

ASSESSMENT

Country report: ECDC Public Health Emergency Preparedness Assessment for Norway, 2025

Under Article 8 of the Regulation (EU) 2022/2371

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Contents

Contents	iii
Abbreviations	iv
Executive summary	1
Introduction	1
Key findings	1
Main recommendations for each capacity assessed in depth	2
Introduction	4
Background and legal basis.....	4
Aim and objectives.....	4
Assessment process	5
Findings and recommendations per capacity	7
Conclusions.....	27
Annex 1. List of capacities included in the assessment.....	28
Annex 2. Practical arrangements for the assessment process	29

Abbreviations

AMC	Antimicrobial consumption
AMR	Antimicrobial resistance
BSL	Biosafety level
CBRN	Chemical, Biological, Radiological, and Nuclear
DoH	Directorate of Health
ECDC	European Centre for Disease Prevention and Control
EEA	European Economic Area
EU	European Union
HAI	Healthcare-associated infection
IHR	International Health Regulations
IPC	Infection Prevention and Control
IVDR	In vitro diagnostic medical devices regulation
LTCF	Long-term care facility
MCM	Medical counter measure
MDRO	Multidrug-resistant organism
MMO	Municipal Medical Officer
MoHCS	Ministry of Health and Care Services
NAATs	Nucleic-acid-amplification-based tests
NAP	National action plan
NDRE	Norwegian Defence Research Establishment
NIPH	Norwegian Institute of Public Health
NMPA	Norwegian Medical Products Agency
NOIS	Norwegian Surveillance System for Antibiotic Use and Healthcare-Associated Infections
NVI	Norwegian Veterinary Institute
PHEPA	Public Health Emergency Preparedness Assessment
PPE	Personal Protective Equipment
PPS	Point prevalence survey
RHA	Regional health authorities
SARI	Severe Acute Respiratory Infection
SCBTH	Serious Cross-Border Threats to Health
SIMEX	Simulation Exercise
SPAR	State Party Self-Assessment Annual Report
WHO	World Health Organization

Executive summary

Introduction

The aim of the Public Health Emergency Preparedness Assessments, as mandated in Article 8 of the Regulation (EU) 2022/2371 on serious cross-border threats to health, is to improve prevention, preparedness and response planning in EU/EEA countries through the implementation of recommendations following individual country assessments. As specified in the Regulation, each European Union (EU)/European Economic Area (EEA) country will undergo an assessment every three years, with the first cycle occurring between 2024 and 2026.

This report presents the findings and recommendations of the first assessment conducted in Norway. This involved a desk review of relevant documents, followed by a five-day country visit that took place between 3–7 February 2025. As per the assessment methodology, all of the 16 capacities included in Article 7 of the Implementing Regulation (EU) 2023/1808 self-assessment template were assessed, with five of them considered in-depth: Laboratory; Surveillance; Health Emergency Management; Antimicrobial resistance (AMR) and healthcare-associated infections (HAIs) and health service provision, which was selected by the country.

Key findings

The public health system in Norway is robust and well interconnected in the event of a public health emergency crisis. A great deal has been done to identify and incorporate lessons from the COVID-19 pandemic. The direction for further work and prioritisation of public health preparedness, while sustaining adaptability and flexibility of the system, is outlined in a [white paper on health preparedness \(2023–2024\)](#).

The roles of the Norwegian Institute of Public Health (NIPH) and the Directorate of Health (DoH) are pivotal in many aspects of all-hazard response and include alerting, epidemiological situation awareness, scientific advice, risk assessment and communication. The interdisciplinarity of teams in the NIPH is considered a strength and the guidance given by the Institute is a recognised resource of scientific advice at all administrative levels, as well as by cross-sectorial authorities, when relevant.

Municipalities play a strong role in public health and health service delivery governance and Municipal Medical Officers (MMOs) cover a very wide range of responsibilities. Therefore, strengthening their capacities is a recommendation for ensuring sustainability of knowledge and services. Further support at the sub-national level can include development of guidance and tools for preparedness, such as templates for risk assessments and risk analysis, planning templates and check lists for response. The NIPH and the DoH could also facilitate collaboration with local levels by establishing forums for discussion and platforms for monitoring the implementation of preparedness plans and sharing practices.

Norwegian organisations perform regular assessments, revisions, updates and simulation exercises to test preparedness plans in the health sector. There is active and regular collaboration between the authorities working in the public health emergency preparedness and response field. However, there are legal barriers preventing NIPH from making the best of the data collected, especially for outbreak detection, and these need to be addressed. Interoperability between information systems needs to be improved, and efforts made to define the purposes of data linkage for multisectoral health information at local, regional and national level as regards surveillance, outbreak investigations, and generation of evidence for public health action.

Efforts to sustain knowledge and experience for public health preparedness capacities should continue. Continuous professional development training and information sessions (internally in each organisation) and externally for the key stakeholders should be a priority to enable common understanding of the new plans and revised legal basis.

The country has a robust, but also flexible financial system with possibilities to adjust the annual budget and, if necessary, to request exceptional additional funding during a crisis. The health system is relatively well resourced, but challenges remain with workforce shortages. Work is ongoing to ensure the right volume and skills mix of the healthcare workforce and to sustain the flexibility of the system to recruit, retain and promote mobility of personnel. The system for healthcare service provision is flexible and scalable in a crisis. Different authorities are engaged in planning and monitoring through coordinated processes and this coordination is enhanced during a crisis. Although the crisis management competence increased during the COVID-19 pandemic, the experience and knowledge gained needs to be preserved.

A key health system reform, devised in 2023 and currently under implementation, focuses on resilience, the robustness of the health system, flexibility and maintaining high levels of trust within society. The strategy aims to strengthen collaboration between key stakeholders, including the private sector.

Main recommendations for each capacity assessed in depth

Laboratory (Capacity 3)

- Ensure sufficient resources and recognition for medical microbiology reference laboratories.
- Ensure that there is a clear strategy for scaling up laboratory capacity in emergency situations as part of preparedness plans at all levels.
- Strengthen biosecurity by finalising legal frameworks and implementing guidelines.
- Develop mechanisms to link data from national reference laboratories with epidemiological data.
- Develop and ensure sustainable funding for a national sequence database and a mechanism for sharing sequence data.

Surveillance (Capacity 4)

- Continue the work to develop a tool/platform for epidemic intelligence and early warning to facilitate data compilation by NIPH and information exchange with stakeholders at various levels.
- Improve automation for data processing and analysis at national level, and access to data at local level.
- Facilitate linkage of different data sources, for both integrated surveillance and outbreak detection.
- Address under-reporting in care homes.
- Improve monitoring of hospital capacity by automating collection of selected indicators.

Health emergency management (Capacity 6)

- Align the new package of preparedness planning at all administrative levels in the country.
- Continue to test new processes and procedures during and after the finalisation of the legislative package, including plans. Ensure harmonisation across the sectors and administrative levels involved and invest in training for all relevant stakeholders.
- Continue efforts to clarify the operational roles of the DoH and NIPH related to risk management during crises.
- Review the process to gather information and lessons learned on public health and social measures to develop a system for real time monitoring during a crisis.
- Develop an all-hazard strategy, aligned with the new national plans, to ensure supply of critical medical counter measures (MCMs) for various types of health emergencies.
- Continue the development of tools to ensure monitoring of supply and estimating demand, taking into account the reporting requirements that would be applicable in a public health emergency. Identify gaps at municipal and national level, and incorporate more gap analyses, considering any priority cross-border health threats.
- Engage with the cross sectoral ministries/key actors involved in chemical, biological, radiological, and nuclear (CBRN) activities to help map available MCMs, identify needs, and clarify responsibilities.
- Engage with municipalities to establish a common approach for preparedness, bearing in mind that municipalities only have personal protective equipment (PPE) stockpiles. This could take the form of guidance, templates and training courses, depending on the needs identified.

Antimicrobial resistance (AMR) and healthcare-associated infections (HAIs) (Capacity 12)

- Continue activities to achieve data linkage of multisectoral health information, to enable better patient care and outbreak management and prevention (e.g. for cluster investigations and incidence surveillance of HAIs and multi-drug-resistant organisms (MDROs)).
- Ensure that the National Action Plans (NAPs) specify the parties responsible for monitoring and following up on data generated by the existing and planned processes for HAIs, AMR and infection prevention and control (IPC), including antimicrobial stewardship (also in long-term care facilities (LTCF)).
- Implement standardised mechanisms to monitor screening activities by hospitals, to inform national evaluations of national screening recommendations.
- Continue activities to update sector-specific NAPs, to achieve the goals and actions in the 'National One Health Strategy Against Antimicrobial Resistance 2024–2033'.
- Ensure full participation in European point prevalent surveys or activities that measure structure and process indicators of IPC, to identify national strengths and potential areas for improvement.

Capacity health service provision (Capacity 7)

- Ensure lessons learned and challenges from the COVID-19 crisis are well documented to preserve knowledge and transfer this knowledge into procedures.
- Incorporate the use of in-action and after-action reviews and simulation exercises (SIMEX) into regular activities and ensure the municipal and regional health administration is trained on the methodologies.
- Discuss incentives and professional development opportunities to support more equal distribution of health personnel across the country.

- Develop guidance on planning, and conducting risk and vulnerability analysis, with standardised templates for reporting and monitoring to facilitate the work and strengthen overall competence in the municipalities.
- Review the institutional emergency preparedness in hospitals and nursing homes, if necessary.

Conclusions

The resulting recommendations are seen as concrete steps to sustain good practice and tackle remaining challenges. While part of the legal framework in Norway is under revision, based on several internal reviews post pandemic, there is still a solid and comprehensive normative basis to ensure a high level of state of health emergency preparedness and response. The country has a strong culture of testing, exercising, and functional and active collaboration between the key stakeholders to incorporate lessons identified during public health events into revised plans and procedures for timely and coherent action during a crisis.

The recommendations include the following:

- Finalise all planning under review and continue conducting exercises.
- There is a need for national authorities to provide more concrete products/tools to the regional and municipal authorities to assist them with preparedness work (e.g. templates for risk assessment and plans, provision of legal advice, training on new plans, common exercises and common tools for collection of data).
- Implement a tool to assist in monitoring municipal preparedness plans (e.g. a platform) and streamlining with national plans/guidelines, which will also facilitate the sharing of preparedness plans.
- Continue efforts to lift legal barriers hindering data linkage of health information from various sectors to improve investigations and evidence generation for public health action.

This report provides specific recommendations for the country to improve prevention, preparedness and response planning. Norway is requested to translate these recommendations into an action plan within nine months of receiving this report.

Introduction

The aim of the Public Health Emergency Preparedness Assessments (PHEPA), as mandated in Article 8 of the Regulation (EU) 2022/2371 on serious cross-border threats to health, is to improve prevention, preparedness and response planning in EU/EEA countries through the implementation of recommendations following individual country assessments. As specified in the Regulation, each EU/EEA country will undergo an assessment every three years, with the first cycle of these occurring between 2024 and 2026.

This report presents the findings and recommendations of the first assessment conducted in Norway. This process involved a desk review of relevant documents, followed by a five-day country visit.

Background and legal basis

During the COVID-19 pandemic, it was recognised that the legal framework for combatting serious cross-border threats to health, provided for in Decision No 1082/2013/EU, needed to be broadened and enhanced to ensure a more effective response across the European Union (EU) to deal with health-related emergencies. Hence, the European Commission developed the Regulation (EU) 2022/2371 on serious cross-border threats to health, published on 23 November 2022¹.

Within this Regulation it is recognised that prevention, preparedness and response planning are essential elements for combatting serious cross-border threats to health. In addition to creating a Union prevention, preparedness and response plan (Article 5 of the Regulation), the Regulation also outlined the importance of updating and seeking coherence with Member States' prevention, preparedness and response plans (Article 6 of the Regulation).

To monitor the implementation of the plans, the Member States shall report to the European Commission regarding their prevention, preparedness and response planning at the national level every three years. For this purpose, a self-assessment template was developed under Article 7 of the Regulation², complementary to the International Health Regulation (IHR) State Party Self-Assessment Annual Report (SPAR)³.

In order to support the assessment of these plans, Article 8 of the Regulation indicates that ECDC has the responsibility – in coordination with relevant Union agencies and bodies – to conduct assessments of all 30 European Union and European Economic Area (EU/EEA) countries every three years. The procedures, standards and criteria for the assessments of the state of implementation of national prevention, preparedness and response plans and their relation to the Union prevention, preparedness and response plan are defined by the Commission Delegated Regulation (EU) 2024/1232, adopted in March 2024⁴.

ECDC has developed a methodology for Public Health Emergency Preparedness Assessment to implement Article 8 of the Regulation (EU) 2022/2371. The assessment process addresses the 16 capacities included in the Article 7 self-assessment template and is designed to maintain consistency within the EU/EEA countries throughout the three-year cycle, while allowing for adaptation of plans if the national circumstances require.

Aim and objectives

The aim of the ECDC Public Health Emergency Preparedness Assessment process, drawn from Article 8 of the Regulation on serious cross-border threats to health, is to improve prevention, preparedness and response planning in EU/EEA countries through the implementation of recommendations following individual country assessments. Countries are asked to provide an action plan addressing the proposed recommendations of the assessment within nine months of the receipt of the ECDC report.

¹ European Commission (EC). Regulation (EU) 2022/2371 of the European Parliament and of the Council of 23 November 2022 on serious cross-border threats to health and repealing Decision No 1082/2013/EU. Brussels: EC; 2022. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R2371&from=EN>

² European Commission (EC). Commission Implementing Regulation (EU) 2023/1808 of 21 September 2023 setting out the template for the provision of information on prevention, preparedness and response planning in relation to serious cross-border threats to health in accordance with Regulation (EU) 2022/2371 of the European Parliament and of the Council. Brussels: EC; 2023. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023R1808>

³ World Health Organization (WHO). IHR (2005) States Parties self-assessment annual reporting tool, 2nd ed. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240040120>

⁴ European Commission (EC). Supplementing Regulation (EU) 2022/2371 of the European Parliament and of the Council as regards assessments of the state of implementation of national prevention, preparedness and response plans and their relation with the Union prevention, preparedness and response plan. Brussels: EC; 2024. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L_202401232

The specific objectives of the assessment process are to:

- Assess the countries' self-assessments of preparedness in the 16 capacities covered by the outputs from the most recent International Health Regulation State Party Self-Assessment Annual Report and the Article 7 template.
- Collaborate with countries to identify good practice, challenges, bottlenecks, gaps or areas for improvement concerning the 16 capacities referred to in Article 7 (a list of the capacities assessed is available in Annex 1).
- Encourage the inclusion of key elements within the prevention, preparedness and response planning structure such as cross-sectorial and cross-border coordination, crisis management, response governance, communication, plan testing, evaluation and regular reviews, according to the lessons identified from the response to public health emergencies.
- Use the opportunity of a standardised approach to the assessment process to contribute to the improvement of EU/EEA prevention, preparedness and response capacities by promoting a common understanding of key elements and a coordinated approach.
- Provide support to countries in enhancing their national prevention, preparedness, and response capacities through recommendations based on the assessment, and provide targeted assistance upon request.

