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PARTNERSHIP FOR EUROPEAN RESEARCH IN OCCUPATIONAL SAFETY AND HEALTH

Lessons Learned: How Different European Countries Addressed Occupational Health and Safety Challenges During the COVID-19 Pandemic

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Addressed Occupational Health and Safety Challenges During the
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ISBN 978-91-990702-0-9
Published in 2025

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Preface

This report is the outcome of a unique and truly joint research project in the history of the Perosh network. Unlike many earlier Perosh projects, this initiative was conceived, carried out, and reported as a genuine Perosh project. It is therefore not a project owned by one or a few members of the network and later repackaged under the Perosh name. In this respect, the experiences from this project can serve as a valuable prototype for future Perosh-owned projects.

In January 2022, shortly after the New Year holidays and in the aftermath of the Covid-19 pandemic, Louis Laurent, then Chair of the Perosh Scientific Steering Group (SSG), invited members to express interest in a joint project on lessons for occupational safety and health (OSH) learned from the pandemic. The aim was to compare findings across different parts of Europe. The Swedish Agency for Work Environment Expertise (SAWEE) immediately agreed to co-lead the project, later titled Lessons Learned from Covid-19, together with INRS.

The first project leadership meeting took place at the end of February 2022, with the participation of Professor Nader Ahmadi, Director General of SAWEE, Dr. Annette Nylund (SAWEE), Dr. Louis Laurent (INRS), and Dr. Agnes Aublet-Cuvelier (INRS). During spring 2022, the project idea was presented to the Perosh SSG and Steering Committee (SC). After approval of the project outlines, an invitation to join was sent to all Perosh members.

By autumn 2022, nine member institutes, in addition to SAWEE and INRS, had expressed their willingness to participate. However, in early 2023, three withdrew, leaving eight organizations in the project: AUVA (Austria), BAUA (Germany), CIOP-PIB (Poland), INAIL (Italy), HSE (UK), TNO (Netherlands), INRS (France), and SAWEE (Sweden).

Throughout 2023, the project's framework was further developed in cooperation with the remaining members. By then, two years had already passed since the initial idea, and the project was severely delayed. The main reason was that participating organizations had not allocated financial resources to cover their researchers' time, despite formal approval of the project. Consequently, the dedicated researchers had to work in their spare time, during evenings and weekends.

In the autumn of 2023, Louis Laurent informed the Perosh SSG and SC that, to improve decision-making and clarify responsibilities, leadership would henceforth rest with a single project leader. Professor Nader Ahmadi, Director General of SAWEE, then assumed full responsibility for project leadership, while INRS, through Dr. Agnes Aublet-Cuvelier and Karen Rossignol, took on an assisting and advisory role.

During spring 2024, the division of tasks among the members was finalized. Each institute was asked to provide a report on lessons learned for OSH during the Covid-19 pandemic in its own country.

The next step was to integrate these national reports into a single joint report. Once again, the lack of resources became an issue. No member institute had funds for the integration and compilation work. SAWEE therefore requested financial support from the Perosh SC, but this was denied. Given the three years of effort already invested by the researchers, SAWEE, as project leader, decided that the costs for compiling the final report should be shared among participants. Four members agreed to contribute financially, while three chose to have their own researchers complete their part of the compilation. One institute (INAIL) left the project in December 2024.

In Mars 2024, Dr. Robert Ljung succeeded Professor Ahmadi as lead project coordinator. A Swedish research and development consultancy, Vilna, was contracted to integrate the national reports and finalize the joint report.

Now, after nearly four years of dedicated work, we proudly present this unique Perosh report. I sincerely hope that the lessons highlighted by the different European countries will provide valuable guidance on how to handle future crises. I would also like to take this opportunity to share some reflections on the challenges and strengths we encountered during this extraordinary project, as recommendations for future initiatives:

1. Appoint preferably a single participant with both the time and capacity to lead the project.
2. Ensure that resources—both financial and time—are allocated to those responsible for data collection, analysis, and report compilation. The work should not rely on voluntary efforts or the goodwill of researchers.
3. Perosh should consider financing certain general elements of joint projects that go beyond the responsibilities of individual member institutes. In this project, SAWEE had to cover all costs for proofreading, layout, and publication to speed up final production.

Despite the challenges, it has been a privilege to work with colleagues from different countries and institutions. Their diverse experiences, knowledge, and perspectives have enriched this project enormously. Along the way, we shared many moments of joy, and many of us have found new partners and close friends for future collaborations.

Prof. Dr. Nader Ahmadi
Director General
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1. Introduction

The COVID-19 pandemic posed an unprecedented challenge to societies across the globe, not least in the world of work. At the outset, relatively little was known about the virus — particularly how it spread — which led to considerable uncertainty. As a result, many hygiene and protective measures implemented in workplaces were based on limited knowledge and, in hindsight, some of these have proven to be of questionable relevance or effectiveness. Still, the workplace was recognised early on as a central site for both transmission and containment, and occupational safety and health (OSH) quickly became a vital part of the broader infection control strategy. Occupational health and workplace infection control go hand in hand.

SARS-CoV-2 is the virus that caused the global outbreak beginning in late 2019, while COVID-19 refers to the disease resulting from infection with the virus. The COVID-19 pandemic placed significant strain on all parts of society, not least on working life and OSH. European countries adopted different approaches to controlling the spread of the virus and chose diverse strategies to manage the challenges that arose in the world of work. The countries also had varying capacities to mitigate the consequences of the pandemic — for example, the prevalence of remote work differed greatly prior to the outbreak.

This report brings together national case studies from various European countries to examine how OSH-related challenges during the pandemic were handled. The aim is to compile experiences of what happened in workplaces, how the spread of infection was managed, and what lessons can be learned from it. The focus is strictly on OSH—issues related to the general public, children, or the elderly fall outside the scope of this work. Importantly, OSH and workplace infection control are deeply interconnected, and the pandemic made this link particularly visible.

To better manage future pandemics, health crises or other stressors on working life, it is valuable to identify and share effective practices. This report, produced by a working group on behalf of the European research network PEROSH, is intended to be a practical tool for drawing on such experiences and strategies. It brings together lessons learned from seven countries: Austria, France, Germany, the Netherlands, Poland, Sweden and the United Kingdom. The following country reports have been used:

- Aublet-Cuvelier, A., & Rossignol, K. (2024). PEROSH project: Lessons learned for OSH from the COVID-19 pandemic. Institut National de Recherche et de Sécurité (INRS) (France)
- Chen, Yiqun & Curran, Andrew (2025). PEROSH Project ”Lessons learned for OSH from the COVID-19 pandemic”. Country report for England. Health and Safety Executive (HSE), (UK)
- Dobusch, C. (2024). Lessons learned from the COVID-19 pandemic concerning occupational safety and health. AUVA. (Austria)

- Okrasa, M., & Młynarczyk, M. (2024). Poland's experiences from the COVID-19 pandemic from a work environment perspective. Central Institute for Labour Protection – National Research Institute (CIOP-PIB). (Poland)
- Robelski, S., Schröder, C., & Hopf, S. (2024). *Lessons learnt in Germany from the COVID-19 pandemic from an occupational safety and health perspective*. Federal Institute for Occupational Safety and Health (BAuA). (Germany)
- Swedish Agency for Work Environment Expertise (2024). Sweden's experiences from the COVID-19 pandemic from a work environment perspective. (Sweden)
- Wiezer, N., Bax, K., Baltrusch, S., van Zon, S., & Oude Hengel, K. (2024). *Covid-19 measures and the impact on work and workers in the Netherlands: Lessons learned.* TNO. (Vertrouwelijk) (The Netherlands).

1.1. Research questions

The working group identified five main areas of inquiry to be examined in the report. These are presented in Table 1, together with examples of research questions.

Table 1: Main areas of inquiry and research questions.

Main areas of inquiry	Examples: research questions
Social context at the start of the pandemic	• How did the European countries respond technically and administratively/politically (e.g. with or without lockdowns) to the challenges posed by COVID-19 in the field of occupational safety and health? • Which were the national actors in each country, and how was responsibility divided among different institutions?
Measures taken	• What measures were taken at workplaces to reduce the risk of COVID-19 infection? • What were the main difficulties/challenges in each country? What were the strengths of the approaches chosen?
Effects of the measures taken	• Are there any measures or other changes that have proven to be sustainable or permanent? • What impact have occupational safety and health measures had on society – and vice versa? • What are the long-term effects of the pandemic on working life and occupational health in each country? How has our way of working changed?
Retrospective conclusions	• Have the measures taken in each country been evaluated? • Are there any reflections on how each country responded and the impact of the measures? • What role and strategy have PEROSH member organisations had in their national contexts in responding to the occupational health challenges posed by COVID-19?
Lessons learned	• What key recommendations can be made for managing future health crises? • What role should PEROSH have?

One of the core aims of this report is to reflect on what has been learned in and through the workplace context. However, producing comparable country reports was not without complications. The conditions under which the country reports were written differed significantly: in some countries, national evaluations of the pandemic had already been carried out, while in others, no such evaluations existed. The availability of information, the involvement of experts, the timeframes and the depth of literature access all varied—creating certain limitations. The reports may not offer a comprehensive account of the situation in each country from an OSH perspective. Consequently, not all questions in this report could be answered for every country.

The report is organised into five main sections, each addressing a key area of inquiry according to the following:

- Section 2: Social context at the start of the pandemic
- Section 3: Measures taken
- Section 4: Effects of the OHS measures taken
- Section 5: Retrospective conclusions
- Section 6: Lessons learned

1.2. Methodology and material

The report was developed by the working group in three stages. First, a country report was compiled for each of the seven countries. These reports sought to answer the research questions based on available public sources such as official documents, government reports, statistics and academic articles.

Based on these seven country reports, two teams within the working group then developed a joint account of the five areas of inquiry, using a qualitative content analysis through which recurring themes across the country reports were identified. To some extent, elements that may have been specific to individual countries were also described. Finally, the material produced by the two teams was synthesised into a single report with a shared framing and structure.

This report presents the results of the consolidated analysis. It does not aim to be exhaustive in relation to the underlying country reports. As such, not all findings from the country reports are presented here, and the examples provided do not exclude the possibility that similar experiences may have occurred in other countries or that some countries have had somewhat different experiences.

Since this summary report draws directly on the country reports, references are not made to the original source material cited within them. Readers who are interested in more detailed information are encouraged to consult the individual country reports. For a more complete account of original references, readers are likewise referred to the respective country reports.

2. Social context at the start of the pandemic

Since the SARS-CoV-2 virus was first identified in China in December 2019, the COVID-19 pandemic has been characterised by widespread global transmission throughout 2020 and 2021. As in other parts of Europe, the pandemic and infection control measures significantly affected the working environment and the way in which work was organised and carried out. The pandemic and its management placed a heavy burden on European societies and impacted all sectors. In many workplaces, working conditions changed drastically: employers and workers were encouraged, or, in some cases, legally required to adapt their activities in line with new rules and guidelines. This often meant introducing new tasks and routines into people's working environments.

Several social conditions influenced how countries responded to the pandemic. The seven national reports examined a range of contextual factors, including the demographic, economic, and health situation in each country; the structure and functioning of national health care and occupational safety and health (OSH) systems; the role and influence of key stakeholders, including social partners; the division of responsibilities and institutional capacity, as well as the level of individual and collective responsibility for health and safety at work. These country-specific characteristics shaped both the nature and the effectiveness of the response to the pandemic (see Box 1).

Box 1: Key messages related to question 1 (social context at the start of the pandemic).

- National responses were shaped by differences in governance models, from centralised systems (e.g. Poland, France) to decentralised or federal structures (e.g. Germany, Austria, Sweden).
- The degree of reliance on mandatory vs. voluntary measures varied significantly, with Sweden standing out for its trust-based, voluntary compliance approach.
- Occupational safety and health institutions played diverse roles, from regulatory enforcement (e.g. Germany's labour inspectorates) to prevention and education (e.g. CIOP-PIB in Poland, INRS in France).
- Social dialogue and the engagement of social partners (labour unions and employers' associations) were crucial in some countries, especially those with strong collective bargaining traditions.
- Variations in public trust, digital infrastructure, and pre-existing inequalities influenced the feasibility and effectiveness of workplace interventions.
- Integration of OSH into emergency planning varied, with some countries demonstrating strong coordination across public health and labour sectors, while others faced gaps in preparedness and inter-agency collaboration.

While this report does not allow for an in-depth exploration of each country's social context, it is clear that the seven countries shaped their pandemic responses in line with their specific social, institutional and cultural conditions.

These national specificities include, among others:

- Decision-making processes, depending on whether political decisions are taken by a state or federal government, under centralised or decentralised powers, based on top-down or bottom-up approaches, and/or according to the varying degrees of power of professional organisations and labour unions.
- Role and nature of OSH institutions, such as insurance organisations and companies dealing with occupational accidents and illnesses.
- Occupational safety and health structures in companies.
- The degree and nature of individual and collective responsibility for health and safety at work.
- State of scientific knowledge in the field of work, health and safety.

2.1. Austria

The first case of COVID-19 in Austria was reported on 25 February 2020, involving a 24-year-old person from Italy. In March 2020, the so-called COVID-19 Act was adopted, forming the legal foundation for a series of public restrictions. Further legislative packages followed throughout the pandemic. Initially, uniform policies were implemented nationwide. However, as the pandemic progressed, an increasing number of measures were introduced at the level of the federal states or even specific regions, including variation in testing strategies. While general recommendations — such as social distancing — were made, key public health interventions such as lockdowns and curfews were mandatory. A law mandating COVID-19 vaccination came into effect in February 2022, though it was later repealed in July 2022, reverting vaccination to voluntary status. OSH guidance was shaped by the Labour Inspectorate and accident insurance providers, with adaptation at the company level.

