels. This can include cross-border training and sharing of best practice, medical transferring of patients or emergency medical teams, or other types of coordination mechanisms. The prevention, preparedness and response framework or plan(s) should include provisions for cross-border mutual aid, clearly describing the procedures for this during an emergency, including triggers for activation. Cross-border mutual aid agreements between countries should preferably be in place and the mechanisms regularly tested.

Strengths

- Most countries have formalised mechanisms for collaboration and cross-border mutual aid. This is most often with nearby or neighbouring countries and often cover specific topics.

Challenges

- In a few countries, the cross-border mutual aid mechanism is not completely formalised.

Improvement opportunities

- A clear framework for cross-border collaboration and mutual aid for emergency preparedness and response activities should be developed in countries where such mechanisms are not yet fully formalised. Establishing this framework will help ensure that neighbouring countries can coordinate effectively, share resources when needed, and provide timely support during emergencies, ultimately strengthening regional preparedness and response capacity.

ii. Emergency logistic and supply chain management

The 'Emergency logistic and supply chain management' section under the 'Health emergency management' capacity assesses national provisions for ensuring timely availability of and access to medical countermeasures (MCMs) as part of preparedness and response to public health emergencies. This assessment covered the full MCM life cycle, including identification of crisis-relevant products, monitoring of supply and demand, mitigation of supply chain vulnerabilities, manufacturing scale-up, and the establishment and management of strategic stockpiles.

General observations

The findings summarised below reflect a heterogeneous landscape, shaped by differences in national and regional governance structures and organisation. While some countries have moved towards more strategic and integrated MCM preparedness frameworks, many still largely focus on stockpiling as the primary preparedness instrument.

Across the assessed countries, MCM preparedness has gained significant political and operational attention following the COVID-19 pandemic. Most countries have established at least basic mechanisms for identifying critical MCMs (even if in most cases the whole range of MCMs is not covered) and maintaining physical stockpiles, although often on an ad hoc basis. However, other critical MCM-related provisions tend to be less developed, such as identification of MCMs based on country risk profiling, systematic demand estimation, real-time supply monitoring, vulnerability analysis of supply chains, and pre-arranged scale-up or flexible manufacturing mechanisms.

Responsibilities for MCM preparedness are frequently distributed across multiple institutions and administrative levels, and are not always included in public health structures. This increases the need for clear governance and formal coordination mechanisms.

3.1.7 Identification of crisis-relevant medical countermeasures

The identification of crisis-relevant medical countermeasures is a core element of preparedness planning. It refers to the capacity to determine which vaccines, therapeutics, diagnostics, personal protective equipment and other items may be required to specifically respond to public health threats. Early identification allows national authorities to prioritise development, procurement, manufacturing and stockpiling efforts, ensuring that critical countermeasures can be made available rapidly during a public health emergency.

Strengths

- Most assessed countries have identified crisis-relevant MCMs for preparedness and response, typically covering a limited range of MCMs such as medicinal products (including vaccines) and, in a few cases, medical devices and personal protective equipment. Some of these lists are informed by national risk assessments, expert committees and lessons learned from recent crises. In some countries, the lists are reviewed periodically to reflect evolving threat profiles and changes in clinical practice.

Challenges

- In many countries, the methodology used to identify crisis-relevant MCMs is not fully formalised and often performed on an ad hoc basis. Where lists exist, they are often triggered by past events rather than by a forward-looking, all-hazards risk profiling process.

Improvement opportunities

- Robust and systematic methodologies to support the identification of crisis-relevant MCMs across all relevant MCM categories should be developed and formally documented. These methodologies must be anchored in national risk-profiling processes and aligned with EU-level definitions. Establishing regular review cycles, and structured stakeholder involvement, would further strengthen robustness.

3.1.8 Monitoring of supply and estimation of demand

Effective preparedness requires the ability to monitor the availability of medical countermeasures and to estimate potential demand in preparation for a public health emergency. Reliable monitoring and forecasting systems enable authorities to efficiently allocate resources across their national territories and to better coordinate EU-level response mechanisms.

Strengths

- A few countries have introduced mechanisms to monitor supply and demand for critical MCMs, building on regulatory reporting obligations, digital tools or structured cooperation with industry. In more advanced systems, information from wholesalers, manufacturers, pharmacies and healthcare providers is consolidated to support early identification of shortages and inform preparedness planning.

Challenges

- In most countries, monitoring remains fragmented, ad hoc or activated only during crises. Real-time visibility of supply and demand is often lacking. Moreover, the scope is often limited to medicinal products, leaving out other important MCM categories.
- Reporting burdens, unclear allocation of responsibilities and limited interoperability between information systems further constrain effectiveness.
- Demand estimation is frequently based on historical consumption or COVID-19 experience, with limited use of scenario-based modelling linked to risk assessments.

Examples of effective approaches

- Belgium is piloting a Stock Monitoring Tool, with the objective of improving the systematic monitoring of stocks and availability of selected items.

Improvement opportunities

- Interoperable tools should be developed to enable the routine monitoring of supply and demand across MCM categories. These should be aligned with the EU-level reporting requirements under Council Regulation (EU) 2022/2372 and should seek to minimise reporting burden.

3.1.9 Mitigation of supply chain vulnerabilities, production, and manufacturing scale-up and flexibility

Public health emergencies often expose vulnerabilities in global supply chains for medical countermeasures. Preparedness therefore requires mechanisms to identify and mitigate such risks, including diversification of suppliers and increased transparency in supply chains. In addition, the capacity to rapidly scale up production and adapt manufacturing lines (e.g. through the reservation of ever-warm production capacity) is essential to ensure timely availability of MCMs during crises.

Strengths

- Awareness of supply chain vulnerabilities has increased substantially following recent crises. Several countries actively engage with EU-level initiatives and participate in joint procurement mechanisms, recognising their added value for access and security of supply.
- Experience from the COVID-19 pandemic demonstrated that rapid manufacturing scale-up and flexibility are possible when public authorities and industry cooperate closely. In a limited number of countries, this experience has informed more structured reflection on scale-up and flexible manufacturing capacity, including the use of capacity reservation contracts and advanced purchase agreements.

Challenges

- Systematic mapping of domestic or regional production capacities remains limited in most countries. In addition, the vulnerabilities of complex international supply chains are often overlooked or underestimated. As a result, preparedness planning often lacks a comprehensive understanding of strengths and potential, as well as structural vulnerabilities across the MCM supply chain, including for active substances and raw materials.
- Preparedness for manufacturing scale-up and flexibility also relies largely on informal cooperation rather than on pre-defined contractual or structural arrangements. Capacity reservation or advance purchase agreements are often perceived as difficult to operationalise or sustain at the national level, particularly in smaller countries.

Illustrative examples

- The Netherlands combines strategic stockpiles with supply-chain reserves within the healthcare sector. It uses advanced purchasing or production agreements, including at the EU level, as part of its approach to mitigating vulnerabilities and supporting scalable manufacturing capacity.

Improvement opportunities

- Supply chain vulnerability analysis, production-capacity mapping, and preparedness for manufacturing scale-up and flexibility should be integrated into a single, coherent preparedness framework to support strategic decision-making.
- Further reflection is needed on the optimal mix of national, regional and EU-level instruments to secure surge capacity, drawing on lessons learned from the COVID-19 pandemic and ongoing EU initiatives.