Assessment process

The PHEPA of Norway was conducted by ECDC with a team composed of 10 experts (seven ECDC, two from the European Commission and one expert from a neighbouring country) together with the Norwegian coordination team and more than 140 national experts. The assessment process consisted of a desk review phase and a country visit between 3 and 7 February 2025.

As per the established assessment process, of the 16 capacities included in the Article 7 self-assessment template, the ECDC-led team assessed five capacities in depth and discussed Norway's responses to the Article 7 questions for the remaining capacities. The WHO IHR SPAR self-reported capacities (2023) were also taken into consideration.

The five capacities assessed in depth were laboratory capacity (Capacity 3); surveillance (Capacity 4); health emergency management (Capacity 6); antimicrobial resistance (AMR) and healthcare-associated infections (HAIs) (Capacity 12) and health service provision (Capacity 7), which was chosen by the country. Moreover, coordination meetings for each of these areas were organised during the documentary review period, prior to the country visit. At these meetings, dedicated teams met to exchange information and discuss any clarifications needed.

The experts from the host country were very well prepared to present the state of art as per capacity, including legislative background, governance composition and challenges in implementation of actions.

The focal point team, representing experts from the Ministry of Health and Care Services (MoHCS), Directorate of Health (DoH) and the Norwegian Institute of Public Health (NIPH) managed to engage colleagues from all geographical levels (national, regional and municipal) as well as a wide range of cross-sectorial stakeholders who participated in the discussions. The presentations for the in-depth sessions, prior to the country visit, allowed for a clear understanding of these capacities. The documentation provided in the initial stages of PHEPA allowed the assessment team to have a good overview of the Norwegian legal framework and organisational structure. Moreover, the presentations made during the country visit by the different teams in charge of each capacity were very informative and provided a good basis for comprehensive discussions. Further details regarding the practical aspects of the mission, including the agenda and the assessment team composition, are available in Annex 2. Cross-cutting aspects were discussed in the context of a scenario developed to facilitate the discussion.

Main findings and overarching recommendations

Norway is the sixth largest of all the EU/EEA countries in terms of size but has a small population of 5.5 million, living mostly in urban areas. Life expectancy is among the highest in Europe: 81.4 years for men and 84.6 years for women (2023). There is universal healthcare and a comprehensive social security system. In 2023, the GDP per capita was twice as high as the average EU level, while the unemployment rate was twice as low. The healthcare system is semi-decentralised, with municipalities playing a strong role in the provision of primary care services, while hospital trusts are owned by the MoHCS. Norway is facing the challenges of an aging population, implementation of new technologies and access to healthcare in remote areas, which require continuous efforts to strengthen coordination and collaboration between structures, public and private key stakeholders, and to maintain the flexibility of the system.

Emergency preparedness is based on four overarching principles for the management of all crises:

- Responsibility (the organisation with the responsibility for an area during peace time retains it during a crisis);
- Similarity (a crisis organisation should be as similar as possible to the normal organisation);
- Proximity (crises shall be managed at the lowest possible level, near where they happen);
- Collaboration (authorities, enterprises and agencies each have an independent responsibility for ensuring that they collaborate with relevant actors).

The Municipal Medical Officers (MMOs) cover a very wide range of preparedness and response for all types of incidents, including preparedness planning, stockpiling, risk communication, collaboration with other municipalities and with regional and national authorities, and risk management. The county governors play an important role in coordinating between central authorities and the municipal sector in health emergency preparedness efforts.

Cross-cutting aspects were assessed in a scenario-based discussion covering several aspects of public health response for a cross-border public health threat.

The legislative basis for public health emergency preparedness and response is comprehensive, with specified roles and responsibilities for the different stake holders. Based on evaluations and lessons-learned activities performed during and after the COVID-19 pandemic, several legal provisions are in the process of revision, including plans and specific standard operational procedures. While leading principles for emergency preparedness and response remain, a new governance structure is being introduced in the country to facilitate response to a challenging threat environment. The Health Emergency Preparedness Council and intersectoral committees are working for six prioritised risk areas, one of which is infectious diseases.

The discussion on preparedness and response actions in the event of a cross-border health threat showed readiness of epidemic intelligence and surveillance systems for the timely identification and notification of an event across sectors. The scenario entailed following a series of steps for a cross-border health threat situation where the mechanisms and structures involved had to be outlined to address the issue by discussing aspects of surveillance and laboratory, health emergency management, risk communication, human resources, financing, health service provision, points of entry preparedness and other relevant IHR capacities.

The authorities would be able to quickly convene meetings and being collaborating to prevent importation or contain further spread. The methodology for rapid and more comprehensive risk assessment is well developed and in use by the respective institutions involved in the production and dissemination of the documents. The use of the newly established structures was mentioned in the description of actions and in institutional tasks following the activation of certain steps, as per emergency levels defined in the country's legal framework.

During the discussion, the agility and flexibility of the system was identified as a strength, as well as collaboration between key stakeholders and person-based communication, which facilitates timely reactions in a crisis. However, the shortage of healthcare professionals, particularly in remote rural areas and in the northern part of the country, was identified as a problem. Other challenges also discussed were the possible uncertainty regarding the seriousness of an unknown threat, the possible duration of a health emergency crisis and the consequences for health personnel and service provision (including pressure on intensive care units). Ethical challenges would have to be addressed, due to the need to work together while separating technical and political advice and measures, to maintain trust in the institutions.

The power of institutions to implement measures would depend on the situational urgency and the scope of responsibilities of each administrative level. The context of the country, which has geographical challenges with large distances and hard-to-reach areas, as well as organisational structure, with significant responsibilities at local level, would have to be re-assessed in a crisis and actions discussed in an open dialogue. Moreover, the potential impact of measures on social and economic aspects should be further analysed, incorporating lessons learned from COVID-19.

Further notes were made on the involvement of the newly established Norwegian Medical Products Agency (NMPA), as well as the need for pre-agreements with other sectors and institutions – e.g. veterinary sector, universities, etc. to support surge capacity, when needed, once tasks are clearly specified. It was pointed out that implementation measures could be set up quickly, once the response strategy was decided. The interoperability of information systems must be strengthened to facilitate prompt response in times of crisis.

Findings and recommendations per capacity

A list of the capacities that were included in the assessment is available in Annex 1.

Capacities assessed in depth

Laboratory (Capacity 3)

Norway's microbiological laboratory system is robust, demonstrating strong capabilities and capacities with highly qualified personnel and advanced technologies, including next-generation sequencing and bioinformatics. Many of the existing gaps have already been identified through evaluations of the COVID-19 response and other public health emergencies and are currently under review.

The Norwegian Institute of Public Health (NIPH) hosts laboratories that manage most of the 53 national medical microbiology reference functions. The close integration of national reference laboratories with experts in microbiology (providing molecular data and microbiological expertise) and epidemiologists, immunologists/vaccinologists, statisticians, bioinformaticians, modellers, and communication specialists and other public health professionals at NIPH - all within a single institution, is a significant strength. This collaborative environment enhances preparedness, surveillance, and the capacity to detect, assess, and respond to outbreaks, particularly those involving pathogens with outbreak and pandemic potential. The effectiveness of this structure was clearly demonstrated during the COVID-19 pandemic and continues to be evident in NIPH's epidemic intelligence responsibilities under the IHR, as well as in daily Severe Acute Respiratory Infection (SARI) surveillance and rapid outbreak response.

Other important entities are the four Regional Health Authorities (RHAs) that are responsible for primary diagnostics as part of their mandate to provide specialised healthcare services. Across the four RHAs there are 23 human clinical microbiological laboratories: two in the northern region, four in the central region, four in the western region, and 11 in the south-eastern region, and two private laboratories providing microbiological services. In addition, some reference functions are housed within the regional clinical microbiological laboratories at hospitals. Reference functions do not receive specific funding but are instead financed through the overall budget of the hosting organisation. This poses challenges, particularly for reference laboratories located in hospitals, where management may not fully recognise the importance of these reference functions, as they are not the primary focus of the hospital. As a result, these functions are sometimes deprioritised in favour of routine clinical commitments. The reference functions and coordination roles and implementation of testing strategies are described in several guiding documents and regulations, including the national preparedness plan against serious communicable diseases and the national preparedness plan against pandemic influenza, both of which are currently under revision. In addition to the human microbiological laboratories, the Norwegian Veterinary Institute (NVI), the Faculty of Veterinary Medicine at the Norwegian University of Life Sciences, and the Norwegian Defence Research Establishment (NDRE) also accommodate microbiological laboratories.

Microbiological laboratories are well-organised within various networks, including the National Forum for Medical Microbiology and the National Medical Microbiological Emergency Committee. In addition, NIPH hosts monthly forums to discuss and share knowledge on COVID-19, influenza, and RSV. Several national online resources also facilitate laboratory networking and support. The clinical microbiology laboratories are accredited under the Norwegian accreditation scheme in accordance with the ISO15189 standard, while the laboratories at NIPH, NVI, and NDRE are accredited in accordance with the ISO17025 standard.

In an event of a novel pathogen, it is possible to implement new Nucleic Acid Amplification-based Tests (NAATs) within two weeks and it is the responsibility of the respective reference laboratory to coordinate and implement new methods. Most reference laboratories, including the National Reference Centre for Influenza and the Preparedness Reference Laboratory, are based at NIPH, which also oversees emergency preparedness, supports microbiological laboratories in implementing new diagnostic tests, and provides guidance.

A significant challenge in the capacity of implementing new rapid diagnostic methods for a novel pathogen with pandemic potential is the [EU Commission Implementing Regulation on in vitro diagnostic medical devices](#) (IVDR, 2017/746). This EU Regulation limits in-house testing by medical microbiology laboratories due to demanding requirements and is likely to significantly affect their capacity, know-how and expertise in developing and validating new methods, which is crucial during a public health emergency involving a novel pathogen. It is necessary to establish exception plans to this Regulation at EU level in advance of public health emergencies to ensure coordinated responses and prevent individual countries from interpreting EU regulations differently. The ability of microbiological laboratories to retain the necessary expertise to set up such in-house tests at short notice is crucial for ensuring a decentralised test capacity nationwide in order to make use of NAATs as a major countermeasure for effective control of emerging microbiological threats.

During the COVID-19 pandemic, the scale-up of laboratory testing was highly successful, reaching an impressive level of 5% of the population per week. This was accomplished through investments in testing platforms, resource and area reallocation, 24/7 analysis capacity during certain periods and the use of in-house extraction platforms. However, the main bottlenecks identified were shortages of sampling materials and reagents and the lack of stockpiling. The IVDR Regulation poses a further challenge to the scaling up of testing in future pandemics in that laboratories will

have to rely on a limited number of commercial platforms that may experience supply shortage. The Directorate of Health (DoH) holds the mandate to request scale-up in municipalities and laboratories and, in collaboration with the NIPH, establishes diagnostic criteria, recommendations, and guidelines during public health emergencies. Although there is no dedicated national plan for scaling up laboratory capacity, aspects of this are covered under the national health preparedness plan, the plan against serious communicable diseases, and the plan for pandemic influenza (currently under revision). Since RHAs oversee testing capacity in their regions, preparedness planning for scale-up is a part of their internal plans. However, these plans are not always fully operational and often remain localised. There is a clear need to update and align laboratory capacity scale-up plans to ensure they are functional and coordinated at all levels – national, regional and local – to effectively respond to public health emergencies.

Laboratory test reporting is conducted through the MSIS-lab database, which was under development when the COVID-19 pandemic hit. This system receives copies of test results from medical microbiological laboratories across Norway and can be adapted to incorporate new diseases, variables and increased data volumes when necessary. However, test results from other sectors, such as veterinary laboratories, are not included. Although all medical microbiological laboratories are connected to MSIS Lab-database, the regional electronic systems are not automatically linked to each other, sometimes causing delays when test results must be sent by post between laboratories in different regions. In addition to the MSIS database, there is an urgent need to develop a national sequencing database to facilitate the sharing of sequence data between microbiological laboratories at regional and national levels, as well as across different sectors, to enable integrated surveillance and outbreak management. The main challenges in data sharing for surveillance and emergency response are legal constraints, which must be addressed. Mechanisms to share and link data from national reference laboratories with epidemiological data and information from other relevant national registries must be developed to enhance surveillance and preparedness.

There are two high containment laboratories in Norway, with 24/7 diagnostic service for detection of selected agents. Biosafety level 3 (BSL-3) laboratories are available in all RHAs at different clinical hospital laboratories and at the NIPH. In addition, there are BSL-3 laboratories in other sectors such as the NVI, NDRE, private sectors and universities. The national bio preparedness laboratory at NIPH also meets the criteria to handle basic diagnostics for a selection of risk group 4 viruses. For further analyses requiring BSL-4 laboratories Norway has an agreement with the Public Health Agency of Sweden. The National Medical Microbiological Emergency Committee is responsible for strengthening and coordinating the national microbiological laboratory preparedness, including biosafety and biosecurity matters. This committee, coordinated by NIPH, includes representatives from the four RHAs, selected medical microbiological laboratories, DoH, NVI, NDRE, the Armed Forces, and the CBRNE Centre. In addition, the Norwegian Preparedness Diagnostic Network conducts regular meetings and training activities. Biosafety regulations and guidelines are governed by the Norwegian Labour Inspection Authority. However, there are currently no established legal frameworks for biosecurity regulations and guidelines. A legal framework is under development, which will include guidance and measures for competence building.

A sustainable system with national guidelines is in place for the referral and transportation of all types of specimens at all levels, supported by service agreements with courier companies for both domestic and international shipments. However, some laboratories face challenges in sending Category A packages due to a lack of certified personnel, highlighting the need for an EU-level web-based re-certification course. In addition, the high cost of Category A transportation services poses a barrier, particularly for non-essential shipments such as those for surveillance purposes. The transportation of infectious agents is further complicated by the involvement of multiple sectors operating under different legal frameworks. For some agents, the recommendations for category A transport based on WHO guidance are perceived as too stringent. Furthermore, the Norwegian Labour Inspection Authority is subject to EU legislation, which is more stringent and less flexible than WHO guidance on rigorously coupling biological risk classifications to laboratory biocontainment level, affecting laboratory work with certain agents, such as SARS-CoV-2 virus cultures. Other vulnerabilities include the reliance on a single courier service for the handling of Category A shipments and a reduced frequency of delivery services offered by the postal system, leading to delays when using postal transport.