2.2. Germany

Germany is a federal parliamentary republic in which powers are shared between the federal government and 16 federal states *(Länder)*. The occupational safety and health system operates through a dual structure that combines oversight by state authorities with services provided by autonomous accident insurance institutions. The first confirmed case of COVID-19 in Germany was reported on 27 January 2020. The first vaccinations began nearly a year later, on 27 December 2020. Pandemic-related decisions were made through a democratic process involving elected representatives, and many laws required the approval of both the *Bundestag* and the *Bundesrat*. Health policy measures, including vaccine procurement, lockdowns and hygiene rules, were the responsibility of the Federal Ministry

of Health (BMG), often coordinated with the federal states and informed by guidance from the Robert Koch Institute (RKI). The Federal Ministry of Labour and Social Affairs (BMAS) addressed labour market and social protections, and led efforts to develop occupational safety and health (OSH) policy during the pandemic. The Federal Institute for Occupational Safety and Health (BAuA), under BMAS, developed and disseminated specific workplace health and safety measures. The "SARS-CoV-2 Occupational Safety and Health Standard" provided a unified framework for workplace protections, enforced through state-level inspections.

2.3. Sweden

Sweden's response to the COVID-19 pandemic was shaped by several structural and cultural features that characterise its governance and public health systems. A central factor was the high level of mutual trust between citizens and the state, which underpinned the reliance on voluntary measures and individual responsibility rather than strict legal mandates. Sweden's governance model is marked by the independence of government agencies and extensive decentralisation, which meant that local and regional authorities had significant responsibility for public services such as health care and elderly care. The Public Health Agency of Sweden played a key role in shaping the national strategy, guided by a long-term view of public health, evidence-based decision-making and a broad understanding of health that considered both direct and indirect effects of the pandemic. The Swedish labour market model further influenced the response, as workplace conditions are largely regulated through collective bargaining between employers and labour unions. While national agencies such as the Swedish Work Environment Authority issued recommendations, the practical implementation of work environment measures was determined locally. Sweden's advanced digital infrastructure also facilitated the shift to remote work. Sweden's approach received both domestic and international scrutiny, especially regarding its impact on older populations and health care systems.

2.4. United Kingdom

Before the COVID-19 pandemic, the UK had already faced significant social inequalities and economic challenges. Public services, particularly health and social care, were operating at or beyond capacity, increasing the country's vulnerability to the pandemic's disruptive impact. The UK COVID-19 Inquiry later concluded that national preparedness and resilience were inadequate for a pandemic of this magnitude, citing a failure to fully learn lessons from prior civil emergency exercises and infectious disease outbreaks. The first confirmed cases were reported on 29 January 2020, and the first national lockdown began on 23 March 2020.

The UK government coordinated the response through a top-down structure led by the prime minister, supported by scientific advisory groups such as the Scientific Advisory Group for Emergencies (SAGE), the New and Emerging Respiratory Virus Threats Advisory Group (NERVTAG) and the Environmental and Modelling Group (EMG). Measures included mandatory

lockdowns, stay-at-home orders and social distancing rules, along with later requirements for mask use and targeted vaccine mandates. Local authorities played a crucial role in implementation, but coordination between national and local levels was inconsistent. The Health and Safety Executive (HSE), alongside Public Health England (now UK Health Security Agency, UKHSA), oversaw workplace safety enforcement. Sectors such as retail, manufacturing and construction faced compliance challenges due to the nature of work and inconsistent guidance. Frequent changes in regulations and communication breakdowns complicated adherence, especially for small and medium-sized enterprises (SMEs) and frontline services.

2.5. The Netherlands

The first confirmed case of COVID-19 in the Netherlands occurred in February 2020. The Dutch government established the COVID-19 Ministerial Committee (MCC-19) to coordinate the response. The Outbreak Management Team (OMT) played a central role in advising the government during the COVID-19 pandemic. It was a scientific advisory body composed mainly of medical and public health experts, with a coordinating role for the National Institute for Public Health and the Environment in the Netherlands. The OMT met regularly (sometimes multiple times per week) to assess the current situation. and a formal advice document was drafted after each meeting. The final advice was then presented to the cabinet, which made the actual political decisions. Toward the end of the pandemic, the Societal Impact Team (MIT) was installed to provide advice. While the OMT provided medical-scientific advice, the Ministry of Social Affairs and Employment consulted the social partners and sectoral organisations (e.g., in construction, retail, the hospitality industry and health care), also to draw up sector-specific protocols for several measures in 2022. TNO, while not officially part of the government's pandemic response structure, conducted studies and advised the Ministry of Social Affairs and Employment as well as the social partners, based on data collected from workers and employers.

A partial lockdown was introduced in March 2020, emphasising voluntary compliance, with people allowed outside in small groups, in contrast to more restrictive regimes in neighboring countries. After relaxation measures in the summer of 2020, stricter national restrictions in the winter of 2020–2021 and again in the winter of 2021–2022 were implemented. Mask mandates were introduced relatively late, and in phases, beginning with public transport. The vaccination campaign began relatively late, on 6 January 2021.

2.6. Poland

Poland reported its first confirmed case of COVID-19 on 4 March 2020 in Zielona Góra. Rapid national measures followed: school closures (11 March), international border shutdown (13 March), declaration of a state of epidemic (20 March) and a national lockdown (25 March), including a ban on public gatherings and mandatory distancing. Mask mandates were introduced from 16 April. After gradual easing of restrictions in the summer of 2020, the country experienced multiple epidemic waves requiring renewed restrictions,

notably during the Alpha-driven third wave in the spring of 2021 and the Omicron surge in early 2022. Vaccinations began on 27 December 2020, with mass rollout continuing through 2021 and booster campaigns in 2022. By March 2022, most restrictions were lifted, and the state of epidemic threat was formally ended in June 2023.

Governance followed the subsidiarity principle, with coordination at national and regional levels. Key stakeholders included the Council of Ministers, the Ministry of Health, GIS, the Government Centre for Security (RCB) and local crisis teams. The Armed Forces, including the Territorial Defence Forces, supported logistics, testing and vaccination efforts. The Central Institute for Labour Protection – National Research Institute (CIOP-PIB) developed OSH guidelines, provided risk assessment tools, and trained employers and workers across sectors. Measures included remote work, physical distancing, PPE and enhanced hygiene protocols. CIOP-PIB's early coordination with the Ministry of Development, Labour and Technology helped ensure OSH integration into broader economic recovery planning.

2.7. France

At the start of the COVID-19 pandemic, France detected its first cases in late January 2020, leading to a national lockdown from 17 March to 11 May 2020. Restrictions included closures of schools, universities and non-essential public places, widespread teleworking and part-time work measures. The vaccination campaign began slowly in December 2020, prioritising vulnerable populations, health care workers, and high-risk professions. In France, the health care system, managed by the Ministries of Health and of Social Affairs, focused on public health and medico-social services, while occupational health was independently overseen by the Ministry of Labour through the General Directorate for Labour. Regional directorates (DREETS) implemented national occupational health policies at the regional level, including health monitoring and labour inspection. They were supported by INRS *(Institut National de Recherche et de Sécurité)*, which provided research, training and prevention. Employers and occupational health services were responsible for workplace health monitoring and risk prevention. OSH actors played a critical role in preventing COVID-19 transmission in workplaces and addressing risks from new work arrangements like teleworking. They adapted operations through teleconsultation and remote working, advised employers on preventive measures and supported public health efforts, including vaccination and screening campaigns. Regulatory changes temporarily expanded occupational physicians' roles, enabling them to prescribe work stoppages for COVID-related cases.

2.8. Summary comment: Social context at the onset of the pandemic

All seven countries studied here experienced significant impacts of the pandemic on workplaces, and implemented broadly similar control strategies to manage workplace risks. Common challenges mentioned in several

country reports included unclear communication, unequal sectoral protection and the need for rapid adaptation of OSH systems. Six of the seven countries studied implemented lockdowns. Sweden did not implement a strict lockdown during the pandemic. Instead, the country relied on voluntary compliance and individual responsibility to manage the spread of the virus. Shops, restaurants and schools largely remained open, and the government issued recommendations rather than mandatory rules. All countries, however, implemented physical distancing and vaccination campaigns, though the timing and enforcement varied.

Differences arose from governance structures, cultural factors and the design of health care systems. For instance, Austria and Germany employed a mix of centralised and decentralised measures, while Sweden relied heavily on voluntary compliance and individual responsibility. The UK faced challenges due to pre-existing social inequalities and inconsistent coordination between national and local government. The Netherlands started with a partial lockdown, whereas Poland and France adopted stricter mandates and integrated OSH into broader recovery planning. Sweden's advanced digital infrastructure facilitated remote work, while France expanded occupational physicians' roles to prescribe work stoppages for COVID-19-related cases. These variations highlight the influence of political, social, and economic factors on pandemic management. In addition, the nature of workplace health and safety responses also varied, with some countries leveraging national OSH institutes, while others relied more on regulatory enforcement or social partner engagement.

The pandemic highlighted the value of integrating occupational safety and health into national emergency preparedness frameworks and of reinforcing inter-agency coordination in times of crisis.

3. Measures to prevent and address identified risks

The seven country reports provided detailed accounts of the measures taken to manage the COVID-19 pandemic, covering both public health and occupational interventions, with particular attention paid to their timing, implementation and effectiveness. These accounts included key political and administrative decisions such as lockdowns, travel restrictions, quarantine policies and vaccination campaigns. The accounts also pertained to the collection of epidemiological data, including infection rates, testing, hospitalisations, ICU admissions, vaccination rates and deaths. The reports also documented a wide range of measures designed to reduce the risk of exposure to SARS-CoV-2 — both at the population level and within occupational settings.

Box 2: Key messages related to question 2 (measures taken).

- Countries applied phased and adaptive strategies, combining general public health interventions with targeted workplace measures.
- General interventions included lockdowns, social distancing, mask mandates, testing, vaccination campaigns, school closures and digital tools for public health management.
- OSH measures focused on risk assessments, distancing in the workplace, hygiene protocols, ventilation, PPE use and remote or part-time working.
- Implementation varied depending on governance models, legal frameworks, sectoral risks and institutional capacities.
- Essential workers in health, transport, retail, and logistics were prioritised for protection, but also faced higher exposure and workload pressures.
- Employers were responsible for adapting prevention plans to the nature of the work performed, often in consultation with OSH specialists and worker representatives.
- Sector-specific protocols were developed in several countries, often through dialogue with social partners and supported by national OSH institutes.
- Financial and technical support schemes were implemented to facilita-te compliance, especially for SMEs and sectors with limited remote work feasibility.
- Differences in digital infrastructure, social dialogue and public trust influenced the speed and effectiveness of implementation.
- The pandemic highlighted the need to integrate OSH more strongly into national crisis preparedness and cross-sectoral coordination frameworks.

This section provides a comparative overview of the public health and occupational risk prevention measures implemented in the seven countries studied in this report. It distinguishes between those measures directed at the general population that impact work sites or working populations (Section 3.1) and those tailored to workplace environments (Section 3.2). While population-level interventions shaped the overall context of work (e.g., school closures, lockdowns), occupational safety and health (OSH) measures specifically addressed the risks arising from in-person work and sector-specific vulnerabilities.

The seven countries studied implemented a broad spectrum of risk prevention strategies. These evolved dynamically in response to epidemiological developments, institutional capacities, and national legal and cultural frameworks.

3.1. Risk prevention measures geared towards the general population

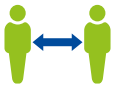
To mitigate the risk of population-wide exposure to SARS-CoV-2, all seven countries studied implemented a range of public health measures, often supported by extensive information campaigns. These general interventions served as the foundation for more targeted actions, and were frequently applied in parallel across multiple domains of daily life, including workplaces.

The most commonly implemented public health measures included mandatory home lockdowns and stay-at-home orders, physical distancing requirements, time-restricted movement such as curfews or limits on outings, and bans on specific high-risk activities, including visits to long-term care facilities. Countries also introduced domestic and international travel restrictions, distance learning and the closure of schools and child care facilities. To reduce population-wide exposure, restrictions on social gatherings and mass events were widely adopted, alongside large-scale testing and vaccination programmes.

In response to emerging needs during the pandemic, many countries accelerated the digitisation of public services and enabled remote access to health care and social protection systems, facilitating continuity of care and administrative functions. Simultaneously, efforts were made to expand health care system capacity, in particular increasing the availability of intensive care unit (ICU) beds, to prepare for surges in hospital admissions.

As an example, Figure 1 shows an overview of the general risk prevention measures that were applied in the Netherlands and affected the working population.

Figure 1 Overview of general measures in the Netherlands that impacted also the working population.

 Hygiene Measures	Measures included regular handwashing, mask-wearing in public spaces, and enhanced sanitation in businesses. Public facilities increased cleaning protocols, and individuals were encouraged to cover coughs and sneezes.
 Social distancing	People had to maintain a 1.5-meter distance in public spaces. This rule applied to both indoor and outdoor settings, with exceptions for household members.
 Face masks	Face masks became crucial in settings where social distancing wasn't possible, such as healthcare, public transport, and retail environments. Masks were required to reduce virus transmission.
 Gathering limitations	Restrictions for indoor and outdoor groups to reduce transmission. Initially, only small groups were allowed, with stricter limits during infection peaks.
 Evening clock	A curfew, or "evening clock" required people to stay indoors from 9:00 PM to 4:30 AM to reduce COVID-19 spread. Exceptions were limited to essential reasons, and fines were imposed for violations

These measures were introduced at different points of the pandemic, and often simultaneously. Their design and implementation varied between countries, being influenced by political systems, institutional capacities and levels of public trust. In some cases, digital tools such as contact-tracing apps were deployed to enhance reach and efficiency.

For example, lockdowns were applied either nationally or regionally, depending on the structure of government. Federal systems introduced variation across regions or states, while more centralised approaches enabled uniform implementation at the national level.

In addition to these broadly adopted interventions, the country reports highlight several contextual insights that help explain how and why measures were introduced, maintained, or revised. These included:

- the primary rationales behind policy choices (e.g., preventing ICU saturation, safeguarding vulnerable populations)
- public and workplace compliance levels and influencing factors (e.g., clarity of communication, enforcement practices)
- the role of institutional actors, including public health authorities and OSH bodies
- regulatory changes, for example in remote work frameworks and employer responsibilities
- assessment of administrative coordination and crisis management effectiveness

- evaluations of specific measures such as mask mandates, testing and vaccination uptake
- investigations of measure effectiveness, including studies of workplace outbreaks and ventilation strategies.