3.1.10 Strategic stockpiles

Strategic stockpiles constitute a key preparedness tool to ensure the availability of essential medical countermeasures during emergencies. Risk-based strategic stockpiles should be managed through sustainable systems – rotation, expiry management and virtual stocks – and underpinned by the necessary legal and regulatory frameworks. A layered approach with national contingency stocks (at the wholesaler) can support needs that arise in times of crisis.

Strengths

- All assessed countries maintain physical strategic stockpiles of MCMs, particularly for pandemic and chemical, biological, radiological and nuclear threats. In several cases, stockpiles are multi-layered, combining national reserves with mandatory stocks held by regional or local authorities, wholesalers, healthcare institutions or private operators.
- Participation in EU-level stockpiling initiatives, including the Joint Action Stockpiling, is further strengthening national capacities such as stock management IT systems to manage stocks effectively.

Challenges

- Stockpiling strategies are often focused on specific product categories and may lack a comprehensive all-hazards framework.
- Quantification methodologies are not always well defined and coordination between national and subnational levels can be complex.
- Sustainability, rotation, storage capacity and cold-chain requirements remain recurrent challenges.

Examples of effective approaches

- Finland operates a layered model, combining state-owned reserve stockpiles with compulsory stockpiles held by pharmaceutical companies and security stockpiles managed through contracts with private companies under National Emergency Supply Agency stewardship.
- Latvia has a well-defined and coordinated multi-layered stockpiling structure.

Improvement opportunities

- Coherent national stockpiling strategies should be developed. They should be aligned with risk profiling and integrated across administrative levels to enhance effectiveness and sustainability.
- A range of mixed models (e.g. physical, virtual, rotating stocks) and shared arrangements between clusters of countries should be explored to increase preparedness.
- Closer alignment with future EU stockpiling approaches is needed to further strengthen preparedness in this area.

3.2 Laboratory

Strong laboratory capacity is a cornerstone of public health emergency preparedness and response. It is essential for achieving the core aims of the EU Regulation on serious cross-border threats to health: early detection of serious cross-border threats, timely and reliable risk assessment, effective coordination of responses, and strengthened preparedness and resilience across the region. Without robust and interconnected laboratory systems, health security cannot function effectively at national or EU levels.

Assessing 'Laboratory' capacity includes evaluating the structure of national laboratory systems, biosafety and biosecurity measures, and the ability to scale up operations and respond rapidly during a crisis. Clearly defined roles and responsibilities, established through national legislation or formal designation, are essential for effective and well-coordinated national laboratory systems. Such clarity enables the seamless integration of key disciplines, including microbiology, epidemiology, bioinformatics and statistics, ensuring that the laboratory system can effectively contribute to addressing clinical and public health challenges, as required.

General observations

Many EU/EEA countries have established national laboratory systems, often coordinated under a single national institution with a designated budget. These systems typically support routine activities while maintaining the flexibility to scale up operations during emergency situations. They are further reinforced by well-established laboratory networks that include regional laboratories and maintain close links with other sectors, such as animal, environmental and food laboratories.

Countries facing challenges related to the management and governance of their national laboratory systems often report specific issues, including the absence of a legal framework defining roles and responsibilities and insufficient budgets for staffing, laboratory space and operations. Regionalised countries also highlight coordination difficulties, particularly in scaling up capacities during emergencies and securing flexible funding from national authorities. For countries reporting such challenges, recommendations generally include establishing clear legal frameworks that allow for the necessary capacity and capability for both routine functions and crisis response.

3.2.1 Scale-up and crisis response capacities

The COVID-19 pandemic demonstrated the need for scalable testing and sequencing capacity, supply chain security and trained personnel. The Regulation on serious cross-border threats to health explicitly promotes strengthening preparedness, including laboratory surge capacity and EU-level coordination mechanisms, to ensure continuity of diagnostics during large-scale crises. Countries should have a plan and a structure for scaling up the laboratory diagnostic testing capacity in the event of a public health emergency. Adequate funding and frameworks for collaboration with additional actors and sectors is important, as well as testing the system and subsequently updating plans.

Strengths

- The COVID-19 pandemic provided an opportunity for many countries to develop laboratory surge capacity (e.g. for PCR testing), which remains a great asset to be mobilised if needed.
- Strengths mentioned by a few countries include pre-existing agreements and a consortium of partners (e.g. universities and institutions in the public health sector), well-established plans for scaling up capacity and readily available emergency funding.

Challenges

- In most assessed countries, the scaling up of laboratory capacity is either partially or not at all described in the prevention, preparedness and response plan or other equivalent documents.
- In some countries, collaboration and engagement with laboratories outside of public health (e.g. private actors, universities, etc.) is either not in place or not formalised, which can delay the collaboration process.
- Bottlenecks include identifying and ensuring the availability of competent laboratory staff, setting up solutions to allow additional laboratories to perform diagnostic services (e.g. licensing), and stockpiling equipment and supplies (i.e. access to certain reagents, positive controls and isolates can be a challenge).
- There is often a lack of interoperable IT systems and uncertainties over financing or reimbursements of costs for testing.
- A few countries report that scaling up laboratory capacity requires deprioritising other laboratory activities, which has an impact on the testing for other diseases.

Examples of effective approaches

- In Malta, there is a well-defined vision for capacity building and concrete plans to address space limitations in the pathology department's molecular laboratory to ensure that it can accommodate any necessary expansion and maintain continuity of services during a public health emergency. The laboratory has also invested in new technologies – such as next generation sequencing – and has increased its capacity and capability to handle emergency situations and surveillance of communicable diseases. It has also participated in several EU-funded capacity-building projects.

Improvement opportunities

- A strategic approach should be developed for scaling up laboratory testing during emergency situations as part of the prevention, preparedness and response plan. This strategy should be aligned across all administrative levels.
- Formal agreements and dedicated funding for accessing additional laboratory capacity must be established in advance.
- Lessons learned, particularly from simulation exercises for high-volume testing capacity, should be systematically incorporated into ongoing improvements. Applying these insights to implement changes will strengthen the ability to scale up laboratory testing effectively and sustainably in future emergencies.

3.2.2 Laboratory data reporting system, genomic surveillance and bioinformatics

Countries need robust reporting systems that cover the full laboratory network to ensure timely detection of health threats, early warning of unusual events, and effective coordination between clinical, public health and reference laboratories. Comprehensive reporting enables rapid sharing of diagnostic results, identification of outbreaks and tracking of pathogen trends across regions and sectors. It also supports national surveillance, fulfils International Health Regulations (IHR) obligations, and ensures that decision-makers receive accurate, consistent and comparable data. By integrating all laboratory levels into a unified reporting framework, countries strengthen preparedness, improve response times and enhance overall health system resilience.

Timely and reliable diagnostics are essential for surveillance systems to detect threats early, trigger alerts through the EU Early Warning and Response System (EWRS), and support risk assessment at national and EU levels.

Capacities for whole genome sequencing (WGS) and associated bioinformatics expertise have emerged as core competencies within national microbiology systems. This technology is essential for the detailed characterisation of infectious agents in the context of surveillance and outbreak investigations. During the COVID-19 pandemic, variant characterisation relied heavily on the use of WGS, and substantial resources were invested at both national and EU levels to expand sequencing and bioinformatics capacity for this purpose.