In conclusion, Norway has a well-functioning laboratory system capable of managing public health emergencies and conducting surveillance of communicable diseases, although there are still some shortcomings and areas for improvement.

Recommendations

- Ensure adequate resources and recognition for medical microbiology reference laboratories in fulfilling their public health functions.
- Ensure that a clear strategy for scaling up laboratory capacity in emergency situations is part of preparedness plans and that the plans at different levels (national, regional and local) are aligned and operational.
- Strengthen biosecurity by finalising legal frameworks and implement guidelines.
- Develop mechanisms for linking data from national reference laboratories with epidemiological data, and data from other relevant national registries to strengthen surveillance and preparedness.
- Develop and ensure sustainable funding for a national sequence database and mechanism for sharing sequence data between microbiological laboratories at different levels (regional and national), and between different One Health sectors to allow for an integrated surveillance and outbreak management.

Surveillance (Capacity 4)

The Norwegian Institute of Public Health (NIPH) carries out surveillance of several infectious diseases. There is a legal framework for surveillance of notifiable diseases in Norway, which is the regulation on notification system for communicable diseases (MSIS regulation). This regulation sets out rules for collecting and processing clinical and laboratory data.

Epidemic intelligence and early warning activities are performed by the NIPH. A 24/7 duty officer compiles data from various national (e.g. outbreak reporting system VESUV) and international (e.g. EpiPulse) sources. In addition, signals can be generated by algorithms using routine surveillance data. Stakeholders at various levels in Norway mostly communicate by phone or email since there is no platform for sharing such information. Event management is coordinated by NIPH but may involve various stakeholders, depending on the nature of the event, including Municipal Medical Officers (MMO), reference laboratories or the Food Safety Agency. Local outbreaks are the responsibility of the MMO, who may request NIPH support, if necessary. Although the level of responsibility given to municipalities is likely to increase both autonomy and efficiency, it is important to make sure all municipalities are given sufficient resources to perform their tasks, and that appropriate support is provided for the smaller ones. The NIPH publishes risk assessments and weekly epidemic intelligence reports.

Surveillance in Norway relies on several systems which cover all levels of healthcare. In primary care, General Practitioners (GPs) and emergency service record consultations use the International Classification of Primary Care, 2nd edition (ICPC-2) which includes codes relevant for both Acute Respiratory Infection (ARI) and Influenza-Like Illness (ILI). The Norwegian Syndromic Surveillance System (NorSySS) taps into the reimbursement system for all GPs and out-of-hours-clinics. NorSySS is comprehensive, with limited information on each consultation and no personal identifier, but since GPs file claims with a delay of up to three to four weeks, it is only possible to report proportions of consultations rather than absolute numbers or rates on a weekly basis, even if the system is fully automated.

Since all laboratories in Norway must report microbiological test results to the MSIS laboratory database, test results for respiratory tract infections are also recorded. In addition, GPs have to report clinical information to the MSIS surveillance system for notifiable diseases. However, these epidemiological reports are done manually, are sometimes paper-based, can be delayed and are not always complete. Nevertheless, the data are useful, given the high testing intensity overall in the country. These non-sentinel systems complement a sentinel scheme based on a representative sample of circa 360 GPs (of 5 000) who test patients with ARI for several respiratory viruses. This system works well, although some groups can be misrepresented (e.g. overrepresentation of foreign-born residents or under-representation of children). It is interesting to note that the sentinel system was shut down during the pandemic.

In secondary care, hospitalisations with laboratory-confirmed respiratory infections can be monitored using the MSIS laboratory database. However, clinical information is missing, and it is not possible to monitor the actual number of patients hospitalised with respiratory tract infections. A temporary surveillance system for Severe Acute Respiratory Infections (SARI) and an intensive care registry were set up during the COVID-19 pandemic. The former was made possible by linking the Norwegian Patient Registry (NPR) with the MSIS laboratory database, which was only allowed during the public health emergency. Effective integrated surveillance outside of a public health emergency will require a legal framework allowing linkage of different data sources.

The NIPH monitors all-cause mortality on a weekly basis, estimating excess mortality using a statistical model similar to the one developed by the European Mortality Monitoring Project (EuroMOMO). With a few weeks delay, it is also possible to monitor disease-specific mortality using the Norwegian cause-of-death registry for which cause(s) of death are recorded using ICD-10 codes.

In 2022, Norway piloted a wastewater surveillance system for respiratory viruses, which showed promising results, especially for early signal detection and when individual testing was low. Norway participates in the Joint Action EU-WISH (EU-Wastewater Integrated Surveillance for Public Health). Sustained funding is being discussed in the light of the EU [directive](#) on urban wastewater treatment.

Despite the high coverage provided by the various surveillance systems in place, it is likely that information on residents of care homes is not well captured. Firstly, there is a challenge in defining some of these settings as healthcare facilities. Secondly, there may be different GPs consulting at any given care home. It is also likely that only a subset of the residents would be tested, especially in the context of an outbreak.

The NIPH publishes a weekly summary of respiratory tract infection surveillance on its web portal, with a more comprehensive version available as a PDF, which is very rich but may be a challenging read for a non-technical audience. Although some illustrations provide regional data, most figures are at national level. The report combines findings from all sources and its preparation is semi-automated.

During the COVID-19 pandemic, Norway was able to scale up testing intensity and use additional data sources for surveillance (see 'Laboratory capacity' above). It was also possible to link more registers, such as those for vaccination, hospitalisation and death, however, this process was only partly automated and required substantial work to maintain.

Bed occupancy data are readily available, but the overall bed capacity is not monitored (e.g. number of ICU beds with a certain level of care). To inform resource allocation, especially in times of crisis, such monitoring should include indicators on staffing.

Recommendations

- Continue the work to develop a tool/platform for epidemic intelligence and early warning to facilitate improved data compilation by NIPH and information exchange with stakeholders at various levels.
- Improve automation of data processing and analysis at national level, and access to data at local level.
- Facilitate linkage of different data sources, for both integrated surveillance and outbreak detection.
- Address under-reporting in long-term care facilities.
- Improve monitoring of hospital capacity by automating collection of selected indicators.
- Introduce an HTML format with tabs/filters for weekly reporting of respiratory pathogen surveillance, possibly including regional data.

Health emergency management (Capacity 6)

Norway has a comprehensive and robust framework of prevention, preparedness and response plans at all levels of government, based on legal obligations for preparedness and response planning. The [National Health Preparedness Plan](#) from 2018 is an overarching plan for all hazards in the health sector. Subordinate to this plan are the threat-specific plans, including the [National Plan for Pandemic Influenza](#) (2014), the [Mass Vaccination Plan](#) (2016), and the [National Preparedness Plan for Outbreaks of Serious Infectious Diseases](#) (2019). To operationalise the plans further, Norway has developed several disease- and topic-specific guidelines, such as the [Guidelines for psychosocial measures in the event of crises, accidents and disasters](#) (2016), the National Professional Guidelines for Handling Chemical, Biological, Radiological and Nuclear Incidents with Personal Injury (2017), the National Guidelines for Mass Casualty Triage (2020) and the [Guidelines on Continuity Planning](#) (2020).

Recent national strategies setting the priorities for the work to improve prevention, preparedness and response to serious cross-border threats to health include the report [A Resilient Health Emergency Preparedness](#) the white paper [Total preparedness: prepared for crisis and war](#). Other relevant strategies include the [National Strategy for Chemical, Biological, Radiological and Nuclear Preparedness 2016–2020](#), the [National Strategy for Women's Health \(2024\)](#), and the [Climate Action Plan 2021–2030](#).

Norwegian preparedness is based on four principles: i) Principle of responsibility - the organisation with the responsibility for an area during normalcy will retain this responsibility during a crisis; ii) Principle of similarity - in crises, an organisation should be as similar as possible to the normal organisation; iii) Principle of proximity - crises shall be organisationally managed at the lowest possible level; iv) Principle of collaboration - authorities, enterprises and agencies each have an independent responsibility for ensuring that they collaborate with relevant actors and enterprises on prevention, planning and crisis management.

The principle of 'responsibility' makes the entity responsible for a service also responsible for the related emergency planning (including conducting risk and vulnerability analyses, updating contingency plans, ensuring up-to-date competence, training, and exercises for staff and services). Public services have a direct obligation, although for private service providers this is limited. Different national authorities are required to support the preparation and regularly review the preparedness plans prepared at the various administrative levels.

Norway has a strong culture of testing plans and reviewing incidents. Simulation exercises and after-action reviews are often conducted jointly with authorities at various administrative levels, as well as with different sectors. The testing cycles should continue incorporating the changes in the upcoming preparedness plans, ensuring involvement of all administrative levels.

Norway is in the process of developing a generic pandemic preparedness plan by updating and combining the current pandemic influenza plan and the plan for outbreaks of serious infectious diseases. The Norwegian Institute of Public Health (NIPH), the Directorate of Health (DoH) and the Norwegian Medical Products Agency (NMPA) are developing the plan together, as mandated by the Ministry of Health and Care Service (MoHCS). Any updates in national plans are subject to public consultation before finalisation, unless restricted. Training of the stakeholders involved will assist with understanding the changes in the response mechanism.

The Incident Management System for managing health emergencies in Norway is being revised, based on lessons learned from the COVID-19 pandemic. The Health Emergency Preparedness Council is a new structure chaired by the MoHCS, with high-level representation from the national expert agencies, regional health authorities, counties and municipalities. Six committees have been established for prioritised risk areas, with representatives from various sectors. The composition of committees is regularly evaluated. At the government level, the Ministry of Justice coordinates the Crisis Council, which is the highest administrative coordinating body at the government ministerial level, tasked with strategic assessments, ensuring that measures are coordinated across sectors and issues requiring political clarification are presented to the Norwegian Government.

Routine health emergency risk profiling takes place regularly at all levels of the administration based on legal requirements. [The national analysis of risk scenarios](#) was last updated by the Directorate for Civil Protection and Emergency Preparedness in 2019. 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.

Moreover, the national analysis considers a variety of local-level risk scenarios, as well as being informed by risk analyses from the police, the intelligence services and the security services.

The MoHCS is in charge of producing a biannual risk assessment on health sector preparedness and defines the information requirements for this assessment. In practice, the municipalities report the information to county level where the county governor compiles the information and transfers it to the DoH. The DoH then compiles a report for the MoHCS. The regional health authorities collect information from the hospital trusts and report this to the MoHCS. The national agencies, such as the NIPH and the NMPA, also report to the MoHCS. During the COVID-19 pandemic, the MoHCS delegated responsibility for aggregating information from the different levels to the DoH. Various digital tools are used to communicate within a sector or at different administrative levels. However, even though there is a high level of digitalisation, systems interoperability is limited.

NIPH provides public health risk assessments, advice and assistance to healthcare personnel, municipalities, county municipalities, and state entities in connection with the investigation and control of outbreaks of infectious diseases and environmental exposure events. The Norwegian Poisons Information Centre at the NIPH also provides health advice to the public through a 24/7 telephone service. The NMPA, DoH and other state entities use this advice in collaboration with other types of data, information and knowledge within their area of responsibility.

The MoHCS is in charge of risk management and decision making, and, when necessary, consults with the Crisis Council to ensure a multi-disciplinary and cross-sectoral approach. National implementation of public health and social measures may be taken forward by the DoH. Municipalities oversee the implementation of public health and social measures in their territories. They have to follow national policies and can add more, based on their needs. The county governor coordinates the implementation of public health and social measures within a county, while the DoH coordinates implementation of public health and social measures between municipalities in different counties and regions. NIPH is working with ECDC to develop a digital tool to assist in risk management of incidents in order to provide interoperability and a means for exchanging information securely.

Evaluations of public health and social measures were conducted on an ad-hoc basis by NIPH throughout the COVID-19 pandemic and further evaluations have been carried out since it came to an end. During the pandemic, information on public health and social measures was gathered by web-scraping and rapid analysis of the effect and impact of public health and social measures was limited. Provisions for evaluating timeliness and effectiveness will be included in the new pandemic plans currently under development.

Norway has a network of well-established collaborations with ECDC, the other Nordic countries (e.g. the Nordic preparedness agreement) and WHO. Norway also has agreements with the Nordic countries and the European Union on mutual aid (e.g. Norway provides support for medical evacuations).

Norway's preparedness and response framework ensures national coordination mechanisms in the event of an intentional release scenario. There are two national centres working on chemical, biological, radiological and nuclear threats: the Norwegian Research Centre on CBRNE Protection at [the Norwegian Defence Research Establishment](#) and [the Norwegian Nuclear Research Centre](#). There is an intersectoral committee for biological agents led by the DoH and NIPH, and one for radiological and nuclear agents led by [the Norwegian Radiation and Nuclear Safety Authority](#) (DSA). [The Norwegian Directorate for Civil Protection](#) (DSB) coordinates an intersectoral forum for chemical agents.

Recommendations

- Align the new package of preparedness planning from the national level to regional, county and municipal healthcare levels.
- Continue efforts to clarify the operational roles related to the DoH and NIPH during crises.
- Review the process for information gathering on public health and social measures during the COVID-19 pandemic and use the lessons learned to develop a system – which includes a ready-to-use database – to monitor public health and social measures in near real-time and analyse its effects and impact.

Identification of critical Medical Counter Measures (MCMs)

Norway has identified crisis-relevant Medical Counter Measures (MCMs) for preparedness and response in relation to stockpiling, monitoring of supply, and regulatory needs. The list of medicines, which includes around 600 MCMs, is holistic in that, although it includes crisis-relevant MCMs (e.g. for chemical/biological/radiological/nuclear threats and for pandemic threats), it also includes critical medicines that are not necessarily related to serious cross-border threats to health. These lists reflect the stockpiles for primary care and specialist care as well as the stockpile for specialist care mentioned later in the document. The list and subsequent stockpiling was initiated during the pandemic, based on a risk assessment, including the risk of shortages. It has now been developed further to take into account factors such as comparison with the EU List of Critical Medicines, and current stockpiling requirements, including the wholesaler's legal obligation to create stockpiles. The list for specialist healthcare stockpiling is reviewed twice a year. There is no systematic revision in place for primary care stockpiling, but NMPA plans to implement a system. A specialist group on access to medical products makes recommendations on any possible amendments to the different lists, and decisions taken by the regional health authorities. The list for primary care is included in legal documents and is available publicly. Inclusion in national legislation ensures a high commitment to maintaining the stockpile levels set.

Due to limited resources, the NMPA has not yet started work on mapping and identifying crisis-relevant medical devices.

Recommendations

- Develop a specific methodology for compiling a list of medical devices to be mapped and included in the strategic stockpile and ensure its implementation, taking into account relevant stakeholders.
- Implement a routine for revising the stockpile list for primary care and review total stockpiling capacity.