Although these measures were not specific to workplaces, they shaped the broader context of occupational risk management. General rules such as distancing, hygiene protocols and quarantine requirements had to be adapted to specific workplace environments, giving rise to sector-specific responses.

3.2. Risk prevention measures taken in occupational settings

According to the European legal framework[1], responsibility for ensuring the safety and health of workers lies with:

- the employer – for workers employed on the basis of an employment relationship and for individuals working on a different basis (including self-employed persons), provided that the work is carried out on the employer's premises or at a location designated by the employer
- the entrepreneur – for individuals working on a basis other than employment contracts (including self-employed persons).

To ensure occupational safety and health, the employer must carry out an assessment of occupational risks and implement preventive measures to reduce risks in accordance with the general *principles of prevention*. These provisions require employers to consider all factors present in the work environment and those related to the nature of the work performed.

During the pandemic, workplaces faced a new and significant hazard posed by the new virus, which added to existing occupational risks. Employers were required to take specific measures to reduce the risks associated with exposure to the biological agent of COVID-19. As the virus posed a serious health threat to the general population, including workers, it was essential to holistically assess the risk of exposure to the virus and take all feasible measures to mitigate it.

1 Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work.

Box 3: Example from German report on acceptance and implementation of measures (page 41).

> "The companies themselves have taken the pandemic as an opportunity to change their attitude to occupational health and safety and its organisation. In 2021, 44% of all companies rated working from home as a very or somewhat positive since the start of the pandemic. The implementation of protective measures such as the provision of masks or staying away from the workplace in the event of symptoms of infection is also being considered by many companies beyond the pandemic. An awareness is thus evident here. However, the extent to which this effect will be long-lasting remains to be seen. More than half of the companies also see an increase in the importance of occupational health and safety and plan to take it more into account in operational decisions. Even more companies are striving for greater employee involvement in occupational health and safety."

Preventive measures by employers and business owners were needed to ensure that work-related activities did not increase the risk of employees contracting SARS-CoV-2 beyond the estimated level for the general population and to avoid transmission. These measures also needed to comply with pandemic-related restrictions, mandates and prohibitions.

Measures to be implemented in each workplace during the pandemic included:

- developing an action plan to protect workers' health under epidemic conditions
- implementing strategies to reduce the likelihood of SARS-CoV-2 infection in workplaces
- establishing policies to minimise psychosocial distress caused by the pandemic
- ensuring effective communication about measures taken to reduce SARS-CoV-2 transmission in workplaces
- defining procedures for responding to suspected cases of infection.

To reduce the risk of workers being exposed to SARS-CoV-2 in workplaces, it was recommended that a preventive action plan be developed and implemented. This plan would ideally be formulated by management representatives in consultation with worker representatives, and with the assistance of an occupational health physician and occupational health and safety specialists.

Key considerations in developing such a plan included:

- the types of work performed in workplaces and the associated likelihood of infection
- the number of employees organised into teams performing specific tasks
- workplace infrastructure, including physical layout

- technical solutions to prevent the spread of harmful biological agents
- measures and approaches to mitigate stress and support mental well-being
- specific consideration and protective measures for vulnerable groups.

It was assumed that the likelihood of SARS-CoV-2 infection in workplaces could be increased by:

- social interactions (among employees and with people outside the organisation, such as clients, contractors, subcontractors, etc.)
- sharing of work equipment, machinery, tools and other items
- sharing of sanitary facilities, walkways and common areas.

The seven countries studied implemented measures in occupational settings during the pandemic to protect the health, safety and well-being of workers, and to reduce the risk of exposure to SARS-CoV-2 and mitigate virus transmission.

Preventive measures were taken to comprehensively address all factors that increased the likelihood of SARS-CoV-2 infection. These measures were general and/or sector-specific. They were tailored to the specific needs of each workplace. These measures included physical separation at the workplace, hygiene standards, ventilation, plant and facility closures, part-time working, working from home, testing, surface decontamination, procedures for detecting suspected COVID-19 infection, and personal protective equipment (PPE) such as disposable gloves, protective suits and face masks.

Some of these measures are briefly described in the following paragraphs.

3.2.1. Physical distancing in workplaces

One of the primary measures implemented across the seven countries to reduce the risk of virus infection in workplaces was to ensure adequate physical separation between employees.

This was achieved by:

- limiting the number of people present at the same time:
  1. on the premises (with recommendations for the implementation of individual work schedules), and
  2. in sanitary, social and changing rooms (e.g., by staggering break times and displaying current occupancy status outside the rooms)
- rearranging workstations so that there was a minimum distance between employees (unless the nature of the work made this impossible); where possible, workers were placed back-to-back
- establishing rules for the use of passageways (e.g., stairs, corridors, lifts), such as enforcing one-way movement or limiting the number of people in lifts.

Protocols were also often established for areas where people tended to congregate (e.g., building entrances at the start and end of shifts, attendance checkpoints, tool and material distribution points), with appropriate spacing and signage. Reducing direct contact between workers often required adapting workspaces, marking areas and reorganising work (e.g., through shift work, rotation or remote working).

These measures often involved updating workplace rules or posting notices. Where direct contact with other employees or customers was unavoidable, organisational and technical measures were taken to reduce the likelihood of infection. These measures included:

- working in fixed teams with limited direct contact
- using transparent barriers (e.g., partition walls and protective screens in glass or plastic) to separate staff from customers or contractors
- limiting direct contact time (e.g., to a maximum of 15 minutes)
- using personal protective equipment such as respirators (filtering half-masks or masks with filters), eye and face shields, safety glasses, disposable gloves, protective clothing and footwear
- providing hand and surface disinfectants.

Where possible, teleconferencing and videoconferencing were preferred over face-to-face meetings for organising seminars, training sessions, or conferences. However, the feasibility of virtual meetings varied across occupations and sectors. In cases where in-person meetings were considered essential or unavoidable, efforts were made to limit the number of participants (e.g., to a maximum of 15), maintain physical distancing (typically at least 1.5 metres) and minimise the duration of contacts. These adaptations were especially important in work environments where digital infrastructure was limited or where the nature of work required physical presence and direct interaction.

Physical distancing in the workplace also included efforts to limit direct contact with external individuals such as contractors, clients and customers. Depending on the phase of the pandemic and the prevailing risk level, electronic communication was prioritised wherever feasible, while business trips and in-person meetings with external parties were reduced to a minimum. When face-to-face interactions were deemed necessary — particularly during periods of lower transmission — it was recommended that visitor details (e.g., name, contact information, entry/exit times) be recorded and that visitors be informed of current workplace health and safety rules. Temperature checks (e.g., forehead or lower neck) were advised with the visitor’s consent, especially during periods of heightened transmission. Additional measures included encouraging the use of individual transport by employees to reduce reliance on public transportation — facilitated by providing parking spaces or secure bicycle storage — and promoting walking to work when feasible.

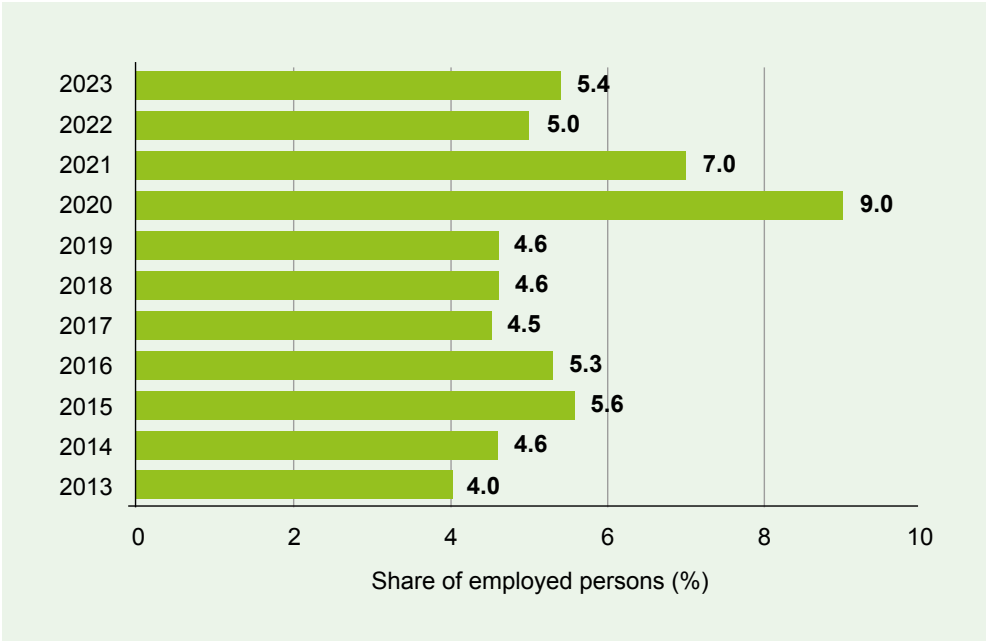
3.2.2. Working from home

To minimise direct contact between workers, remote work was recommended wherever the nature of the jobs involved permitted this. In Poland, the share of employees working from home nearly doubled in 2020 — rising from around 4.6% pre-pandemic to 9% — before gradually declining in the following years, indicating a partial but lasting change in work practices (Report-Poland, 2024, p. 23).

To support safe and effective remote working arrangements, employers often took several supportive measures, including:

- establishing formal remote work policies that defined working hours, expectations for availability, and task reporting requirements
- allowing flexible working hours to accommodate domestic responsibilities, particularly during lockdown periods when schools and child care facilities were closed
- permitting employees to temporarily use office equipment at home, such as computers, printers, desk lamps and ergonomic chairs
- assisting staff in creating ergonomic home workspaces and providing the necessary tools and software for virtual collaboration, including tele- and videoconferencing platforms
- delivering guidance and training on remote work practices via electronic means.

Figure 2. Employed persons working from home as a percentage of total employment in Poland from 2010 to 2023; data source: Poland; Eurostat; 2010 to 2023; 15-64 years; employed persons.



3.2.3. Hygiene standards in workplaces

In workplaces in the seven countries studied, measures to reduce virus spread included adherence to hygiene practices. These practices entailed the following:

- daily disinfection of areas, including frequently touched surfaces (doorknobs, worktops, desks, keyboards, sinks, toilets, soap dispensers, etc.)
- provision of access to handwashing facilities with soap, water and disinfectant, and clear instructions on effective handwashing and disinfection
- daily “wet cleaning” of floors, tables, chairs and lockers in common areas, with detergents
- discouragement of sharing of crockery in common areas and ensuring that kitchen utensils were disinfected after use
- removal of magazines, brochures and information material from social rooms, waiting areas and reception desks
- regular cleaning and disinfection of company vehicles and provision of hand sanitisers, paper towels and bin liners; disinfectant mats recommended at building entrances
- recommendations to limit the number of employees sharing work equipment and tools; frequent disinfection and mandatory use of disposable gloves recommended where sharing was unavoidable
- storage of mail, parcels or courier deliveries for a certain period (e.g. 2-3 hours) in special containers in a designated area, whenever possible, and disinfecting prior to distribution.

3.2.4. Ventilation

Considering that the virus would spread easily in enclosed spaces with prolonged exposure, ensuring adequate air exchange in work areas involved:

- regularly ventilating rooms in buildings without mechanical ventilation, during working hours (e.g., 10 minutes every hour), continuously at night, as well as before and after use of rooms (e.g., at least 2 hours).
- extending the operating life of mechanical ventilation systems in buildings; ideally, with proper maintenance, ventilation would run continuously (24/7)
- avoiding central and local air recirculation (except for ventilation units and recirculation sections with high-efficiency return air filters)
- use of mobile or small air cleaners in rooms with no or poor ventilation possibilities.

3.2.5. Personal Protective Equipment (PPE) and other protective equipment (e.g., face coverings)

In many workplaces, employees were provided with personal protective equipment (PPE), including respiratory protection, eye and face protection (such as goggles, face shields), disposable gloves and protective suits. This equipment was particularly necessary where the nature of the work did not allow for physical distancing and posed a high risk of virus exposure.

Manufacturers and OSH specialists provided guidance on the use of PPE. As understanding of the spread of the virus progressed, other information was added to these guidelines. These additional guidelines, developed by health and safety specialists, outlined the correct use, maintenance and disposal of protective equipment to minimise the risk of contamination. These guidelines included proper procedures for donning and doffing PPE, disinfecting reusable items, and safely storing or disposing of disposable items.

Employers were advised to implement regular cleaning and laundering of work clothing, and to ensure that it was stored separately from personal clothing and from items belonging to other employees or customers. Employers were also asked to train workers on the correct procedures for donning and doffing of PPE, as inappropriate use, particularly during removal, was a common source of contamination.

These training sessions were complemented by additional guidance from health and safety specialists on the correct use, maintenance and disposal of protective equipment to further reduce the risk of contamination. Procedures on which additional guidance was provided included donning and doffing of equipment, disinfecting reusable items, and properly storing or discarding disposable items.

Due to a global shortage of PPE, particularly medical masks and respirators, rationalising the use of such equipment became critical. The rapid increase in COVID-19 cases had dramatically increased demand, while limited production capacity made it difficult to meet global demand. Health authorities recommended strategies to optimise PPE use without compromising protection for health care workers. These strategies included remote patient assessments via telemedicine, the use of physical barriers at high-contact points, and restricted access to COVID-19 patient areas for non-essential personnel. PPE use was tailored to the level of risk and mode of transmission, with health care workers using equipment appropriate to their exposure risk – such as medical masks, gowns, gloves and eye protection for direct care, and respirators for aerosol-generating procedures. This targeted approach helped conserve PPE supplies while maintaining essential protection for health care personnel.

3.2.6. Closure of establishments and part-time working

One of the major impacts of the pandemic on professional environments was the partial or total closure of workplaces. These closures, often mandated by national or regional authorities, were typically accompanied by measures to mitigate the economic and social consequences of the pandemic for both businesses and workers. In many cases, part-time working arrangements were introduced to maintain some level of activity while reducing exposure risks.