Strengths

- In a few countries, laboratory and surveillance data are routinely reported through existing electronic reporting systems and/or in real time.
- Several countries report a flexible and adaptable laboratory system with the capacity to operationalise new assays and modify systems to report new data or incorporate information from new laboratories.
- Some national laboratories also report negative test results, which allows for calculating the positivity rate.
- Some countries report strong links between clinical laboratory systems and food safety, animal health and environment laboratories, and that the laboratory network involves many sectors to support coordinated response for biological threats.

- A few countries have widespread laboratory access to WGS equipment and capacity to process large volumes of samples if needed.
- Laboratory and bioinformatic capacity for characterisation of a novel pathogen by WGS is available in several countries.

Challenges

- Several countries report incomplete data reporting from laboratories, including insufficient metadata linked to the laboratory data.
- Manual reporting is needed in many countries, as the laboratory reporting system is either not in place, lacks efficiency or needs to be updated.
- A few countries have issues with legal restrictions and data transfer for sharing laboratory information (including different interpretations of the General Data Protection Regulation (GDPR)), which hampers data sharing with surveillance systems.
- In some countries, the link between the human health sector and the veterinary sector is missing.
- Some countries experience limited availability of and/or funding for WGS.

Examples of effective approaches

- During COVID-19, Portugal demonstrated notable flexibility, resilience and capacity expansion. The country rapidly scaled up both diagnostic testing and virus characterisation capabilities, in both public and private laboratory systems, ensuring broad accessibility to diagnostic services. These activities were conducted by reference laboratories, which were coordinated by the National Reference Laboratory. National coordination, facilitation of laboratory networks, quality assurance and surge capacity during periods of increased demand were essential to the national response.

Improvement opportunities

- An effective automated national reporting system for laboratory and epidemiological data should be established. The system should allow for integration of genomic data and also make it possible to analyse and visualise both clinical and laboratory datasets.
- Bioinformatics capabilities and electronic laboratory systems should be further developed to facilitate efficient data transfer.
- The interoperability of laboratory IT systems must be enhanced to improve data sharing across administrative levels and sectors, including the development of clear standard operating procedures for data sharing.
- Ideally, it should be possible to quickly update laboratory reporting systems to allow for automated reporting of results for new pathogens. Without this flexibility, delays can emerge due to the time needed to make technical adaptations to the system.

3.2.3 Biosafety and biosecurity, including high-containment laboratories

In the EU, biosafety and biosecurity form essential pillars of preparedness and response to public health emergencies. Biosafety refers to the principles and measures that prevent accidental exposure to or release of dangerous biological agents, while biosecurity focuses on preventing their theft, misuse or intentional release. Together, these systems help reduce risks posed by naturally occurring outbreaks, laboratory incidents or deliberate biological threats.

Countries require Biosafety Level 3 (BSL-3) and BSL-4 laboratory capacities to safely diagnose, study and respond to highly infectious and potentially lethal pathogens. These facilities enable secure handling of agents such as emerging viruses, airborne threats and high-consequence pathogens that cannot be managed in lower-level laboratories. For clinical and public health purposes, BSL-3/4 capacities ensure rapid and reliable diagnosis during outbreaks, support surveillance of high-risk diseases and allow safe research to characterise novel or imported pathogens. Maintaining these capabilities strengthens national preparedness, supports early detection and containment of severe threats, and contributes to global health security.

Strengths

- Approximately half of the assessed countries have a good biosafety system with clear guidelines, well-defined roles and a legal framework in place.
- A few countries report having national legislation regarding biosecurity in place.
- A few countries have BSL-4 laboratories available (or are developing one). These laboratories often support other EU/EEA countries that do not have their own BSL-4 facilities by providing biosafety trainings and processing samples on their behalf.

Challenges

- In half of the assessed countries, governance, standards and processes for biosecurity are either not in place or are under development.
- Several countries are lacking legal requirements or national processes promoting biosecurity aspects.
- A few countries are lacking legal requirements on biosafety and have limited available guidance on biosafety in laboratories.
- Some countries do not yet have formal agreements in place to access BSL-4 laboratories in other countries.

Examples of effective approaches

- Sweden has the only BSL-4 laboratory in the Nordic region. The Public Health Agency of Sweden has agreements in place to receive and analyse specimens on behalf of several Nordic and Baltic states, providing diagnostics for viruses such as Ebola, Marburg, Lassa and Crimean Congo haemorrhagic fever. These agreements ensure that countries without their own BSL-4 capacity can rapidly access high-containment diagnostics through Sweden's facility, strengthening joint preparedness and regional health security.

Improvement opportunities

- The biosecurity system for laboratories handling infectious materials should be strengthened. This includes raising awareness and developing guidelines for biosecurity, identifying responsible bodies and assessing if legislative aspects need to be modified.
- Roles, responsibilities and legal requirements related to biosafety must be clearly defined in legislative documents. Establishing these elements in law will provide clarity, accountability and consistency across institutions and administrative levels.
- For countries without a BSL-4 laboratory, formalised agreements with neighbouring or partner countries should be established to guarantee access to a BSL-4 laboratory when needed.

3.2.4 Quality standards, transports and logistics

Quality systems are essential for clinical and public health laboratories. They ensure that test results are accurate, reliable and comparable over time. By standardising processes, supporting staff competence and ensuring proper validation of methods, quality systems reduce errors and strengthen confidence in laboratory output. This reliability is crucial for patient care, outbreak detection and public health decision-making, where trusted data directly influences actions and outcomes.

Countries should have capacity for referral and transportation of clinical samples and/or other specimens that can be relevant during a public health emergency with pandemic potential for laboratory diagnostics or characterisation purposes. Samples to be transported can be high-risk specimens requiring specific handling, packaging and labelling, and shipment should be performed in accordance with international standards for transport of infectious substances.

Strengths

- Most countries have clear quality systems in place, which includes mandatory licensing and accreditation.
- Some countries participate in activities to promote data comparability and capacity building (e.g. external quality assessments (EQAs)).

Challenges

- Some countries lack mandatory laboratory quality systems and limited access to reference materials, which makes maintaining accreditation challenging.

Improvement opportunities

- Countries should ensure that a high proportion of laboratories at the national level are accredited or licensed, and that quality systems are fully implemented within these laboratories.

3.3 Surveillance

The 'Surveillance' capacity covers most dimensions of indicator-based surveillance, including data collection, analysis, interpretation and dissemination, and event-based surveillance, including threat detection, early warning and event management. Although this capacity focuses mostly on surveillance of respiratory viruses, surveillance of other pathogens is also discussed. Capacity monitoring is also covered (e.g. number of intensive care unit (ICU) beds and complementary data sources like wastewater surveillance). Surveillance findings inform and are informed by other capacities, such as laboratory capacity.

General observations

The majority of assessed countries have a legal framework in place for conducting surveillance activities. In most countries, surveillance of respiratory infections is conducted in a satisfactory manner; however, some areas still present challenges, such as data collection for severe acute respiratory infections (SARI). A few countries report legal barriers for linking data sources (e.g. clinical and laboratory information). In most countries, funding of systems put in place during the pandemic have been halted or decreased (e.g. ICU capacity monitoring or wastewater surveillance). Most countries do not have systems for event-based surveillance at the national level.