Policies or plans for monitoring supply and estimating demand of critical MCMs and provisions related to mitigating supply chain vulnerabilities

MCM governance is very well developed in Norway since the NMPA was established in 2024. The NMPA is responsible for coordinating and monitoring national access to medical products, including MCMs. Having a clear MCM governance and one structure that consolidates information is of great benefit for the preparedness and response to cross-border health threats.

NMPA receives information from marketing authorisation holders, pharmacies and wholesalers, with legislation requiring the latter to have a stockpile equivalent to three- or six-months' worth of the medicinal products on the critical medicines list for primary care use. The wholesalers are required to report to NMPA on a weekly basis and in more detail once a month. NMPA has delegated the follow-up of reporting to the Western Norway Regional Health Authority Pharmacy. NMPA receives information from the NIPH on the epidemiological situation of a health threat and this helps inform demand. NMPA also uses the national committee on security of supply and preparedness for medical products to obtain information on preparedness gaps and access to MCMs in municipalities and at national level.

NMPA has the legal mandate to impose restrictions of use on all medicines, including the use of stockpiled medicines, in the event of shortages. This includes restrictions on sales and exports. Norway has a partnership with the other Nordic countries for importation of some MCMs, such as antitoxins, to ensure additional security of supply. Norway also participates in the Joint Procurement Agreement and works closely with the European Commission's Health Emergency Preparedness and Response Authority (HERA) on relevant joint procurements.

For certain MCMs, such as those for testing and diagnostics, although Norway can consider engaging in EU action, such as HERA's joint procurement, there is currently no national plan to scale up and no stockpile. This could have an impact (e.g. on mass testing) in the event of another pandemic.

Recommendations

- Continue the development of tools to ensure monitoring of supply and estimation of demand, taking into account the reporting requirements which would be applicable in the event of a public health emergency. Identify gaps at municipality and national level, and incorporate more gap analyses, taking into consideration the priority cross-border health threats identified.
- Develop a strategic, all-hazards strategy towards ensuring supply of critical MCMs for various types of health emergency, outlining the MCM-related responsibilities and a general overview of actions at national, regional and municipal level. This should include provisions on stockpiling, manufacturing, supply chain management and MCM-innovation, along with a description of how different interventions complement one another.
- For mass testing preparedness, develop plans on securing supply and how to upscale testing activities.

Mapping of production and provisions to scale up manufacturing of critical MCMs

Norway does not wish to disclose this information which it considers contrary to the essential interests of its security.

Strategic stockpiles

Norway has a robust physical stockpile of MCMs for chemical, biological, radiological and nuclear events and pandemic threats, covering different types of products. The NMPA has been appointed as the responsible body to make decisions on the use of/prioritised groups for several national stockpiles. There is a national stockpile of PPE equivalent to six months' supply for use during a pandemic situation (COVID-19). The PPE stockpile is currently larger than the target set, but shelf life will be reached in the coming years and procurement will commence again to replenish stocks. The national stockpile is integrated into the Norwegian regional health authorities' local stockpiles in order to reduce waste due to expiration dates. In the event of a national crisis (pandemic, etc.), the national stockpile will be transferred from the local stockpiles to a central distribution point and redistributed according to relevant plans for prioritisation of PPEs. The stockpile is managed by the South-Eastern Norway Regional Health Authority, which reports to the NMPA. In addition to the national stockpile, the municipalities, regions, and hospital trusts are mandated to have a stockpile of masks, gloves, respiratory protective equipment, medical gowns and eye protection. From January 2026, these local stockpiles will be required to have a stockpile containing three months' supply of PPE. Municipalities have no stockpiles for MCMs other than PPE.

There is a stockpile in place for antivirals against pandemic influenza that is managed by the Directorate of Health, with NMPA responsible for prioritising its use. There are stockpiles in place for selected vaccines for preparedness,

including botulism, diphtheria, anthrax, smallpox, mpox, influenza. Antidotes are also partially included in the national pharmaceutical stockpile. The NMPA has been given the responsibility to prioritise the use of antivirals for pandemic influenza, but criteria for deployment of the stocks have yet to be developed.

There is a stockpile of medicines for primary care, with stocks including antibiotics and paracetamol. Wholesalers are mandated to monitor and manage the stock, and the NMPA has the power to restrict sales and export if necessary.

There is a stockpile of medicines for specialist care containing medicines identified as critical for hospitalised patients (see above). This is managed and monitored by the Western Norway Regional Health Authority on behalf of all Norwegian regional health authorities. A specialist committee advises on the content and the NMPA can apply restrictions on use.

There are many actors/sectors involved in the work of chemical, biological, radiological and nuclear threats, including the Ministry of Health and Care Services (MoHCS), the Ministry of Justice and the Ministry of Defence, and this may lead to a fragmented overview of the chemical, biological, radiological and nuclear stockpile. A chemical, biological, radiological and nuclear strategy will be revised in 2025.

The NIPH has a stockpile of vaccines, sera and antitoxins. For vaccines used in the child vaccination programme, the stockpile is six months' supply. For other vaccines, the stockpile is up to four months. In addition, some selected vaccines and related products for preparedness are kept in stock. For pandemic influenza, there are pre-purchasing agreements in place, which cover two doses for the whole of the population. Norway also keeps a strategic stockpile of smallpox vaccines.

Recommendations

- Engage with the cross sectoral ministries/key actors involved in chemical, biological, radiological and nuclear activities to help map available MCMs, identify needs, and clarify responsibilities. Ensure that the NMPA participates in and contributes to the chemical, biological, radiological and nuclear threat strategy.
- Coordinate the engagement with stakeholders in developing a criteria system to prioritise use of PPE and antiviral stockpiles.
- Engage with municipalities on a common approach for preparedness, bearing in mind that municipalities only have PPE stockpiles. This could take the form of guidance, templates, and training courses, depending on the needs identified.

Antimicrobial resistance and healthcare-associated infections (Capacity 12)

Norway has relatively low rates of AMR, HAIs and antimicrobial consumption (AMC). Norway is able to compare its national AMR situation among bloodstream infections to those in other EU/EEA countries, as an active participant in EARS-Net, the AMR surveillance network coordinated by ECDC. In 2025, 18 clinical laboratories reported EARS-Net-compatible data, acquired during routine clinical practice, with a high population coverage and national representativeness (at geographical, hospital and isolate levels). The reported rates of AMR and the estimated incidence for the pathogens under surveillance are among the lowest in the EU/EEA countries ([Antimicrobial resistance in the EU/EEA \(EARS-Net\) - Annual Epidemiological Report 2023](#)). The national NORM/NORM-VET report ('Usage of Antimicrobial Agents and Occurrence of Antimicrobial Resistance in Norway') is exemplary. It contains detailed AMR and AMC data, context and interpretation from a One Health perspective, for a large variety of pathogens and sample types. This, together with its bioinformatic analysis and short explanatory texts for key concepts and findings, makes it a key flagship document.

The Department of Infection Control Registries at NIPH oversees all registries related to infectious diseases including the Surveillance System for Antibiotic Use and Healthcare-Associated Infections (NOIS) and, together with the Department of Infection Control and Preparedness, it coordinates biannual point prevalence surveys (PPS; 'NOIS-PIAH') in both acute care hospitals and long-term care facilities (LTCFs) in Norway, with online electronic reporting (PIAHnett), providing data for action. As a result of the comprehensive approach offered by the PPS, Norway has a level of national situational awareness for HAIs that is unparalleled. International comparison with European countries is achieved by participating in ECDC's PPS. Norway provides national NOIS-PIAH data for 60 hospitals, achieving 'optimal' national representativeness. These involved aggregate HAI data for the four most common HAI types (lower respiratory tract, urinary tract, surgical site, bloodstream infections), and individual-level AMC data, converted into the individual-level HAI and AMC data format specified by ECDC's PPS protocols. In the '[ECDC PPS](#) of HAIs and antimicrobial use in European acute care hospitals, 2022–2023' Norway had the seventh lowest observed HAI prevalence, and eighth lowest prevalence of antimicrobial use. The rate of HAIs and antimicrobial use were similarly low, according to NOIS-PIAH data converted to the format of ECDC's PPS in LTCFs (HAI-HALT).

The 'National One Health Strategy Against Antimicrobial Resistance 2024–2033' contains long-term commitments, with strong political engagement, co-signed by the ministers of six ministries, specifying relevant national governance groups, supported by the reference groups of national stakeholders. Throughout the Strategy, sub-sections beginning 'The Government will:...' specify 34 key actions divided across six main goals. These goals include ensuring access to necessary antimicrobial agents, which is a priority for Norway, particularly in the public

health and paediatric sectors, and increased participation in global activities. Norway has already established bilateral and multilateral relationships with EU and UN agencies and leadership positions in networks such as the EU Joint Action Antimicrobial Resistance and Healthcare-Associated Infections 2 (EU-JAMRAI 2).

Most actions in the Strategy are non-quantitative descriptions of intent (e.g. 'strengthen cross-sectoral AMR collaboration'). There are also some quantitative actions, such as the aim to reduce the proportion of acute-care patients and long-term care facility residents who contract an HAI by at least 10% compared to 2019 levels, and total antimicrobial usage among humans. The Strategy is an umbrella document for the period 2024–2033, on which subsequent 'sector-specific national action plans' (NAPs) will be based 'with specific targets, where appropriate'. The current NAPs for AMR (2020) and the Action Plan for Better Infection Control (2019–2023) remain valid while updates are drafted. These NAPs contain more detailed statements, financial plans, and even estimations of quantitative changes from specific interventions. Economic arguments for IPC were reported to be particularly valuable for acquiring and ensuring sustainable funding, provided by various public bodies, in order to 'sell prevention'.

The Strategy and NAPs include activities for those working at national, regional and municipal levels, including organisations that work across sectors and regions. The multi-sectorial engagement for IPC activities, including antimicrobial stewardship, was strongly evident throughout the PHEPA visit.

The duration of the PHEPA mission was insufficient to understand how IPC culture and training in Norway have been established and maintained, as evidenced by the comparatively low rates of HAIs and AMR. Healthcare facilities have relative autonomy for their IPC responses to surveillance data, with little central/regional coordination, registration or monitoring of these actions. Hospitals also appear to have relative autonomy to use their local risk assessment to adjust national guidance on the screening of admitted patients for multidrug-resistant organisms (MDROs). Although this could pose a risk of hospitals having insufficient screening practices, available surveillance data do not indicate increasing endemicity of MDROs or HAIs. During the site visit, the national attendees at PHEPA noted the apparent strong compliance with IPC recommendations in Norway, linked to Norwegian culture which particularly values transparency, thereby fostering an openness to learning and change, including for IPC.

IPC training for healthcare workers was reported to be embedded into standard healthcare training, rather than structured separately, and included mandatory courses. Healthcare staff can improve IPC skills through various initiatives, such as e-learning from the NIPH and activities from 'regional centres for infection control', through 'community medicine'. The NIPH (through NOIS, regional authorities, and professional groups) actively promotes IPC in acute (hospital), primary (GP), and long-term care, and community sectors. Norway is a global leader in HAIs and AMR prevention and control in LTCFs. Nevertheless, the high-quality public health surveillance systems still identify hospitals as the key location for AMR and HAIs, and therefore Norway directs its prevention and control focus to this sector. Periodic surveys of IPC structure and process indicators by the NIPH acquire data to monitor progress against relevant NAPs in acute-care and long-term care. The structure and process indicator data are not directly comparable with data from other EU/EEA countries, because they are not compatible with the ECDC PPS protocols. Participation might help Norway highlight which structure and process indicators are most valuable or suggest areas for further improvement. Not all successful activities were sustainable. For example, there were no plans to continue regular seminars for LTCF workers, due to lack of resources. Similarly, the development of an electronic surveillance system for antimicrobial use and HAIs in LTCFs remains incomplete. This system would resemble a system for primary care (GPs) which would also be useful for peer-led stewardship activities.

Coordination of outbreak response is relatively autonomous at regional and municipal levels, with national support from the NIPH available on request – e.g. in the event of large or multi-region outbreaks. The threshold for requesting or receiving national support depends on available resources.

As noted during discussions of the in-depth capacities for laboratories (Capacity 3) and surveillance (Capacity 4), the legal framework for sharing data often prohibits optimal use of public health data. For example, the bioinformatic analysis of carbapenemase-producing pathogens presented in the NORM/NORM-VET report identified microbiological clusters, but did not include consideration of the clustering by hospital, because the data could not be linked. In this example, linking microbiological, temporal and geographical data for key HAIs/MDROs could have helped to identify transmission events, thereby suggesting the occasions when lapses in IPC practice facilitated transmission. Applications for public health activities, by the NIPH and other national and regional institutions, are commonly identified as research, or, for pragmatic reasons, are proposed as such. The NIPH is developing a technological solution to link relevant databases, which might launch in 2026/2027, if approved. The objectives of the system, as described during the PHEPA, are compatible with many of the goals specified in the Strategy. Through NOIS, the NIPH coordinates incidence surveillance of surgical site infections after three types of surgery (NOIS-POSI). For example, incidence surveillance after other types of surgery and of key HAIs, or for further types of HAI and other types of surgery may be necessary to achieve the Strategy's planned 10% reduction of HAIs, and better data linking would be a strong catalyst.

One Health interactions appear to be strong but were not investigated in depth during the PHEPA visit due to time constraints. AMC in food-producing animals is low, as monitored by the Norwegian Veterinary Prescription Register

(VetReg), in line with the goals of the Strategy and EU targets. Surprisingly, Norway has a relatively weak local and national structure for processing environmental samples or coordinating outbreak investigations, including outbreaks involving MDROs. This could be a relatively 'low hanging fruit' for targeted improvement, considering Norway's history of establishing strong laboratory networks for the public health, veterinary and agriculture sectors. There is also currently no national guidance for decontamination of medical products, which could be relatively simple to correct.

The current low rates of HAIs, MDROs, and AMC, the cross-sectoral engagement, and the recognition of current challenges, suggest that Norway is on track to meet its objectives in this domain.

Recommendations

- In line with national objectives for surveillance, and to support Norway's HAI targets, continue activities to achieve data linkage of multisectoral health information, to enable better patient care and outbreak management and prevention (e.g. for cluster investigations and incidence surveillance of HAIs and MDROs).
- Ensure that the NAP(s) specify the parties responsible for monitoring and following up on data generated by the existing and planned processes for HAIs, AMR and IPC, including antimicrobial stewardship, in all One-Health sectors, including for LTCFs.
- Implement standardised mechanisms to monitor screening activities by hospitals, to inform evaluations of national screening recommendations.
- Continue activities to update sector-specific NAPs, to achieve the goals and actions in the 'National One Health Strategy Against Antimicrobial Resistance 2024–2033'. These should continue efforts to strengthen IPC in LTCFs, including antimicrobial stewardship.
- Ensure full participation in European PPS activities that measure IPC structure and process indicators, to identify national strengths, and potential areas for improvement.