To support affected sectors, governments across the seven countries studied introduced financial aid programmes. These included subsidies and tax relief for enterprises facing revenue losses, income replacement schemes for furloughed or part-time workers, and psychosocial support initiatives to address mental health challenges caused by financial insecurity, job loss, or isolation.

There were notable differences across professional sectors and job types in terms of the feasibility of closures, remote work and part-time working arrangements. For many jobs in manufacturing, the hospitality industry, personal services and transport, physical presence was required, and temporary closures had a more disruptive effect. Conversely, office-based sectors were more able to shift to telework or hybrid arrangements.

Structural differences in job roles and sectors contributed to widening inequalities between occupational groups during the pandemic. Many workers in roles deemed “essential” or “critical” — such as those in health care, public services, logistics, and retail — were unable to work remotely, and were required to maintain operations on-site. While the definition of “critical” sectors differed somewhat across countries, these workers were generally responsible for ensuring the continuity of key societal functions. As a result, they faced elevated exposure risks and bore a disproportionate share of the burden throughout the pandemic. Their protection became a priority in both public health and occupational safety and health (OSH) policies.

Protective measures for these groups included prioritised vaccination, guaranteed access to PPE, and adjustments to shift work or workplace layouts to reduce contact. Despite these efforts, many essential workers experienced long hours, increased stress, and elevated risks of infection, hospitalisation, and in some cases, premature mortality.

The distinction between roles of workers that could transition to remote work and of those that could not became a defining feature of occupational risk during the pandemic. The next section summarises the lessons learned from these varied experiences, and the implications of these lessons for future preparedness.

4. Effects of the COVID-19 pandemic

As outlined in the previous section of this report, a range of measures were introduced during the pandemic to reduce the spread of infection — among them, important adjustments to OSH. This section explores which changes in occupational safety and health (OSH) have remained in place following the COVID-19 pandemic, highlighting those that have become embedded in regular practice. Here we also examine the wider societal implications of workplace-related responses to the pandemic, considering how such interventions may have influenced broader norms, behaviours and expectations in working life.

Box 4: Key messages related effects of the measures taken in OSH.

- Remote and hybrid working models have become more widespread and are likely to remain, particularly in white-collar professions.
- To some extent, the pandemic increased awareness of OSH, with greater attention to hygiene, ventilation and systematic risk assessment.
- Mental health issues intensified, especially among frontline and high-risk workers, highlighting the need for improved psychosocial support.
- Digitalisation of work accelerated, influencing workflows, leadership styles, and the use of remote communication tools.
- Protective and physical safety measures — such as Plexiglas barriers and PPE — remain in place in some sectors and have shaped new workplace routines and expectations.
- Existing social and occupational inequalities were reinforced. Economic support schemes helped stabilise employment in some sectors, while workers in more precarious positions were more exposed to negative consequences.

4.1. The sustainability of implemented measures and other changes in working life conditions

The reports from the seven countries studied provide few concrete examples of specific COVID-19-related measures that remain in place. This is largely because many of these interventions were designed for an exceptional public health emergency. Infection prevention and control measures, such as physical distancing or mandatory face coverings, were critical during the crisis, but were phased out once the pandemic subsided. This does not suggest that these measures were ineffective, but rather that their relevance was tied to a specific situation.

However, the pandemic also triggered more lasting changes in working life. Some measures introduced during the crisis, — such as remote working

— have endured, not because of continued infection risk, but because they were found to improve flexibility, productivity, or employee well-being. At the same time, the pandemic raised awareness of the importance of OSH, particularly in relation to risk assessment, hygiene practices and ventilation. These aspects, while relevant to infection control, are also at the core of safe and healthy working conditions more broadly.

4.1.1. Changes in behaviour and working life conditions that remain

Several of the country reports note that the pandemic has contributed to changes in working practices. The most noticeable change is the increased prevalence of remote work, meaning that it has become more common to work from locations other than workplaces. In countries where digital infrastructure was already well-developed and the prevalence of remote work comparatively high, such as the Netherlands and Sweden, these factors facilitated a smoother transition to greater use of remote work at the onset of the pandemic. Conversely, in countries where digital infrastructure was less advanced prior to the pandemic, such as Poland, the shift in working practices has driven the development of and investment in new technologies.

The growing incidence of remote work has created more flexible conditions for employment, including so-called hybrid work models. Working from home has become increasingly common, compared to pre-pandemic norms. The findings in the country reports support the argument that more flexible working conditions — combining remote work with on-site presence — are here to stay. Most employees do not wish to work entirely remotely, and most employers prefer that their staff work on-site. Like the conditions during the pandemic, the opportunities for flexible working models continue to vary across different sectors and occupations. White-collar employees, mainly engaged in office work, have greater possibilities to work remotely, whereas workers in sectors such as health care, manufacturing and the hospitality industry are more likely to be required to largely perform their duties on-site. Employers may need to develop strategies to ensure cohesion and continuity based on new working conditions, whereby some employees may work on-site while others work remotely. The Polish report (p. 34) also mentions that regional disparities in the prevalence of remote work are evident, with rural areas typically exhibiting lower levels. This is due to both the nature of work in these regions, e.g. within prevailing industries requiring physical presence at work, and to limitations in digital infrastructure. This change may widen existing inequality.

Another enduring change in the work environment concerns physical safety measures. One example is the continued use of Plexiglas barriers after the pandemic, particularly in sectors like retail. In several countries — including France, Poland, and England — there has also been a heightened awareness of the importance of ventilation and indoor air quality. These are now seen as key factors in preventing the spread of viruses.

Some of the country reports imply that the COVID-19 pandemic led to heightened awareness of the importance of OSH. In Sweden (pp. 27-28), the government tasked its work environment agencies with monitoring how employers managed COVID-19 risks. Nearly 3,000 inspections were conducted in high-risk industries to ensure compliance with infection control rules. Common shortcomings included poor risk assessments and prevention measures.

In Germany (pp. 41, 55-56), awareness of occupational safety measures and worker protection increased, at least in the short term, and were accompanied by greater employee involvement in health and safety matters. Although the pandemic was challenging, efforts to raise workplace standards through regulation (e.g. in the meat processing sector, German report p. 47) have been intensified. The Austrian report (p. 4) emphasises the importance of strengthening communication and preparedness in relation to occupational health, including ensuring adequate protective equipment and resources.

4.1.2. A new normal?

As mentioned in section 4.1.1, some of the country reports indicate that the COVID-19 pandemic raised awareness and heightened emphasis on OSH. However, pertaining to the widely anticipated ”new normal”, it is chiefly the greater prevalence of remote work that appears to have endured. A fundamental rethinking of OSH does not seem to have gained broad acceptance (as concluded in the German report, p. 51).

The shift towards more digital and flexible work models varies across different settings. As previously noted, there are substantial differences between sectors, occupations, companies and categories of workers. Moreover, there has been a partial reversal in the prevalence of remote work. Rather than a complete shift from office-based to remote work, a hybrid model combining digital and traditional forms of working is expected to prevail, as suggested in the Austrian report (p. 22). Within the context of increased flexibility, remote work is likely to support a more optimal distribution of working hours.

4.2. The impact of measures taken during the pandemic

The country reports provide insights into how measures to protect OSH during the pandemic have influenced society at large, and conversely, how societal conditions have shaped the OSH environment and employee well-being. These insights yield both advantages and disadvantages for employees and employers alike, with notable variations across different occupational sectors. Worth bearing in mind, as the Dutch report (p. 23) highlights, is that it can be difficult to determine the significance of individual measures in this context, due to the complexity of several measures taken within and outside OSH. The impact should rather be seen as the outcome of several parallel processes and developments.

4.2.1. Impact of OSH measures on the working population

Workplaces were recognised as key sites of COVID-19 transmission, particularly for essential workers in sectors such as health care, social care, education, transport, manufacturing and public services. For example, the Swedish (p. 31) and German (p. 44) reports present statistics on workplace-related infections of COVID-19, categorised as occupational diseases or occupational accidents. These statistics show a dramatic increase during the pandemic, particularly in contact-intensive professions where women make up most of the workforce. The English report (pp. 11-13) contains detailed analyses of the increased infection risks of and deaths from COVID-19 in certain occupational groups, such as staff in health and social care, the taxi industry, teaching and hairdressing, but concludes that it is difficult to assess whether COVID-19 is an occupational disease.

OSH measures played a vital role in limiting the spread of infection during the pandemic. Hygiene protocols were particularly important, with frequent handwashing and the use of face masks being strongly emphasised — especially in occupations involving close physical contact. Social distancing was also widely implemented as a key preventive strategy, although it was difficult, or even impossible, to maintain in occupations such as health care, retail, and hospitality work. Workplace adaptations such as reconfigured layouts to ensure adequate physical distancing between employees — and, as knowledge evolved later in the crisis, enhanced ventilation and circulation of fresh air — helped reduce the risk of transmission. Testing and isolation policies were central to containing transmission, with regular testing and guidance to self-isolate when symptoms commonly applied. Furthermore, remote working was strongly encouraged or was even made mandatory in several countries. This reduced the number of individuals present in workplaces and, in turn, minimised the risk of infection (see below).

The country reports highlight several examples of how OSH measures contributed to reducing the spread of infection. The German report (p. 61) mentions a high willingness among companies and employees to contribute to keeping the spread of the virus down, whereas the Dutch report (p. 9), among other things, describes high compliance with general measures such as increased hand washing and sneezing into elbows throughout the pandemic. The English report highlights challenges in efforts to reduce workplace transmission, notably citing the key issues of difficulties of compliance with requirements for physical distancing and adequate ventilation, as well as disincentives for self-isolation. Many reasons could contribute to these difficulties, including lack of awareness, knowledge and resources when dealing with a pandemic involving a novel virus.

Changes in work practices, including the widespread shift to remote work and greater reliance on digital tools, influenced both workplace dynamics and broader social structures, often increasing stress and altering workloads. The country reports offer a range of insights into how workloads were affected by the shift to remote work during the COVID-19 pandemic. While remote work often provided increased flexibility and improved work-life balance, it also brought about challenges. Across several countries, employees reported

heightened stress levels, difficulties in separating work from private life, and concerns about presenteeism and working while unwell. However, findings vary across contexts and over time. In the Netherlands, for example, no notable changes were found in health, sick leave, or work-life balance in periods with less strict lockdowns. The Dutch (p. 25) and French (p. 14) reports show that remote workers spent more time in front of screens, and also experienced increased sedentary behaviour and repetitive movements, although access to ergonomic equipment at home gradually improved.

The shift to remote work posed challenges to leadership and social relations in the workplace. The Swedish report (p. 5) provides examples of how managers were required to adapt their leadership approaches to conditions of remote work, which led to changes in their working methods and an increased focus on operational tasks. A similar observation was made in Poland (pp. 35-38), where the sudden transition to remote work, combined with the general uncertainty and stress caused by the pandemic, disrupted traditional methods of fostering trust and maintaining clear communication within organisations. The Polish experience of leadership during the pandemic highlights a shift toward more pragmatic, empathetic and adaptive leadership styles. The French report (pp. 20–21) describes how remote work contributed to a weakening of social belonging and workplace communication, which may be indicative of an intensification of an already ongoing trend towards greater employee autonomy. In Austria (p. 26), it was noted that signs of appreciation were important for many employees during the pandemic, and that the recognition of workers' efforts contributed to strengthening their sense of belonging.

The COVID-19 pandemic is seen as both a driver and accelerator of workplace digitalisation. Many companies (particularly small businesses), as well as the self-employed, reorganised by digitalising their work processes, expanding online services, and strengthening their digital presence. Schools and universities increasingly shifted to digital modes of teaching, which over time strengthened both teachers' and students' competence in using digital tools. This transition, as noted in the Austrian report (pp. 20–21), was not without challenges — especially early on, when technology-related stress was common. The country reports highlight that the pandemic accelerated the use of digital services, not least in health care, where telehealth and digital consultations have begun to be integrated into the regular health care systems. The Polish report (p. 41) describes a negative outcome of the increasing use of digital services: a rise in cybercrime, as more services (such as banking) transitioned to digital solutions.

4.2.2. Impact of broader societal developments on OSH

The pandemic fundamentally reshaped the landscape for occupational safety and health, revealing vulnerabilities while prompting swift adaptations. The country reports highlight the challenges faced in frontline sectors and organisational readiness there, as well as protective measures and their effects on working conditions, the role of economic support in mitigating impacts, and how the pandemic exacerbated existing inequalities across labour markets.

OSH challenges in frontline Sectors and organisational Readiness

Flexibility and adaptability were crucial traits demonstrated by both workplaces and workers, enabling continuity of operations under rapidly changing conditions. The pandemic and society's response had a significant impact on OSH not least in sectors where work continued to be carried out on-site. Staff in intensive care units, elderly care, social services and education were under particular pressure. The country reports provide examples of an intensification of work, with increased workloads, longer and more irregular working hours, and stress. Mental health and well-being were notably affected in some occupations, with increased anxiety and depression reported. This pattern does not apply universally — in the Netherlands, for example, this was not the case. One possible explanation for this is that measurement of mental health was not conducted during the peaks of the pandemic, or that not all health care workers were equally affected by the pandemic. The pressure was instead concentrated in specific areas, such as emergency departments and intensive care units.

Some country reports also provide examples of stress caused by the constantly changing national policies introduced to counter the pandemic, such as among teachers in Austria (p. 20). The German report (p. 51) concludes that small and medium-sized enterprises (SMEs) often lack formalised occupational safety structures and awareness of relevant regulations — making these companies less likely to implement OSH measures, and thus more likely to face greater challenges than large enterprises.

Protective measures and their impact on working conditions

Hygiene and safety measures, including the use of protective equipment (PPE) and improved ventilation, became standard in many workplaces, influencing societal norms and expectations. The requirement for PPE had a considerable impact on working conditions. Sectors such as health care were particularly affected, with an increased and sustained use of masks, gloves and protective clothing to reduce the risk of infection. The widespread use of PPE led to a surge in global demand, creating supply challenges and influencing how protection was implemented across sectors. Workplaces were restructured to support health and safety protocols, including physical distancing as well as enhanced cleaning and ventilation. However, these measures also had psychological effects: the constant use of protective equipment and the altered OSH environment contributed to increased stress and mental strain, especially among health care workers.