3.3.1 Respiratory infection surveillance

Respiratory infection surveillance provides data for detecting and monitoring the spread and intensity of respiratory viruses, which is essential to inform both preventive and control measures. Surveillance systems should integrate both clinical and laboratory information – including genomic data – and cover all levels of healthcare.

Strengths

- Most countries have made efforts to improve their surveillance system following the joint World Health Organization (WHO) and ECDC 'Operational considerations for respiratory virus surveillance in Europe'[9], published in 2022. This document highlights the importance of comprehensive surveillance at all healthcare levels, adequate population coverage and year-round operation.
- Most countries have integrated surveillance of influenza, SARS-CoV-2 and respiratory syncytial virus (RSV), and have established epidemiological thresholds for primary care indicators (i.e. influenza-like illness (ILI) or acute respiratory infection (ARI)).
- Most countries prepare weekly outputs on respiratory virus surveillance, with various levels of automation.
- A few countries mentioned that they had benefited from relevant EU funding (e.g. EU4Health programme to improve their surveillance system).
- Most countries monitor all-cause mortality and participate in the European mortality monitoring project (EuroMOMO).

Challenges

- Automation of surveillance activities varies across countries, but most still have some steps that involve manual work.
- Few countries have formally evaluated the performance of their surveillance system. Most countries acknowledge that their surveillance of SARI is suboptimal because of insufficient coverage and/or testing, and/or insufficient granularity of collected information.

Illustrative example

- Spain has the capacity to scale up its respiratory infection surveillance during a pandemic by expanding the number of reporting sites across both primary and secondary care.

Improvement opportunities

- Surveillance systems should continue to be integrated and digitised, with key steps of the process automated. Reducing the reliance on manual data collection not only decreases workload for surveillance staff but also enables more efficient data sharing, faster analysis and more timely dissemination of findings.
- SARI surveillance should be further enhanced, including through the potential use of data extracted from electronic health records.

[9] https://www.ecdc.europa.eu/sites/default/files/documents/Operational-considerations-respiratory-virus-surveillance-euro-2022.pdf

3.3.2 Monitoring capacity

In the context of public health emergencies, robust preparedness and response depends on the timely availability, quality and coordination of health system data and operational capacities. To effectively allocate resources, it is important to complement surveillance data with capacity monitoring (i.e. collect timely data on healthcare utilisation and staffing). Key considerations include: whether essential data on resources are routinely collected, if these resources can be rapidly mobilised during an emergency, how frequently these data are reported and the level of geographical detail available to support local and national decision-making. These elements provide the foundation for situational awareness, coordinated action and scalable response during public health crises.

Strengths

- During the COVID-19 pandemic, most countries managed to collect some data to monitor the capacity of healthcare provision, especially in hospitals. It often required setting up ad hoc systems and relying on fragmented data sources. However, most countries had dashboards displaying various indicators, including the number of beds (all wards/ICU), bed occupation (all wards/ICU) and/or testing capacity, among others.

Challenges

- In most countries, data collection for monitoring healthcare capacity and utilisation is burdensome, with no integrated system and manual steps involved.
- Most of the described data collection systems were short-lived, as they were temporarily set up in the context of the COVID-19 pandemic.
- Data sharing when there is no crisis is often challenging, with possible legal barriers to overcome.

Improvement opportunities

- An automated system should be implemented, or existing systems integrated, to enable routine monitoring of healthcare capacity and utilisation, with particular attention to ICUs.

3.3.3 Wastewater-based surveillance

Wastewater-based surveillance (WBS) can provide useful data for monitoring various pathogens, including respiratory viruses. It can complement data from both event- and indicator-based surveillance. Although still in its infancy, WBS is likely to play an important role in the future. ECDC has published a framework to guide the integration of WBS into infectious disease surveillance at the EU/EEA level[10].

Strengths

- Wastewater-based surveillance (WBS) is in place in most countries, although it has often been scaled down or even discontinued after the COVID-19 pandemic. The pathogens that are tested vary across countries, but most countries have tested for SARS-CoV-2.
- Most countries participated in the EU-Wastewater Integrated Surveillance for Public Health (EU-WISH) project and/or the Global Consortium for Wastewater and Environmental Surveillance for Public Health (GLOWACON) project.

Challenges

- In most countries, WBS for respiratory viruses is yet to be fully integrated with other surveillance systems.
- Although some countries have dedicated outputs to share WBS findings, most countries have not yet articulated how WBS would translate into public health action.
- A few countries have experienced challenges sustaining WBS funding since the COVID-19 pandemic.

Examples of effective approaches

- Finland monitors respiratory viruses and other pathogens through a granular WBS system. The country's national public health institute publishes a wastewater monitoring newsletter on its website.

Improvement opportunities

- Sustainable funding mechanisms should be secured to support WBS and to ensure its effective integration with other national surveillance systems.

[10] https://www.ecdc.europa.eu/en/publications-data/ecdc-framework-guide-integration-wastewater-based-surveillance-infectious-disease

3.3.4 Threat assessment

To assess emerging or re-emerging threats with pandemic potential in a timely manner, it is essential to have access to certain skills like mathematical modelling to forecast epidemiological trends or estimate effective reproduction numbers, as well as essential capacities such as immunological data. It is also important to have mechanisms or processes in place to ensure that these data will be compiled and contextualised to inform the assessment.

Strengths

- A few countries have established formal groups or committees to assess the risk of health threats. Similarly, a few countries have structures in place for timely assessment of pandemic threats.
- Most countries report collaborating with academia or other research groups when assessing health threats.
- A few countries mention participation in EU-funded projects, including the Vaccine Effectiveness, Burden and Impact Studies (VEBIS)[11].
- Most countries report participating in EuroMOMO.

Challenges

- Only a few countries use a defined methodology for risk assessment, with some reporting a lack of standardised procedures.
- Few countries report strong modelling capacities.
- A few countries indicate that data protection legislation limits their ability to link data sources in order to perform more advanced analyses.
- Some countries have limited capacity to assess disease severity or vaccine effectiveness.

Illustrative examples

- Belgium has established the Risk Assessment Group (RAG), which can be convened in situations of increased activity of respiratory viruses or other events of public health concern. Its role is to advise the Risk Management Group (RMG), which is led by the federal authorities and is in charge of defining public health measures and communicating with healthcare professionals and the general population.
- Spain carries out vaccine effectiveness studies at the national level and participates in ECDC's VEBIS project.

Improvement opportunities

- Routine collection of complementary data, such as vaccination status, should be reviewed, strengthened and systematically improved to enhance the completeness of surveillance outputs. Ensuring that these additional data elements are consistently captured will support more accurate analyses, better risk assessments and more tailored public health interventions.

3.3.5 Early warning and event management

International Health Regulations require rapid detection of public health risks but also processes or mechanisms for managing detected events (i.e. verification, investigation, analysis and dissemination of information).

Strengths

- Most countries carry out some form of event-based surveillance.
- Most countries report good cooperation with regions or local health authorities.

Challenges

- Only a few countries have a dedicated event management information system or a dedicated platform to communicate about events and threats with national and local actors.