Health service provision (Capacity 7)

The healthcare system is semi-decentralised with responsibilities in all administrative levels. The Ministry of Health and Care Services (MoHCS) and its subordinate agencies are responsible for planning, regulating, and supervising the health system. The state, through MoHCS and the regional health authorities (RHAs), is responsible for specialist healthcare services, while municipalities are responsible for primary healthcare services, rehabilitation, and preventive health efforts, nursing homes and home healthcare services. County authorities have a limited responsibility, primarily in dental healthcare services. The MoHCS oversees specialist in-patient care, which is delivered by 20 hospital trusts (of different sizes, ranging from 160 to 1 600 beds) organised in four RHAs. The responsibility for ambulance service rests with RHAs. The responsibility for pre-hospital emergency medical services is shared between municipalities and health trusts. Municipalities are responsible for providing out-of-hours emergency medical services and, in addition to immediate care, these services also respond to accidents when needed. There is extensive collaboration between emergency medical personnel in the municipalities and the ambulance service, which falls under the responsibility of the health trusts. There are 15 counties, providing guidance, and handling appeals on administrative decisions. Specialist out-patient care is provided by hospital trusts, either in hospital out-patient departments, or by self-employed specialists working under contract with the RHAs. The private health care sector is relatively small and well-regulated, and most private actors operate within the public system and are refunded by the state.

Healthcare and health-related services are among the municipalities' most important tasks, consuming more than a third of their total resources. In total, 357 municipalities are responsible for organising and providing primary care, rehabilitation, nursing and after-hours emergency services. GPs, working under contract with the municipalities, play a gatekeeper role in providing access to specialist care. As of January 2025, there were 5 535 primary care physicians. The municipalities also provide primary care services for 167 out-of-hours clinics, engaging GPs and nurses. Dental care is provided both by public institutions (under the county authority) and private professionals.

With regard to emergency care, in 2022 there were 16 hospital emergency call centres and 97 municipal emergency call centres. In addition, Norway has air ambulance resources to reach remote geographical locations.

Every four years, the MoHCS updates the National Health Plan, which outlines the main targets for development of the health system. Counties and municipalities implement these health policies by adjusting plans to the local conditions and available capacities. The founding principles of the Norwegian health system are equal access for all to healthcare services and universal health coverage. To achieve this, the health authorities aim to improve care continuity and integration, as well as strengthen primary care for equitable access and a better coordination, as there are regional variations in access to GPs, particularly in rural and sparsely populated areas. The planning for infrastructure and capital investment is in the hands of RHAs for specialist healthcare, and the municipalities for primary healthcare.

One of the main characteristics of health service provision in Norway is the small size and varying capacities of many municipalities – half of the country's 357 municipalities have fewer than 5 000 inhabitants, and a third have less than 3 000 residents. Small rural municipalities face challenges in complying with all necessary obligations, mainly due to a lack of specialised expertise. This has caused the country to lean more towards generalised

competences, as it is very difficult to have a broad range of healthcare specialists in smaller municipalities, facilitating pragmatic multi-professional solutions, and perhaps less overdiagnosis and medicalisation.

In health emergency preparedness, county governors are assigned a coordinating role between state authorities and the municipal sector. It is therefore essential for them to understand and familiarise themselves with the challenges and needs of their municipalities. County governors have a particular responsibility for ensuring that the central authorities are aware of the challenges faced by their municipalities, which include a wide variety of different perspectives. All members of the Health Emergency Preparedness Council must ensure that they include the municipal perspective in their work.

There have been several reforms in the last 10 years to ensure that the health system offers sound social and financial protection and to maintain the high level of trust and confidence in the population. Overall, health outcomes, measured by preventable and treatable mortality, are among the best in Europe with various actors both at central and local level influencing effectiveness, efficiency and quality of service. The major challenges faced by the health authorities are an ageing population and an ageing health workforce; lack of personnel, particularly in certain regions; the need for better coordination of services; quicker developments with respect to integration and interoperability of technologies, and the political and economic environment causing disturbances to supply chains, leading to issues with access to vaccines and medicines.

Notwithstanding the challenges, the self-assessed levels of health service provision capacities (as per Article 7 of SCBHT Regulation and the WHO SPAR) are high (4 and 5 out of 5). Ensuring resilience of the health system is important, particularly during public health emergencies. In this respect, the national clinical case management guidelines for priority health events are implemented at all levels. Service utilisation scores highly at all levels, and during the last public health event disruption was mitigated relatively well, even though the health service was restructured and tasks were shifted during the COVID-19 pandemic. There is a package of essential health services requiring continuity during an emergency, including mechanisms to monitor service continuity. Assessments and after-action reviews have also been conducted to evaluate and update the guidance documents.

[A health atlas](#) and other statistics have been established as a platform for monitoring and comparing utilisation of health services in different geographical areas. In Norway, health system performance assessments (HSPA) are distributed across different state agencies (e.g. DoH, NIPH, RHAs, Statistics Norway). DoH is responsible for maintaining an overview of capacity, capability and quality of the health services, largely based on data from others.

All hospitals have plans covering the discharging of patients in a crisis, however the reduction of specialised care would have a direct impact on other health services and a quick, but firm assessment must be made of how to handle such situations at the different service provision levels. For example, a template for impact assessment could be created for use during crisis, to assess the effect of prioritising a service or moving it to another part of the system. Real situations with seasonal influenza provide opportunities for the discussion and coordination of solutions.

With regard to the conducting of a foresight assessment of the potential impact that a health emergency might have on continuity of healthcare services, the Health Preparedness Act mandates health authorities to conduct risk and vulnerability analyses as a foundation for crisis planning at all levels. These risk and vulnerability analyses are also included in the current national health preparedness plan, as well as in regional and municipal preparedness plans. A risk and vulnerability analysis is conducted every four years at national level. Municipalities must also perform this exercise by working through scenarios and analysing vulnerabilities at the local level. A regulation is in place that requires the integration of these analyses into contingency plans. However, municipalities do not have formal mechanisms for collaborating on the sharing of risk and vulnerability analyses or their use in a crisis, unless this is done on a voluntary basis. This means that there are no mechanisms in place to ensure that the municipal crisis plans are harmonised. The county governors have a vital role in supporting coordination between local and national level and following up on crisis plan cooperation, on the basis of the risk and vulnerability analysis.

In the event of a public health emergency where there is an increase in demand for healthcare provision and a potential decrease in healthcare staff, the country has dedicated operational provisions for the continuity of health services for hospitals, out-patient primary care services and other public health services. The prioritisation mechanism is permanent for hospital services and ad hoc for other types of services. Prioritisation is based on the principles of benefit for the patient, resources available and seriousness. Adaptation of health service provision would also require a good overview of the workforce, which the authorities are developing and maintaining at various administrative levels through up-to date health personnel registers. Preparing for an unexpected situation with an unknown disease is challenging. At the beginning of the COVID-19 pandemic, Norway sent medical professionals to Italy to observe the development of the situation to prepare better for a similar situation.

The four public health preparedness principles are well integrated into the work of health administration, while the prioritisation principle has not been integrated systematically and requires further action. It has been highlighted that there is a difference between primary and specialised healthcare, noting that specialised care has more guidance on prioritisation. Using post-COVID-19 experience, the DoH is currently preparing guidelines for the municipalities, with the emphasis on flexible solutions and the freedom to assess and adapt at the local level, depending on specific circumstances and available resources, and given public expectations for healthcare provision. The principles could be modified depending on the scale and duration of the crisis, sometimes requiring

strong coordination. The priority setting remains an important issue for building shared understanding of resource availability, public expectations and the impact of action in one area relative to other elements of service provision. There still needs to be further discussion on how to cope with long-term situations.

The power to prioritise in terms of personnel reallocation and task reassignment is regulated and county governors and RHAs have important roles to play, while allowing for flexible staffing solutions at all levels. During the COVID-19 pandemic, there were weekly meetings between the DoH and county governors who had to further cascade information to the municipalities. In a public health event, county councils will start monitoring the situation and the governor will give advice and, if necessary, begin coordinating. The National Center for Rural Medicine conducted a study showing that county governors took different approaches during the COVID-19 crisis, depending on the local situation, which indicates that they have the ability to adapt.

In Norway there is a legal basis for interdisciplinary crisis management coordination between all actors in the healthcare system (e.g. hospital services, rescue services, other public health services, out-patient primary care services, pharmacies, laboratory services, nursing/rehabilitation services). Coordination mechanisms are partly permanent, with established coordination bodies, and partly involve the implementation of ad hoc solutions. Post-COVID-19 evaluations have been used as a basis for improving plans, guidelines and operational procedures for enhanced interdisciplinary and cross-sectorial cooperation. The focus is on a generalist municipality principle, meaning that every municipality is responsible for every legal duty, irrespective of size or location. The national guidelines for cooperation agreements between municipalities and healthcare institutions, based on the four guiding public health preparedness principles, have been revised.

The business continuity plans, in the event of a disruptive event, are regulated as parts of health preparedness plans at national, regional and municipal level, but these plans are currently under revision. Some aspects of recovery elements will be better described in the business continuity plans. Moreover, cross-sectoral work is ongoing to maintain critical functions during a crisis and a multisectoral approach (six preparedness committees) is being considered during the current revision of the national health preparedness plan. The Municipal Medical Officer (MMO) is tasked with observing the trends during a public health event and when necessary, informing the CEO if changes are introduced into the business continuity plan. A requirement for hospitals to report an emergency situation to the county governor was introduced after the COVID-19 pandemic, as a critical situation in one sector of health provision affects the others, so timely information is vital for a quick revision of business continuity planning.

Hospitals are mandated by law to have an alert and response plan to prepare for public health emergencies that may affect their capacity and function. These plans are generic and cover all hazards, including shortages of medical personnel, medical stockpiles, treatment facilities or a technical breakdown (electricity, water, digital). There is a need to strengthen practices for more regular testing of these plans.

While hospitals have systematic contingency planning and the ability to assess complex situations, municipalities and institutions for long-term care lack sufficient capacity and capabilities for institutional preparedness. Therefore, there is a need to strengthen contingency planning at the local and county level and to coordinate at the regional level. The Norwegian Board of Supervision, which does not have a role in an actual event but does have a role in preparedness, is monitoring to see whether plans are in place. A vulnerability, noted during the PHEPA discussion, is the lack of contingency plans in several municipalities. Collaborating with GPs and GP associations to support business continuity planning is also seen as an opportunity for building common understanding between key stakeholders, to facilitate two-way communication between municipalities and GPs and to be able to discuss prioritisation of care prior to a crisis. Even though GPs are contracted by the municipality, which is a strength during crisis, preparatory work on contingency planning would facilitate crisis response.

The municipalities have pointed out that ensuring continuity and developing contingency plans is a difficult task, including aligning with other municipalities in the same region. Collaboration and cooperation with other municipalities could be challenging and requires improvement. One solution for setting the terms for collaboration prior to a public health event could be to establish municipal preparedness committees to work together and pre-define agreements regarding the financial and personnel aspects of cross municipality health service provision (e.g. ambulances). During the COVID-19 pandemic, crisis management knowledge increased but daily collaboration was largely based on personal contacts, so more formalised procedures could be considered in the revised plans.

The country has the capacity to immediately map available health services in the event of a public health emergency. During the COVID-19 pandemic, a system was put in place to review, in real time, the ICU capacity (occupancy rates). This system can be reactivated, if necessary. The national quality indicator system (e.g. emergency service response time) is used for reporting on a regular basis. If hospitals become full, they can coordinate and allocate patients among themselves. Mapping is primarily based on manual reporting from municipalities, which was considered as a challenge during the crisis, as it was time-consuming. It was noted that more structured and automated reporting should be envisaged, while maintaining diversified information systems to be able to have an alternative (back up) in the event of an IT black-out. Moreover, there should be an overview of the systems for reporting, which need to be interoperable.

It was noted that in a crisis, designating higher thresholds for specialist care could affect municipal service provision, for example discharging patients earlier to free hospital capacity needed to be coordinated across institutions as specialised out-patient and primary care would have to step in with supportive services. Such circumstances would also require communication with communities regarding expectations on standards of care.

At the regional level, the four RHAs are planning a common resource database for hospitals covering beds, personnel and equipment. During COVID-19, there was a lack of overview of private sector capacities, which was evaluated as a shortcoming. To follow up on this, the health authorities aim to carry out comprehensive mapping of all capacities throughout the healthcare system. In addition, the DoH is supporting municipalities to obtain an overview of health conditions, influencing factors and capacities for identifying and monitoring areas for improvement.

Norway has strong collaboration with neighbouring countries and the EU on medical transfer of patients and mobilisation of medical teams. Several agreements are in place, including Nordic collaboration on healthcare service assistance and public health preparedness. For example, during COVID-19 there was a strong collaboration between Nordic state epidemiologists on the sharing of practices and information. There are also other agreements in place to support the European Union Civil Protection Mechanism and WHO's Global Health Response.

In conclusion, the system for healthcare service provision is flexible and scalable in a crisis. Different authorities are engaged in planning and monitoring, but the processes are coordinated. The principle of similarity is well embedded into the culture and practice, meaning that capacities and capabilities is built during routine day-to-day work, while in a crisis the tempo is changed, but not the fundamental way of working. The coordination between actors is enhanced during a crisis. Plans for continuity of healthcare services are in place or under revision. The Supervision Board is monitoring compliance. Although crisis management competence increased during the pandemic, the experience and knowledge needs to be preserved.

The health authorities can obtain an overview of available hospital bed occupancy, including ICU beds, in a crisis but they lack overall situational awareness of hospital capacities, unless crisis reporting is requested by the DoH (as occurred during the pandemic) or the MoHC. In addition, while public expectations and tasks are increasing, small municipalities face several challenges, including addressing surge capacity and prioritising service provision, keeping business continuity plans updated, ensuring timely and complete situational reporting and analysis, and having a sufficient full-time workforce, both for service providers and MMOs. Other health system challenges are the uneven distribution of health personnel across the country, difficulties in arranging and supervising training to increase knowledge when resources are lacking or overloaded, challenges with the prioritisation of scarce manpower, and lack of time to conduct exercises beyond routine work tasks.

Recommendations

- Ensure lessons learned and challenges from the COVID-19 crisis are well documented to preserve knowledge and transfer this knowledge into procedures.
- Formalise training and testing of procedures for implementation of preparedness principles, including prioritisation at all administrative levels.
- Incorporate the use of in-action reviews, after-action reviews and SIMEX into regular activities and ensure the municipal and regional health administration has received training on the methodologies.
- Enhance interoperability of digital systems for data collection and reporting.
- Discuss incentives and professional development opportunities to support more equal distribution of health personnel across the country.
- Develop guidance on planning, and conducting risk and vulnerability analyses, with standardised templates for reporting and monitoring to facilitate the work and strengthen overall competence in the municipalities.
- Review institutional emergency preparedness in hospitals and nursing homes, if necessary.
- Ensure the common resource database for hospitals covering beds, personnel and equipment is set up, as planned by the RHAs.