Vaccination programmes facilitated the return to regular workplaces by creating a safer working environment and reducing the risk of infection, although vaccination uptake varied across countries and occupations. The report from Germany (p. 33) exemplifies that workplace vaccination was generally viewed positively, and that quick access to appointments and the possibility of getting vaccinated during working hours favoured this.

Economic support to ease the effects of the pandemic

Economic and social support schemes were introduced in many countries to assist workers affected by isolation or job loss, helping to mitigate financial burdens on individuals and businesses. The German report (p. 52) describes how measures such as the short-time work allowance helped to protect jobs and provided a sense of stability for employees in standard employment contracts, while workers in non-standard employment were affected less favourably. Short-time work allowance, rental support, tax deferrals, and reduced social security contributions for employers were key measures in Sweden (pp. 28-29) to ease the financial burden on hard-hit sectors such as retail and the hospitality industry.

Exacerbated inequalities during the pandemic

Socio-economic inequalities were, in some of the countries, exacerbated during the COVID-19 pandemic — especially among essential workers in sectors like food production and transport, who often faced higher exposure and heavier workloads. The German report (pp. 53-54) demonstrates how factors such as educational level and income played a certain role in determining how severely individuals were affected by the pandemic. People with lower levels of education and income were more exposed to infection risks, had less access to remote work and experienced poorer working conditions, especially in essential and high-risk sectors. Access to protective measures and employment support varied widely, often benefiting those in more secure jobs (German report, p. 52). Over time, a social gradient in infection and illness rates became evident, disproportionately affecting socially disadvantaged occupational groups.

The Swedish report (p. 31) provides examples showing that migration background influenced how individuals were affected by the consequences of the pandemic, as research indicates that individuals with a migration background, particularly in health care, faced higher risks of COVID-19 infection. Language barriers played a role, as official information was primarily communicated in Swedish, leading some groups to rely on less reliable sources. This contributed to increased workplace exposure among migrants in certain occupational groups. Experiences from the UK and France indicate that workers in precarious employment often had no choice but to remain on site.

According to the Austrian report (p. 21), the pandemic reinforced traditional gender roles, with women assuming a greater share of unpaid domestic and care work — an imbalance that may contribute to long-term gender inequalities in income and pensions. In the Netherlands (pp. 28-31), research indicates that pandemic impacts varied widely based on individual circumstances, with challenges observed for women, caregivers and employees in less supportive home environments. The German report (p. 49), however, points out that gender-specific inequality in care work has since returned to pre-pandemic levels.

4.3. Long-term effects of the pandemic on OSH, and in our way of working

The COVID-19 pandemic brought about rapid and profound changes to working life. While many of these changes were initially seen as temporary crisis responses, some may have longer-term implications. This section summarises insights from the country reports concerning the pandemic's lasting effects on working conditions, health and well-being, and OSH policies.

4.3.1. Long-term effects on working conditions

As only a few years have passed since the acute phase of the pandemic ended, it may still be too early to determine with certainty what the long-term effects on OSH will be. The Dutch report (pp. 23–27) indicates that several changes to working conditions during the pandemic were temporary, with many aspects reverting to pre-pandemic levels by the end of the pandemic, and this trend persisted until the last measurement in mid-2023. For instance, initial declines in psychosocial risks such as high job strain and emotional demands among on-site workers were not sustained over time. Similarly, while self-perceived health temporarily improved, it later returned to pre-pandemic levels—suggesting that many observed shifts may have been short-lived and crisis-driven rather than structural.

Nevertheless, some country reports suggest that the pandemic has prompted more permanent changes in how work is organised and carried out. These include a continued shift towards flexible work arrangements, more widespread adoption of hybrid work models, and a rethinking of how physical office space is used. For example, the Austrian report (p. 19) notes that desk-sharing has become more common, helping to manage space and cost challenges as fewer employees are physically present at any one time.

In Germany, there has been an ongoing discussion about the recognition of COVID-19, including long- and post-COVID (PCS), as an occupational disease—and thus a long-term consequence of the pandemic. This recognition has significant implications for accident insurance benefits and return-to-work programmes (see German report, pp. 42–44). Other enduring challenges highlighted in the report include the long-term psychological effects of COVID-19 (pp. 46–47).

4.3.2. Effects on health and well-being

Several reports highlight the pandemic's influence on workers' physical and mental health. In the French report (p. 12), intensified workloads and more atypical working hours are identified as factors that may have long-term effects on both employee health and the overall quality of OSH.

The Dutch report similarly observes that improvements in perceived health during the early pandemic were not maintained, indicating that positive effects on well-being may have been temporary. Additionally, some reports, such as those from Austria and England, point to increased stress and risks related to remote work — including a higher likelihood of employees continuing to work while unwell, due to the flexibility of working from home.

4.3.3. Impacts on interventions, awareness and policy focus

Insights gained from the pandemic appear to have contributed to a heightened awareness of OSH and a stronger policy focus on long-term improvements in OSH. The English report (p. 33) highlights a renewed interest in the physical work environment, including investments in improved building design, ventilation and air filtration systems.

Several reports also note a growing recognition of the importance of mental health, with increased attention to the need for robust mental health support systems and resilience training. These developments suggest that while some effects of the pandemic were temporary, others have led to enduring shifts in workplace policy, practice, and awareness that may strengthen occupational health systems in the long term.

5. Retrospective conclusions

The COVID-19 pandemic and the measures taken to prevent the disease changed working life in a profound way. As countries responded to the unprecedented challenges in working life of the COVID-19 pandemic, a key question arises: have these responses been systematically evaluated in the context of working life? This chapter examines how stakeholders in different nations reflected on their crisis strategies and assessed the effectiveness of their OSH measures. It also explores how PEROSH member organisations contributed to national responses, shaped policy and adapted their roles during the pandemic. Understanding these retrospective insights is crucial for identifying strengths and gaps in current systems and for informing more effective responses to future crises.

Box 5: Key messages related to retrospective conclusions.

- Research and evaluation are essential for drawing lessons from crises like the pandemic, for instance from an occupational safety and health (OSH) perspective.
- Work- and health-related measures have been assessed, though countries have applied different strategies and approaches to evaluation.
- The pandemic exposed both strengths and vulnerabilities in societies: positive aspects such as commitment, appreciation, adaptability and determination, but also critical weaknesses in workplaces and OSH, including lack of preparedness, negative work-related impacts and mistrust.
- PEROSH member organisations played key, yet diverse, roles in managing the pandemic from an OSH perspective.

5.1. Different national approaches to evaluation of work- and health-related measures

The country reports highlight that, during the pandemic, a wide range of work- and health-related measures was implemented to address the health crisis. While the primary objective was to decrease the number of infections, additional efforts were made to alleviate the broader impacts of these measures. Measures were implemented across multiple levels (national, regional, local, and organisational), highlighting the complexity and decentralised nature of pandemic response strategies. As detailed in Chapter 3, the most notable risk prevention measures adopted in various countries include physical distancing, hygiene standards, ventilation, Personal Protective Equipment (PPE), remote working and the closure of establishments, alongside part-time working.

Furthermore, measures aimed at addressing the side effects of infection prevention strategies in the context of working life were often complemented by economic relief initiatives, such as financial support for businesses and individuals. For instance, the German report points out the importance of short-time work to support companies in the event of temporary and unavoidable loss of work due to economic reasons or events (pp. 34-35). These measures also had an impact on how the workplaces could deal with the pandemic and reduce risk.

The broad range of work- and health-related measures implemented simultaneously across different levels of society complicates the assessment of the specific effects of each individual measure. It is evident that no comprehensive evaluation of every measure undertaken within the societies of the countries concerned has been conducted. While all countries engaged in some form of assessment, the approaches differed significantly. In countries such as the UK, France, and Sweden, national initiatives have been established to assess various aspects of the measures taken, including their impact of work- and health-related measures and OSH.

5.1.1. A wide range of initiatives for evaluation

The country reports highlight varied initiatives evaluating interventions in working life and at workplaces. The French report (p. 18) notes that from the very first months of the crisis, administrative and political authorities in France commissioned assessments of how the pandemic was being managed across different levels of society. The resulting enquiry commissions delivered critical observations regarding the initial responses of these authorities during the early phase of the pandemic.

In the Netherlands (pp. 18-24), data from the NWCS-COVID-19 cohort study were used to gain insights into the working conditions and health status of both on-site workers and remote workers at various stages of the COVID-19 pandemic. This cohort study was an initiative from TNO to follow workers that already participated in a representative national survey in 2019. Thereby, it was possible to follow these workers at several time points during the pandemic, and compare their situation with the pre-pandemic situation regarding health and working conditions.

In the UK (p. 17), the COVID-OUT study — part of the UK PROTECT COVID-19 National Core Study — played a central role in investigating workplace outbreaks and providing valuable insights into transmission risks and control measures. The study was initiated to systematically collect data on risk factors and mitigation strategies in workplaces experiencing active outbreaks. In addition, the UK report (pp. 28-31) presents approximately ten studies on non-pharmaceutical interventions (NPIs) relevant to workplace settings. These studies span a range of research fields, including public health, infection control/epidemiology, occupational health, environmental health/indoor air quality and health services research.

As outlined in the report from Sweden, the Swedish Corona Commission was appointed by the government in June 2020 to evaluate the country's response to the COVID-19 pandemic. The Commission produced several reports assessing the effectiveness of public health measures, focusing (among other things) on the health and care sector. The report from Sweden also draws extensively on a comprehensive study by the SAWEE, "The Impact of the COVID-19 Pandemic on Work Environments in Sweden", published in 2023.

5.1.2. The imperative for further evaluation

The country reports also point to the importance of evaluation for learning from the events during the pandemic. In Germany, risk group classification took place already in February 2020 by the Committee on Biological Agents (p. 16). The Committee was established 30 years ago, and is composed of experts from science as well as occupational safety and health, key stakeholders in the German OSH system. The French report (pp. 18-22) highlights the importance of reviewing and assessing the measures, decisions and scientific findings related to the COVID-19 pandemic. The report from France emphasises the need for a retrospective evaluation to understand the effectiveness of the actions taken and to learn from experiences. This evaluation is crucial for preparing for future pandemics, particularly in terms of risk group categorisation and occupational safety. The report suggests that the easing of the international emergency should mark the beginning of an intensive review process. This process should not only focus on past actions but also on stabilising and continuing important lines of research to ensure that new findings and products are available for future hazardous situations. The German report further underscores the significance of learning from the experiences of other countries and integrating these lessons into national strategies. Additionally, it highlights the role of federalism in allowing regionally adapted solutions and the importance of maintaining effective communication and cooperation across national borders. The German report also points out the challenges faced during the pandemic, such as delays in reporting chains and the need for improved digital structures in public health services.

5.2. Reflections on response to and impact of measures

The country reports offer reflections on how each country responded to the pandemic and the impact of the measures implemented. Several common themes emerge across these reflections, recurring in multiple reports.

5.2.1. Positive reflections on efforts

Several reports highlight positive reflections on the response to the pandemic and efforts to manage the crisis in work life, emphasising commitment, appreciation, adaptability, determination, resilience, and collaboration—particularly in areas such as alternative PPE production, adherence to public health guidelines, and political responsiveness.

As a positive observation, the German report underscores the rapid mobilisation of national OSH committees in formulating a regulatory approach to pandemic-related challenges in the field of occupational health and safety (pp 15-24). The French report (p. 19) underlines several positive aspects of crisis management, including the remarkable responsiveness, commitment, and mobilisation of those involved. One notable example is the large-scale and time-sensitive production of face masks, especially by private individuals and textile companies. The strength of civil society and local solidarity is also acknowledged. Furthermore, according to the French report, the country's economic response was, by international standards, generally proportionate to the scale of the crisis.

The report from Poland underscores the involvement of military medical personnel and medical students supplemented the workforce during critical periods (p 13). The report describes how medical students volunteered in various healthcare settings, providing valuable support and highlighting the potential of utilising this group during health emergencies.

The Swedish report (p. 11) argues that although some occupational groups were particularly at risk, there was a great deal of adaptability and flexibility in the labour market to deal with the negative consequences of the pandemic. According to the report, this preparedness needs to be not only maintained but also strengthened to enable us to respond to sudden and widespread societal disruptions in the future. The Austrian report (p. 26) notes that the word "appreciation" was frequently used throughout the COVID-19 crisis. This concept held significant importance for workers across various sectors. Appreciation helped individuals cope with difficult times, both in their personal and professional lives, and was particularly relevant for occupational safety and health due to its impact on mental well-being.

The English report (pp. 20-21) points to the strong force of collaboration. For instance, in one case study presented in the report the outbreak in a large meat processing plant was successfully contained, even as local infection rates continued to climb. Leadership played a critical role in containment efforts, with plant management reevaluating key controls in collaboration with local public health. Strong leadership and diligent compliance monitoring, paired with workplace testing, contact tracing, social distancing, hand hygiene, surface cleaning, and vaccine promotion, were instrumental in mitigating the outbreak in that case.

+ Dutch reports showed how easy it was to transfer to remote working in their lessons learnt. How workers and supervisors were able to changed their working conditions so rapidly.

5.2.2. Lack of preparedness for a pandemic in working life

Shifting focus from the more positive aspects, several country reports emphasise that neither societies nor workplaces were adequately prepared for a pandemic. They critically reflect on the multidimensional lack of preparedness, including (among other things) insufficient strategic planning on the societal level and at the workplace level, limited basic

hygiene awareness in health institutions and care homes, shortages of personal protective equipment (PPE) at work, underdeveloped collaboration structures among working life stakeholders and unclear principles for communication from central levels to local workplace levels.

The French report (pp. 18-19) states that there was a failure to prepare for the crisis and a general lack of foresight. The report poses the rhetorical question of whether any country was truly prepared for a pandemic of this magnitude. It observes that France was not ready to deal with such a “total” phenomenon, also influencing working life. In the face of what appeared to be an unprecedented event, marked by considerable uncertainty — on such issues as the unknown dynamics of viral transmission in workplaces — France’s national strategy is described as having overlooked or underutilised key existing resources.