Improvement opportunities

- A dedicated tool or platform for event management (e.g. Epi+) should be developed to support the documentation, assessment, communication and coordinated management of signals and events. Establishing such a platform would streamline information flow, improve situational awareness and enhance the overall coordination of public health response activities.

[11] https://www.ecdc.europa.eu/en/infectious-disease-topics/related-public-health-topics/immunisation-and-vaccines/vebis

3.4 Antimicrobial resistance and healthcare-associated infections

The 'Antimicrobial resistance and healthcare-associated infections' capacity covers a wide range of structures and activities, including a country's One Health national action plan for antimicrobial resistance (NAP AMR), antimicrobial stewardship (AMS), preparedness for multidrug-resistant organism (MDRO) threats, surveillance of healthcare-associated infections (HAIs), and infection prevention and control (IPC) programmes.

General observations

Among the assessed countries, systems for surveillance of AMR and HAIs were well established and largely reflected the requirements to participate in ECDC's surveillance networks for antimicrobial consumption (ESAC-Net), AMR (EARS-Net) and HAIs (HAI-Net). We observed challenges for each of these types of surveillance; however, HAI surveillance was noted to be the most difficult to sustain, likely due to its more manual and resource-intensive nature. While ARHAI surveillance systems are well established, further efforts are needed in many countries to optimise surveillance systems for the purposes of identifying, prioritising and assessing AMR and HAI risks, an integral component of their prevention and control. In general, administrative structures for addressing AMR were more prevalent than those for IPC, likely owing to emphasis on NAP AMR development in the EU. While ECDC and WHO have encouraged countries to implement the 'WHO core components for IPC'[12] at both national and healthcare-facility levels, implementing and sustaining IPC programmes that fulfil all of these core components has been challenging.

3.4.1 Implementation of national action plans for antimicrobial resistance

Multisectoral national action plans for antimicrobial resistance (NAP AMR) are vital to implementing coordinated and sustained actions to counter the threat of AMR, as emphasised in the Council Recommendation on stepping up EU actions to combat antimicrobial resistance in a One Health approach (2023/C 220/01) and the UN Political Declaration of the High-level Meeting on Antimicrobial Resistance (2024). The assessed countries had variations in government investment, oversight and coordination regarding implementation of a NAP AMR.

Strengths

- Almost all countries take a One Health approach to AMR in their NAPs. At a strategic level, the One Health approach is recognised and efforts to engage stakeholders across sectors are pursued.
- Many, but not all, countries have formalised intersectoral coordinating mechanisms in place for AMR, as recommended by ECDC and WHO.
- Most countries showed commitment to maintaining an up-to-date NAP AMR. Many countries were taking actions to adopt or revise their NAP AMR. Raising awareness of AMR among broad audiences (e.g. school children and the public) is an aspect of the NAP AMR in some countries.
- Countries are reviewing the legal frameworks and collaboration mechanisms that enable effective actions to address the complex challenges of preventing and controlling AMR. Such review and revision of governance and operational structures facilitate interactions and collective action across key stakeholders (e.g. public health institutes, laboratories, hospitals, agriculture policymakers, etc.).

Challenges

- Establishing transversal activities across the One Health sectors remains challenging. Beyond strategic level discussions, further actions that engage stakeholders across the human, animal and environmental health sectors are rare. Collaborative actions such as routine sharing of data, discussions of best practice and joint events are rare.
- Monitoring and evaluating NAP AMR implementation is not consistently performed. The robustness of this activity also varies across countries, owing to differences in oversight and political commitment. While some NAPs include indicators to track AMR, well-defined objectives with process and outcome targets are not always clear.
- Few countries have a dedicated national budget to implement the NAP AMR; most countries' NAP actions are implemented using funds already allocated for public health or healthcare activities. In some countries, NAP AMR implementation is hindered by a lack of funding. Some countries report that a common budget for AMR activities shared across multiple ministries is not possible; nonetheless, actions in the NAP should be funded and investments should be tracked across the One Health sectors so informed adjustments can be made, as needed.

[12] https://www.who.int/teams/integrated-health-services/infection-prevention-control/core-components

Examples of effective approaches

- Luxembourg conducts a formal mid point evaluation of NAP AMR implementation halfway through the period it covers. This process addresses considerations for implementation during the remainder of the NAP period, as well as for the next NAP.
- Spain and France have documentation of NAP AMR implementation and use detailed objectives and indicators (linked with actions in the NAP) to gauge progress.
- Spain has additional focus on an identified area of need (e.g. long-term care facilities) in the NAP AMR.

Improvement opportunities

- The NAP AMR should highlight transversal, One Health actions. Establishing cross-sectoral activities with key stakeholders will help to give visibility to the national commitment to AMR prevention and control with a One Health approach.
- To support accountability and transparency, the NAP AMR should be accompanied by a monitoring and evaluation framework. Monitoring and evaluation findings regarding implementation of the NAP should be publicly available and communicated on, as possible, to contribute to raising public awareness of progress and challenges in One Health actions for AMR prevention and control.
- Adequate resources should be available across all One Health sectors and at every administrative level, including the local level where healthcare is delivered, to address AMR at the national level.

3.4.2 Antimicrobial stewardship

Antimicrobial stewardship (AMS) actions preserve the usefulness of existing antimicrobials by ensuring prudent use. Antimicrobial consumption (AMC) and antimicrobial use (AMU) surveillance provide evidence to identify areas and topics for AMS actions such as specific clinician or patient types, geographical regions or antibiotics. Data-driven actions to promote prudent use of antimicrobials should be undertaken at both administrative (national, regional or local) and healthcare-facility levels, engaging a 'whole of society' approach to AMS.

Strengths

- Antimicrobial consumption surveillance is well established in all of the assessed countries, as required by the European Surveillance of Antimicrobial Consumption Network (ESAC-Net). Additionally, AMC data are published and disseminated to stakeholders annually, often aligning with European Antibiotic Awareness Day.
- Electronic prescriptions systems are established in most countries. Additional efforts are underway in many countries to provide feedback to prescribers regarding their antimicrobial prescribing practices.
- Many countries have national recommendations on rational antimicrobial prescribing for common syndromes, and they are often published in accessible formats such as online, in mobile applications or in pamphlets.

Challenges

- Data on indications for prescriptions, available in AMU but not AMC data, are needed for more actionable feedback to prescribers in all healthcare settings (primary care, hospitals and long-term care). Such data is often lacking or incomplete, or the electronic systems to collect and analyse these data are not in place.
- Not all hospitals have professionals dedicated to AMS. In the primary care sector, AMS outreach is particularly challenging.

Examples of effective approaches

- In Belgium, primary care doctors receive a financial premium for using electronic health tools, including the electronic prescription system, which inherently involves sharing prescription data.
- The Netherlands has established national requirements for AMS teams in hospitals.
- In France, local multidisciplinary antibiotic therapy teams serve as an expert resource for prescribers.
- Lithuania has government funding that supports hospital AMS teams.

Improvement opportunities

- Electronic prescription data should be made available and actively used for analysis and feedback to prescribers regarding their antimicrobial prescribing patterns. When developing electronic prescription systems, data on indications for antimicrobial prescribing should always be collected to assess adherence to clinical guidelines for AMU.
- At the national level, AMS activities should be further developed, using available AMC and AMU data to guide actions for improving prudent use of antimicrobials. The WHO AWaRe classification should be integrated into data reporting and communication with prescribers.