Other capacities not assessed in-depth

Policy, legal and normative Instruments to implement the International Health Regulations (IHR) 2005 (Capacity 1)

Norway has a comprehensive legal framework regulating prevention, preparedness and response to health emergencies. Following the rule-of-law approach, the mandates of different authorities as well as the rights and obligation of patients, citizens, businesses, civil society and other stakeholders are defined in the legal texts. Key acts include the [Health Preparedness Act](#), [Public Health Act](#), [Specialist Healthcare Act](#), [Municipal Health and Care Services Act](#), [Patient's Rights Act](#), [Civil Protection Act](#), [Food Act](#), and the [Radiation Protection Act](#). Subordinate to the legal acts are royal decrees and regulations – e.g. the [Regulations on Emergency Planning](#).

The International Health Regulations (IHR 2005) have been implemented with the [national IHR-regulation](#). This regulation – subordinate to the [Infection Control Act](#) – defines the national focal point for the IHR Event Information Site and the EWRS systems (NIPH) and describes the procedures for notification across sectors. The Regulation (EU) 2022/2371 on serious cross-border threats to health applies in Norway, as per the EEA agreement. Norway is also a signatory to the [Nordic Public Health Preparedness Agreement](#) outlining the cooperation among the Nordic countries.

In health emergencies, where the capacity of the entire health system is threatened, the Health Emergency Act allows for the temporary transfer of power from the local and regional level to the national level in order for the government to coordinate resources more efficiently. The threshold for the centralisation of powers is high and was used during the COVID-19 pandemic. Emergency preparedness and response always follow four overarching principles: responsibility, similarity, proximity, and collaboration.

During the COVID-19 pandemic, the legal framework was temporarily amended to address public health and social measures in schools and travel restrictions. At present, legislation is being extensively revised, based on the lessons learned.

The implementation of the legal framework is supported by several strategies, plans and guidance documents describing the decision-making processes (see Capacity 6). The national strategy for women's health also addresses health emergency preparedness and has specific action points relating to several [IHR capacity areas](#).

In order to answer the annual self-assessment of the IHR capacities and the Article 7 questionnaires, the MoHCS coordinates an 'IHR-forum', with its secretariat based at the NIPH. This forum meets regularly and includes representatives from the ministry, DoH, NIPH, Food Safety and other areas to be assessed.

Recommendations

- Maintain and strengthen the long-standing good practice of the IHR Forum which allows for cross-sector collaboration in answering the SPAR and Article 7 self-assessments.
- Conclude the revision of relevant legislation based on the needs identified and lessons learned. Ensure the coherence of different regulations and reinforce provisions on cross-sectoral collaboration, where applicable.
- Plan for the regular testing and reviewing of the legal framework and ensure capacities for rapid development and adoption of new legal tools, where necessary, in the event of an emergency.

Financing (Capacity 2)

In Norway, healthcare expenditure is mostly (>85%) financed by the public sector through a government financing system, supported by general taxation and the National Insurance Scheme (NIS), which is administered by a subordinate agency of the Ministry of Health and Care Services (MoHCS). The MoHCS allocates the health budget to municipalities, counties, RHAs and the NIS. Specialised care is financed by the RHAs, while primary healthcare is funded by municipal taxes, central government block grants, NIS contributions and patient co-payments.

The budget is adopted annually, ideally based on realistic estimates of expenditures and revenues. A share of funding is also secured by using the Norwegian Government Pension Fund Global for re-allocation of funds, where necessary. Overall, the budget is robust and flexible. There is an option to obtain funding for increased demand, by following a process and justifying the necessity. In severe crisis situations, funds can be obtained relatively quickly, as during the COVID-19 pandemic, but requests need to be supported by a firm justification. The Appropriations Regulations stipulate possible changes to the budget during the fiscal year (twice a year) but also by triggering emergency powers to meet unexpected needs, with the involvement of the King in the Council. The legislation allows planned proposal submissions for budgetary amendments to the Parliament, as well as options for extra proposals, in the event of an emergency. The governmental procedures for approving emergency funding for crisis response are generally based on the same procedures as the routine procedures, but adapted according to needs and urgency.

Norway does not have plans to test financial resources for contingency funding in responding to health threats as, according to the authorities, the system is exposed to continuous testing through real events (e.g. COVID-19, migration influx, etc.). Moreover, the COVID-19 pandemic showed that the financial system is flexible enough to allow for timely execution of funds and budget adjustments when a crisis occurs. In a crisis situation (as during the COVID-19 pandemic) all relevant political stakeholders agreed on the overall support for budgetary adjustments to cope with the increased needs for managing a specific situation. However, unlimited appropriations are uncommon.

Exceptional funding can be approved quickly, by means of a supplementary proposal to Parliament, as was the case for buying tests and vaccines during the COVID-19 pandemic. If funds are not used, there is a procedure for returning unused budget.

The internal division of responsibilities for preparedness within the Norwegian government is described in 'Instructions for the Ministries' work with civil protection and emergency preparedness laid down by the Norwegian Ministry of Justice and Public Security' (2017), where emergency preparedness principles, requirements, coordinating functions and crisis management are explained. These instructions apply to all ministries except the Norwegian Ministry of Defence and the defence sector. The Norwegian Ministry of Health and Care Services (MoHCS) has the main responsibility in planning for health emergencies. The MoHCS and the Ministry of Finance (MoF) have dedicated procedures for the coordination of policies and activities in the event of a public health emergency. There is a Standard Operational Procedure (SOP) between the two ministries and the MoF also has internal procedures for handling sector-wide events which cover financial and economic crisis management. The legal framework (in force and under revision) also describes coordination pathways which the authorities should follow in crisis situations: National health preparedness plan (2018); White paper on health preparedness (2023-2024); National preparedness plan for outbreaks of serious infectious diseases (2019) and National plan for pandemic influenza (2014).

With regard to the financing of IHR implementation, there has been sufficient budgetary allocation for all administrative levels and all sectors, with a predictable and flexible budget, distributed in a timely manner. The country is able to collaborate and provide financial support to other countries, taking into account regional priorities, needs and global threats. The budget is monitored against objectives, and accountability mechanisms are in place at each level for transparent and effective use of funds. IHR implementation is integrated at all levels of the central health agencies, especially the NIPH and the DoH, which receive sufficient budgets to ensure competent systems for detecting, assessing and reporting on public health events (e.g. functioning surveillance and response systems). Public financing for responding to health emergencies is in place at national and intermediate levels and allows for the timely execution of funds by all relevant sectors. There are procedures in place to handle public health emergencies in terms of finances through the appropriations regulations for budget adjustments, both throughout the year and in emergencies.

The challenges discussed during the PHEPA refer to the continuous funding of preparedness activities, implementation of lessons learned and the conducting of regular on-the-job training, for which there is no specific budget allocated. Even though the revised plans are submitted for approval with financial estimates for their implementation, the budget allocations for their implementation are usually embedded into the overall budget of the institutions. This could be challenging if priorities are shifted towards areas other than public health emergency preparedness and response.

Moreover, at local level, the municipalities are tasked with a wide range of activities for which they would need to have a robust, but flexible way of adjusting their finances, if a crisis occurs. Indeed, during COVID-19, all municipalities were confident that they would receive the required funding (e.g. for mass vaccination and tests) but the process for obtaining this exceptional funding was time-consuming and quite uncertain at the beginning in terms of planning and reporting. This is a lesson learned for future situations where the national institutions need to provide clear and timely instructions to the sub-national levels.

It has been noted that during the crisis, the central government had difficulty in checking whether municipalities were using funds efficiently. Although the financial impact of COVID-19 and the efficiency in using the funds was considered to be part of the evaluations conducted after the pandemic, this could also be an opportunity to discuss and define the financial flows for preparedness and response, particularly as regards future funding of specific services and providers –for example GPs and pharmacies – in the event of a crisis.

Recommendations

- Ensure sustainable funding for public health preparedness activities at all administrative levels.

Human resources (Capacity 5)

The number of practising doctors and nurses per capita is higher than the EU average, which helped to avoid severe prioritisation of service delivery during the COVID-19 pandemic. However, factors such as using part-time contracts for certain professionals (nurses), exhaustion from long working days during the COVID-19 pandemic, uneven distribution of the workforce and difficult access to some parts of the country, led to shortages. However, despite there still being GP shortages in certain municipalities, Norway has achieved progress in tackling these issues by expanding recruitment schemes, combined with a change in financing which has led to an increase in the number of GPs across municipalities. Nevertheless, the central government should continue to tackle the issue of the uneven distribution of GPs and health personnel in general. To resolve this there should be continued focus on measures to train, recruit and retain healthcare personnel; continuing successful trials with new work shifts and adopting measures for optimal use of existing staff – e.g. through task shifting.

As the government is taking action to improve the ability of the health service to adapt and be flexible in order to face future crises, there is a need for prioritisation and overview of human resources, as well as for discussion on

reallocation and mobilisation of resources, where necessary. Therefore, development of the health workforce is a key area for future reform. Some of the aspects being considered include strengthening collaboration and introducing multidisciplinary teams, capacity building and diversification of skills for health service providers.

The provision of healthcare is divided between central, regional and local levels in Norway, requiring the key players to collaborate and coordinate policies on the health workforce. Some of the legal provisions describing the roles, responsibilities and organisational aspects of all healthcare personnel or specific areas of service provision include the Specialist Health Services Act, the Dental Health Services Act, the Health and Care Services Act, the Labour and Welfare Act, the Health Emergency Preparedness Act, and the Health Personnel Act. In addition, references to the healthcare workforce could be found in the government white paper describing the cooperation between health services; the DoH evaluation (2022) of personnel availability during the COVID-19 pandemic and the way forward, and RHA plans (e.g. South-Eastern RHA plan for healthcare personnel preparedness planning and regional emergency plan – Health North).

The self-assessment of human resources capacity under Article 7 of the SCBHT Regulation and the WHO SPAR indicated high levels for this area (levels 4 and 5 out of 5). This implies that in the event of a public health emergency, there is a mechanism to ensure a surge in human resources in hospitals, out-patient primary care and other public health services, and this mechanism comprises a structured operational instrument that is routinely updated and involves the periodical training of participants. This situation was reported not to be applicable for laboratories outside of hospitals. The surge capacity can be increased under the legal framework for preparedness. Several mechanisms were used during the COVID-19 pandemic to mobilise the health workforce. However, not all groups were mobilised equally effectively. This issue is being addressed in the development of the new preparedness plans at the national, regional and local levels. Moreover, it has been noted that there are agreements for sub-national levels (regions and municipalities) to receive support in the health sector when needed. For example, the law on specialist healthcare has an explicit paragraph, stipulating the access of regional health institutions to healthcare professionals from other health institutions in order to provide support in certain emergency situations. The law on municipal health and care services stipulates requirements for the municipalities to cooperate with one another and with the regional health authorities.

Legislation in Norway allows for multisectoral workforce surge strategy to be implemented in an emergency, by maintaining vital functions attributed to different administrative levels, including ensuring adequate capacity to send and receive multidisciplinary personnel within the country (shifting resources according to needs). The procedures are reviewed, evaluated and updated regularly. Norway may also provide international assistance for emergency response. Norway also has policies and procedures for sustainable appropriate human resources in all relevant sectors to detect, access, notify, report and respond to events in accordance with IHR provisions. The documents describing these mechanisms are reviewed, evaluated and updated on a regular basis and the country can assist other countries in planning and developing human resources for IHR implementation.

The MoHCS can request public employees working in the health sector to work on other tasks, if necessary, to relieve the front-line providers supporting a crisis. Overall, it has been noted that people were very engaged during the COVID-19 pandemic by working long hours, deferring holidays, and being flexible to shift tasks. In Norway, there is a strong tradition of good collaboration between employers, employees and the state/regulators. This collaborative spirit and goodwill probably contributed to the fact that it was not necessary to use the legal framework to order personnel to work. Instead, work changes were agreed upon locally. However, based on this experience, the approach should be adapted to ensure solid systems to monitor situations where personnel are needed, to design pre-arranged agreements for manpower shifts and to have the ability to quickly mobilise additional resources (e.g. use of registers/database of specialists with the necessary qualifications). Municipalities could also request support for personnel from central authorities, however they would need to have a clear specification of the competences required. Although the legal framework allows certain flexibility, the practical application could be challenging. The DoH is tasked by the MoHCS to review and update guidelines for workforce flexibility.

Discussions during the PHEPA visit highlighted the ongoing efforts to preserve the lessons learned from the COVID-19 pandemic and to design policies that would increase capacity in certain domains – such as intensive care – by providing educational and training opportunities for employees. By way of example, this could take the form of 'shoulder-to-shoulder' training in hospitals – certain tasks being carried out under the supervision of a senior staff member before being able to perform these tasks alone – organised by employers, sometimes in collaboration with educational institutions. In addition, professional development programmes and policies have been put in practice for the rotation of nurses to gain experience in intensive care units as part of their ordinary work. Employers have an important role to play in providing guidance for on-the-job training in preparedness. Training and competence plans are available and will be adjusted according to current and new needs. At present, training and competence plans are in the process of being updated.

Another aspect described in the governmental white paper on resilient health emergency preparedness which was a result of the challenges experienced during the COVID-19 pandemic, is the need for better overview of competences and the use of human resources. As part of the proposed actions, the authorities plan to review and improve employment conditions to make the sector more attractive, enhance the knowledge of GPs in emergency preparedness and response work, and assess ways in which to engage private specialists (e.g. dentists) or workers

in other domains (e.g. veterinarians) in crisis situations. In addition, a policy should be designed and implemented to facilitate effective mobilisation of resources, including reserve personnel with health-related competence. Specific attention is given to the actions for enhancing specialised skills (e.g. competences for ambulance and intensive care staff). In addition, an overview of the healthcare providers working in the private sector is foreseen to overcome shortages. During discussions, it was highlighted that there is a lack of oversight concerning dental care specialists who comprise a large share of the private sector and could have been mobilised during the COVID-19 pandemic (e.g. to perform vaccinations).

During the COVID-19 pandemic, several good practices were implemented to ensure provision of equitable and necessary care while also coping with a severe, long-lasting public health crisis. Medical students and volunteers with certain competences were mobilised for vaccination, non-medical professionals were engaged in contact tracing, and retired medics were called in. To facilitate recruitment, measures were introduced, such as changes in the pension schemes, use of private recruiting companies, fast-track training for certain skills, and the setting up of temporary registers. When assessing the outcome of these initiatives, some challenges were listed, requiring further work to improve the system (Government response to assignment HDOTB2022).