The German report (p. 58) argues that the obvious shortage of essential medical supplies, such as protective masks, personal protective equipment and medical devices, at the start of the COVID-19 pandemic revealed an urgent need for action. Similarly, the Polish report (p. 2) notes that public health preparedness was primarily focused on disease control, vaccination and health promotion. However, the pandemic revealed gaps in this structure, particularly in personal protective equipment stockpiles in workplaces and in testing capacity. Although e-health tools like electronic health records and e-prescriptions had been introduced, implementation was uneven.

The Austrian report (p. 4) states that the pandemic revealed shortcomings in communication strategies, both regarding general policies and workplace-specific measures. The report advocates better-prepared communication plans and timely dissemination of information to reduce employee stress and improve preparedness for future crises. The Swedish report (p. 40) argues that an important lesson from the pandemic is that workplaces with active and well-functioning systematic work environment management (SWEM) proved to be better equipped to handle the crisis (see Box 7). It is essential for SWEM to be embedded in all organisations, and for this work to include physical, organisational and psychosocial aspects of OSH. To ensure a continued high level of preparedness, employers should regularly conduct risk assessments to quickly identify potential hazards and plan for new crises. This approach creates an OSH strategy that is more proactive than reactive, according to the Swedish report.

Box 6: Strengthened systematic work environment management and preparedness (Report-Sweden, 2024, p. 40).

> Systematic work environment management (SWEM), known as SAM in Swedish, is a legal requirement for all employers under the Swedish Work Environment Act. The concept pertains to a structured and continuous process to ensure a safe, healthy, and sustainable work environment. The key principles include identifying and assessing risks, implementing preventive measures and regularly following up to evaluate outcomes. SWEM must be integrated into the day-to-day operations of workplaces and adapted to each workplace's conditions. Employers are responsible for ensuring that SWEM efforts are conducted systematically and in collaboration with employees and safety representatives. The process requires clear allocation of responsibilities, documentation of activities and regular reviews. The goal is to prevent ill health and accidents, promote well-being, and support long-term organisational development. SWEM emphasises that OSH management should be proactive, not reactive, and that it should be applied across all sectors and workplace sizes.

To summarise, the reports emphasise that effective crisis preparedness in the context of public health and occupational safety requires comprehensive improvements in infrastructure, equipment and communication systems. Communication strategies must be better integrated with concrete measures and streamlined to function efficiently both in and beyond crisis situations. Particular attention should be given to identifying structurally and systemically vulnerable groups. Preparedness should also encompass regular crisis management exercises aimed at maintaining communication chains, clarifying responsibilities and testing emergency response systems. Importantly, communication must address both pre-crisis risk awareness and in-crisis messaging, with implications for both the workforce and the broader population.

5.2.3. Negative impact on working life

Although some positive outcomes emerged from the pandemic, all country reports offer critical reflections on the generally negative impact that the pandemic and its associated measures had on working life. Numerous sectors experienced disruptions, and both companies and employees were affected — resulting, in many cases, in job losses and business closures. The level of emotional stress in several occupations in health care was immense, and the use of personal protective equipment (PPE) further complicated task performance across several branches of care work. According to the reports, the measures contributed to a deterioration of working conditions, particularly within the health care sector. Among groups in precarious forms of employment, the pandemic increased the risk of job loss, which in turn contributed to stress, among other effects.

Additionally, some of the country reports show that the shift to remote work, while offering flexibility, entailed several drawbacks — including social

isolation, adverse effects on mental health and diminished opportunities for creativity and collaboration. To borrow the words of the French report (p. 5):

> *"The extent and consequences of the COVID-19 pandemic in France, as in all other countries, have had numerous impacts, particularly on socio-economic organisation, French ways of life and health policies. The health crisis has had a profound impact on the world of work in all its dimensions. It has had major impacts on occupational safety and health (OSH) policies and activities".*

Several country reports emphasise the adverse economic consequences of the pandemic for workplaces, with subsequent impacts on working life as well as occupational safety and health safety for employees. According to (for instance) the Swedish report (p. 32), the pandemic had a major economic impact on businesses. The hospitality sector as well as the transport and manufacturing industries were affected by record levels of displacements, layoffs and dismissals. Unemployment increased, and individuals without job security or with short tenure were more negatively impacted than those with a more secure position in the labour market. Perceptions of the economic consequences of the pandemic were divided in Poland (p. 16). According to a survey presented in the Polish report, while some viewed the shutdown of economic activity as a necessary measure to prevent more severe outcomes, others perceived it as having resulted in more costs than benefits. At the same time, there was broad recognition of the long-term economic impact of the pandemic on younger generations, highlighting concerns about intergenerational inequality and prospects in Poland.

The reports also highlight the negative consequences of the pandemic for mental health in workplaces. Drawing on an international literature review, the Dutch report (p. 30) notes that many studies during the pandemic focused on depression, anxiety and stress. In addition, reviews addressing emotional fatigue, burnout, sleep quality and feelings of isolation are also included. It should also be noted that no definitive conclusions can be drawn from the review regarding the effects of the pandemic, due to the broad definitions of health conditions used, variations in timing and other contextual differences.

The Austrian report (p. 26) says that the crisis has caused a lot of psychological stress – for instance, for health care workers. With a view to future crises, it seems reasonable to make every effort to reduce this kind of stress. In a corresponding way, the report from England (p. 12) concludes that the pandemic significantly impacted workers' mental health and well-being, particularly for those in high-stress roles. According to the German report (p. 39), the COVID-19 pandemic has prompted many companies and company managers to deal with mentally stressful work situations.

The use of PPE also harmed workers. The Polish report (p. 32) refers to a survey exploring various aspects of PPE use, such as respiratory protection, physical and thermal comfort, hydration and psychosocial conditions. The results indicated discomfort, with many respondents reporting thermal

stress and ergonomic issues due to PPE. The report from England (p. 25), in a similar way, notes that in food production, workers needed hearing protection, which (combined with face coverings) hindered communication, and led to closer proximity during interactions.

The negative impacts of the pandemic on working life were unequally distributed. According to, for instance, the German report (p. 52), the pandemic worsened existing precarious working conditions and social inequalities, particularly in so-called “systemically relevant” sectors and high-risk industries. While measures such as the short-time working allowance helped to preserve jobs, they primarily served to maintain the status of employees in standard employment relationships. In contrast, individuals with less market power were more exposed to company-level flexibilisation strategies and governmental containment measures, which negatively affected their access to social protection.

5.2.4. Influence of public trust and critical engagement

Several reports reflect on how various pandemic response measures were influenced by trust among the public and acceptance of measures. The reports indicate both trust and mistrust. According to some reports, mistrust influenced the implementation of work- and health-related measures, and compromised the ability to ensure a safe environment for workers in workplaces. In many countries, a lack of trust between policymakers, institutions and citizens influenced the extent to which people were willing to follow public health recommendations, also in workplaces and working life. For instance, in the Netherlands, trust in recommendations decreased over time. The calls for vaccination and social distancing, through measures such as working from home or avoiding travel in public transport, aimed to protect vulnerable groups. However, these measures were challenged by competing demands for freedom of movement and participation in society, particularly among younger populations.

For instance, the report from the UK (p. 38) states that a critical obstacle during the pandemic was public resistance to some of the health measures, such as face coverings and vaccinations. According to the report, securing public acceptance of a range of public health measures, both during future crises and in interpandemic periods, will be essential for effective pandemic preparedness. In France (p. 19), the management of the pandemic revealed a crisis of confidence in institutions. The French report argues that a general climate of mistrust in political discourse has been associated with mistrust in medical and scientific discourse.

The German report shows that, on one hand, data from a socio-economic panel indicates that employees reported a high level of compliance with the implementation of protective measures (pp. 41-42). In both the spring/summer of 2020 and in early 2021, most employees considered the protective measures to be appropriate. However, there are notable differences among occupational groups, with employees in social and cultural service professions particularly viewing the measures as

insufficiently comprehensive. On the other hand, the temporary mandatory vaccinations for employees in the health care sector and care facilities in Germany is now criticised (p. 25). In Austria (p. 12), the federal government announced that vaccination would become mandatory, which gave rise to several public demonstrations throughout the country.

The Polish report (p. 17) notes that compliance with behavioural measures such as mask-wearing and social distancing was vital in limiting the spread of COVID-19. In Poland, however, adherence was relatively low, partly due to a perceived lack of government support. Surveys indicate that widespread misinformation and conspiracy theories, particularly during the early lockdown, fuelled public scepticism and hindered compliance. A notable share of the population questioned the effectiveness of protective measures and held unfounded beliefs about the virus' origin or the motives behind restrictions. For example, around one in three of those surveyed were negative towards the use of masks, and roughly one in four believed that the pandemic crisis was intentionally designed to harm the economy. While only a minority in Poland supported the idea of a global conspiracy, this overall climate of mistrust reduced public engagement with preventive measures and emphasised the need for clear and accessible public health communication.

Sweden (pp. 10-11) adopted a different approach to infection control by avoiding strict lockdowns, instead relying on voluntary compliance with recommendations on social distancing and hygiene. Schools, restaurants and shops largely remained open, reflecting a strategy of managing the pandemic without mandatory closures. In the Swedish report (p. 35), Sweden's emphasis on recommendations, voluntary measures and individual responsibility is partly attributed to the country's high level of societal trust. Citizens generally trust authorities and each other, and the government, in turn, trusts its citizens to act responsibly. This mutual trust was seen as key to achieving broad acceptance of infection control measures according to the Swedish report. The idea was that people would follow recommendations out of conviction rather than obligation. However, the report notes that neighbouring Nordic countries with similarly high trust levels, such as Denmark, Finland, and Norway, adopted more stringent approaches.

5.2.5. Decentralised governance models and difficulties in coordinating crisis management

The country reports include reflections on how countries responded to the pandemic, particularly in terms of the presence or absence of cooperation and coordination. The coordination challenges were considerable. A wide range of authorities, institutions and sectors were required to rapidly assess the evolving situation, as well as to implement measures both to limit the spread of the virus and to address the broader consequences of the pandemic. Some reports emphasise that the overall response was less effective than it might have been, due to limited collaboration and weak coordination between sectors and institutions. Some reports also note

that OSH expert organisations were not consistently involved in strategic planning. Gaps in communication and coordination led to unsynchronised or even conflicting messaging from authorities, contributing to a decline in public trust and confidence in the measures introduced.

The German report (p. 53) notes that during the pandemic it was essential to keep pace with ongoing developments and constant changes. This required complex coordination among all responsible bodies, committees and crisis teams, which also had to ensure rapid, effective and standardised external communication. Coordinating and aligning the various stakeholders in OSH, including scientific institutions, ministries and public authorities, was a major challenge. According to the report, this was particularly demanding in Germany, where the OSH system is highly institutionalised. In a similar way, the French report (p. 19) states that difficulties in preparedness and crisis management were largely due to the complexity of governance and excessive centralisation. Centralised decision-making was unable to account for specific territorial conditions, while interministerial coordination in the regions was both delayed and insufficiently fluid. Furthermore, regional health agencies (Agences régionales de santé, ARS) were seen as too distant from the realities on the ground.

5.3. Roles and strategies among PEROSH's member organisations

The country reports offer both explicit and implicit insights into the diverse roles undertaken by the PEROSH member organisations. This section summarises those roles. The country reports show that the strategies and activities of the involved organisations during the pandemic varied across national contexts, reflecting differences in mandates, institutional structures and collaborative frameworks. Some organisations, such as INRS (France) and BAuA (Germany), assumed highly active roles, while others, like TNO (the Netherlands) and AUVA (Austria), were less directly involved. Nonetheless, many of the PEROSH's member organisations carried out core functions, including monitoring, analysis and the dissemination of research-based knowledge. Their contributions in some cases also encompassed communication and educational initiatives, the formulation of regulatory guidelines, and advisory support for national OSH policymaking.

5.3.1. INRS in France

The French National Institute of Research and Safety for occupational health prevention (INRS) acts on behalf of companies and employees covered by the social insurance (private companies). It generally acts through four main action modes: research, expertise and support, training as well as information and communication.

According to the French report (pp. 15-17), INRS played a dual role in this health crisis: providing technical expertise to national and regional health insurance bodies and promoting workplace prevention measures. It responded to around 300 internal queries, supported coordination efforts

and organised remote events on occupational risk prevention. The INRS published and updated a wide range of information materials on its website, including pandemic-specific content on health, telework, safe resumption of work and protective measures. It created FAQs, posters and flyers, and also held webinars, while also using newsletters and social media to spread awareness.

The institute experienced a 25–30 percent increase in assistance requests, answering around 4,000 queries — especially on masks and legal aspects of workplace safety. It also supported public authorities and contributed to the development of standards like the AFNOR SPEC S76-001 for barrier masks. In training, INRS issued guidelines for resuming safety training and managing emergency services under new health regulations. Finally, the crisis prompted many short studies and laid the groundwork for future research.

5.3.2. BAuA in Germany

During the pandemic, the German Federal Institute for Occupational Safety and Health (BAuA) played a multifaceted role, combining regulatory, advisory, research and informational responsibilities in support of OSH (pp. 15-19). BAuA supported the Federal Ministry of Labour and Social Affairs (BMAS) through its participation in state health and safety committees, which advise BMAS on occupational safety regulations and determine the specifics of state-level legal provisions.

BAuA also fulfilled sovereign legal tasks through the Federal Centre for Chemicals (BfC), particularly under the frameworks of REACH, CLP and the Biocidal Products Regulation. In response to the urgent demand for disinfectants during the pandemic, BAuA issued exceptional authorisations for their manufacture, bypassing the usual comprehensive approval processes due to the public health emergency. As a departmental research organisation, BAuA intensified its scientific efforts during the pandemic. It initiated several research activities focused on workplace safety, early identification of occupational risks, and the promotion of human-centred work design. These research efforts were complemented by targeted national funding calls aimed at enhancing understanding of the pandemic and its implications. In addition, there were various nationwide calls for funding at the time, with the aim of better understanding the pandemic and its effects.