- Regional and local-level AMS programmes need to be established and resourced to maintain AMS practices and competencies among healthcare professionals. Monitoring and reporting on structure, process and outcome indicators is essential to evaluate AMS performance across levels and to support continuous improvement in antimicrobial prescribing and use.

3.4.3 Preparedness for multidrug-resistant organism threats

Preparedness for multidrug resistant-organism threats encompasses actions and systems that enable timely and effective control of MDROs. Key aspects of MDRO preparedness include: identification of priority pathogens for enhanced surveillance, laboratory capacity and coverage, integration of laboratory and epidemiological data to inform control measures, and strategies and mechanisms to control MDRO spread in healthcare facilities and other settings.

MDRO preparedness and response is multidisciplinary, requiring coordination among laboratories, healthcare facilities and public health authorities. Technical infrastructure is also needed for laboratory detection and data sharing across institutions. Screening patients for MDROs is an important activity for controlling MDRO spread within healthcare facilities, and the risk-based approach to selecting patients and pathogens for screening can vary across countries and healthcare facilities.

Strengths

- All countries had well-established AMR surveillance systems to report to the European Antimicrobial Resistance Surveillance Network (EARS-Net), and some had additional surveillance for pathogens and specimen types not covered by EARS-Net.
- Most countries have the capacity to conduct whole genome sequencing (WGS) analyses for MDROs, such as carbapenem-resistant Enterobacterales (CRE). The extent and timeliness of WGS for MDROs varies across countries.
- Many countries have national guidelines for the detection and control of priority MDROs (e.g. CRE, *Candidozyma auris)*.

Challenges

- In many countries, routine assessment of MDRO risks through synthesis of laboratory and epidemiological/clinical data is not possible, as data systems cannot quickly and easily link laboratory and clinical data. Engaging relevant stakeholders in data-driven prioritisation of MDRO phenotypes and genotypes for immediate notification and confirmation at the national level is therefore challenging.
- Few countries have established public health systems for comprehensive laboratory and epidemiological investigation and response for MDRO outbreaks. In some countries, outbreak detection and control are solely conducted by healthcare facilities with little or no administrative oversight; timely detection of multi-facility spread of MDROs is therefore difficult. Communication between public health units and healthcare facilities about cluster and outbreak investigations remains challenging in many countries.
- While many countries have guidelines for MDRO screening and control in hospitals, monitoring and evaluation for implementation of these guidelines is generally lacking, hindering complete implementation of IPC improvement cycles.

Examples of effective approaches

- Finland has routine WGS of certain MDRO pathogens that has led to detection of molecular clusters, epidemiological investigation and control of spread in healthcare institutions.
- In the Netherlands, the government reimburses healthcare facilities for the costs of testing and other outbreak control measures.
- Belgium, France and the Netherlands have dedicated teams at local or regional levels working with healthcare facilities to support outbreak investigations and control.

Improvement opportunities

- High-priority MDROs, including both phenotypes and genotypes, should be clearly identified to guide the prioritisation of resources for laboratory testing, including WGS, and for rapid response activities. Systems for the rapid detection, notification and response to priority MDROs should be routinely evaluated to inform where improvements are needed for effective prevention and control.
- Processes for case and event notification must be clarified, and the necessary infrastructure and resources ensured to support rapid reporting of both laboratory and epidemiological data needed to investigate MDRO clusters. Integrated analytical systems at local, national and facility levels are necessary for outbreak investigation and for informing timely and effective targeted IPC interventions.

- Efforts are also needed to address the spread of CRE in healthcare settings. Clear actions, measurable targets and defined timelines should be established to support effective control. Monitoring and evaluation for implementation of guidelines for CRE screening and control is needed to improve implementation support, training initiatives and the guidelines themselves.

3.4.4 Surveillance of healthcare-associated infections

Surveillance of healthcare-associated infections (HAIs) is a core component of infection prevention and control (IPC) programmes at national and healthcare-facility levels. Resources and infrastructure to collect and analyse HAI data are also needed at both levels to understand the infection risks in a country's healthcare system. An effective HAI prevention and control programme uses the HAI data to inform IPC interventions and ensure high levels of patient safety.

Strengths

- Many countries participate in ECDC's point prevalence surveys of HAIs and other surveillance through HAI-Net.
- Some countries are developing digital tools for automating data collection and reporting for HAIs.

Challenges

- The sustainability of HAI surveillance is at risk in many countries at both national and healthcare-facility levels. Without digital systems that can automate aspects of HAI case detection and reporting, significant human resources are required for HAI surveillance activities. This may not be perceived as a worthy investment, as the impact on HAI prevention is unclear. In some countries, HAI surveillance is project based rather than programme based, without stable funding and staffing.
- Findings from analyses of HAI surveillance data are not used for risk assessment or for informing prevention measures. This can occur when surveillance is not designed or implemented in a way that is useful (e.g. lack of timeliness, completeness, consistency or ease of implementation can hinder 'fit for purpose' surveillance).
- Enrolling long-term care facilities in point prevalence surveys of HAIs is particularly challenging, given limited resources for IPC programming in those settings.

Examples of effective approaches

- Estonia has a national electronic system for HAI surveillance, which reduces the human resources burden of HAI surveillance.
- In the Netherlands, a nationally coordinated surveillance network collaborates with professional associations, hospitals and stakeholders.
- Estonia and Lithuania have legislative requirements for hospitals to conduct HAI surveillance.

Improvement opportunities

- The national strategy and organisational structures for HAI surveillance should be clearly defined, including how these structures link with IPC activities.
- To sustain quality in HAI surveillance, sufficient IT resources must be available, including systems capable of integrating HAI data with information on IPC processes and practices. Such integration is essential to guide actions to improve IPC and patient safety.
- Collaboration across administrative regions, as well as with key stakeholders such as professional societies representing healthcare workers, should be strengthened to support national-level HAI surveillance. Enhancing these partnerships will also help improve feedback mechanisms to clinicians.
- Reporting, disseminating and using data and conclusions from HAI outbreak investigations should be strengthened at both national and EU levels to inform public health action in HAI prevention and control.

3.4.5 Infection prevention and control programmes

Preventing HAIs and controlling the spread of infections in healthcare settings are responsibilities of infection prevention and control (IPC) programmes. The Council Recommendation on stepping up EU actions to combat antimicrobial resistance in a One Health approach (2023/C 220/01) encourages EU/EEA countries to maintain high standards of patient safety and IPC. The 'WHO core components for IPC' has established criteria for IPC programmes at national and healthcare-facility levels.

Strengths

- Programmes to train healthcare workers in IPC practices are generally present in hospitals.
- Guidelines indicating minimum standards for IPC in healthcare facilities are present in most countries.

Challenges

- Full implementation of the 'WHO core components for IPC' programmes is not achieved in many countries, at both the national and healthcare-facility levels. Some countries and facilities have workgroups for IPC or patient safety, but lack established IPC programmes to coordinate necessary activities.
- The workforce of IPC specialists is limited, with few training opportunities in many countries and/or limited career options in the field. The level of IPC training for other healthcare workers – such as doctors, nurses and environmental cleaning staff – is also inconsistent across countries and can be inconsistent within countries.
- In some countries, administrative oversight of IPC in healthcare facilities is unclear. Mandates for systematic monitoring and evaluation of IPC implementation can be unclear or lack the necessary resources for policy implementation.