The following aspects were highlighted during the PHEPA discussion: the need to set up a system to obtain quick information on qualifications of the workforce in healthcare facilities and municipalities, introducing faster methods for obtaining licences for medical students, strengthening Nordic cooperation for recognition of licences for medical personnel and reviewing the (limited) pool of professionals that could be mobilised. In a more challenging threat environment, the authorities would need to continue working on the assessment of vulnerabilities for staff coming from abroad, and on implementing policies for retaining the workforce. Norway currently relies heavily on healthcare personnel educated abroad, including Norwegian citizens. Maintaining and upgrading the knowledge of health personnel resources is vital for an effective response during a crisis, so these aspects need to be reflected in the up-to date contingency plans at all administrative levels.

With regard to the workforce in the area of public health working with communicable diseases, NIPH stated that there is no shortage at the national level, while for the municipal MMOs there are some recruitment challenges in rural areas, as mentioned above.

In conclusion, the health system in Norway is relatively well-resourced but challenges remain in terms of workforce shortages and having sufficient healthcare personnel with the right competences, particularly at municipal level. Work is ongoing to ensure the right volume and skills mix of the health workforce while maintaining the flexibility of the system to allow the transfer of resources. Plans need to address approaches on how to ensure sufficient capacity (including privately employed healthcare providers) and capability to respond during a public health event while also delivering the necessary care, especially in a protracted crisis. Cooperation among authorities during peace time could facilitate smooth collaboration in a crisis.

Recommendations

- Continue mapping health workforce competences at all levels and elaborate procedures to identify sources for collection of information in a timely manner, when needed.
- Initiate a process to obtain a complete overview of private healthcare providers, in order to better integrate them into health service provision during times of crisis.
- Continue implementing competence building programmes, with an emphasis on retaining and building competence of existing staff, in addition to recruiting new staff.
- Assess the risks and vulnerabilities linked to workforce shortages and review policies to recruit and retain healthcare personnel to ensure incentives for a more balanced distribution of medical expertise across the country.
- Assess vulnerabilities resulting from the high reliance on staff educated and coming from abroad.

Risk communication and community engagement (Capacity 8)

In Norway, there is no common crisis communication strategy for the health sector. Each institution involved in communication activities related to health emergencies has its own activities, including the MoHCS, DoH and NIPH. However, in a crisis the national agencies within the health sector will adjust to the MoHCS' management, and use the joint webpage 'Helsenorge' as the priority channel for communicating online with the public.

The Generic Health Preparedness Plan, which has a section on communication, is currently under revision and further specifications regarding communication activities have been drafted by the DoH and the NIPH.

The communication teams in the different institutions collaborate closely with the required technical experts inside their institution to decide and draft the content of communication messages and material. The DoH and NIPH collaborate very closely in crisis communication activities, including participating in frequent meetings. However, producing a consistent message has proved to be challenging during certain events.

The municipalities also play a key role in communication activities, especially in disseminating messages among the local population, in community engagement activities and in responding to local events that do not necessarily require intervention at national level.

The county governors have a role in channelling communication information to the municipalities and liaising with the national level. Some communication challenges were identified by the municipalities during the COVID-19 pandemic, including difficulties in adapting the national message to the municipal context, or the slow speed at which information was shared from the national to the municipal level.

Several activities were implemented to try and address these issues: a group of medical officers was established to improve communication and promote dialogue with county governors, DoH started drafting communication messages that could be adapted and used by the municipalities, webinars were planned with the municipalities on different topics, including on communication.

Finally, some municipalities have limited capacity for implementing communication activities. Although DoH and NIPH have the capacity to support the municipalities, including during the response to local events, there is a need for more guidance to develop municipalities' communication capacities.

Cross-sector collaboration is implemented as needed for relevant events. Other agencies and institutions in the country have a similar communication structure which involves collaborating closely with the human health institutions' communication teams. Usually, the coordination is good. Although in some instances ownership of the message has been an issue during an event, there is always internal discussion and agreement before the information is communicated to the public. During the pandemic, joint newsletters were produced. There is no common platform for exchanging information between the different sectors and stakeholders involved in communication activities during a crisis. At present, communication is conducted via email, which may lead to confidentiality issues.

Infodemic management activities are implemented by different communication teams. There is a close link with media to assess and correct any message in a timely manner, as necessary; DoH, NIPH and MoHCS all have automated screening of media and social media. There seems to be a high level of trust in health authorities across the Norwegian population. Surveys, focus groups, social media or feedback from hotlines and chatbots are used to get feedback from the population and social listening is conducted to identify knowledge gaps and modify communication messages.

One of the key challenges observed during previous health emergencies, and highlighted during the pandemic response, was the stigmatisation of certain communities. In addition, there were issues in effectively communicating messages to minority groups. During the pandemic, national institutions experienced delays in recognising and conveying the urgency of acting swiftly and differently depending on the population (e.g. migrant communities that were disproportionately affected by COVID-19). This was exacerbated by limited community engagement activities, at least at the start of the pandemic. During the pandemic, established networks were used to start a dialogue and address the specific needs of vulnerable populations or those at greater risk. Some of the networks had been established before, and some were set up during the pandemic. Other key activities to identify and communicate with minority groups were conducted through surveys, focus groups, dialogue meetings and influencers targeting different communities. Some of these activities were discontinued when the pandemic slowed down.

Recommendations

- Document the collaboration procedures between the DoH and NIPH and other key communication stakeholders for crisis communication to ensure a systematic approach and prevent collaboration from becoming overly dependent on specific individuals.
- Ensure continuous coordination with and support to municipalities to implement crisis communication and community engagement activities.
- Identify the good practices implemented during COVID-19 and previous emergencies and prioritise which should be maintained, and which can be paused and rapidly reactivated when necessary. Such good practices include webinars, pre-drafted messages shared with municipalities or liaison with municipalities via the county governor.
- Strengthen community engagement activities, in particular to establish strong networks and working groups during peace time that can be used to improve the emergency response. It is important to maintain these groups in peace time and ensure they are engaged in activities regularly to make sure they are operational and responsive during emergencies and to involve them in small-scale events.
- Establish a communication tool to share information, avoiding emails and centralising the point for communication between different stakeholders. This could also serve as a repository for communication material to be shared among municipalities and can help in maintaining consistency of the message.

Points of Entry (PoEs) and border health (Capacity 9)

Norway has designated three airports and three ports (Oslo, Bergen and Tromsø) as points of entry under the IHR Regulations and in national legislation. No land crossing has been designated as PoE under IHR. Preparedness plans for responding to infectious diseases on board planes or cruise ships were shared with the PHEPA team in advance.

Data from PoE is included in the national surveillance system and the NPHI creates weekly internal reports that include national and international surveillance data, including data from PoE.

During the discussion, we met representatives from all three areas with designated PoE and discussed their involvement in incidents and exercises. In general, events at PoE in Norway are rare, but if an incident occurs, the municipal doctor is involved to make decisions on the need for special measures at an airport or port and for management of suspected cases. Municipal doctors can, and frequently do, request advice from the NPHI to manage cases of suspected infectious diseases.

PoE plans are subject to review, update and testing by means of exercises, mainly at the larger PoE.

During the discussion we touched upon contact tracing, which is managed through a collaboration between NIPH and municipal doctors. Notifications of exposure internationally are accessed by NIPH (through EIS and EWRS systems) and they notify the relevant municipal doctor for the actual tracing. Norwegian colleagues reported that they usually do not have problems in communicating with airlines to obtain passenger manifests in the event of a passenger with an infectious disease on a flight, although the different airlines may have varying response times.

During the COVID-19 pandemic, municipalities used different software solutions for contact tracing, as they had the right to choose for themselves. However, this made it a challenge to follow and collect data. In general, implementation of travel measures during the COVID-19 pandemic provided multiple challenges and had spin-off effects which are discussed in other areas (e.g. healthcare and labour workforce restrictions).

Recommendations

- Current preparedness level at designated PoE in Norway should be maintained, including the regular review of plans, training courses and exercise cycles.
- Incorporate lessons from COVID-19 travel measures into the national pandemic preparedness plan under development.
- The MoHCS and NIPH should work with the RHAs and municipalities during peace time to decide on processes for the collection and analysis of contact tracing in the event of an emerging pathogen, large outbreak or pandemic.

Zoonotic diseases and threats of environmental origin, including those due to the climate (Capacity 10)

Norway adopts a One Health approach in preventing, detecting, investigating, assessing and responding to zoonotic diseases and threats of environmental origin, including those due to the climate. The One Health approach to zoonotic diseases is regularly reviewed and improved, while the collaboration on threats of environmental origin is less structured, due to the lower frequency of events.

The main One Health partners in Norway are the Norwegian Institute of Public Health (NIPH), the Directorate of Health (DoH), the Ministry of Health and Care Services (MoHCS), the Norwegian Food Safety Authority, the Norwegian Veterinary Institute, the Ministry of Agriculture and Food, and the Norwegian Environment Agency.

Surveillance for a specific sector is carried out by the related agency. Joint reports on human, animal and food surveillance are prepared annually at the national and EU/EEA level. Data from the agencies involved in One Health are exchanged to respond to zoonotic and foodborne events. Microbiological and whole genome sequencing data flow from the Norwegian Veterinary Institute to the NIPH using the NeLs platform operated by Elixir or by uploading to GISAID. A platform to improve data exchange between agencies is currently being piloted.

The One Health activities involving the human, animal and environmental health sectors are mentioned in the national preparedness and response plan [Helseberedskapsplan 2018], currently under revision. The three sectors also cooperate in joint ad hoc training (interrupted during the pandemic and due to restart), informally collecting lessons during and after outbreaks to improve national practices and carrying out exercises to test national procedures. NIPH maintains an Outbreak Guide, describing the responsibility at the municipal, county, regional and national level and in the different sectors dealing with outbreaks, and this is currently being enlarged to respond not only to foodborne outbreaks but also any other type of outbreak.

Different scientific institutes perform research on the way climate change might affect the spread of zoonotic diseases, but there is no established system for integrating these data in Norway. Notifiable tick-borne diseases are monitored and there is awareness that these diseases are both increasing in reporting frequency and in their spread towards the north. Some municipalities have done further work to decrease the risk of tick-borne diseases by raising population and clinician awareness, recommending vaccination and performing research studies, and by testing possible vector control strategies. There is also increased awareness of the expected increase in travel-related infections.

Norway adapts provisions related to the actual or projected impact of extreme weather events (e.g. flooding and avalanches, and heat and heatwaves) on public health. Dedicated plans for the Norwegian Food Safety Authority's

actions during natural disasters are in place. The 2018 national preparedness plan, which is a generic and overarching plan, does not specifically mention climate change and adverse weather events; however, preparedness work in this area is carried out in the human, animal and environmental health sectors. The newly established Committee for Water Safety Preparedness of the Standing Health Preparedness Committee strengthens preparedness in relation to the provision of safe drinking water in situations such as extreme climate-related events at national level. Municipalities have local plans for responding to any possible events. The Civil Protection Agency publishes crisis scenarios that must be taken in consideration in planning at the municipal level.

Recommendations

- Strengthen the focus on environmental health in One Health collaborations by increasing the frequency of cross-sectorial meetings, joint training courses and simulation exercises.
- Create a cross-sectorial platform to share microbiological information and integrate exchange of epidemiological data shared in other pre-existing platforms, to reduce reporting delays and ensure safe handling of confidential information (e.g. related to patients and food producers), including information on environmental and vector surveillance.
- Ensure a collaborative approach in preparedness for climate change and extreme weather events with a shared framework involving human, animal, environmental health and food safety.

Chemical events (Capacity 11)

The NIPH includes an environmental health department and the National Poison Centre, which is considered a strength for the country, as it allows cross-sectorial collaboration between staff working with non-communicable and communicable diseases. Joint investigations have been undertaken in the past for clusters of cases with unknown cause.

The National Poison Centre is a recognised valuable source of scientific advice for personnel working at municipal and county level, as well as for clinicians and the public. The poison centre not only provides advice on the management of poisonings from pharmaceuticals and other products, but also supports municipal doctors responding to any incident involving a chemical substance.

Challenges exist with the monitoring of exposures, and there is no chemical-related syndrome monitoring, as is the case in most EU countries. The National Poison Centre also reported that they have not been able to publish annual reports for the last two years due to staff restraints.

The chemical, biological, radiological and nuclear strategy is going to be revised in 2025. Chemical threats are missing from the six committees on priority areas for preparedness in the health sector.

A concise template for the initial risk assessment of reported chemical-related events to NIPH was shared with the PHEPA team.

Risk prioritisation for large chemical incidents exists at the national level in a scenario-based format. Plans also exist for the response to large incidents involving chemical industries or other accidents. Chemical incident response starts at the municipal level with the municipal doctors, who coordinate with other local authorities and can ask for advice from NIPH and the National Poison Centre.

Recommendations

- Ensure that
 - preparedness for chemical events is included in the national preparedness plan;
 - the health sector is involved in the revision of the chemical, biological, radiological and nuclear strategy.
- In addition to the six existing areas, create a priority area for preparedness involving chemical events.
- Strengthen National Poison Centre resources so that it can continue to play an important role in providing advice to the public and all levels of healthcare.
- Provide training to municipal doctors on the initial investigation and management of chemical incidents.

Union level coordination and support functions (Capacity 13)

In Norway, the cross-border collaboration in prevention, preparedness and response for serious cross-border threats is regulated at the international level through the IHR, at EU/EEA level, and also through cooperation agreements between the Nordic countries (see Capacity 1).

The MoHCS represents Norway in the senior level working group of the Health Security Committee (HSC) and on the board of the Health Emergency Preparedness and Response Authority. The NIPH, the DoH and the Norwegian Medical Products Agency (NMPA) represent the country in the technical working groups of the HSC. However, online meetings are often attended by representatives from different institutions, depending on the agenda, and this facilitates dissemination of information within the country. NIPH is a competent authority for ECDC and participates in the Advisory Forum and represents Norway in the expert groups and networks coordinated by the

ECDC, while MoHCS participates in the Management Board meetings. The NMPA agency collaborates with the other EU/EEA countries under the European Medicines Agency and in HERA's Advisory Forum.

National positions on agenda items for EU/EEA level meetings are prepared jointly by the MoHSS, NIPH, DoH and NMPA. Norway participates actively in the EU/EEA level coordination and contributes to the preparation of any EU/EEA level guidance. The Directorate of Health was in charge of the coordination of the Joint Action on Strengthened Preparedness and Response to Biological and Chemical Terror Attacks (JA TERROR) in 2021–2024.