Moreover, BAuA served a central communicative function by operating an information centre for OSH stakeholders. This included companies, statutory accident insurance providers and public institutions. A considerable volume of enquiries, particularly concerning the production of disinfectants and protective equipment, were processed and compiled into accessible FAQ formats, ensuring that relevant guidance reached practitioners efficiently.

5.3.3. HSE in UK

The Health and Safety Executive (HSE) is the UK's national regulator for workplace health and safety. The UK report points out that the Health and Safety Executive (HSE) played a central role in understanding and mitigating

workplace transmission risks. For instance, HSE led the PROTECT COVID-19 National Core Study, between October 2020 and March 2023, which was a strategic programme to inform policy and operations for the immediate national pandemic response and for future preparedness. Theme 1 of PROTECT focused on workplace outbreak investigations to understand virus transmission risk factors and control measures in the workplace. Theme 1 pertained to a close collaboration of interdisciplinary scientists from five institutions, including HSE, the UK Health Security Agency (UKHSA), the London School of Hygiene and Tropical Medicine (LSHTM), the University of Manchester (UoM) and the Office of National Statistics (ONS). Comprehensive analyses were conducted within Theme 1, on national-level data concerning workplace COVID-19 outbreaks, and on-the-ground investigations were conducted at 20 outbreak sites, using a predefined study protocol and covering a wide range of high-risk sectors. This collaboration enabled the integration of diverse datasets, including NHS contact tracing, vaccination and census data, to analyse outbreak risks across various industries. By linking these datasets, researchers could standardise classifications for job roles and economic activities, which were crucial for identifying and understanding workplaces with relatively high risk of the virus transmission.

In July 2020, a collaboration between Public Health England (PHE, now UKHSA) and the HSE was established, linking the workplace outbreak database with the UK business register. This linkage provided essential denominator data, allowing for a detailed analysis of outbreak rates in non-health care sectors by industry, region and enterprise size. The strengthened collaboration between the HSE and the UKHSA facilitated further linkages of national contact tracing data with business register data, enabling the analysis of COVID-19 cluster rates, sizes, durations and trends over time within various sectors. The research identified higher transmission risks in schools, hospitals, the public service sector, food manufacturing and warehousing. A novel approach was introduced to track infectious case clusters at the individual building level, advancing infectious disease detection beyond COVID-19.

Through partnerships, the research applied infectious disease epidemiology principles to explore transmission patterns, considering complex social, environmental and behavioural factors. This comprehensive approach supported a broader understanding of workplace health research, identifying high-risk settings and informing future health emergency responses.

5.3.4. CIOP-PIB in Poland

The Central Institute for Labour Protection – National Research Institute (CIOP-PIB) is Poland's key national institution focused on OSH. Its main mission is to improve working conditions and prevent work-related risks through scientific research, development of safety guidelines, innovative technical solutions and educational activities. During the COVID-19 pandemic, the CIOP-PIB played a key role in supporting the Polish government's response, with a strong focus on OSH (pp. 52-53). The

institute developed detailed safety guidelines aimed at ensuring safe working conditions across different sectors. These guidelines included protocols for the use of personal protective equipment (PPE), workplace hygiene and social distancing.

The CIOP-PIB conducted extensive research to evaluate the impact of the pandemic on OSH, identifying new risks in workplaces and helping to shape effective prevention strategies. The results of these studies provided essential insights for managing emerging hazards during the crisis. To enhance awareness and readiness, the institute also organised numerous training sessions and webinars, and created a wide range of informational materials. These resources were aimed at educating employers and workers about COVID-19-related occupational risks and how to address them effectively.

In collaboration with key government bodies such as the Ministry of Family, Labour and Social Policy, the CIOP-PIB ensured that workplace safety was an integral part of the country's broader public health strategy. The institute's coordinated efforts helped implement consistent and practical safety measures nationwide. Through its research, guidance and education initiatives, the CIOP-PIB played a crucial part in protecting workers' health and maintaining safe work environments during the pandemic. Its contributions not only supported the government's crisis response, but also strengthened the country's ability to manage current and future occupational health emergencies.

5.3.5. SAWEE in Sweden

The Swedish Agency for Work Environment Expertise (SAWEE) functions as the Swedish government's national knowledge centre for OSH. Its core mission is to gather, analyse and disseminate knowledge related to OSH. The Swedish report underscores SAWEE's role in the national context, particularly in responding to the challenges posed by the COVID-19 pandemic in OSH.

During the pandemic, the agency undertook several initiatives to monitor the impact of COVID-19 on working conditions and to examine how employers responded to the emerging challenges. In response to the crisis, SAWEE received additional financial resources from the government to enhance its capacity to identify and analyse the OSH consequences of the pandemic. This included targeted investigations into the working conditions of specific occupational groups particularly affected by the pandemic, as well as broader analyses of the organisational and psychosocial work environment across the Swedish labour market. Through these efforts, SAWEE played a role in informing policy and supporting evidence-based decision-making during the pandemic.

5.3.6. AUVA in Austria

The Austrian Social Insurance for Occupational Risks (AUVA) played a manifold role in Austria during the pandemic. COVID-19 is considered an occupational disease in Austria, if the necessary requirements are met. The

AUVA addresses the legal duties of occupational medical care, rehabilitation and financial compensation in case of an insured event. Another legal duty of the AUVA is the prevention of occupational accidents and diseases.

During the pandemic the AUVA played an essential role in providing information to employers, institutions, social partners and the public. Many publications, like fact sheets, leaflets and folders, have been published, and webinars were held.

Since the AUVA also acts as a point of contact for external inquiries regarding occupational safety and health, many questions regarding COVID-19 were answered during the pandemic. Of particular importance was the assessment of adequate personal protective equipment. In addition, the AUVA provided the PEROSH network with an online platform for communication among members and for the provision of information (Prevention Forum Plus). This innovative platform was widely used, especially considering the fact that we are looking at the time right before the digital acceleration started. It was also used as a collaboration platform among users. At that time, international communication was a little more limited than it is now. Therefore, the AUVA played a role during the pandemic not just in a national but in an international context.

5.3.7. TNO in the Netherlands

The TNO is an independent not-for-profit research organisation. TNO did not hold a formal role during the pandemic. Regarding the work context, at a very early stage, TNO initiated both a monitoring study and a diary study among employees, later expanded to include employers. The findings from these studies were used to advise the Ministry of Social Affairs and Employment, as well as the social partners (employer and employee representatives), on potential risks, negative consequences and mitigation strategies. Other divisions within the TNO conducted research in additional domains, such as the development of a COVID-19 test, and provided expert advice to other ministries.

6. Lessons learned

The COVID-19 pandemic placed heavy pressure on countries worldwide. The experience of COVID-19 has shown that infection control and OSH are not separate domains, but evidently connected. During a health crisis, the integration of these domains is vital, but the lessons learned also point to the value of maintaining strong OSH systems as part of general preparedness and resilience.

As outlined in earlier sections of this report, many European nations implemented similar measures to address the OSH implications of the crisis. For the first time in modern working life, new practices — such as remote work policies, widespread use of PPE and social distancing — were introduced and tested on a broad scale. What lessons can we learn from the experimental activity during the pandemic from an OSH perspective? This chapter explores two key questions: what critical considerations should be made in preparation for a future health crisis? And what role should PEROSH play in such a scenario?

Box 7: Key messages related to lessons learnt.

- The COVID-19 pandemic demonstrated that workplaces are not only vulnerable to virus transmission but can also amplify its spread. Pandemic preparedness must therefore include workplace-specific strategies.
- There is a need to reinforce (for example) infection control systems, as a part of continuous OSH work, in workplaces by investing in preventive infrastructure, clear protocols and consistent hygiene standards across sectors.
- Transparent and timely communication is essential to gain acceptance for protective measures. Building trust through proactive engagement is key to promoting safer and more resilient work environments.
- Improving systems for occupational data collection, linkage and analysis is crucial to enable evidence-based decision-making during crises and to support targeted interventions.
- Future responses require interdisciplinary collaboration that brings together expertise from occupational health, public health, behavioural science and communication to ensure well-coordinated and effective measures.
- Guidelines for remote and hybrid work should be developed to ensure flexible, inclusive and health-supportive work arrangements in times of disruption.
- There is a strong need to invest in the long-term resilience of both society and workplaces through inclusive social dialogue, capacity-building and robust crisis management structures.
- In a future crisis, PEROSH could play an important role in supporting researchers and OSH experts.

6.1. Key recommendations for the future in the event of a new health crisis

The country reports put forward several recommendations for addressing potential future health crises, aiming to reduce workplace-related risks and strengthening OSH in the context of pandemics. The reports propose a range of recommendations directed at different segments of society. Many of the recommendations are based on the premise that society must be capable of delivering a rapid response to future pandemics, grounded in knowledge of OSH. It is impossible to know how a new health crisis will impact workplaces and OHS. It is important to work in an agile way to respond to developments in an adaptive manner. This section synthesises recurring themes and shared recommendations directed at e.g. society, policymakers and OSH expert organisations, as identified across the country reports.

6.1.1. Strengthen workplace infection control measures

The COVID-19 pandemic revealed that workplaces can play a critical role in virus transmission, a finding which emphasises the need to integrate infection control measures into OSH frameworks. The country reports recommend the maintenance and strengthening of workplace capability and capacity for infection control measures. This includes e.g. improved ventilation, enhanced hygiene protocols, proper PPE usage, regular testing, and ongoing health monitoring. To support this integration, it is essential to improve the stockpiling of PPE but also of other equipment, to ensure the sustained implementation of control measures during health emergencies. However, the next pandemic may not be all that similar to COVID-19. Suitable control measures need to be developed in an agile way, based on understanding the transmission of the pathogen(s) in question and workplace-specific risk assessment.

The UK report (pp. 31-32) also highlights the so-called hierarchy of controls as a well-established and widely adopted framework for minimising exposure to workplace-related hazards, whether physical, chemical, or biological. It organises control measures in order of effectiveness, from most to least: (1) Elimination – physically removing the hazard; (2) Substitution – replacing the hazard with a less hazardous alternative; (3) Engineering controls – isolating individuals from the hazard; (4) Administrative controls – modifying work practices and procedures; and (5) PPE – providing individual protection. In principle, controls positioned higher in the hierarchy are characterised by greater effectiveness. For instance, elimination or substitution of a hazard provides stronger protection than engineering controls, which in turn are generally more effective than reliance on PPE.

In Germany, a hierarchy of measures in occupational safety/infection protection was also pursued according to the TOP principle, with the dominant recommendation being technical and organisational measures (pp. 36-39). Priority should be placed on technical measures (T), like checking air conditioning and ventilation systems, or installing protective screens aimed at preventing the infection or the spread of pathogens. Organisational measures (O), such as reorganisation of shifts and break schedules and

introducing the option of working from home, additionally support the technical measures. At the very end, personal measures (P) should be used, such as mandatory wearing of mouth and nose coverings, promotion of sneezing/coughing etiquette or even providing PPE — giving employees a high level of responsibility.

The country reports emphasise the need to strengthen workplace infection control measures. The UK report brings up several lessons from the pandemic to strengthen workplace infection control measures. The report empathises the critical role of ventilation, both natural and mechanical, in reducing airborne transmission in indoor settings such as most workplaces. Workplace outbreak investigations revealed challenges in implementing effective ventilation, underscoring the need for improved communication, training and support. While retrofitting existing systems can be costly, integrating ventilation into building design from the outset can foster healthier, infection-resilient environments. Investments in ventilation, air filtration and building design are essential for long-term preparedness against future respiratory pandemics.

The Polish report (p. 30) also highlights that adequate ventilation emerged as a critical component of workplace safety strategies aimed at reducing the risk of airborne transmission. Guidelines in Poland emphasised regular fresh air circulation in enclosed spaces, either through mechanical ventilation systems or by opening windows frequently. Improved ventilation protocols were introduced in several sectors, particularly where physical distancing was challenging to maintain, ensuring better airflow and reducing the potential accumulation of virus particles in indoor environments. The Polish report (p. 4) also suggests sustaining high hygiene standards, as well as ensuring continuous access to PPE, to improve preparedness for future pandemics. The intensified usage of PPE across various sectors in Poland, however, raised concerns about future preparedness, and highlighted the need for regulatory improvements. Enhanced market regulation, better stockpiling practices and the development of local manufacturing capabilities is, according to the Polish report, important for reducing dependence on international suppliers and mitigating similar shortages in potential future health crises. In a similar way, the German report (p. 59) concludes that stocking up on personal protective equipment and/or securing production facilities in one’s own country is important for strengthening workplace infection control measures. It is vital to set up storage and distribution centres and to have independence from markets.

The French report (pp. 24-25) notes that lessons learned from the crisis pertain to the need for prevention strategies to be adapted to evolving contexts and conditions. Trends like the weakening of work collectives and the growing diversification of employment statuses (see previous section) have increased the complexity of OSH practitioners’ work. Monitoring workers’ health has become more challenging due to fragmented career paths, reduced continuity and a higher likelihood of missing certain kinds of exposure. For OSH services, this results in diminished traceability over time and complicates the implementation of effective preventive measures.

6.1.2. Proactive communication and building trust for measures to promote safer workplaces

The effectiveness of measures implemented to curb the spread of COVID-19 largely depended on the commitment and compliance of citizens. Several country reports argue that it is crucial, in the event of a future crisis, for national, regional, and local governments and authorities — as well as employers, employers' organisations and labour unions — to engage in proactive communication and foster trust to support the implementation of measures that promote safer workplaces. This is particularly important in contexts where social distancing and remote work are implemented as measures to mitigate transmission.

The report from Austria (p. 24) recommends that in the future, it is of great importance to have a prepared "road map" and working materials that can be used for distance schooling. This also applies to other fields of work, according to the report. It seems essential to give employees the time required to prepare for such a tremendous change in workplaces and to adapt accordingly. Good, timely and comprehensive communication is required to achieve good results and reduce the pressure experienced by employees.