Illustrative example

- In Belgium, France, Latvia, Luxembourg and the Netherlands, healthcare facility IPC teams meet and share information and best practice, with representation from local, regional or national IPC focal points in public health.

Improvement opportunities

- The structure and activities of national IPC programmes should be formalised, working towards full implementation of the 'WHO core components for IPC' programmes at the national level.
- Collaboration with IPC teams at regional, local and healthcare-facility levels should be strengthened to support systematic evaluation of IPC programmes within healthcare facilities. Such collaboration will support continuous improvement towards full implementation of the 'WHO core components for IPC' at the healthcare-facility level.
- Training programmes should be developed in partnership with relevant stakeholders in healthcare education and healthcare facilities. These programmes should aim to ensure that healthcare workers acquire and maintain the necessary competencies in IPC practice.

3.5 Zoonotic diseases and threats of environmental origin, including those due to the climate

The 'Zoonotic diseases and threats of environmental origin, including those due to the climate' capacity covers whether countries have established the necessary frameworks and capabilities within a multi-sectoral One Health approach to prevent, detect, assess and respond to zoonotic events and public health events of an environmental nature. These capabilities should be regularly tested and updated, and training programmes should be in place for professionals involved in the One Health approach.

Implementation of an effective One Health approach requires coordination, collaboration, communication and capacity building between relevant sectors and disciplines, such as agriculture, public health, animal health, epidemiology, environmental and social sciences, and governance. This type of collaboration needs to take place at international, national, regional and local levels, to effectively prevent and address health emergencies.

General observations

Across the assessed countries, a One Health approach is present but often remains informal and insufficiently structured. While some countries have mapped areas of collaboration between sectors, this collaboration is frequently ad hoc, and more efforts need to be made to implement a more structured approach. Some sectors struggle more than others to be involved, suffering from a lack of formalisation of roles. A lack of equity in funding to implement activities across sectors can also perpetuate these challenges.

3.5.1 One Health approach

The concept of One Health governance involves an integrated approach and a multi-sectoral and interdisciplinary framework designed to coordinate policies and actions. Legislative frameworks and collaboration mechanisms across sectors and among different administrative levels enable the One Health approach. The International Health Regulations require that mechanisms and documented procedures are in place in all relevant sectors – particularly those responsible for human, animal (livestock, pets, wild animals) and environmental health.

Strengths

- Legal frameworks or formal agreements exist in some countries to support collaboration between the animal and human health sectors.
- Collaborative working groups and/or coordination platforms, which facilitate structured cooperation and information exchange across sectors in relation to zoonotic threats, are established and functioning in several countries.

- Authorities at national and subnational levels often participate in preparedness and response to zoonotic and environmental health threats in accordance with their respective legal mandates, including activities related to surveillance, risk assessment, risk management and risk communication.
- One Health national exchange platforms to allow communication and information sharing among key stakeholders are under development in some countries, together with projects to develop integrated surveillance and outbreak response management.
- The effectiveness of One Health collaboration is assessed in several countries, including through simulation exercises.

Challenges

- Despite the existence of formal agreements in some countries, legislation governing the management of zoonotic diseases often remains sector-specific, with insufficient links or references to other sectors to ensure effective intersectoral coordination.
- Formalised One Health governance mechanisms involving the animal health, public health and environmental sectors are often lacking. The One Health approach is often not formally embedded within relevant legal frameworks, or countries are still in the process of developing such frameworks through legislation, policies, collaboration agreements or protocols.
- The One Health approach is frequently not integrated into strategic and/or operational plans and procedures, including prevention, preparedness and response plans or equivalent documents.
- In some countries, the fragmented responsibilities, combined with the absence of a designated One Health coordinating authority and a lack of formalised governance structure, limit the effectiveness of coordination across different administrative levels and sectors, increasing the complexity of decision-making processes.
- Joint mandates and formalised joint procedures (e.g. standard operating procedures) are often lacking, resulting in unclear responsibilities and gaps in multi-sectoral decision-making and implementation.
- The roles and responsibilities of the environmental sector within the One Health framework are not clearly defined in some countries, and actors in other sectors are not informed about their roles. Collaboration across relevant authorities often remains inconsistent and insufficiently institutionalised.
- Formal mechanisms or platforms for systematic information sharing are almost always lacking. While some data exchange occurs between the human and animal health sectors, no overarching structure is in place to ensure streamlined cross-sectoral collaboration or integrated surveillance.
- In many cases, no agreed cross-sectoral prioritised list of zoonotic diseases exists for One Health surveillance purposes, limiting coordinated planning.
- Dedicated financial mechanisms to fund joint cross-sectoral activities are often absent, which hampers the implementation and sustainability of collaborative One Health initiatives.
- Many countries lack a structured and continuous training programme for One Health professionals, although various forms of training are sometimes available within one specific sector, across different administrative levels. Also, a joint cross-sectoral training programme is often not established, limiting the development of shared competencies and coordinated operational capacity.

Examples of effective approaches

- The Netherlands has a joint One Health National Action Plan in place, providing a structured framework for coordinated action across sectors. The country's Zoonoses Structure is an intersectoral coordination mechanism that involves several key organisations from different sectors.
- France has established an interministerial One Heath Task Force, facilitating formal coordination and collaboration between the animal health, human health and environmental sectors.
- Sweden has detailed and formalised working procedures to support cross-sectoral collaboration.
- Spain has mechanisms in place for collaboration and coordination between human and animal health sectors. These include mutual notification of relevant events, timely information sharing during outbreak investigation and, to some extent, conducting joint activities such as risk assessments.
- Croatia regularly organises multi-sectoral simulation exercises, often in collaboration with EU and international partners, with a focus on emerging and vector-borne diseases.
- France has established a reference hub for One Health training, the One Health Institute, providing a One Health postgraduate course that targets public and private policy-makers.

Improvement opportunities

- The One Health approach should be systematically embedded within relevant legal frameworks and integrated into strategic and operational plans.
- Formalised One Health governance mechanisms for the prevention, preparedness and response to zoonotic and environmental health threats should be established or updated, ensuring effective coordination between the animal health, public health and environmental sectors.
- More frequent and systematic collaboration with the environmental sector should be established to strengthen the One Health approach and ensure the full integration of environmental perspectives across prevention, preparedness and response activities.
- Cross-sectoral collaboration across sectors and administrative levels should be documented and formalised. Stakeholder mapping and engagement analyses should be conducted to clarify roles, responsibilities and lines of accountability within the One Health framework.
- Faster, enhanced and system-integrated data exchange between sectors should be ensured. Interoperable data-sharing platforms should be developed and implemented to facilitate timely and systematic information exchange and collaboration among environmental, public health and animal health institutions.
- Coordination between the human, animal and environmental sectors should be improved through the development of joint products and outputs, such as joint risk assessments and joint outbreak investigations, to support integrated decision-making. The development of One Health strategies and action plans for zoonosis prevention, preparedness and response can further facilitate this coordination and collaboration.
- Greater alignment in priority setting and activity planning between the different sectors is crucial. A jointly agreed cross-sectoral prioritised list of zoonotic diseases for One Health surveillance purposes can enhance coordinated planning across sectors.
- Joint interdisciplinary training programmes for One Health professionals from different sectors can strengthen both specific competencies and intersectoral collaboration. A systematic training needs assessment across all relevant sectors, accompanied by a mapping of existing training capacities, could guide the design of the training programmes.
- Cross-sectoral simulation exercises targeting priority zoonotic pathogens should be conducted to test and strengthen the One Health approach across all relevant stakeholders.