Messages at EU/EEA level, including HSC opinions and guidance, Commission recommendations and ECDC advice, risk assessments and epidemic intelligence reports, are disseminated at national level through the weekly outbreak reports of the NIPH and in coordination meetings, and are used to develop national guidance and policies, where appropriate. Support roles and instruments of the European Commission and the relevant Union agencies are included in the preparedness plans.

The NIPH, in particular the Division of Infectious Diseases, serves as the national IHR focal point and the national competent authority for the EWRS. The NIPH has established 24/7/365 duty arrangements for the monitoring of all-hazard health threats including biological, chemical, environmental and radiation or nuclear threats. The timelines and procedures for notifications are defined in the national IHR regulation. There are several IT tools supporting the Incident Management System (IMS) in Norway which is interoperable with the EWRS.

The Nordic Health Preparedness Agreement is active and includes agreements on aspects such as transfer of burn patients, cross-border ambulance vehicle transport and border area emergency communication. In addition, there are several bilateral agreements with neighbouring countries (e.g. Finland) as well as with European and global public health stake holders (e.g. WHO).

Recommendations

- No recommendations in this area.

Research development and evaluations to inform and accelerate emergency preparedness (Capacity 14)

The key elements needed to implement research activities during health emergencies are available within different frameworks and documents. However, there is no specific research preparedness plan in Norway. There is a lack of operational details on how to implement research in the country across these documents and there is a limited strategic approach to pandemic research. Research activities are ongoing in different institutions in Norway, including NIPH, and work is ongoing to have a more structured approach to emergency research in the country. So far, there is no national prioritisation mechanism to identify research needs and questions.

A 'core group for a better knowledge system for managing crises', led by the Ministry of Education, was established in 2023 with the aim of ensuring that the Norwegian authorities have the most reliable knowledge possible to support decisions in future crises. It is a cross-ministerial group that works to implement a common approach and system for developing research in the country.

A proposal to develop a framework for rapid scale-up of analytical capacity and infrastructure in emergencies was presented in 2023. The needs identified were removal of legal barriers, improvement of procurement in a crisis, establishment of data sharing agreements, inclusion of research in crisis scenarios, definition of priorities and allocation of resources.

There are already existing links between different research institutions and communication and coordination among them is mostly ad hoc. Research networks and research sites are currently being mapped in Norway. The need to improve links with academic institutions was also noted during the discussion and memoranda of understanding with major universities are currently being updated.

As part of their role, the 'core group' will assess how further efforts can be made to improve the flow of data between institutions and management levels. In the PHEPA discussions, it has been highlighted that there is a great deal of routine data collection and digitisation in Norway. However, there is a lack of compatibility or integration between these systems, which is seen as a significant barrier to the optimal implementation of various capacities, including research.

Outbreak-related research is being implemented in Norway, more specifically into the routine outbreak investigation work conducted by NIPH. Norway is also part of the 'Be-ready' EU-funded project, which includes work to develop outbreak-related research capacities. Predesigned protocols that can be adapted and used to implement outbreak related research are not in place.

Knowledge gained during outbreak investigations and outbreak related research is shared with key stakeholders using regular reports and this feeds into the risk assessment process, where relevant. A more structured approach is needed to ensure that the research outcomes from non-governmental institutions also inform the decision-making process.

Recommendations

- Develop a strategic approach to emergency research, including a national prioritisation mechanism.
- Ensure outcomes of research activities inform the decision-making process, including those derived from research conducted by academia, the private sector and other non-governmental institutions.
- Ensure collaboration with research partners is maintained between crises and can be activated during emergencies in a timely manner. This can be promoted by involving research networks in small-scale events or simulation exercises. Continue with the current stakeholder mapping exercise.
- Develop sleeping protocols for rapid adaptation and use during an outbreak, possibly pre-approved by an ethical committee.
- Improve data sharing, potentially by harmonising registries and having national and international agreements.

Recovery elements (Capacity 15) and Actions taken to improve gaps found in the implementation of prevention, preparedness, and response plans (Capacity 16)

There is a strong culture in Norway of regularly conducting exercises and activities during, after or between crises to evaluate the response to events, learn from good practices and challenges, and be better prepared to face future emergencies.

The Corona Commission's reports, reviewing the Norwegian authorities' management of the COVID-19 pandemic, the evaluation of the SARS-CoV-2 testing approach in primary and secondary schools, and [the AARs on evidence-based advice processes for long-term care facilities in the COVID-19 pandemic](#) and [on advice-making for school continuity in Norwegian secondary schools during autumn and winter 2021](#) are some examples of After-Action Reviews conducted in recent years.

There is no common methodology for implementing AARs or any other type of exercise, different approaches are used and adapted, depending on the needs. Training courses on planning and implementing such exercises are offered by each individual institution.

The Directorate of Health is responsible for planning a bi-annual national level simulation exercise involving different sectors, with a focus on human health. Other institutions conduct lessons learned activities and exercises on an ad-hoc basis. NIPH has a strategic plan for implementing exercises involving different disciplines.

Municipalities are regularly involved in national exercises. The county governor is responsible for coordinating municipalities' participation in national level activities and, although this is a good approach, it has been challenging on some occasions. Municipalities also conduct exercises independently if they have large events.

There is no specific national action plan, the white paper for health preparedness summarises the key lessons learned and gaps identified during the pandemic and details the strategy for following up on key actions that need to be implemented. This document is one example of how lessons learned are followed up and it is mainly used by the Ministry of Health.

Recommendations

- Ensure that the lessons identified following exercises and other activities are systematically addressed, including the identification of the responsible body and a potential timeline.
- Continue to ensure municipal participation in national level exercises.

Conclusions

Norway has a solid and comprehensive normative basis for ensuring a high level of health emergency preparedness and response. There is a strong culture of testing and exercising and functional and active collaboration between the key stakeholders to incorporate lessons identified during public health events into revised plans and procedures for timely and coherent action during a crisis. There are many good examples of how the key stakeholders collectively prevent, prepare and respond to public health emergency events.

There are ongoing processes for strengthening some of the health authorities and bringing clarity regarding the roles and responsibilities. The COVID-19 pandemic led to increased crisis management capabilities at all administrative levels enabling the authorities to act quickly and monitor the system's capacities more vigorously. Efforts should continue to preserve the knowledge and continue building competences at all levels of the health system, particularly in municipalities, as well as providing sustainable funding for preparedness.

The revision of the legislative framework aims to incorporate lessons learned from COVID-19, while also adjusting to a more challenging threat environment with international dependencies, creating vulnerabilities in the systems. Norway has a good health emergency preparedness system, which is still a priority for policy makers. The aim is to maintain functionalities that are assessed as strong and to enhance and improve elements seen as challenging. The new model for health preparedness, based on the four overarching principles (responsibility, proximity, similarity and cooperation), focuses on priority risk areas and stronger cooperation between the key stakeholders, while ensuring that flexibility and the ability to adapt to the local circumstances continue to be leading features of the public health emergency preparedness and response, while also encompassing the international dimension.

Annex 1. List of capacities included in the assessment

Capacity no.	Capacity name
Capacity 1.	International Health Regulation (IHR) 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 (RCCE)
Capacity 9.	Points of Entry (PoEs) and border health
Capacity 10.	Zoonotic diseases and threats of environmental origin, including those due to the climate
Capacity 11.	Chemical events
Capacity 12.	Antimicrobial resistance (AMR) 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

Annex 2. Practical arrangements for the assessment process

This document describes the main practical arrangements before the assessment process takes place under the PHEPA (Article 8 of the SCBTH Regulation). The arrangement refers to the country visit to Norway that took place on 3–7 February 2025 in Oslo.

The five capacities that were assessed in-depth in this cycle are:

Capacity 3. Laboratory

Capacity 4. Surveillance

Capacity 6. Health Emergency Management

Capacity 12. Antimicrobial resistance (AMR) and healthcare-associated infections (HAIs)

*Capacity 7. Health Services Provision

* *The fifth capacity was chosen by the country and agreed with ECDC.*

Assessment team and national experts

Assessment team

The experts involved in the assessment are detailed in the table below.

Members of the assessment team			
Name	Institution (ECDC/other agencies ...)	Role in the team (team leader/expert)	Capacities assessed
Agoritsa Baka	ECDC	Team lead	IHR, PoE, Chemical Events and Union level Coordination
Pete Kinross	ECDC	Expert	AMR and HAIs, PoE
Jessica Beser	ECDC	Expert	Laboratory and IHR
Julien Beauté	ECDC	Expert	Surveillance, Zoonotic diseases, Chemical events
Ettore Severi	ECDC	Expert	Health Emergency Management, Zoonotic diseases, Research, Recovery and Action plan
Svetla Tsoleva	ECDC	Expert	Financing, Human resources, Health Service Provision
Adriana Romani	ECDC	Expert	Financing, RCCE, Research, Recovery and Action plan
Paula Tiittala	DG SANTE	Expert	Health Emergency Management, Union level coordination
Darragh Cassidy	DG HERA	Expert	Health Emergency Management – MCM, Zoonotic diseases, Recovery elements and Actions to improve gaps
Tryggvi Hjörtur Oddsson	Member State Expert (Iceland)	Expert	RCCE, Health Emergency Management, Health Service Provision, Human resources

National experts supporting the document sharing

The names of the experts that formed the national focal point team to coordinate the implementation of the PHEPA at country level and acted as ECDC's contact point are listed in the table below. The team supported the document collection which was shared with the assessment team for phase 1, the desk review and the organisation of the country mission. In addition, focal point team involvement includes collection of feedback from the interested parties on the draft report.

Country focal point(s) and experts involved in the document sharing process		
Name	Organization	Role (focal point/document sharing)
Emily MacDonald	Ministry of Health and Care Services	Overall coordination
Øystein Riise	Ministry of Health and Care Services	Overall coordination
Karin Nygård	Norwegian Institute of Public Health	Overall coordination
Umaer Naseer	Norwegian Institute of Public Health	Overall coordination
Ingebjørg Skrindo	Norwegian Directorate of Health	Overall coordination
Vibeke Thrane	Norwegian Directorate of Health	Overall coordination

National experts participating to the assessment process

The table below sets out the names of the experts from the country being assessed and the assessment areas for which they were responsible under the PHEPA process.

National experts participating in the assessment process			
Name	National institution	Role in the assessment (Coordinator, Expert)	Main capacity to assess
Emily MacDonald	Ministry of Health and Care Services	Coordinator/Expert	Policy, legal and normative instruments to implement IHR
Ingvild Lindaas Bringedal	Ministry of Health and Care Services	Coordinator/Expert	Financing
Christine Jonassen	Norwegian Institute of Public Health,	Coordinator/expert	Laboratory
Preben Aavitsland	Norwegian Institute of Public Health	Coordinator/Expert	Surveillance
Heidi Brattås Remo	Norwegian Directorate of Health	Coordinator/Expert	Human resources
Jasper Littmann	Norwegian Directorate of Health	Coordinator/Expert	Health emergency management, recovery elements
Helen Brandstorp	Norwegian Directorate of Health	Coordinator/Expert	Health services provision
Stine Bjerkstrand	Norwegian Directorate of Health	Coordinator/Expert	RCCE
Hilde Skagestad	Norwegian Directorate of Health	Coordinator/Expert	PoE and border health
Siri Feruglio	Norwegian Institute of Public Health	Coordinator/Expert	Zoonotic diseases and threats of environmental origin
Jartrud Skjerdal	Norwegian Institute of Public Health	Coordinator/Expert	Chemical events
Bengt Skotheim	Norwegian Directorate of Health	Coordinator/Expert	Union level coordination and support functions
Bjørn Iversen	Norwegian Institute of Public Health	Coordinator/Expert	Research development and evaluations
Siri Helene Hauge	Norwegian Medical Products Agency	Coordinator/Expert	Medical counter measures
Ivar Wilhelm Grosvold	Norwegian Medical Products Agency	Coordinator/Expert	Medical counter measures
Øystein Riise	Ministry of Health and Care Services	Coordinator/Expert	Actions taken to improve gaps

Agenda for the country visit

	Monday 3 Feb 2025	Tuesday 4 Feb 2025	Wednesday 5 Feb 2025		Thursday 6 Feb 2025		Friday 7 Feb 2025
08:30	Welcome and registration	Registration	Registration	Registration	Registration	Registration	
08:45							
09:00	Opening remarks	C.10 Zoonoses and events of environmental origin	Breakout room 1 - C.3 Laboratory (Assessment of in-depth capacities)	Breakout room 2 - C.6 Health Emergency Management - planning, IMS, risk profiling, PHSM (Assessment of in-depth capacities)	Breakout room 1 - C.12 AMR/HAls (Assessment of In-Depth Capacities)	Breakout room 2 - C.2 Financing and C.5 Human Resources	
09:15							
09:30	Overview and key aspects of the assessment process (ECDC)						
09:45	Overview of the country public health structure and prep and resp mechanisms in the country (country)						Registration
10:00							
10:15							
10:30	Break (optional)	Break	Break	Break	Break	Break	Main findings and conclusions
10:45	Overview of generic and specific plans available in the country relevant for the assessment (Country)	C.9 PoE and C.11 Chemical events	Breakout room 1 - C.3 Laboratory (Assessment of in-depth capacities)	Breakout room 2 - C.6 Health Emergency Management - planning, IMS, risk profiling, PHSM (Assessment of in-depth capacities)	Breakout room 1 - C.12 AMR/HAls (Assessment of In-Depth Capacities)	Breakout room 2 - C.7 Health Services Provision	
11:00							
11:15							Recommendations and next steps
11:30	Lunch						
11:45							Concluding remarks
12:00		Lunch	Lunch	Lunch	Lunch	Lunch	Lunch
12:15							
12:30	Assessment of cross-cutting aspects	C.8 RCCE	Breakout room 1 - C.4 Surveillance (Assessment of in-depth capacities)	Breakout room 2 - C.6 Health Emergency Management - Medical Counter Measures (Assessment of in-depth capacities)	Buffer for further in-depth discussion	Breakout room 2 - C.7 Health Services Provision	Debrief on assesment
12:45							
13:00							
13:15							
13:30							
13:45							
14:00							
14:15	Break	Break	Break	Break	Break	Break	
14:30							
14:45	C.1 IHR and C.13 Union level coordination	C.14 Research	Breakout room 1 - C.4 Surveillance (Assessment of in-depth capacities)	Breakout room 2 - C.6 Health Emergency Management - Medical Counter Measures (Assessment of in-depth capacities)	C.15 Recovery and C.16 Action plan		
15:00							
15:15							
15:30							
15:45							
16:00							
16:15							
16:30	Wrap-up Day 1 (ECDC together with country)	Wrap-up Day 2 (ECDC Team)	Wrap-up Day 3 (ECDC Team with Norway core team)		Wrap-up Day 4 (ECDC Team to align recommendations)		
16:45							

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