The German report (p. 60) recommends improving communication with both the public and businesses to ensure the transparency of measures and decisions, thereby enabling compliance. Such efforts can help build public trust in the event of future pandemic or endemic infectious disease scenarios. The Polish report emphasises the importance of communication between employees and management — recommending the establishment of transparent and consistent communication channels, along with investments in digital tools that facilitate remote collaboration. Such measures are essential for maintaining team cohesion and productivity, regardless of physical location (p. 4). The report (pp. 42-43) further notes that remote work has broadened communication gaps and, at times, strained professional relationships, thereby affecting morale and team dynamics. To address these challenges, organisations are advised to develop clear communication guidelines that prioritise transparency. Regular updates on workplace policies, health measures and available resources are crucial for fostering employee trust and reducing uncertainty.

The English report (p. 33) echoes the concern that frequent updates to guidelines during the pandemic at times resulted in confusion, thereby emphasising the importance of clear and timely communication of research findings and public health guidance to ensure that workers remain informed and able to apply appropriate precautions. It further emphasises that achieving sustainable behavioural change requires the reinforcement of financial, social and physical infrastructures — along with adequate education, regulatory support, communication and resources to empower individuals with the capabilities, opportunities and motivation needed to maintain protective behaviours over time. In a similar vein, the Swedish report (p. 41) notes that the pandemic highlighted the importance of clear and coordinated internal communication. Inadequate communication led to

uncertainty and stress among many workers. Consequently, it is essential to enhance information-sharing systems and communication channels to ensure that all employees remain informed and able to provide feedback.

6.1.3. Improved occupational data collection, monitoring, linking and analysis

The country reports emphasise the need to establish systems for collecting relevant data, including data linkage, and monitoring working conditions and work-related ill health and injuries across occupational groups and sectors, as part of future crisis preparedness. The aim of effective data collection and monitoring can be twofold: to enable early detection and to support the evaluation of the effects of different measures. Some reports also emphasise the importance of involving appropriate expertise in the interpretation and oversight of such data during crisis events. Strengthening evidence-based policymaking informed by experts is proposed.

The country reports bring up the importance of data and monitoring in different ways. For instance, the German report (p. 60) emphasises that establishing a robust data infrastructure — encompassing systematic collection of relevant data, secure data exchange and data protection — can play a vital role in OSH, while also strengthening preparedness for future pandemic scenarios. The report from Poland (p. 11) mentions that the country implemented digital reporting to enhance data sharing and real-time case tracking. The UK report (pp. 37-38) discusses the need to foster a systematic approach to pandemic preparedness and resilience. Vital parts of such an approach consist of a robust research infrastructure and data systems providing critical insights.

The Dutch report (p. 31) suggests that systematic monitoring is needed regarding the impact of pandemics on workers by collecting proper data on working conditions, health, occupations and infections, also so as to enable early detection of vulnerable groups and the selection of effective measures. A robust data infrastructure, wherein data from various domains (including work) can be stored and analysed in relation to each other, can enhance our understanding of the interplay of factors and improve the selection of relevant measures. To ensure that insights can be developed based on data from all domains, this data infrastructure must be accessible to a broad group of experts, potentially spread across different organisations. The Austrian report (p. 24) points out the necessity of multidisciplinary and politically independent expert committees for evidence-based policymaking. The report also emphasises the importance of transparency and the inclusion of OSH experts in future consultative committees.

The French report (p. 24) proposes the use of new technologies to monitor medical data by digital means, in the cases of remote work organisation or the use of precarious workers. The analysis of accumulated data on accidents and near-accidents can also provide a solution for objectifying problems linked to working conditions and for being able to recommend collective prevention measures.

6.1.4. Collaboration and effective use of interdisciplinary competence

Many of the country reports highlight the importance of collaboration among a broad range of actors as a key lesson learned from the pandemic. Effectively addressing OSH matters in future health crises will require coordinated efforts not only across European countries, but also among national and regional organisations in both the public and private sectors. At the company level, it is essential to consider labour unions as OSH stakeholders and their key role during the pandemic/crisis, as shown by the country reports from France, Germany, the Netherlands and Sweden. Furthermore, collaboration within and between organisations at the local level is crucial to ensure a coherent and comprehensive response. Establishing cooperation mechanisms for the coordination of OSH measures is essential, and such mechanisms should be tailored to each country's administrative structure and allocation of responsibilities within the OSH system. Such coordination must be interdisciplinary in nature and include the active involvement of OSH experts.

The country reports stress collaboration and effective use of interdisciplinary competence in different ways. The Polish report (p. 4) notes that during the pandemic, cross-sectoral collaboration proved essential, involving medical and sanitary services, law enforcement agencies and non-governmental organisations. For instance, the Armed Forces of the Republic of Poland, particularly the Territorial Defence Forces, played an important role in supporting both logistical and medical operations. Their contributions included assisting in hospitals, supporting the national vaccination programme and undertaking other critical tasks, thereby reinforcing the broader crisis management framework.

The Dutch report (p. 32) highlights that structured knowledge exchange can facilitate the effective implementation of, and adherence to, workplace health measures. Strengthened collaboration between public health and occupational health experts is key to improving the understanding of the role of workplaces during pandemics and to identifying key points for workplace infection prevention. Moreover, systematic knowledge sharing among occupational health professionals can further enhance their capacity to support employers in managing workplace-related risks, according to the Dutch report. Similarly, the UK report (p. 34) emphasises that a collaborative approach involving all stakeholders is essential for prioritising and implementing locally adapted, epidemiologically informed measures with the greatest impact. The experience of national research initiatives in the UK, such as the COVID-OUT study and PROTECT, further highlighted the value of timely collaboration and interdisciplinary approaches in responding effectively to public health emergencies.

To ensure effective national coordination, cooperation and communication, the German report (p. 59) recommends setting up permanent crisis teams and strengthening crisis management. It is vital to identify relevant stakeholders and establish dedicated structures, such as within federal

ministries, to manage pandemic infection scenarios. The Austrian report (p. 24) highlights the importance of evidence-based political consulting in the field of OSH. In Austria, the establishment of the multidisciplinary committee known as “GECKO” marked an important step toward professionalising evidence-informed policymaking. The pandemic demonstrated the broad societal and professional impact of health crises, reinforcing the need for diverse expertise in decision-making. In this context, the report argues that multidisciplinary advisory bodies are not only beneficial but necessary. It is therefore recommended that future consultative committees be composed of experts from multiple disciplines, tailored to the specific nature of the crisis at hand.

6.1.5. Guidelines to support remote work

As previously described, the COVID-19 pandemic brought about a profound shift toward remote work across European countries, largely facilitated by the widespread adoption of digital tools. To mitigate the negative effects and enhance the benefits of remote work, the country reports recommend a further development of comprehensive models, strategies and guidelines for its implementation during future health crises. To ensure OSH, these models must address emerging aspects of work, such as mental health risks and ergonomics in both on-site and remote settings, as well as fostering trust between managers and employees. Companies and other employers need to develop strategies that accommodate both employees who can work from home and those whose roles require on-site presence. This work can also focus on vulnerable groups, such as those entering the labour market.

The UK report (pp. 32-33) notes that the pandemic demonstrated the feasibility and necessity of remote work in certain circumstances to reduce population and workplace transmission risks. The report states that workplace practices for managing transmission risks must be adaptable, incorporating measures such as remote work supported by digital infrastructure, infection prevention protocols and enhanced cleaning procedures. The Austrian report (p. 25) suggests guidelines to mitigate mental health risks associated with remote work, including clear communication of tasks, regular meetings and ergonomic workplace assessments. It also highlights the need for advanced training in digital communication tools. The German report (pp. 60-61) recommends maintaining home office capacities, as they facilitate contact reduction during pandemics. At the same time, the report highlights the risk of psychosocial stress arising from inadequately designed remote work arrangements. For companies, it is essential to provide employees with appropriate technical equipment, including both hardware and software, while policymakers should establish a clear legal framework to ensure legal certainty for both employers and employees.

The Polish report (p. 42) recommend establishing hybrid work structures that seamlessly integrate remote and in-office options. These models should be supported by robust digital infrastructure and routine risk assessments, addressing cybersecurity, ergonomic needs and mental health to ensure

a safe, productive work experience. In a similar way, the Swedish report (p. 40) concludes that the pandemic has accelerated digitalisation, making it important to introduce long-term hybrid working models whereby employees can work both remotely and on site, depending on their tasks and needs. This requires investment in technology, training and guidelines on ergonomics and OSH for teleworking. At the same time, managers need to develop new leadership strategies that are more trust-based. Managing remotely requires a high level of trust in employees to perform their tasks, as well as clear objectives and guidelines that enable autonomous work. In the Netherlands, a toolkit for companies on remote working has been developed.

6.1.6. Strengthening resilience

The pandemic placed immense pressure on society, with some sectors suffering particularly severe and long-lasting impacts. The health care sector, for example, saw a marked decline in occupational well-being — with consequences that have, in many cases, persisted for years. To enhance preparedness for future crises, the reports highlight the importance of strengthening resilience not only in critical societal sectors but across all types of organisations. The overarching objective here is to enhance societal resilience across all levels and sectors. Achieving this goal requires a holistic, cross-sectoral approach that integrates occupational health and workplace resilience. With ongoing digitalisation, new threats are emerging that must be considered when preparing for future crises —in some cases, digitalisation itself may become the source of the crisis.

The country reports underline different aspects of building resilience. The Swedish report (pp. 40-41) focuses on the local level, and argues that the pandemic revealed profound weaknesses in lean organisations, especially in sectors that rely on just-in-time delivery. According to the report, this highlights the importance of building buffers in terms of extra resources, staff and equipment to cope with unexpected societal disruptions. Moreover, employers need to develop and regularly update their crisis management plans. These plans should cover not only traditional risks such as fires and accidents, but also emerging threats such as global pandemics and cyber-threats. Strengthening the organisation’s crisis management will improve its resilience to future crises. Like the Swedish report, the French report (p. 21) notes that the pandemic has prompted renewed reflection on issues of social and environmental responsibility. Over recent decades, outsourcing and the relocation of production to countries with lower labour costs have significantly reshaped the French economic landscape. In this context, the crisis exposed the vulnerability of certain business continuity plans and supply chains. One clear example of this pertains to the difficulties in securing basic medicines such as paracetamol, commonly used as an analgesic and antipyretic.

The UK report (pp. 38-39) takes a societal approach, and notes that human behaviour is an important factor in both the transmission and prevention of infectious diseases. The report argues that increased investment in behavioural and social science research is crucial for developing more

effective interventions that promote protective behaviours and enhance societal resilience. The COVID-19 pandemic revealed how interlinked risks can escalate a health emergency into a broader social and economic crisis. Accordingly, effective pandemic preparedness demands a holistic, cross-sectoral approach that includes occupational health and workplace resilience.

The Austrian report (p. 26) notes that the COVID-19 pandemic has caused a lot of psychological stress, for instance for health care workers. In the context of future crises, it is reasonable to make every effort to reduce this kind of stress. The report emphasises that in certain fields it will never be possible to eliminate or reduce all external stressors. One can, however, try to improve the employees' resilience. Regular supervision, workshops and resilience training, as well as regular evaluation of psychological stress and strain at work, should become part of best practices. Helping people to help themselves is key in this respect, according to the Austrian report. The Dutch report (p. 32) states that future public health strategies should prioritise mental health as a key component of resilience and well-being. A holistic approach that integrates mental health into crisis response planning is vital to ensure that future measures are both effective and sustainable.

6.2. PEROSH's role in future crises

In future health crises, international collaboration between OSH experts will be crucial in addressing emerging challenges. Networks such as PEROSH can play an important role in coordinating knowledge, sharing best practices and supporting evidence-based decisions, ensuring that workplaces can adapt and protect workers effectively in rapidly changing situations.

6.2.1. Conceptualising PEROSH's role in future health crises

PEROSH is a network of fifteen European OSH institutes that carry out research and analysis and spread knowledge about best practices in OSH in the member countries. PEROSH's primary goal is to facilitate joint research activities, foster knowledge sharing and support evidence-based policy development in the domain of workplace health and safety within member countries. Gathering expertise from diverse national contexts, PEROSH aims to contribute to the development of innovative, science-based solutions to emerging occupational risks.

Although the country reports do not explicitly discuss the role of PEROSH in future health crises, it is implicitly understood that European networks such as PEROSH are important in knowledge exchange on OSH. The reports from several countries, such as France and Poland, highlight the importance of a coordinated approach to managing occupational health during pandemics. While emphasising the need for rapid information dissemination and the involvement of stakeholders in decision-making processes, the German report explicitly proposes that networks such as PEROSH can contribute to keeping knowledge about measures available and accessible by providing information tailored to the target groups.

6.2.2. Support researchers and OSH experts

One of the primary roles of PEROSH in future crises could be to support researchers and OSH experts by (1) facilitating exchange of knowledge and data between European countries to advise decision-makers efficiently, and (2) providing a platform for networking possibilities between European researchers.

During the COVID-19 pandemic, PEROSH facilitated a website forum for knowledge sharing between OSH experts. A similar web-based framework organised by PEROSH could be employed to systematically compile and disseminate research findings and best practices within the field of occupational health in a timely manner. By leveraging this established infrastructure, PEROSH can facilitate the dissemination of new scientific insights within their network, including researchers, policymakers and leaders. This approach not only ensures that valuable knowledge is shared efficiently, but also fosters collaboration and innovation in addressing the challenges posed by health crises. By establishing a digital communication platform, PEROSH can ensure that the latest research findings and best practices are readily accessible to those who need them most.

In addition to digital dissemination, PEROSH could organise scientific conferences related to future health crises. These conferences would provide a platform for experts from various fields to come together, share their findings and discuss strategies for improving workplace health and safety. By facilitating such gatherings, PEROSH can help to foster a collaborative environment where new ideas and approaches can be developed and refined.

Documenting lessons learned from past OSH-related crises could be another part of PEROSH's role. By systematically capturing the insights gained from the COVID-19 pandemic and other similar events, PEROSH can create a valuable resource for future reference. This documentation can inform the development of guidelines and protocols that enhance preparedness and response efforts in future crises, ultimately contributing to safer and healthier workplaces.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