3.5.2 Environmental threats

Environmental threats are an important element to be considered in prevention, preparedness and response plans. This includes assessment and analysis of the actual or projected effects of climate change on infectious/zoonotic diseases, as well as the actual or projected effects of extreme weather events on public health.

Strengths

- A national climate change adaptation plan, following the production of national adaptation strategies, was very often in place in the assessed countries, providing structured guidance to support preparedness for climate-related health risks.
- Several countries have produced Climate Risk Assessments.

Challenges

- The assessed countries' prevention, preparedness and response plans rarely include specific provisions addressing the effects that climate change has on zoonotic diseases.
- The assessed countries' prevention, preparedness and response plans lack dedicated measures concerning the public health impacts of extreme weather events. Very few countries have conducted assessments that include projections into the future about such impacts.

Examples of effective approaches

- Iceland coordinates population awareness activities related to the health impacts of volcanic eruptions through a multi-sectoral approach, involving the local health authorities.
- Iceland has an Interministerial Climate Change Committee led by the Ministry for Environment, Energy and Climate that involves all other ministries (including the Ministry of Health) and the Association of Local Authorities. The role of this committee is to propose actions for the government's climate action plans and oversee their implementation.
- Belgium has a Centre for Risk Assessment of Climate Change to evaluate risks from a national security perspective. It advises policy-makers on strategies to increase resilience and adaptation.

Improvement opportunities

- The prevention, preparedness and response plan should be strengthened by referencing existing national plans related to climate change and environmental health, or these aspects should be integrated. Alignment across these plans should be ensured by optimising and harmonising their implementation, monitoring and evaluation processes.
- The public health risks posed by vector-borne diseases should be regularly re-assessed based on the observed trends in climatic changes, vector distributions and epidemiological patterns of vector-borne diseases, as well as forecasts from predictive models. If the risk levels justify it, countries should consider establishing systematic and sustainable vector surveillance and control programmes.
- Allocation of funding/resources should be secured and monitoring indicators identified for the implementation of the national plans related to environmental health and climate change.

4 Conclusion

Public Health Emergency Preparedness Assessments provide a strong foundation for advancing health emergency preparedness across the EU/EEA. The findings presented in individual country reports establish a baseline that countries can measure progress against over time, in relation to their national action plans. While the first assessment cycle offered comprehensive insight regarding the five capacities described in this report, future cycles will allow these and additional capacities to be assessed in greater depth, making the monitoring of preparedness in the region increasingly robust and informative.

Interim findings from the first 15 countries assessed during the first cycle of Public Health Emergency Assessments indicate that these countries are investing in and strengthening key public health preparedness capacities. Some improvements were driven by the immediate demands of the COVID-19 pandemic, while others reflect lessons learned in the period that followed.

Despite this progress, several cross-cutting challenges remain, including shortages of skilled personnel, limitations in data sharing and difficulties translating available data into timely, policy-relevant actions. Sustainability of preparedness functions is also a concern, particularly where these activities rely on project-based rather than programmatic funding. Multi-sectoral and multi-administrative level coordination and communication remain key areas that could be further strengthened.

Limitations

Several limitations should be considered when approaching the findings presented in this report:

- **Partial country coverage** – The presented findings reflect only half of the EU/EEA countries (15 countries).
- **Limited number of capacities** – The presented findings are based on only 5 of the 16 assessed capacities.
- **Limited geographical representation** – The first cycle of assessments started in 2024 and the first participating countries were selected on a voluntary basis; therefore, the representation of the findings in this interim report is not geographically balanced and partially reflects countries' urgency to be assessed.
- **Use of pre-final reports** – A few of the reports included in this assessment were not in their final version at the time the findings were extracted. However, pre-final drafts are largely consistent with the final versions, with only minor changes introduced.
- **Depth of assessment** – The capacity 'Zoonotic diseases and threats of environmental origin, including those due to the climate', was assessed in depth in 8 of the 15 countries included in this report.
- **Non-exhaustive representation** – The findings do not aim to provide a comprehensive overview of prevention, preparedness and response planning across the EU. They reflect a selection of the most frequent, critical or illustrative practices.
- **Selective presentation of findings and recommendations** – Country reports are intended to be concise so that they are actionable and to increase the feasibility of prioritising and implementing their recommendations. For this reason, it is sometimes necessary to prioritise which findings or recommendations are highlighted and which are excluded in favour of others. This does not undermine the completeness of the assessment report, but rather ensures that it is useful and practically applicable.
- **Variation in capacity performance** – The assessed countries demonstrated widely varied levels of achievement for different capacities. It should be noted that the aggregated findings may leave out significant improvements that are needed in only some countries.
- **Capacity-specific expert review** – Individual experts only conducted analyses related to the specific capacity or capacities that they were assigned to.
- **Context-dependent interpretation** – It is noteworthy that the same aspect may be considered a strength or an area for improvement depending on the country's system, structure and preferences. This analysis has taken this complexity into consideration.

Further work

ECDC can offer the assessed countries tailored support to address the findings observed during their assessment, using mechanisms such as the EU Health Task Force. These follow-up activities would aim to help countries address the identified challenges, operationalise the recommendations, improve the sustainability of preparedness functions and enhance coherence and interoperability across systems.

Findings from these assessments can also inform ECDC's future work planning, ensuring alignment between ECDC's actions and EU/EEA countries' needs and priorities.

Annex 1. List of capacities included in the Public Health Emergency Preparedness Assessment process, as per Article 7

International Health Regulations 2005 capacities	
Capacity 1.	International Health Regulations implementation and coordination
Capacity 2.	Financing
Capacity 3.	Laboratory
Capacity 4.	Surveillance
Capacity 5.	Human resources
Capacity 6.	Health emergency management
Capacity 7.	Health service provision
Capacity 8.	Risk communications and community engagement
Capacity 9.	Points of Entry and border health
Capacity 10.	Zoonotic diseases and threats of environmental origin, including those due to the climate
Capacity 11.	Chemical events
Additional capacities as per Regulation (EU) 2022/2371	
Capacity 12.	Antimicrobial resistance and healthcare-associated infections
Capacity 13.	Union-level coordination and support functions
Capacity 14.	Research development and evaluations to inform and accelerate emergency preparedness
Capacity 15.	Recovery elements
Capacity 16.	Actions taken to improve gaps found in the implementation of prevention, preparedness and response plans

European Centre for Disease Prevention and Control (ECDC)

Gustav III:s Boulevard 40
16973 Solna, Sweden

Tel. +46 858 60 10 00
ECDC.info@ecdc.europa.eu

www.ecdc.europa.eu

Publications Office
of the European Union